CHAPTER 4: RESEARCH METHODOLOGY
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Research Methodology adopted for this research is described in the following sub sections: the research design, the sources of data, sampling design which contains sampling techniques used and data collection instruments developed.

4.1 RESEARCH DESIGN

A research design is the plan and structure of investigating, so conceived as to obtain answers to research questions (Kothari, 2004). A research design functions as the research blue print for measurement and analysis of data (Creswell, 2003). As such, it is used to show how the major parts of the research project i.e. the samples, measurement of variables, treatments or controls, and methods of assignment work together to try to address the core research questions.

The purpose of this study being to describe the determinants of adoption and usage of synthetic lubricants for two-wheeler motor vehicles, it seeks to describe the phenomena as it exists. Therefore, descriptive research design was be used as it is deemed to be the most appropriate. Various authors recommend the use of descriptive design (Orodho, 2004; Dane, 2000) to produce information that is of interest to marketers. Jackson (1994) contends that all research is partly descriptive in nature, insofar as the descriptive aspect defines and describes the research’s who, what, when, where, why, and how, which are some of the questions raised in the study.
4.2 SOURCES OF DATA

Population refers to the entire group of people, events or things of interest that the researcher wishes to investigate and wants to make inferences based on sample statistics (Sekaran & Bougie, 2010).

This research study has been conducted in selected cities in Maharashtra, namely Pune, Nashik, Aurangabad, Solapur and Kolhapur. These have been selected to cover a diverse population size. Pune has the highest two-wheeler population in Maharashtra, with over 1.55 million, Nashik and Solapur have over 0.30 million, Aurangabad has 0.19 million while Kolhapur has 0.17 million. These cities are industrialized and have a cosmopolitan population from across the country. Smaller cities have not been considered as it would increase time and effort in data collection from samples.

The target population for the study is three sets of people as follows:

4.2.1 Users of 4 stroke petrol engine two-wheeler motor vehicles in Pune, Nashik, Aurangabad and Solapur, who are in a position to exercise their option on the type and brand of lubricant to purchase and use in their vehicle constitute the first set of the target population.

Two-wheeler motor vehicle users normally purchase lubricants at the time when it is required to drain out the existing lubricant in the engine oil sump of their vehicle, as it has exhausted its useful life and fill the engine oil sump of their vehicle with new lubricant. This oil change activity forms a part of the periodic servicing and maintenance of their vehicle and as such is normally
carried out at a two-wheeler vehicle workshop. There are broadly three categories of workshops: the vehicle manufacturing company’s authorized service stations, third party branded or franchised workshops and independent workshops. The first two categories of workshops are under contractual obligation to stock, recommend, promote, sell and use a particular type and brand of lubricant. Such lubricants are either original equipment manufacturer approved (or genuine) oils or tied-up with marketers on commercial considerations. Users visiting such workshops are not in a position to exercise their choice of type and brand of engine oil to be used. They do not purchase lubricants separately, but are provided the oil change service as a part of the overall maintenance service. Hence they are excluded from the target population. However, users visiting independent workshops can and do exercise their choice of type and brand of engine oil to be used. They accordingly purchase lubricants at retail outlets selling lubricants. Hence they form the first set of target population.

4.2.2 Owners and mechanics of independent workshops in Pune and Kolhapur which are not authorized service stations of the vehicle manufacturing company or not under contractual obligation to stock, sell and use a particular type and brand of lubricant constitute the second set of the target population.

Two-wheeler motor vehicle users consider mechanics to have better knowledge, experience and expertise than what they themselves have with regard to vehicle operations and maintenance. Hence the opinion of mechanics
is more often than not taken as expert opinion and is followed to a large extent by vehicle users. Mechanics thus act as influencers of vehicle users. Hence they form the second set of target population.

4.2.3 Owners, workshop managers and mechanics of authorised service stations of two-wheeler vehicle manufacturing companies in Pune and Nashik, which are under contractual obligation to stock, sell and use the vehicle manufacturing company’s recommended type and brand of lubricant, or also called as the vehicle manufacturer’s genuine oils or also called co-branded oils, which are jointly branded with the vehicle manufacturer and the lubricant manufacturing company, constitute the third set of the target population.

These service stations have equipment, mechanics, spares and consumables certified by vehicle manufacturers. They generally have high service standards. After purchase of a new two-wheeler motor vehicle, owners normally avail the initial few free service offers at authorised service stations. Thereafter they exercise the option to either continue to patronize authorised service stations for future servicing and maintenance of their vehicle or visit independent workshops for the same. At authorised service stations, vehicle owners are not in a position to exercise their choice of lubricant and are under compulsion to accept the standard consumables and components specified by the vehicle manufacturer. As a sizeable quantum of lubricant change takes place at these service stations, their influence on vehicle owners’ choice is noteworthy. Hence they form the third set of target population.
4.3 SAMPLING DESIGN

Sampling refers to the systematic selection of a limited number of elements out of a theoretically specified population of elements. The rationale is to draw conclusions about the entire population. According to Kothari (2004), the ultimate test of a sample design is how well it represents the characteristics of the population it purports to. The reason for sampling in this study is to lower cost, increase accessibility to study the population and increase the speed of data collection.

