CHAPTER- 5   Research Methodology

This chapter gives a blue print of how study of battery-operated two wheeler was carried out in Gujarat State. It includes:

5.1   Sampling Decisions

1. Sampling Plan
2. Sampling frame
3. Sampling method
4. Sample size
5. Research design
6. Research instrument
7. Data analysis techniques

Sampling Plan:

Study was undertaken in Gujarat State and respondents were selected from four cities of Gujarat namely Ahmadabad, Vadodara, Bharuch and Anand.

Respondent's eligibility criteria:

A citizen of minimum 13 years of age, a two- wheeler user and willing to spend minimum half an hour for the interview.

Sampling frame:

Adults: available either at home or at the work place.

Students: available either at home or school/college.

Sampling Method:

Stratified sampling method was used to derive a representative sample for the study. Both the genders belonging to various age groups and income groups are approached.

Sample Size: 1000 Respondents.

While, determining a sample size, two-wheeler users who were aware about battery-operated two-wheeler were taken as a basis. From the data of pilot survey, it was found that 53% two-wheeler users were aware about battery-operated two-wheeler. This proportion was used in determining sample size with level of confidence 95% and margin of error (E) .03.

E= .31, Margin of Error

P= .53, (proportion of two-wheeler users aware about battery-operated two-Wheelers

q= 1-p

$Z_{\alpha/2}=Z_{0.25}=1.96$

$$n = \frac{pqz_{\alpha/2}^2}{E^2} = 995.7779 \approx 1000$$

Research Type: Descriptive

5.2 Research Objectives

The study was aimed at:

1. To know the profile of two wheeler users

2. To know vehicle usage pattern of consumers

3. To know the reasons for satisfaction or dissatisfaction with the performance of the present two wheeler and to measure its degree

4. To know most important features while buying a two wheeler

5. To know consumers' awareness level for pollution, its adverse effects and battery operated two wheeler

6. To know critical opinions of respondents about features of battery operated two wheelers

7. Whether opinions of respondents about features of battery operated two wheelers defer among various age groups, educational groups, occupational groups, income groups and gender

8. Consumers' concern for environment and willingness to pay more for eco-friendly two-wheeler.

9. To get insight in consumer behaviour for effective green marketing of two-wheelers.

5.3 Research Instrument

Structured Questionnaire was used as a research instrument to elicit desired response. It consisted of various constructs pertaining to:

1) demography of consumers,

2) vehicle used for personal mobility,

3) satisfaction or dissatisfaction with performance of present two-wheeler along with its reasons,

4) consumers awareness level and knowledge with reference to two-wheeler

5) pollution and adverse effect of pollution on health,

6) important features while buying a two-wheeler,

7) environmental concern of consumers and their willingness to pay more for eco-friendly two-wheeler,

8) Important features while buying a two-wheeler and opinions regarding features of battery operated two-wheelers.

Multiple choice questions were given in the questionnaire. Pre-testing of this questionnaire was done, its feedback was taken from the Respondents of pilot survey and thereafter, new questionnaire was prepared and administered.

Likert scale with five rating positions is used to elicit desired response pertaining to environmental concern and opinions for attributes of battery-operated two-wheeler.

Pre-testing of the questionnaire was done to get a feedback on whether questionnaire can really elicit the desired response from the respondents or not. Hence, pretesting was essential at this stage.

It was found that many respondents were not in a position to understand the ranking pattern of few questions given in the questionnaire. They were facing language problem. Hence, after this feedback, to remove difficulties of Gujarati respondents, questionnaire was translated into Gujarati language as well. Thereafter, a second round of pre-testing was done with a questionnaire in Gujarati and then the final questionnaire was finalized.

Primary data were obtained through structured questionnaire. First, the pilot survey was conducted which spread over a span of two months. During this survey, it was found out that many respondents were either in school/college or at their work place. Hence, it was difficult to approach them at home always. So, the respondents were approached either at home or at the work place/school/college. Moreover, the questionnaire was also administered as a schedule in some cases to obtain responses in a short time. Further, only those respondents who were users of two-wheeler were considered as a sample for study purpose. The final survey spread across a span of seven months approximately.

5.4 Data analysis Techniques

Descriptive and inferential statistical techniques were used in data analysis. In descriptive statistical techniques, percentile, graphs, cross tabulations and mean were used and inferential statistical techniques chi-square test of homogeneity, ONE WAY ANOVA and two tailed t-test were used.

One of the important objectives in this study was to know that when an individual plans to buy a two-wheeler, which are the important features he/she considers and whether all the features are equally important or not. To know this information, respondents were asked to rate various features/information listed in the question, in order of its importance on 1 to 8 scale and chi-square test of homogeneity was performed to analyze the data.

Further, it was also important to know the opinions of respondents about various features of battery operated two-wheeler and to which extent they are considered as good or poor by the respondents. To elicit these information respondents were asked to tick mark their opinion about various features of battery operated two-wheeler on a scale ranging from

very good to very poor. To conduct the analysis, each position was assigned a numerical score ranging 1 to 5. Here, value 1 was assigned for very good and value 5 was assigned for very poor. Seven different features/information were put before the respondents and their feedback was taken.

These seven features are listed below:

(1) It cost 15 paisa/km.

(2) Zero pollution to environment.

(3) It can't go beyond 25 km speed.

(4) It takes 6 to 8 hours to recharge battery.

(5) It is light weight and comfortable.

(6) It has a capacity to carry weight of 75 kg.

(7) On road price is Rs.28, 500/- .

Chi-square test of homogeneity was performed to find out whether all the features/information of concept of battery operated two-wheeler is equally good or not. Furthermore, it was important to know whether opinions on various features/information of concept of battery operated two-wheeler are identical or they vary among various age groups, educational groups, occupational groups, income groups and of both the gender and to study this, chi-square test of homogeneity was performed.

In this study one of the important research objectives was to know opinions of respondents on their willingness to make compromises for battery-operated two-wheeler.

Five statements were developed as under:

(1) I will prefer to buy this battery operated two-wheeler as it is environmental friendly.

(2) I will buy it even if it is somewhat expensive.

(3) I will compromise with speed of this two-wheeler as it protects the environment.

(4) I will compromise with speed as its operating cost is very low.

(5) Govt. should introduce special subsidy for such two-wheeler.

Likert scale was used ranging from strongly agree to strongly disagree which will help in eliciting their agreement or disagreement and the extent of agreement or disagreement about a particular statement. To conduct the analysis, each statement was assigned a numerical score ranging 1 to 5. Here, value 1 was assigned for strongly agree and value 5 was assigned for strongly disagree. Whether opinions differ with age, education, occupation, income and were analyzed using ONE WAY ANOVA and to know opinion differences for both the gender two tailed t-test was used.