CHAPTER 4

Research Methodology
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4.1 Introduction

Before executing any research project, its research methodology should be laid down explicitly. Research methodology includes various steps that are generally adopted by a researcher in studying his/her research problem along with the logic behind it. Research methodology depends, to a large extent, on the target population, and how easy or difficult to access it is. The second factor which influences it is, of course, the importance of the decisions which will be taken based on the research. Major parts of the research methodology are problem statement, research design, sampling plan, questionnaire design, field work plan and analysis plan\textsuperscript{148}. This chapter is basically focusing on the research methodology used in this study. This study includes the two-wheeler consumers’ views. The study includes two main parts. One part focusing on the general perceptions of consumers towards the two-wheelers and another part is about consumers’ views towards their own motorcycle. The study covers how the users of two-wheelers view the industry as well as what they think about their own experience with their two-wheelers. In the study, only the responses from the motorcycle users were taken and not from the non-users. This is because only users of the product can have some judgements about the product.

4.2 Objectives of the Study

Objectives of the study are listed as under:

1) To identify the product characteristics (attributes & features) that influence purchase decision.

\textsuperscript{148} Nargundkar Rajendra, MARKETING RESEARCH- Text and Cases, Third Edition, TATA McGRAW HILL, PP.44
2) To study the influence of pricing on purchase decision.
3) To study the role of media and promotional activities in purchase decision.
4) To study the role of different reference groups in purchase decision making.
5) To study the satisfaction level of different brands of motorcycle users.

4.3 Research Design

Research design is the arrangement of data collection and analysis of data in a manner that aims to combine relevance to the research purpose. It is the blueprint for the collection, measurement and analysis of data.

For this study descriptive research has been used, wherein the sources of data are both primary and secondary. Primary data collection method is discussed in the following sections where as secondary data were collected with the help of available books, business magazines, journals, newspapers, annual reports and newsletters of different companies, web sites, internet etc. Here, it is tried to get the answers of who, what, when, where and how type questions. Hence, this study tries to understand the consumer behaviour towards motorcycle segment, as a part of the automobile industry. It lists out the performance attributes of motorcycle those results in customer satisfaction as well as dissatisfaction. Since, nearly 78% of the total two-wheeler industry in India consists of motorcycles, the study has been restricted only to motorcycle segment of the two-wheeler industry in the State of Gujarat.

4.4 Sampling Design

A sampling design is a definite plan for obtaining a sample from a given population. Sampling plan means the method, decided before the survey is undertaken, of selecting the objects out of the universe. It refers to the
technique or the procedure a researcher adopts in selecting a sample and the sample size.

4.4.1 Sampling technique

Sampling techniques are broadly divided into two groups as probability sampling techniques and non-probability sampling techniques. For the study, non–probability type convenience sampling technique is chosen. In convenience sampling technique, the researcher chooses the sampling units as per his/her convenience.

4.4.2 The universe

For this study, all the users of motorcycle in the world are considered as the universe. It is not possible to get the information regarding the total number of motorcycle users in the world. But, it is clear from the industry overview in chapter two that majority of the two-wheeler market is concentrated in China, India and Japan.

4.4.3 The population

For any research study, to identify or decide the target population is one of the most important things. Target population is defined as a specific group of people or objects for which the data can be gathered or observations made to develop required data structures and information. As the study is related to only India and specific to the State of Gujarat, all the motorcycle users in Gujarat are considered as the population for this study.

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4.4.4 Sampling unit

Sampling unit is the object for which the data being gathered. For this study all the individuals of Gujarat who use the motorcycle are considered as the sampling unit.

4.4.5 Sample size

Total sample size of 450 motorcycle users in the State of Gujarat is considered for the study. For this, State of Gujarat is divided into four main clusters as North Gujarat, South Gujarat, Central Gujarat and Saurashtra. From each of the region one city is selected except Central Gujarat, where two cities were selected. Selected cities and sample size in each city are mentioned in table 4.1.