The sampling design comprised of two steps of sampling for the first set of target population - users of 4 stroke petrol engine two-wheeler motor vehicles. In the first step, a pilot survey was carried out on a sample size of 225. Based on experience gathered during the pilot survey, certain changes were made in the approach to data collection which is detailed in a subsequent section. Thereafter, in the second step, final survey was carried out on a sample size of 400. Hence, the total number of samples surveyed in the first set of target population was 625.

The sampling design was a single step sampling for the second set of target population - Owners and mechanics of independent two-wheeler vehicle workshops, as well as the third set of target population - Owners, workshop managers and mechanics of authorised service stations of two-wheeler vehicle manufacturing companies.
4.3.1 PILOT SURVEY

A sample size of 225 is adequate for a pilot study, according to Kothari (2004). A pilot study was therefore conducted by intercepting users of 4 stroke petrol engine two-wheeler motor vehicles and administering questionnaires to those amongst them who were willing to respond. These respondents were intercepted at 6 independent workshops, 4 lubricants shops, 6 lubricants cum spare parts shops and 2 petrol pumps across Pune during the period from January to February 2014. The respondents were apprised that the survey being conducted is for academic purpose only and has no commercial intentions. While the respondents were filling up the questionnaires, they were questioned whether they understood the items, which words were difficult or ambiguous, whether they could recollect their purchase behaviour and whether they were reluctant to share any information sought. On completion of responses, they were re-checked and re-clarified by the researcher verbally with the respondent for certain items to verify that there is no gap between their actual experience, opinion or purchase behaviour and the responses given by them in the questionnaire. During such checks, some respondents chose to change their responses to certain items whereas 7 respondents exhibited considerable lack of seriousness and incoherence in their response. Hence those 7 were rejected. Finally, a total of 232 users were intercepted and their responses obtained, out of which 7 responses were rejected and 225 were found suitable, which were accepted for data analysis.
4.3.2 FINAL SURVEY

First set of target population

The sample size for the final survey of the first set of the target population namely, users of four stroke two-wheeler motor vehicles in Pune, Nashik, Aurangabad and Solapur, has been worked out in accordance with Kothari (2004). The total two-wheeler motor vehicle population in the above cities, out of which we have derived the sample population, is given in Table 4.1 below.

<table>
<thead>
<tr>
<th>City</th>
<th>Motor Cycles</th>
<th>Scooters</th>
<th>Mopeds</th>
<th>Total (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pune</td>
<td>1050258</td>
<td>307213</td>
<td>194497</td>
<td>1551968</td>
</tr>
<tr>
<td>Nashik</td>
<td>225608</td>
<td>51859</td>
<td>23410</td>
<td>300877</td>
</tr>
<tr>
<td>Aurangabad</td>
<td>148433</td>
<td>26544</td>
<td>18901</td>
<td>193878</td>
</tr>
<tr>
<td>Solapur</td>
<td>259972</td>
<td>42538</td>
<td>62296</td>
<td>364806</td>
</tr>
<tr>
<td>Total</td>
<td>1684271</td>
<td>428154</td>
<td>299104</td>
<td>2411529</td>
</tr>
</tbody>
</table>


The above source of motor vehicle population data provides breakup of the type of fuel used namely petrol, diesel, LPG or CNG but does not provide the breakup of number of two-wheeler vehicles with two stroke and four stroke engines. As almost 100% of the two-wheeler vehicles use petrol as fuel and as overwhelming numbers of two-wheeler motor vehicles in urban areas, estimated at over 95%, are equipped with four stroke engines, we shall
consider the entire population in Table 4.1 above as the first set of our target population - users of 4 stroke petrol engine two-wheeler motor vehicles, without any loss of authenticity. Taking the above finite population, sample size is determined through the approach based on precision rate and confidence level. These are being specified for this study as follows:

Precision rate : 5% and

Confidence level : 95%, which are considered adequate for the study.

The formula for determining the sample size (Kothari, 2004) is:

\[ n = \frac{z^2 \cdot p \cdot q \cdot N}{e^2 \cdot (N - 1) + z^2 \cdot p \cdot q} \]

where, \( n \) = sample size, \( N \) = population size, \( z \) = standard variate at given confidence level. The value of \( z \) for confidence level of 95% is 1.96, \( e \) = precision or acceptable error, taken as .05 for this study, \( p \) = sample proportion and \( q = p - 1 \). The most conservative sample size can be obtained by maximising ‘\( n \)’, and the sample will result in the desired precision. This is achieved if we take the value of \( p = 0.5 \). Sample size, considering \( p = 0.5 \) and the other values given above, is thus determined as given in Table 4.2 below.

