

Analysis of the 'Buying' & 'Travel' Related Behaviours of Indian Motorbike Drivers by QFD Technique: A Case Study of Delhi-NCR Region

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ABSTRACT-With the increasing population, especially in the countries like India, it becomes incumbent on the researchers to benchmark the transportation systems in terms of the buying and travel behaviour of the consumers. Keeping in mind the large rural population, two wheelers seem to be the major means of transport between the short destinations. The same is true also for the interiors of the urban population in cities like Delhi, and the whole of Delhi-NCR region, for that matter. Being the second largest producer of two wheelers in the world, India hosts a substantial number of motor bikes. Present study made an attempt to apply Quality Function Deployment (QFD) to understand the motorbike drivers' needs so as to enable the motorbike manufacturers to offer a better quality product to the Indian market. Until now, a very dismal picture is there when it comes to evaluation of motor-bike drivers' needs by QFD, particularly, from the 'buying or travel behaviour' point of view in India. Present research identified and then prioritized the motorbike drivers' needs on Indian roads located in Delhi-NCR region. The investigations were undertaken through an inventory system, designed specifically for the present research to collect response-data of the motorbike drivers, which spanned over twelve stakeholders, who responded to the motorbike drivers' needs (8 in number). It was found that the need 'Buying Behaviour' and 'Travel-related' for the motorbike riders of the Delhi-NCR region, in particular, are the priority needs, as per the statistical analysis of the data obtained from the stakeholders. These needs must be taken care of by the motor-bike manufacturers before the actual design of the products. The result of the study are meticulously presented in light of the previous researches, the conclusions are drawn and the scope for future work is discussed.

1 INTRODUCTION

Riding a bike is a common way of transport in India and many other countries because the running costs are low compared to the car or truck modes. Bikes have also other advantages: they are easy in the process of buying, Also it is easier to park and sometimes no parking tickets or nearly no parking restrictions have to be considered. As regards the public transport, it is not always the easiest way to move from one point to another. In India, particularly in big cities, the user has to choose a specific mode of transport from those like a bus, tramway, metro etc.. Usually the destination coverage of the three groups of public transport is overlapping. The differences among them lie in terms of the needed time and their frequency of availability. The interesting process is the decision process of a traveller. How do consumers make their decisions? A buying decision is a confusing and most often an irrational action. Consumers are overwhelmed by the amount of available information and the variety of different choices. Typically the consumer's behaviour is the result of the influence of a variety of factors and the interaction between them (Czinkota 2001). Culture, social classes, family, personal influences, and

situations are the variables which determine such a decision process. Individual differences in needs, such as consumer resources, motivation, knowledge, attitudes, personality, value systems, and lifestyles have to be considered. Regarding the variety of needs, the decision process is not simple to understand. The crucial process is to find a link between a system, the data, and the user. The user is interested in a broad variety of aspects concerning data and data quality. A user wants an exact solution for his/her problem and does not care about the solution finding process. The critical aspect is to gather information about users and to group them. Each user group has certain requirements and different aspects of usability that have to be considered. The decision function can be easily determined if the exact circumstances of a user, his/her activity, and the decision-making environment are known. A price differentiation between the user groups is finally possible by knowing and analyzing the user group preferences. After understanding users' needs, describing processes, and determining specifications a system of measurements has to be established to find whether customer needs are considered completely with their consequences. On one hand, manufacturers have to look for the

mechanical aspects of the vehicle design and on the other hand, to be successful in the vehicle market, manufacturers must find out the needs of the motorbike riders. In general, the manufacturing viability of motorbike units depends on such factors as cost of production, quality of products, working finance, supporting infrastructure, use of technology, entrepreneurial skills, marketing etc. In India, working capital inadequacy, managerial deficiency, delayed payments from customers, lack of facilities for diversification, marketing problems, inadequate institutional credit, technological obsolescence, non-availability of raw materials, difficulties in power supply etc., are said to be the major problems. By way of the implementation of Quality Function Deployment (QFD) technique, customer satisfaction and service quality can be improved. Quality Function Deployment technique is an approach which focuses on improving the organization's effectiveness, efficiency and responsiveness to customers' and other stakeholders' needs by actively harnessing people's skills and competencies in the pursuit of achieving sustained improvements to organizational performance. Quality function deployment (QFD) is a management tool that provides a visual connective process to help teams focus on the needs of the customers throughout the total development cycle of a product or process. It provides the means for translating customer needs into appropriate technical requirements for each stage of a product/process-development life-cycle. It helps to develop more customer-oriented, higher-quality products. While the structure provided by QFD can be significantly beneficial, it is not a simple tool to use. (Bouchereau, 2000). To succeed in developing new products or in improving an existing ones is not easy. Studies indicate that as much as somewhere between 35 per cent and 44 per cent of all products launched is considered failures. It is one thing to actually discover and determines the customers' needs and wants but, to achieve results, these findings are needed to be implemented, i.e. translated into company language. Many companies depend on their warranty programs, customer complaints, and inputs from their sales staff to keep them in touch with their customers (Akao, 1990). The result is a focus on what is wrong with the existing product or service, with little or no attention on what is right or what the customer really wants. It is well documented that the use of QFD can reduce the development time by 50 per cent, and start-up