<table>
<thead>
<tr>
<th>Region</th>
<th>City</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Gujarat</td>
<td>Himmatnagar</td>
<td>65</td>
</tr>
<tr>
<td>South Gujarat</td>
<td>Surat</td>
<td>85</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>Surat</td>
<td>120</td>
</tr>
<tr>
<td>Saurashtra</td>
<td>Vadodara</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>Rajkot</td>
<td>80</td>
</tr>
</tbody>
</table>

From the table, it is clear that the sample size for each city is different. Since population of Ahmedabad, Vadodara and Surat are high, the sample size is more for these cities compared to other cities such as Himmatnagar and Rajkot where the population is relatively less. Himmatnagar is the smallest in terms of population among all the selected cities, and hence, only 65 respondents were selected from the city for the study.
4.5 Data Collection

For this study both primary as well as secondary data sources are used.

4.5.1 Primary data

A detailed questionnaire was prepared and administered on consumers in selected cities in the State of Gujarat, namely Ahmedabad, Vadodara, Surat, Rajkot and Himmatnagar. Structured questionnaire was used for the data collection. With help of the questionnaire, personal (face to face) interviews of the respondents were performed, because of the advantages of this method over other methods. By personal interviewing, the researcher gets some other information pertaining to the respondent. Sometimes if the respondent has any query/doubt, it can be traced by the researcher or interviewer. After the collection of primary data, it was found that some of the questionnaires were not filled up properly or some of the questions were left out. Such questionnaires were discarded and new questionnaires from respective cities were again collected.

4.5.2 Secondary data

The information was collected from various information brochures of the organizations as well as from similar research projects conducted elsewhere. The published material like from Books, Journals, Magazines, Reports, News Papers, Websites; and unpublished research work on business management were also used as secondary data sources.

4.6 Research Tool

Since this is a survey type of research, the tool used was a questionnaire. The details of questionnaire are discussed in the following paragraph.
4.6.1 Details of questionnaire

Primary data are the most important source for this study as it is given by the users of two wheelers. Questionnaire is used to collect this data. So preparation of questionnaire is one of the most important works for this study. Initially, preliminary questionnaire was prepared based on expert opinion, views of motorcycle users and some dealers. Literature has also been reviewed from previous similar studies. Pilot testing of this preliminary questionnaire was performed. Some drawbacks were identified from the pilot testing. After eliminating these drawbacks and simplifying the language, final questionnaire was prepared for study. This final questionnaire was in English language. The questionnaire follows the specific format and each question with its objective is briefly discussed as under:

- First two questions are introductory questionnaire. First question serves two purposes: (i) identification of the sampling unit and (ii) to get the attention of the respondent to fill up the questionnaire. Second question is about which brand (Company) of motorcycle the respondent is using and also the specific model of that company. This question gives the information about the choice of the respondent in terms of selecting a particular motorcycle.

- Second part is dealing with general information about the respondents' opinion and views about the motorcycle segment as a whole. The third question is dichotomous and about the comparison of motorcycle with scooters and mopeds in terms of preferred two-wheeler. Sub-question was also there regarding the main reason for motorcycle to be preferred one. The sub-question is multiple choice single response type question. Fourth question is dichotomous and about information search behaviour before buying the motorcycle. It also asks the major source of information which is multiple choice single response question. Fifth question is about the main influencer that the respondents think in
purchasing a motorcycle. It is a multiple choice single response type question. If the respondent has any doubt/query then to whom he approaches for clarification. This information is gathered by sixth question which is also multiple choice single response question. Seventh question is a rating question. Consumer choice of a motorcycle is depend on the different features/factors and importance of these features/factors in his/her mind. This question contains seventeen features/factors of motorcycle and respondent is asked to give rating to each of these features ranging from one to five. One represent not important at all and five represent extremely important factor.

➢ Third part is related with consumers’ views towards his/her own motorcycle. Question eight represents the level of satisfaction that the consumer have towards different features of his own motorcycle. This question includes fifteen features and they are rated ranging from one to five. Five represents extremely satisfied and one represents highly dissatisfied. Question nine represents the overall satisfaction level irrespective of any feature. To know the importance of different promotional schemes from the customers’ point of view, question ten is there. From this question, it can be identified that how many respondents purchase their motorcycle under any promotional scheme or not. And it can also be identified that which scheme is more effective. Eleventh question is open ended question and it is asked to know the importance of price. As price is an important aspect in motorcycle selection. If price is not a constraint for motorcycle then which motorcycle the respondent choose, is the question.