<table>
<thead>
<tr>
<th>City</th>
<th>Population (N)</th>
<th>Determined Sample size (n)</th>
<th>Sample size rounded off for this study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of Pune, Nashik Aurangabad and Solapur</td>
<td>2411529</td>
<td>384.0993</td>
<td>400</td>
</tr>
</tbody>
</table>
Sample size for the final survey of the first set of target population - users of 4 stroke petrol engine two-wheelers has therefore been taken as 400. The city-wise breakup of samples is given in Table 4.3 as follows:

Table 4.3 City-wise Samples

<table>
<thead>
<tr>
<th>City</th>
<th>Total Population (N)</th>
<th>Samples Drawn</th>
<th>Percentage of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pune</td>
<td>1551968</td>
<td>150</td>
<td>0.010%</td>
</tr>
<tr>
<td>Nashik</td>
<td>300877</td>
<td>100</td>
<td>0.033%</td>
</tr>
<tr>
<td>Aurangabad</td>
<td>193878</td>
<td>100</td>
<td>0.052%</td>
</tr>
<tr>
<td>Solapur</td>
<td>364806</td>
<td>50</td>
<td>0.014%</td>
</tr>
<tr>
<td>Total</td>
<td>2411529</td>
<td>400</td>
<td>0.017%</td>
</tr>
</tbody>
</table>

Sampling design of this study follows a combination of judgment and probability sampling. The sample elements – users of 4 stroke petrol engine two-wheeler motor vehicles were intercepted at major independent two-wheeler motor vehicle workshops, lubricants shops, lubricants cum two-wheeler vehicle spare parts shops and automobile fuel stations (petrol pumps) in the above four cities. These locations were predetermined, on the basis of high number of daily customer footfall, number of two-wheeler motor vehicles visiting and good market reputation.

Based on the experience gathered during pilot survey, care was taken to eliminate such independent workshops that stock and sell lubricants themselves. All major localities of these cities were covered to obtain a well dispersed set of locations. At each location, the two-wheeler users were intercepted and requested to participate whole-heartedly in the study. Only on their willing acceptance, they were administered the questionnaire.
Second set of target population

Sample elements for the second set of target population - Owners and mechanics of independent workshops were convenience sample elements in Pune and Kolhapur in Maharashtra. They were chosen purposively for this research from amongst independent, non-franchised two-wheeler workshops. 65 such mechanics were approached in Jan 2014 with a request for participation in the survey. Out of them 57 mechanics conveyed their willingness and they were administered the questionnaire prepared for them. Out of these 57 responses, 2 were rejected, as they indicated lack of seriousness and 55 were found usable.

Third set of target population

Sample elements for the third set of target population – Owners, workshop managers and mechanics of authorized service stations of two-wheeler vehicle manufacturing companies, also called original equipment manufacturers’ dealers, were convenience sample elements in Pune and Nashik. They were chosen purposively for this research from amongst popular and high selling authorised service stations. 15 such authorized service stations were approached, 10 in Pune and 5 in Nashik, in June 2014 with a request for participation in the survey. Owners and workshop managers of all them conveyed their willingness and they were administered a structured interview, on the basis of a prepared list of questions.
4.4 RESEARCH INSTRUMENT

The primary research instrument used to collect primary data was a well-structured questionnaire prepared by the researcher and personally administered to respondents, along with face-to-face interviews with the respondents, to clarify the questions and capture additional insights. Questionnaire was used as it is economical, structured and appropriate to capture primary data to test the hypotheses formed to answer the research questions. Two separate sets of questionnaires were used for data collection from the first and second sets of target population.

Other modes of data capture such as printed questionnaires sent by post or courier, emailed questionnaire, emailed request to access link to online questionnaire and respond to the same was avoided as the response rate may be very low and inaccurate without the possibility to personally cross check and verify the responses. Another mode of approaching randomly selected respondents at their residence or office, as per their convenience, to administer the questionnaire personally was also avoided since the study involves a low involvement product category and respondents may not be able to relate, recollect type of lubricants used and respond with accuracy.

Data on customer footfalls and reputation of the various categories of lubricants sales outlets identified in the preceding section has been collected from pre-pilot focus groups of knowledgeable individuals.

Structured interview was conducted for the third set of target population.
4.4.1 PILOT SURVEY QUESTIONNAIRE

The survey instrument used was a well-structured questionnaire prepared by the researcher. In accordance with Cooper and Shindler (2006), the questionnaire consisted of separate sections for three categories of questions: administrative questions, classification questions and structured target questions as given in Table 4.4 below:

Table 4.4  Sections of Pilot Survey Questionnaire for Users

<table>
<thead>
<tr>
<th>Category of Questions</th>
<th>Question numbers</th>
<th>Total Questions</th>
<th>Percentage of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>i, ii, iii, 33, iv, v</td>
<td>6</td>
<td>8%</td>
</tr>
<tr>
<td>Classification</td>
<td>34 to 40 (includes sub questions)</td>
<td>11</td>
<td>14%</td>
</tr>
<tr>
<td>Target</td>
<td>1 to 32 (includes sub questions)</td>
<td>59</td>
<td>78%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>76</td>
<td>100%</td>
</tr>
</tbody>
</table>

Administrative questions comprised of serial number of the questionnaire, survey location and the survey date and time to be incorporated in three blank cells on the top right corner in the first page of the questionnaire. The respondent’s name and signature were sought at the top and bottom respectively, in the last page of the questionnaire. Name of the respondent was sought only to personalize identification of respondents.

Classification questions comprised of demographic and vehicle characteristics of the respondents. In case of gender, apart from male and female, only one common term of transgender was incorporated to include all cases when a respondent would not fit physiologically and psychologically in either male or
female gender. In case of marital status only single and married classes were used to avoid any further detailing into the class of single, like, unmarried, divorced, separated, widow, widower and so on. Occupation was also classified under broad categories avoiding large categories which would serve limited purpose. Income status of only the respondent was not sought as a large number of two-wheeler users are students, who do not have any personal income, but rely on their parents’ or guardians’ incomes. Hence to ascertain their economic status, their family’s take home income has been sought. Mobile phone number, email id and postal address of respondents was not sought as initial discussions revealed that by and large people were reluctant to reveal their contact details.