and engineering costs can be reduced by 30 per cent (Clausing and Pugh, 1991). Application of QFD technique to have an assessment of the motorbike riders' needs is the basic objective of the present study. In terms of the QFD terminology, this is better known as the determination of the 'voice of the customers' (VOC). The customers of the motorbikes are spread over variety of variables like different age-groups, males and females, left-handers and right-handers, personal factors, social factors, psychological factors, cultural factors, etc. and accordingly, their respective needs are different.

2 THE BUYING BEHAVIOR OF THE MOTORBIKE DRIVERS

It is quite evident that knowing consumer needs and desires represent primary road to success for the marketer in the field of two-wheelers. However, it is not a simple task. At the first instance, one can feel that whatever consumer is telling may be perceived as correct but actually he/she may act otherwise. Consumer behaviour is the study of how people buy, what they buy, when they buy and why they buy. Consumer Behaviour is the psychology behind marketing the behaviour of consumers in the marketing environment. Two major psychological disciplines come into play when observing and trying to explain consumer behaviour. The first is Cognitive Psychology which is a study of all knowledge related (mental) behaviour. The attention, perception, memory and decision making are the various aspects of Cognitive Psychology that play an important role in consumer behaviour. The second psychological discipline that has theories to explain certain phenomenon of consumer behaviour is Social Psychology. It is the study of the manner in which the personality, attitude, motivation and behaviour of an individual influence and are influenced by groups. Therefore, a consumer making a purchase decision will be affected by following factors/dynamics (Mani & Tripathy, 2013): (a) Cultural Factors (b) Social Factors (c) Personal Factors and (d) Psychological Factors. The marketer must be aware of these Factors in order to develop an appropriate marketing plan for its target market. Cultural Factors exert the greatest impact on buying behaviour of consumer. A buyer is always influenced by his culture, sub-culture and social class. Culture can be described from the dawn of civilization; human beings have been looking for ways and means to better their lives. Culture is the most fundamental determinant of a person's wants

and behaviour. Culture refers to the set of values, ideas and attitude that are accepted by a homogenous group of people and transmitted to the next generation. Whereas Subculture is a member of a culture, shares most of the core value, beliefs and behaviours of that culture. Sub culture includes nationalities, religions, racial groups and geographic regions. Social factors, on the other hand determine to some extent, the types, quality and quantity of product that a person buys or uses. Social class is a basis for identifying and reaching particular good prospects for products and services. Social Factors include reference groups, family, role and status etc. The end-users' buying decisions are also affected by such personal factors as age, occupation, life- style and personality etc. Finally, a person's acquired needs are influenced by certain psychological factors such as motivation, perception, learning and beliefs and attitudes.

3 RESEARCH METHOD & MATERIALS

With the ever-expanding scenario of the online sales, e-markets, and many such and similar requirements, the market is demanding more and more of the two-wheeler travellers, particularly the motorbike riders. Present research aimed at solving the problems of the manufacturers of the future motorbikes, particularly, from the viewpoint of the features of industrial design, so as to cater to the future market needs of the motorbikes. Present scenario finds the markets flooded with varieties of the motorbikes of different brands. However, it appears that these brands do not take care of the needs of the Indian riders. Present study aimed at exploring the needs of customers spread over, primarily the Delhi-NCR region of India so that the future designs of the motorbikes cater to the market needs as expressed by the Indian riders of the motorbikes. Once the researcher has completed the problem identification and its formulation, a methodology based on scientific approach has to be evolved in order to draw the final conclusions based on the research findings. The methodology comprises of the procedures and techniques for conducting the research. The major activities undertaken by the researchers are spread over the following phases: identification of the problem, review of the literature, structuring of the hypotheses, procedure for testing hypotheses, measurement tools, data collection, and analysis of data, interpreting the results and drawing conclusions. The present study was undertaken to develop an