➢ Forth part includes the advertisement related questions and this part includes questions twelve to fifteen. Twelfth question is about the respondents’ views weather the advertisement affects the buying behaviour or not. Thirteenth question is a ranking question and it includes the rank given by respondent to different advertising media. Fourteenth question is about the impact of celebrity endorsement in
motorcycle advertising. Fifteenth question is related with the different technological factors used by different companies in advertising. Respondents are agreed that the Technological factors in advertising affects the buying behaviour or not, is asked.

- Last part includes the personal information. As personal information is sometimes become sensitive issue, this part is kept last in the questionnaire. This part includes the data like their name, income, age, mobile number etc.

The questionnaire is given in annexure- III.

4.7 Data Analysis Techniques

Raw data contained in the questionnaire needs to be converted into a suitable form so that meaningful findings can be obtained. For this purpose, data are to be coded and transferred from questionnaires to the designed format. Any mistake in this process can seriously hamper the statistical results and the interpretations. Once the data are transferred properly, data analysis can be initiated. The data obtained against various questions from 450 valid respondents were properly coded and transcribed into the designed format.

Analysis of data is the process by which data are converted into useful information. Raw data as collected from questionnaire cannot be used unless it is processed in some way to make it amenable to drawing conclusions. Different data analysis techniques were used to get the meaningful outcome from the data obtained against different questions of the questionnaires and transferred to the format. Decisions as to which of the statistical techniques should be used were made on the basis of the various criteria like (a) the scales and other characteristics of data, (b) objectives of the study, (c) characteristics of the research design etc. Following paragraphs provide a bird’s eye view of various data analysis techniques, which have been used for
the overall analysis. Detailing of these techniques has been done in Chapter – 5 at appropriate places for better understanding.

Various techniques of data analysis are available. Broadly, data analysis techniques are divided into three categories$^{150}$:

- Univariate, involving a single variable at a time,
- Bivariate, involving two variables at a time, and
- Multivariate, involving three or more variables simultaneously.

### 4.7.1 Univariate techniques

Univariate techniques are appropriate when there is a single measurement of each element in the sample, or there are several measurements of each element but each variable is analysed in isolation. Univariate techniques can be classified based on whether the data are metric or non-metric. Metric data are measured on an interval or ratio scale. Non-metric data are measured on a nominal or ordinal scale.

Frequency distribution is most widely used Univariate technique. For this study, where one variable was to be considered at a time, frequency distribution was carried out, to obtain a count of number of responses. Bar charts, pie charts, clustered column charts; percentages etc. were used for further analysis of such questions. Other statistics (associated with frequency distribution) like mean, mode, variance, Skewness, kurtosis, and standard derivations were also used to find the central tendency and the variance of the data. For hypothesis testing, one sample ‘t’ test was carried out at 95% confidence level. Kolmogorov-Smirnov one sample test was also used in the study.

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$^{150}$ Nargundkar Rajendra, “Marketing Research- Text and Cases”, second edition, Tata McGraw Hill publication, PP 120.
4.7.2 Bivariate techniques

Bivariate techniques are appropriate when the researcher wants to analyse two variables simultaneously. This technique is also used to find out the association between two variables. Some Bivariate techniques like cross tabulation, Chi-Square contingency test, least significant difference multiple comparison test etc. were used in the study.

4.7.3 Multivariate techniques

Multivariate techniques are suitable for analysing data when there are three or more measurements of each element and where the variables are analysed simultaneously. Multivariate techniques are broadly classified as dependence techniques and interdependence techniques.

Dependence techniques are used when one or more variables are designated as being predicted by a set of independent (predictor) variables. For the present study discriminant analysis, as a dependency technique, was used to discriminate respondent on their satisfaction level as either satisfied or dissatisfied.

Interdependence techniques are concern with the relationship of a set of variables in which no one variable is designated as being predicted by other variables. For the present study interdependence techniques like factor analysis and cluster analysis were used. With the help of factor analysis five factors were identified. Factors help in explaining the correlations amongst a set of variables. Also, both two cluster and three cluster solutions were discussed by the cluster analysis.