Target questions formed the bulk and body of the questionnaire. These questions were developed out of in-depth discussions with 15 enthusiastic and knowledgeable two-wheeler users, purposefully chosen by the researcher, to cover interests, attitudes, social relationships and purchase behaviour, in order to unearth factors of influence and seek answers with regard to the research questions. Each section started with explicit instructions on how to respond to the constituent questions in the group. The questions sought responses using a five point Likert scale with “1” indicating “Strongly Disagree” and “5” indicating “Strongly Agree”. A blend of both positive as well as negative worded questions was used in the questionnaire.

The questionnaire started with seeking declaration of the primary factor viz. purchase of synthetic lubricants or mineral based lubricants and the brand of
lubricant in question number 1A and 1B respectively. This primary factor is of the most vital importance as this research study attempts to find and measure the difference in constructs, variables and characteristics of sample elements based on this factor. Brand of lubricant has been sought for reporting descriptive statistics only and not to test any hypothesis.

Thereafter, the questions were grouped into items representing individual dimensions of the constructs being tested. Each construct included multiple dimensions. Standard scales on marketing and consumer behaviour existing in literature, created, tested and perfected by past researchers were referred to but not used to the full extent for the following reasons:

1. All the popular marketing scales were developed by researchers in North America and Europe wherein the usage of certain wordings are alien to commonly used English in India. Changes in few wordings and phrases were therefore necessitated to increase acceptance of the questionnaire.

2. The scales were developed for exhaustive coverage of all dimensions representing a construct. Further, only one construct was assessed in each of the individual studies with the objective of developing scales. Thus the numbers of scale items comprising each construct were large. As the current study attempts to cover several constructs, in view of practicality of data collection, it was contemplated to restrict the overall length of the questionnaire so as not to overwhelm the respondents. The scale item thus needed to be truncated without losing out on the critical dimensions.
3. Review of literature revealed existence of several overlapping dimensions of different constructs of consumer behaviour. As the current study attempts to examine the influence of multiple self-designated consumer behaviour profiles on the respondents’ adoption and usage behaviour, it was decided to prune the list of dimensions under the standard constructs to weed out such dimensions which indicated proximity in understanding.

4. Moreover, the study does not intend to identify respondents in order to group them into one or more consumer behaviour constructs, but to study the influences of self-designated profile and other socio-economic factors on their adoption and usage behaviour. Hence it was decided to cover all possible factors of influence with adequate importance to the entire range of factors rather than unduly stressing on these constructs by exhaustive coverage of all dimensions as per standard scales available in literature.

The first set of target questions numbers 2A to 2G comprised 7 questions, to measure the construct of two-wheeler enthusiasm. This ensured that interest respondents were captured early and that they were more willing and eager to proceed with their response. The scale items are as follows:

2A. I am emotionally very attached to my two-wheeler.

2B. I derive great pleasure in riding my two-wheeler.

2C. I take keen interest in knowing about latest developments on two-wheelers
2D. I like reading magazines on two-wheelers.

2E. I avoid looking at newspaper advertisements of two-wheelers.

“(negative)”

2F. I do not visit websites having information about two-wheelers

“(negative)”

2G. During the last six months, servicing of my two-wheeler has often been delayed. “(negative)”

The next set of 6 questions, with question numbers 3A to 3E and 17 related to the construct of involvement of users in the lubricant purchase process. This sequence endeavored to hold the interest of respondents and instigated them to recall actual past purchase behaviour. The scale items are as follows:

3A. I am very particular about which 4T oil to use in my two-wheeler.

3B. I do not bother which 4T engine oil is being put in my two-wheeler by my mechanic. “(negative)”

3C. I myself decide the brand of 4T oil for oil change of my two wheeler.

3D. I always follow my mechanic’s recommendation for choice of 4T engine oil. “(negative)”

3E. I take advice of the lubricants shop salesperson on choosing the brand of 4T engine oil. “(negative)”
17. I take keen interest in the different brands of 4T oils displayed in petrol pumps and lubricants shops.

The next 2 questions, with question numbers 4 and 5 covered awareness of the product category. The questions are:

4. Till today, I was not aware of synthetic 4T oil for two-wheelers. “(negative)”

5. I may have seen advertisements on synthetic 4T oils, but I have not paid attention to them. “(negative)”

This was followed by 2 questions with question numbers 6 and 7 on awareness of local availability. The questions are:

6. I have come to know today that synthetic 4T oils are available in my local market. “(negative)”

7. I do not remember having seen synthetic 4T oils displayed in any shop or petrol pump. “(negative)”

The next question covered their interest to know about the product, as follows:

8. I wish to know more about benefits of using synthetic 4T engine oils

Awareness of benefits of usage of the product category was covered in the next 4 questions with question numbers 9 to 12.

