CHAPTER 3

RESEARCH METHODOLOGY

This chapter depicts the research methodology applies in this research. This chapter can be divided into 3(three) parts which are as follows.

i. Sampling
ii. Data collection
iii. Data analysis and tools used for that.

3.1 SAMPLING:

A sample is defined by Collis and Hussey (2003) as a subset of a population and should represent the main interest of the study.

In sampling, the factors which have been considered are as follows:

3.1.1 THE SAMPLING PLAN/DESIGN:

The Sampling design includes the following:

a) Sampling Unit
b) Sample population
c) Sample method employed
d) Determination of sample size.

In this study, the Sampling unit is Assam, i.e. the study was conducted in Assam, India only excluding barak valley.

A simple random sample has been selected for this study. This has been accomplished by taking random samples from the 70 Automobile service workshops of eleven (11) numbers of Automobile Company's present in Assam.

Following is the list given of the Automobile companies whose workshops are considered for the data collection: -

1) Maruti Suzuki India Limited
2) General Motors India Private Limited
3) Hyundai Motor India Limited
4) Renault India Private Limited
5) Volkswagen India Private Limited
6) Toyota Kirloskar Motor Private Limited
7) Nissan Motor India Private Limited
8) Honda Cars India
9) Mahindra & Mahindra Ltd
10) Ford India Private Limited
11) Tata Motors Ltd

3.1.2 SIZE OF SAMPLE:

The total 580 samples are collected from the 70 Authorised service workshops (random selection of 70 workshops from total 118 Authorised workshops) of 11 Automobile companies present in Assam.

Total population of 70 workshops: 2110 (Source: Primary data collection)

950 number copies (45% of total population i.e. 2110) were distributed among the technician or equivalent, managerial and executive level of employees of automobile service workshops in all districts of Assam. Earlier, it was predicted to collect 950 questionnaires as the sample size collection. After distribution, the researcher was headed for the data collection part. But the researcher has found that 39% of the questionnaires (950* 39%=370 numbers) were incomplete and cannot be used for analysis purpose. So, total sample for

the study remained 580 (i.e. 61% questionnaires). Among 580 respondents, 300 respondents are from Technician or equivalent level, 160 respondents are from executive level and120 are from managerial level employees working in the workshops.

Samples are distributed in the following way :(Sample collected from the service workshops of following Automobile Company's only)

Table 32: Percentage of respondents

Sl no	Sample taken from the Authorised service workshops of following Automobile company	Number of respondents	% of respondent
1	Maruti Suzuki India Limited	117	20.17
2	Tata Motors Ltd	44	7.59
3	Hyundai Motor India Limited	127	21.90
4	Renault India Private Limited	28	4.83
5	Volkswagen India Private Limited	20	3.45
6	Toyota Kirloskar Motor Private Limited	45	7.76
7	Honda Cars India	33	5.69
8	Mahindra & Mahindra Ltd	46	7.93
9	General Motors India Private Limited	54	9.31
10	Nissan Motor India Private Limited	29	5.00
11	Ford India Private Limited	37	6.38
	Total	580	100

Table 33: Break up of sample collected

Serial no	Name of organisation	Sample collected	Managerial	Executive	Technician
1	Maruti Suzuki India Limited	117	20	29	68
2	Tata Motors Ltd	44	10	13	21
3	Hyundai Motor India Limited	127	22	32	73
4	Renault India Private Limited	28	7	11	10
5	Volkswagen India Private Limited	20	4	7	9
6	Toyota Kirloskar Motor Private Limited	45	12	16	17
7	Honda Cars India	33	5	8	20
8	Mahindra & Mahindra Ltd	46	10	12	24
9	General Motors India Private Limited	54	13	15	26
10	Nissan Motor India Private Limited	29	8	10	11
11	Ford India Private Limited	37	9	7	21
	Total	580	120	160	300

3.1.3. SAMPLING CRITERION:

For selecting the sample units, the following criteria have been adopted:

- The Automobile dealers should have an Authorised service workshop operating at any of the places in Assam excluding Barak valley. Dealers are four wheeler Passenger vehicles dealer and so as the workshops.