9. I think synthetic 4T oils give better protection to the engine of two-wheelers than normal 4T oils.

11. I think synthetic 4T oils need to be changed after much longer kilometer running than normal 4T oils.

12. I think synthetic 4T oils cause lesser smoke emission and are thus environment friendly.

The concept of Price sensitivity was covered in the next question number 13, with the following wording:

13. I feel that initial purchase price of synthetic oils is very high compared to normal 4T oils.

The construct of Value for Money was questioned next by question numbers 14 to 16. The scale items are as follows:

14. I think that as oil change period for synthetic oils is far more than normal engine oils, I get an overall cost benefit advantage over a longer period of time by usage of synthetic lubricants.

15. I think that as oil change period for synthetic oils is far more than normal engine oils, I can save my money by lesser visits to mechanic (in a year) for oil change of my two-wheeler.
16. I feel that using synthetic 4T oils instead of normal 4T oils is a waste of my money as synthetic oils do not provide me more benefits than normal 4T oils.

The construct of opinion leadership was assessed by the next set of 4 questions through question numbers 18, 19, 21 and 22. The scale items are:

18. When I discuss about two-wheelers with my friends, I give them more information than what they give me.

19. I often try to convince my friends to use the brand of engine oil for two-wheeler motor vehicle of my choice.

21. My friends often take advice from me on which engine oil to use for their two-wheeler.

22. I often take advice from my friends on which engine oil to use in my two-wheeler.

Next, the question numbers 20 and 25 covered the construct of Market mavenism. The scale items are:

20. My friends consider me to be a good source of information on taking care for two-wheelers.

25. I enjoy providing information to my friends about new products.

The construct of consumer innovativeness was assessed using question numbers 23 and 24. The scale items are:
23. I greatly enjoy being the first in my social circle to buy new technology products.

24. I enjoy taking calculated risks in buying new technology products.

Brand loyalty was tested using question numbers 26, 27 and 29. The scale items are:

26. I had purchased the same 4T oil earlier also (that I have purchased now) for my two-wheeler.

27. I have carried out oil change of my two-wheeler at the same mechanic.

29. I am not willing to try new high performance 4T oils from any other brand than the one I have been using for my two-wheeler.

Customer satisfaction was covered by question number 28 as follows:

28. I am not satisfied with the 4T oil I am using for my two-wheeler.

The influence of various modes of advertisement was covered in the next set of 8 questions with numbers 30A to 30G.

30. I have chosen the present 4T oil mainly due to:

A. Attractive display in shops

B. Attractive posters in shops

C. Hoardings on roadside
D. Advertisements in newspapers
E. Advertisements in magazines
F. Advertisements on FM radio
G. Advertisements on TV
H. Advertisements on websites

Question numbers 31A to 31E were 5 questions on different means of below the line sales promotion activities as follows:

31. I have selected this 4T oil because of the following:

A. Sales Campaign at petrol pumps
B. Sales Campaign at lubricant shops
C. High discounts received
D. Free gifts received
E. Lucky draw event

The last set of 6 questions in question numbers 32A to 32F covered the influence of social influencers as follows:

32. I have chosen the present 4T oil mainly due to:

A. To try out a new brand and type of 4T oil
B. Advice by a friend who has used this 4T oil in his two-wheeler.
C. Advice by a friend who is more knowledgeable than me in this field.

D. Advice of experts on websites, blogs, social network.

E. Advice by my mechanic.

F. Advice of shop salesperson.

The questionnaire attempted to come across as instructive and encouraging throughout the four pages. It closed by thanking the respondent for the time and effort devoted for the survey and offered an invitation to participate in Lucky Draw based on the questionnaire serial numbers to be sent by text message to the given mobile phone number of the researcher, There was a check box at the end to record whether the respondent had sent the sent text message and there was a separate box for signature by the respondent, as administrative questions. The questionnaire is given in Appendix – II.

The scale items were tested for reliability exceeded the minimum requirement 0.70 (Bagozzi, 1994), as given in Table 4.5.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s alpha score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>0.736</td>
</tr>
<tr>
<td>Awareness</td>
<td>0.801</td>
</tr>
<tr>
<td>Customer Innovativeness</td>
<td>0.776</td>
</tr>
<tr>
<td>Opinion Leadership</td>
<td>0.737</td>
</tr>
<tr>
<td>Market Mavenism</td>
<td>0.740</td>
</tr>
<tr>
<td>Two-wheeler Enthusiasm</td>
<td>0.719</td>
</tr>
<tr>
<td>Value for Money Perception</td>
<td>0.756</td>
</tr>
</tbody>
</table>
4.4.2 FINAL SURVEY QUESTIONNAIRE FOR USERS

Based on the experience gathered during pilot survey and on completion of analysis of data obtained from the pilot study, the pilot survey questionnaire was improved to collect data during the final survey with highest factual accuracy. The component questions of the final survey questionnaire for users are given in Table 4.6 below:

Table 4.6 Sections of Final Survey Questionnaire for Users

<table>
<thead>
<tr>
<th>Category of Questions</th>
<th>Question numbers</th>
<th>Total Questions</th>
<th>Percentage of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>i, ii, iii, 29, iv, v</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>Classification</td>
<td>30 to 36 (includes sub questions)</td>
<td>11</td>
<td>18%</td>
</tr>
<tr>
<td>Target</td>
<td>1 to 28 (includes sub questions)</td>
<td>44</td>
<td>72%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>61</td>
<td>100%</td>
</tr>
</tbody>
</table>

The need for change and the changes made in the questionnaire are summarised below:

1. The overall length of the questionnaire was reduced by one page of A4 sized paper, from the earlier 4 page questionnaire to a 3 page final questionnaire. It was observed during the pilot survey that many survey elements who initially expressed willingness to respond, withdrew the moment they saw a four page questionnaire, citing lack of time. Many respondents displayed signs of fatigue, disconnect and disinterest at some point in time during the course of their response to such a lengthy questionnaire, Further as respondent were intercepted in the marketplace and not in the comfort of their
homes, they wanted to get over with the task hurriedly. Such an adverse perceived situation is not expected to elicit true factual, unbiased responses from sample elements. Hence the total numbers of questions were reduced to make the questionnaire appear as less bothersome to respondents. Certain dimensions of constructs were eliminated as they were overlapping with dimensions of other constructs and care was taken to ensure that validity of the construct was not sacrificed in the process.

2. Certain wordings were changed as a many respondents did not understand them. Hence the word “bother”, used in one item was replaced by the word “care”. The questionnaire was thus modified to ensure usage of lucid words of English language, which are more commonly used and better understood in India.

3. The formats of questions to ascertain brand loyalty were changed to match with the format of other items in the questionnaire, where response was sought in a five point Likert scale. This was done as some respondents were unsure as to how their response is to be marked in the questionnaire. This ensured that any such ambiguity was removed from the final questionnaire.

There was no change in the administrative and classification questions. The two primary factor questions were also retained unchanged as question numbers 1 and 2. The target questions were reduced and some were reworded or reformatted.

The constructs for which the scale items were reduced and changed are as follows:
The number of scale items in the construct of Two-Wheeler Enthusiasm was reduced from 7 to 2, as question numbers 3 and 4 as follows:

3. I am emotionally very attached to my two-wheeler motor vehicle.

4. I derive great pleasure in going on long trips, riding my two-wheeler motor vehicle.

The involvement construct was reduced from 6 scale items to 3 items in question numbers 5 to 7, as follows:

5. I do not care which particular 4T engine oil is put in my two-wheeler by my mechanic. “negative”

6. I am very particular about which 4T oil to use in my two-wheeler.

7. I buy whichever 4T oil for my two wheeler, which my mechanic or lubricants shop salesperson advises. “negative”

The construct of awareness of product category and awareness of availability were reduced to one item each as given in question numbers 8 and 9 respectively as follows:

8. Till today, I was not aware of the new type of oil for two-wheelers called synthetic 4T oil. “negative”

9. I do not remember having seen synthetic 4T oils displayed in any local shop or petrol pump. “negative”

The question for interest was retained in the original manner, as question number 10, since it was clear, brief and served the purpose.
The 4 scale items for the next construct - awareness of benefits were also retained in their original form as question numbers 11 to 14.

The wording for the item on price sensitivity was changed, in order to better acknowledge the awareness of higher price and properly reflect the informed choice to opt for the same. The item was included as question number 15 and framed as follows:

15. I don't mind paying more to purchase newly launched synthetic 4T oils which are more expensive than normal 4T oils,

The construct of Value for Money was measured by only 1 item in question number 16, instead of 3 items in the pilot survey, as follows:

16. I think that as oil change period for synthetic oils is far more than normal engine oils, I get an overall cost benefit advantage over a longer period of time by usage of synthetic lubricants.

For the next three constructs of consumer innovativeness, market mavenism and opinion leadership, the order of questions were changed to hold attention of the respondent. The total number of items measuring opinion leadership was reduced from 4 to 2. The questions started with scale items for consumer innovativeness, in question numbers 17 and 18 as follows:

17. I greatly enjoy being the first in my social circle to buy new technology products.

18. I enjoy taking calculated risks in buying new technology products.
Market mavenism was measured through question numbers 19 and 20 as follows:

19. My friends consider me to be a good source of information on new products, shops or workshops regarding maintenance and care of two-wheelers.

20. I enjoy providing information to my friends about new brands and different kinds of products.

Opinion leadership was measured by question numbers 21 and 22 as follows:

21. I often try to convince my friends to use the engine oil that I like, for their two-wheeler.

22. My friends value my advice on choosing which engine oil to use in their two-wheeler.

Customer satisfaction and brand loyalty were measured by the next 3 questions. The numbers of items to measure loyalty were reduced from 3 items to 2 items. As satisfaction is a prerequisite for loyalty, the item to measure satisfaction was negatively worded and sandwiched between two items to measure loyalty. The item for customer satisfaction in question number 24 was as follows:

24. I am not satisfied with the 4T oil I am using for my two-wheeler. “negative”

The items to measure loyalty by question numbers 23 and 25 were as follows:
23. I have used the same brand and type of 4T oil several times earlier.

25. As I like the brand and type of 4T oil I am now using, I will continue to use the same for my two-wheeler.

Thereafter there no changes were made to the rest of the items to measure variables as follows:

- Question numbers 26A to 26H to measure influence of advertisement,
- Question numbers 27A to 27E to measure influence of below the line promotions and
- Question numbers 28A to 28F to measure social influence.

The concluding sections of the questionnaire retained the same expression of gratitude and invitation to participate in luck draw to in surprise gifts. The questionnaire is given in Appendix – III.