3.1.4. PROFILE OF THE SAMPLE:

Initially 118 service workshops list is collected, out of which 70 service workshops have been finally selected for the purpose of sample collection. This number is attributed to response rate and convenience. Below is the list given for the number of units falling under different Automobile Company for the sample collection is as follows:

Table 34: The list of number of workshops of their respective Automobile Company taken for sample collection

Name of Automobile Company	Number of units (i.e service workshops for collection of samples)
Maruti Suzuki India Limited	18
Tata Motors Ltd	7
Hyundai Motor India Limited	20
Renault India Private Limited	2
Volkswagen India Private Limited	1
Toyota Kirloskar Motor Private Limited	4
Honda Cars India	2
Mahindra & Mahindra Ltd	5
General Motors India Private Limited	6
Nissan Motor India Private Limited	2
Ford India Private Limited	3
Total	70

3.1.5 The standard Hierarchy of Automobile Dealership Employees:

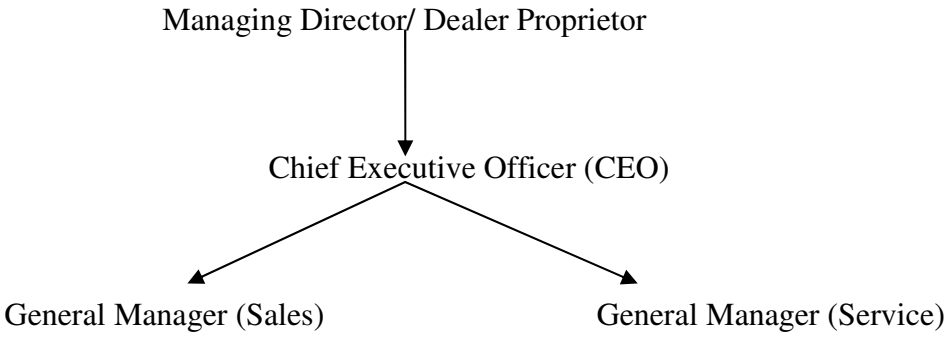

Figure 7: Hierarchy between MD & GM

As in this study, only the employees working in the Automobile service workshops are taken for the analysis, so hierarchy of the employees working in the Automobile service workshops are as follows:

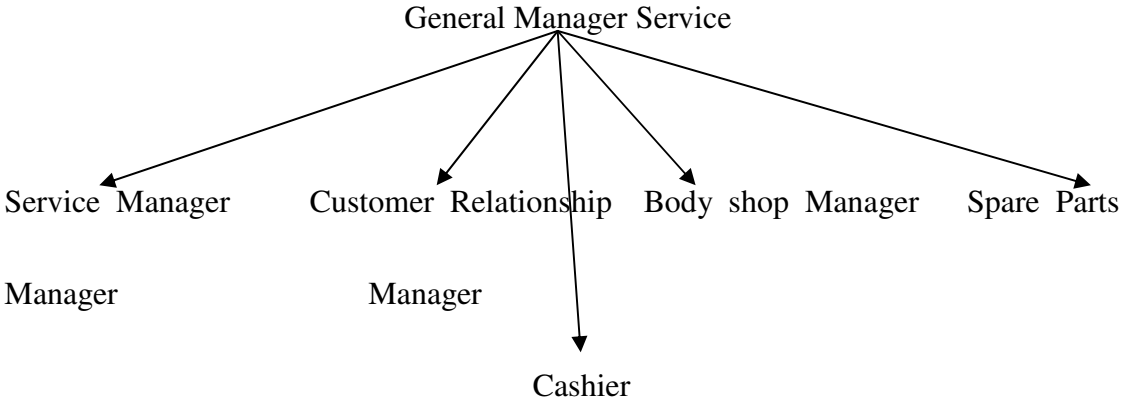

Figure 8: Hierarchy between GM to Manager

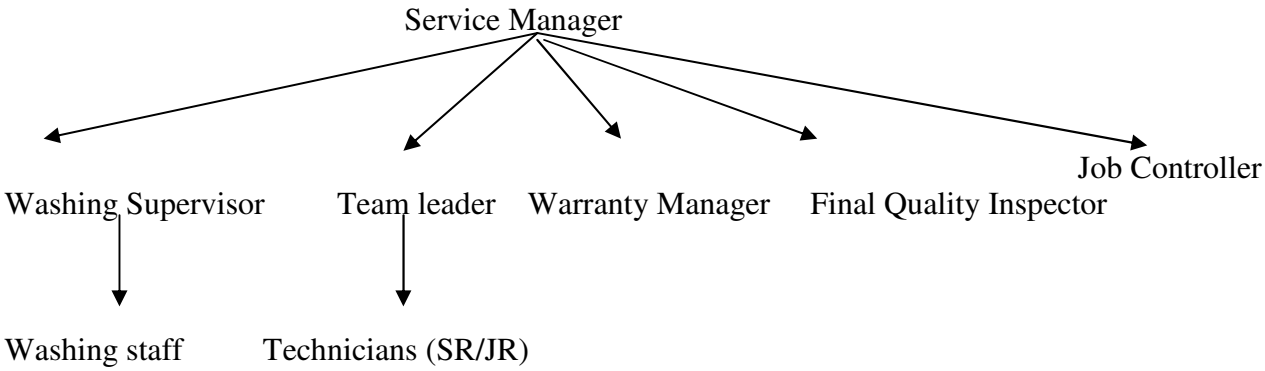

Figure 9: Hierarchy between SM and Technician or equivalent level employees

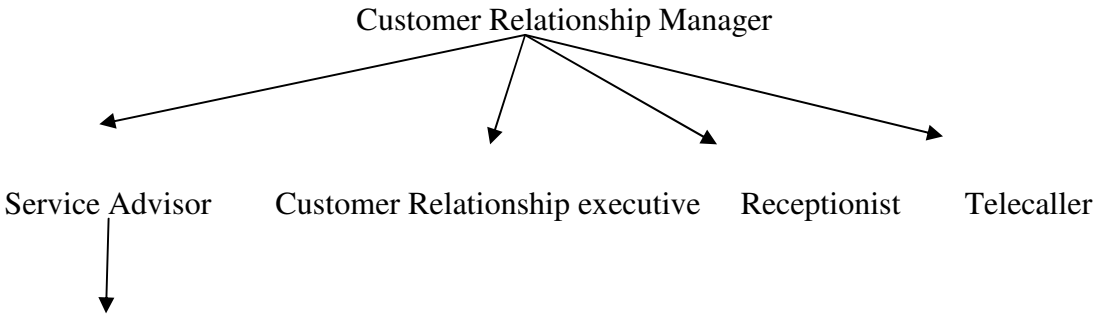

Figure 10: Hierarchy between CRM and Executive level employees

In some small workshops, the Customer Relationship executive and Tele caller is the same person. Also, In case of big dealership, the Service Advisor reports to Customer Relationship Manager but the same reports to Service Manager in case of small dealership.

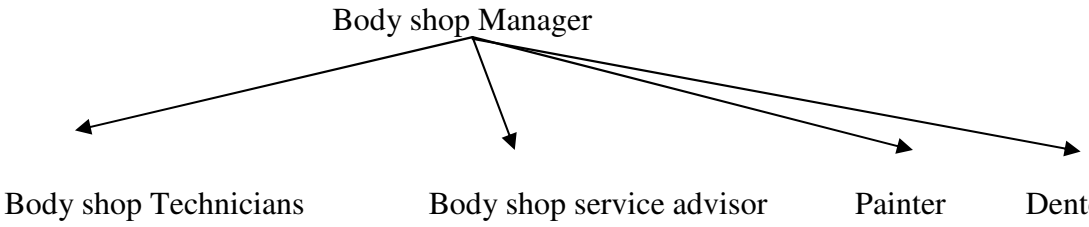

Figure 11: Hierarchy between BSM and Technician or equivalent level employees

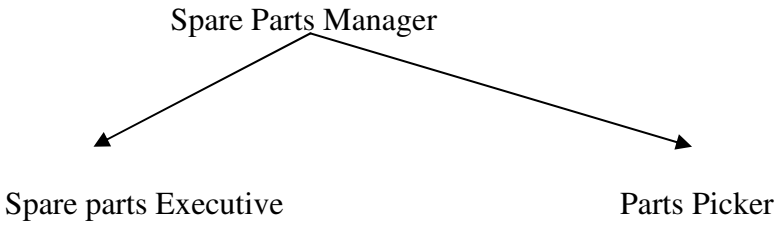

Figure 12: Hierarchy between SPM and Technician or equivalent level employees

Table 35 : List of different level of employees

3.1.5. **Designation wise category of employees:**

Designation	Category
General Manager Service	Managerial
Service manager	Managerial
Customer Relationship Manager	Managerial
Body Shop Manager	Managerial
Spare Parts Manager	Managerial