Reliability of scale items was tested by Cronbach’s alpha test. The scores obtained for each construct exceeded the minimum requirement 0.70 (Bagozzi, 1994), as given in Table 4.7 below.

<table>
<thead>
<tr>
<th>Table 4.7</th>
<th>Scale reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct</td>
<td>Cronbach’s alpha score</td>
</tr>
<tr>
<td>Customer Innovativeness</td>
<td>0.863</td>
</tr>
<tr>
<td>Opinion Leadership</td>
<td>0.809</td>
</tr>
<tr>
<td>Market Mavenism</td>
<td>0.839</td>
</tr>
<tr>
<td>Two-wheeler Enthusiasm</td>
<td>0.716</td>
</tr>
</tbody>
</table>
4.4.3 FINAL SURVEY QUESTIONNAIRE FOR MECHANICS

The survey instrument used was a well-structured questionnaire prepared by the researcher, different from that for users of two-wheelers consisting of separate sections for three categories of questions: administrative questions, classification questions and target questions as given in Table 4.8 below:

<table>
<thead>
<tr>
<th>Category of Questions</th>
<th>Question numbers</th>
<th>Total Questions</th>
<th>Percentage of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>i, ii, iii, 18, 19, 20, 23, iv, v</td>
<td>9</td>
<td>8%</td>
</tr>
<tr>
<td>Classification</td>
<td>21, 22</td>
<td>2</td>
<td>14%</td>
</tr>
<tr>
<td>Target</td>
<td>1 to 17 (includes sub questions)</td>
<td>38</td>
<td>78%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>76</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Administrative questions comprised of serial number of the questionnaire, survey location and the survey date and time to be incorporated in three blank cells on the top right corner in the first page of the questionnaire. The respondent’s name and signature were sought at the top and bottom respectively, in the last page of the questionnaire.

Classification questions were included in the last page of the questionnaire. These constituted question numbers 21 to 22 and comprised of demographic characteristics of the respondents.

Further demographic characteristics like marital status and gender were not sought as they had no relevance to the study. Marital status is not expected to play any role in influence and gender is irrelevant as 100% of mechanics in
independent workshops are male. Occupation was not sought as the respondents constituted a convenience sample of full time two-wheeler mechanics. Educational qualification was not sought as only those mechanics who had obtained training at Industrial Training Institutes were chosen as respondents.

Unlike in the case of questionnaire for users in the previous section 5.4.2., mobile phone number of respondents was sought as mechanics willingly share their mobile phone numbers with their customers and any prospective customer at large in order to entice business for themselves, without the hesitation of the possibility of unwanted sales calls.

Target questions formed the bulk and body of the questionnaire. These questions were developed out of a series of in-depth pilot study discussions with 6 acclaimed and popular two-wheeler vehicle mechanics purposefully selected by the researcher, covering their interests, attitudes, commercial considerations, support by lubricants marketers and buying behaviour of their customers, in order to unearth factors and motives influencing mechanics. These questions were structured and investigative, grouped into topics to address the research objectives. Each grouped section started with explicit instructions on how to respond to the constituent questions in the group. The questions sought responses using a five point Likert scale with “1” indicating “Strongly Disagree” and “5” indicating “Strongly Agree”.
The questionnaire started with seeking declaration of the primary factor viz. recommendation of synthetic lubricants or mineral based lubricants and the brand of lubricant in question number 1A and 1B respectively. This primary factor is of the most vital importance as this research study attempts to find and measure the difference in constructs, variables and characteristics of sample elements based on this factor. Brand of lubricant has been sought for reporting descriptive statistics only and not to test any hypothesis.

Thereafter, the questions were grouped into items representing individual dimensions of the constructs being tested. Each construct included multiple dimensions. Standard scales on marketing and consumer behaviour existing in literature, created, tested and perfected by past researchers were referred to but not used to the full extent for reasons detailed in a previous section.

The target questions, grouped to represent dimensions of a construct, are detailed below:

The first set of target questions comprised 2 questions, to assess the broad level advice sought and influence exerted by mechanics on their customers with regard to the purchase and usage of the type and brand of lubricant, through question numbers 2 and 3 as follows:

2. I normally advise all my customers which 4T oil they should use in their two-wheeler.

3. My customers often do not take my advice and decide the brand of 4T oil to use in their Two-wheeler. “negative”
Broad level advice sought and influence exerted by lubricants shop salesperson was assessed next by question number 4 as follows:

4. My customers take advice of the lubricants shop salesperson on choosing the brand of 4T engine oil.

The above three questions were place at the beginning of the questionnaire in order to attract interest of the respondents and to set the pace to progress towards more in-depth questions.

Awareness of the product category was tested next by question number 5 as follows:

5. Till today, I was not aware that synthetic 4T oils for two-wheelers are available in the local market.

The next logical progress from awareness being the extent of interest and knowledge about the product category, the construct of knowledge included 4 scale items in question numbers 6 to 9 as follows:

6. I wish to know more about benefits of using synthetic 4T engine oils

7. I think synthetic 4T oils give better protection to the engine of two-wheelers than normal 4T oils.

9. I feel oil change period for synthetic 4T oils in two-wheelers is much more than normal 4T oils.

Commercial consideration was the next construct, assessed by 3 scale items in question numbers 10 to 12 as follows:

10. I feel that there will be loss of my income by advising customers to use synthetic 4T oils, as these customers will need to visit my workshop less frequently.