Washing Supervisor	Executive
Washing Staff	Technician or equivalent
Team leader	Executive
Technicians(Sr/Jr)	Technician or equivalent
Warranty Manager	Managerial/Executive *
Final Quality Inspector	Executive
Job Controller	Executive
Service Advisor	Executive
Customer Relationship Executive	Executive
Receptionist	Executive
Tele caller	Executive
Body Shop Technicians	Technician or equivalent
Body Shop Advisor	Executive
Painter	Technician or equivalent
Denter	Technician or equivalent
Spare Parts Executive	Executive
Parts Picker	Technician or equivalent
Driver(pick up and Dropping)	NA
Cashier	Executive
Security Guard	Outsourced employee

Managerial/Executive*: In case of Big workshop, The Warranty Manager is considered as Managerial level employee but in case of small workshop, The Warranty Manager is considered as Executive level employee.

3.1.6. **Profile of the organisations:**

Table 36: Category of Dealers with Workshops(the Standard Form)

Category	City Type	No of employees(only workshop)
A	Major City	NA for Assam
B	Metro/ big city	NA for Assam
C	State Capital, Medium category city	50-70
D	District Headquarters/Major cities in State	30-40
E	Small Town	20-30
F/R	Very Small town/Rural outlets	15-25

CATEGORISATION IS BASED ON:

In case of Assam, A or B category dealers are not applicable. The dealers present in Guwahati are "C" category dealers. Except Guwahati, maximum numbers of dealers fall in "D" category dealers. Very few dealers like the dealers present in Hojai, Bokakhat, Bijoynagar, Rangia, Mangaldoi, Baihata Chariali etc fall in "E" category dealers. Only 1 or 2 numbers of workshop fall in F/R category workshop.

All the Automobile service workshops are full private organization in nature. (100%)

3.1.7. **Operationalization of the words:**

Table 37: Operationalization of the words:

Automobile service workshop	Automobile repair workshops that are independently owned and operated businesses. These may also include regional or national chains and franchises including OEM car dealership sites.
General Manager Service	Overall business growth
Service manager	Entire workshop operations and repair quality.
Customer Relationship Manager	Handle front office and responsible for inflow growth and address customers complaint with quick resolution.
Body Shop Manager	Responsible for Body shop operation and repair quality.
Spare Parts Manager	Responsible for maintaining minimum inventory with maximum fill rate.
Washing Supervisor	Checking of quality for each washed car returned by washing staff.
Washing Staff	Quality washing of cars (Interior & exterior) in minimum possible time.
Team leader	Ensures that all the jobs mentioned in the job card are attended.
Technicians(Sr/Jr)	Understand each complaint mentioned in the job card and attending it
Warranty Manager	Ensures that warranty is given also claim to OEM on time.
Final Quality Inspector	To ensure that the complaint mentioned

	in the job card is rectified. Checking of Team leader jobs.
Job Controller	Proper allocation of technicians of all jobs in workshop floor.
Service Advisor	Receiving the vehicle from customer for repair and ensure proper voice capturing of customer.
Customer Relationship Executive	Ensures that no customer is left unattended. Also take post service feedback over phone.
Receptionist	Welcoming the customers and customer care.
Tele caller	Inflow growth. Informing customers for all schemes and to take appointments.
Body Shop Technicians	To repair the vehicle as per the job card.
Body Shop Advisor	Receiving the vehicle from customer for repair
Painter	To ensure repaint with quality
Denter	To ensure dent repair with quality
Spare Parts Executive	To enter all the issued parts in the system
Parts Picker	To pick up the part as per requisition from workshop and fill the racks
Cashier	To collect cash from customer

Source: Secondary information collected

3.2. **Data collection:**

Data collection is one of the most important parts of any research. It is done by the researcher in such a manner that all aspects of information needed to fulfill the objectives and the hypothesis of the study can be fulfilled.