11. I feel that there will be increase of my income by advising customers to use synthetic 4T oils, as more customers will visit to my workshop.

12. Using synthetic 4T oils instead of normal 4T oils is a waste of money as I feel that synthetic 4T oils do not provide more benefits than normal 4T oils.

The construct of domain specific opinion leadership of the respondents was measured by the next set of 2 scale items in question numbers 13 and 14 as follows:

13. When I discuss about two-wheelers with other mechanics, I give them more information than what they give me.

14. I often try to convince other mechanics to use the brand of engine oil for two-wheeler motor vehicle of my choice.
It is hypothesized that two-wheeler mechanics are themselves influence by both above the line and below the line promotions of lubricants marketers and are also subjected to influence by social influencers. These influences are measured through the next 3 sets of questions.

The influence of various modes of advertisement was covered in the set of 8 questions with numbers 15A to 15G.

15. I have chosen to recommend the Type and Brand of 4T oil mainly due to:

A. Attractive display in shops

B. Attractive posters in shops

C. Hoardings on roadside

D. Advertisements in newspapers

E. Advertisements in magazines

F. Advertisements on FM radio

G. Advertisements on TV

H. Advertisements on websites

Question numbers 16A to 16J were 9 questions on different means of below the line sales promotion activities of marketers as follows:
31. I have chosen to recommend the Type and Brand of 4T oil due to the following activities by the Lubes company:

A. Sales Campaign at petrol pumps
B. Sales Campaign at lubricant shops
C. Sales Campaign at our workshop
D. Good incentive schemes - free gifts
E. Good incentive schemes - free tours
F. Good incentive schemes - lucky draw.
G. Training Programmes
H. Signboard, wall/shutter painting, uniform
I. Agreement - Loyalty scheme

The last set of 2 questions in question numbers 17A to 17B covered the influence of social influencers as follows:

17. I have chosen to recommend the Type and Brand of 4T oil mainly due to:

A. Advice of expert mechanics
B. Advice of company/distributor/shop salesperson.
The questionnaire attempted to be lucid and instructive throughout the three pages. It closed by thanking the respondent for the time and effort that they had devoted for the survey and offered an invitation to participate in Lucky Draw based on the questionnaire serial numbers to be sent by text message to the given mobile phone number of the researcher, to win surprise gifts. There was a check box at the end of the questionnaire to record whether the respondent had sent the text message and there was a separate box at the end for personalizing the response by putting signature by the respondent.

The questionnaire is given in Appendix – IV.

4.4.4 FINAL SURVEY FOR AUTHORIZED SERVICE STATIONS

The research instrument was a quick structured interview, on the basis of a prepared list of succinct questions as follows:

1. Do any of their customers insist on using lubricants of their choice?

2. Do they offer choice of lubricants to all their customers?

3. Do they sell any lubricant other than the company approved or company co-branded lubricant?

The data gathered was qualitative and the same is reproduced below.

The two-wheeler manufacturing companies ensure that all authorised service stations follow their directives on service processes and standards, including usage of company-approved genuine oils or co-branded lubricants only. All such genuine oils have now been upgraded to synthetic lubricants.
As use of lubricants other than that approved or co-branded by the company is strictly prohibited, authorized service stations therefore use the stipulated lubricants only and offer no choice of lubricants to their customers. Customers are aware of the fact and very few customers insist on using a brand or type of lubricant of their choice.

Whereas officially none of these service stations accepted usage of lubricants other than the approved brand and type, on further probing tactfully with the assurance of keeping the information strictly private, a small number of them accepted usage of spare parts and lubricants other than those approved by the vehicle manufacturing company, citing instances of stock outs and such other exigencies. However the data was unverified and not usable.

The gist of the interviews is that at authorized service stations synthetic lubricants are used and customers cannot exercise their choice of lubricant.

4.5 RESEARCH FLOW

The research followed a systematic flow of sequence of analytical and field survey work. The research objectives were formulated and an exhaustive review of literature to study past research work in the domain to understand their findings, limitations, gaps and directions for further research. Thereafter hypotheses were formed and research methodology was finalized, including development of two research instruments in terms of structured questionnaires. While the stages of data collection, analysis and conclusions are dealt with in later sections, in the current section, the linkage between objectives,
hypotheses and final survey questionnaires are shown as Research Flow in Figure 4.1 below:

**Figure 4.1  Research Flow**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Hypotheses Numbers</th>
<th>Questionnaire Question Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not Applicable</td>
<td>1, 2</td>
</tr>
<tr>
<td>2</td>
<td>1a-c, 14</td>
<td>8, 9, 11-14</td>
</tr>
<tr>
<td>3</td>
<td>2, 3, 11, 12</td>
<td>5-7, 10, 23-25</td>
</tr>
<tr>
<td>4</td>
<td>4a-b, 5a-d, 6a-f, 7a-d, 8a-h, 9a-e</td>
<td>3-4, 15-22, 26, 27, 30-36</td>
</tr>
<tr>
<td>5</td>
<td>10, 13</td>
<td>28</td>
</tr>
<tr>
<td>6</td>
<td>15, 16a-b</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>