Data is collected by the researcher in three ways:

a. Collection of Primary Data;
b. Literature Review;
c. Collection of Secondary Data.

Details of the Data collection are discussed in the next chapter.

3.3. **Data analysis and tools used for that:**

Statistical tools used for analysis:

For the study, appropriate research tools are used. The analysis of the data received from the respondents was done using SPSS V 17. Some Graphs are prepared using the Microsoft Excel. The validity was established and Reliability was also tested. As the main purpose of the thesis is to discover the factors which influence the retention of employees working in Automobile service workshops of Assam, so following kind of statistical tools are found very much appropriate for such kind of particular analysis.

The statistical tools used for analysis and interpretations are given below:

1. Descriptive Statistics(Mean or Average score, Standard Deviation)
2. Percentage Analysis
3. Factor Analysis
4. ANOVA test
5. Post- hoc analysis

6. Correlation Analysis(Pearson correlation)
7. Reliability test
8. Validity analysis
9. Regression Analysis
10. Bar diagram, Pie diagram to show the results of the study.

Details of the tests are given below:

3.3.1. **Descriptive statistics:**

3.3.1.1. **Mean:**

Mean of a set of data is probably the most commonly used descriptive statistics. It is defined as the value which we get by dividing the total of the values of various given items in a series by the total number of items (C.R.Kothari, 2004)

The researcher has used this tool to find out the average number of employees working in the Automobile Service Workshops of Assam.

3.3.1.2. **Standard Deviation:**

Standard deviation shows how much variation or "dispersion" exists from the average (mean, or expected value) in statistics and probability theory. Two types of Standard Deviations are generally found in the analysis. One is Low Standard Deviation and another one is High Standard Deviation. A low standard deviation generally shows that the data points tend to be very close to the mean; while High standard deviation indicates that the data points are spread out over a large range of values. The standard deviation of a random variable, statistical population, data set, or probability distribution is the square root of its variance.

Mean and Standard deviations are found useful while doing the correlation analysis between all identified factors of retention and employee retention.

3.3.1.3. **Percentage Analysis:**

The researcher has used percentage analysis in many calculations like percentage of respondents from different Automobile workshops. Percentage Analysis is also done while analysing the demographic variables of the samples like percentage analysis of gender i.e. Male-Female employee percentage from the whole collected sample, percentage analysis of qualification of employees etc. percentage Analysis generally compares the relative items. As it reduces everything to a common base so it allows a meaningful comparison to be made among the relative items. The formula for percentage Analysis is given below:

Percentage = Number of respondents/ Total number of respondents *100.

3.3.1.4. **Correlation Analysis:**

Correlation analysis is generally done to see the impact of one factor on the other factor. It is the best tool to know interdependency between two series of data. The correlation between two variables/factors may be positive or negative. The value of correlation ranges between -1 to +1 i.e. the correlation can be positive correlation or negative correlation. For measuring the degree of correlation, there are several correlation coefficients. In this study, the most common of these i.e. Pearson correlation Coefficients is used for the analysis specifically to analyse the first hypothesis of this study. Correlation is carried out with the factors of employee retention and the retention of employees working in the Automobile service workshops of Assam. Pearson correlation coefficient is sensitive only to a linear relationship between two variables (which may exist even if one is a nonlinear function of the other). The result of the analysis showed that sometimes Correlation is

significant at the 0.01 level 2-tailed and again sometimes Correlation is significant at the 0.05 level 2-tailed. Details are given in the Data Analysis and interpretation chapter.

3.3.1.5. **Regression Analysis:**

Regression analysis is generally done to estimate the relationship among variables. The most common form of regression analysis is linear regression. Now, the linear regression can be divided into 2 types. When there are only one dependent and one independent variable, the simple linear regression is used. But, multiple linear regression is used when there is only one dependent variable and two or more than two independent variables. In this research, the researcher has used multiple regression analysis to see the relationship between retention of employees (dependent variable) and demographic variables (independent variables) and also to see the relationship between retention of employees (dependent variable) and identified retention factors from this study (independent variables).

3.3.1.6. **Factor analysis:**

Factor analysis is mostly used for data reduction purposes. It identifies unobserved (i.e., latent) variables that explain patterns of correlations within a set of observed variables. As the first objective of the study is to identify the factors and their relationship with retention of employees working in the automobile service workshops of Assam, so for the primary data analysis, factor analysis is conducted to extract and identify the important factors which lead to retention of technician or equivalent, managerial and executive level of employees. The method of extraction used for the factor analysis is Principal component analysis and Varimax with Kaiser Normalization method is used for the rotation method.

3.3.1.7. **Reliability test:**

Reliability was tested and Validity was established while doing the data analysis for the study. It is very important that data must be checked for its reliability and validity. Reliability is more on the consistency of a measurement and it is generally determined by tests and internal consistency. For the reliability test, Cronbach's Alpha is used to see the internal consistency of the multidimensional scales. According to Peterson, 1999; Claver et al 2003; Cronbach's alpha is the most widely used reliability estimate in empirical research. The coefficient of internal consistency i.e. Cronbach's alpha is first named by Lee Cronbach in 1951. According to Nunnally 1978, the minimum scale reliability coefficient for the factors is considered as 0.6. In this study, Cronbach's alpha test has been conducted to ensure that the items for each factor are internally related in the manner expected. The test has been done separately for managerial, technician and executive level of employees. Cronbach's alpha is the most widely used reliability estimate in empirical research (Peterson, 1994; Claver et al, 2003). The general agreed upon lower limit for Cronbach alpha is 0.60 (Hair et al, 1995) (Rajeev Rajan, 2013). In this study after doing the reliability test, it was found that reliability was established in case of three level employees. Details of the test are given in the next chapter.

3.3.1.8. **Anova test:**

Analysis of Variance (ANOVA) is an extremely useful statistical tool for data analysis for the researchers in management, business and several other disciplines. ANOVA is essentially a procedure for testing the difference among different groups of data for homogeneity. ANOVA is basically used to determine whether there are any significant differences between the means of three or more independent (unrelated) groups. For the analysis pertaining to the inter-group on retention initiatives practices,

factor mean values for the identified three(3) groups of employees i.e. managerial, technician or equivalent and executive have been estimated. Analysis of Variance (ANOVA) has been used to explore the relationship between employee groups and employee retention practices. F tests under ANOVA have also been conducted to test the hypothesis that there exists a significant difference in retention initiatives taken by the organisation for managerial, technician and executive level employees working in the Automobile service workshops of Assam. If the output from the F-tests shows a significance level (P-value) of less than 0.05 on the ANOVA table, the hypothesis is accepted. Subsequently, one-way ANOVA Post Hoc tests have been used to accomplish multiple paired comparisons of the 3 employee groups with respect to the factors of employee retention.

3.3.1.9. **Post-Hoc test:**

Post-Hoc test is performed after an analysis of variance (ANOVA) test. The researcher has used Tukey's HSD test which is a post-hoc test to see whether there are any significant difference exist among the three level of employees working in Automobile service workshops of Assam in case of retention initiatives taken by their organisation. This test has been performed to determine which groups in the sample differ. So without doing ANOVA test, a researcher could not perform Tukey's HSD test. Performing this test was not pre planned by the researcher. Only after performing the ANOVA test, the researcher has found urgency to perform this Post –Hoc test.

3.3.1.10. **Validity Analysis:**

The validity of a measure refers to the degree to which it measures what it was intended to measure. There are three different types of validity which are generally considered. Those are as follows:

(a) Content validity, (b) Criterion related validity, and (c) Construct validity

In this study, Content validity was judged by the researcher intuitively. For this research, the researcher has done extensive review of literature and from that, the items have been picked up. Content validity is a non statistical type of validity. It is subjectively judged by the researcher not numerically.

Criterion related validity is also called external validity or predictive validity. It can be viewed by doing multiple correlations coefficients among the factors (both dependent and independent) and their variables. High value of multiple correlation coefficients always point towards high degree of criterion-related validity. The researcher has used criterion related validity to see the validity of the study.

By factor analyzing the measurement items, the construct validity of each factor measure is evaluated in this study by the researcher.