understanding of the needs of the Indian motorbike riders to enable the manufacturers of the future motorbikes to incorporate the customers' needs in the industrial design of tomorrow's motorbikes. In order to have an assessment of the needs of the motorbike end-users i. e. the riders of the motorbikes, data were collected by way of the two modes i.e. by direct response collection from the bike riders through the designed questionnaires and through on-line distribution of the questionnaire. The literature indicated that various kinds of motorbikes running on the Indian roads, by popularity in 2016 (Bisht, 2016) are Bajaj Pulsar, Hero Splendor, Bajaj Discover, TVS Star City Plus, Hero CBZ, Hero Karizma, Bajaj Platina, Honda Shine, Honda CBF Stunner, and Yamaha Fazer. In the context of the motorbikes, various kinds of customers like those who purchased motorbikes of a particular brand etc were identified. The questionnaire was specifically designed for collection of data pertaining to needs of the motorbike drivers. In the questionnaire designed, in all, there were 70 questions. Each question addressed a particular kind of the feature of the problem. Buying and Travel behaviour was one of the features for which the responses were taken from the various categories of users/stakeholders.

4 RESULTS, DISCUSSION & CONCLUSIONS

The results were obtained in terms of prioritization of the motorbike riders' needs through ranking, statistical analysis of the response-data of the stakeholders and the 'voice of the customers' (VOC) identification as a part of the QFD. It was found that the consumer's behaviour is the result of the influence of a variety of factors and the interaction between them (Czinkota 2001, p. 104). For further analysis a separation between environmental influences and individual differences seems appropriate. Culture, social classes, family, personal influences, and situations determine the decision process. As stated earlier, individual differences in needs, such as consumer resources, motivation, knowledge, attitudes, personality, value systems, and lifestyles have to be considered. Regarding the variety of needs, the decision process is not simple to understand. Present work pertains to the motorbike riders and their needs assessment for the manufacturing of those motorbikes which satisfy its end-users. In all, the stakeholders were divided into 12 categories as shown below (Table 1). These stakeholders'

response data, collected through the questionnaires to identify the needs of the motorbike drivers.

Table 1 Different categories of the motorbike riders, taken as stakeholders in the present study.

S. NO.	STAKEHOLDERS
1	Employed riders
2	Others (unemployed, students etc)
3	Graduates (Ph D/ PG/ Bachelors)
4	Non graduates (UG and below)
5	Elders (Above 30 yrs)
6	Youngsters (Below 30yrs)
7	Males
8	Females
9	Right-handed people
10	Left-handed people
11	Experienced (More than 2 yrs Driving)
12	Starters (Less than 2 yrs Driving)

The motorbike drivers' responses, when grouped, yielded eight (8) different categories of needs as shown in Table 2. On the basis of the response scores, it emerged that all the stakeholders give top priority to their 'travel behaviour' related needs whereas the 'brand' related needs were ranked last i.e. 8th in the category of the needs considered in the present study. In this context, it might be observed earlier researchers on motor bike drivers' needs primarily focussed on the mechanical aspects of the design while other needs are also important.

Table 2 Eight categories of needs obtained through the response-data of the motorbike drivers.

S.NO.	NEEDS
1	Performance Related
2	Brand Related
3	Economy Related
4	Seller Related
5	Buying Behaviour Related
6	Travel Behaviour Related
7	Benefits Related
8	Industrial Design Related

Literature review shows that perhaps not many studies related to such motorbike drivers' needs as undertaken in the present work were conducted in the past, and therefore the needs established in the

present study are difficult to be discussed in light of previous researches. The results were obtained for all the 66 possible pairs of the stakeholders corresponding to all the eight different considered needs of the motorbike drivers. Statistical analysis of data, undertaken through the standard SPSS software package, based on the 'paired t-test' procedure revealed that with respect to the variables, needs, certain pairs of stakeholders showed statistically significant differences in their opinions. Out of the 66 pairs tested, 25 were found to be statistically significantly different.

The top-ranking need was found to be 'travel-behaviour related' needs of the motorbike drivers. It covered such aspects as number of biking days (measured in number days per week) and number of biking miles (measured in number of kilometres per day). The 'buying-behaviour related' need spanned over such aspects as buying culture of the neighbourhood, buying culture in the family people; personal choice of liking a motorbike, the choice of the society people, price affordability, fitting into the lifestyle, technical information availability for buying, frequency of travelling, need to travel long distances and enjoying the driving. The QFD would be very helpful in developing more customer-oriented, higher-quality motor-bikes if such recommendations are considered. It is one thing to actually discover and determines the customers' needs and wants but, to achieve results, these findings are needed to be implemented, i.e. translated into company language and many depend on their warranty programs, customer complaints, and inputs from their sales staff to keep them in touch with their customers (Akao, 1990). As stated earlier, the use of QFD can reduce the development time by 50 per cent, and start-up and engineering costs can be reduced by 30 per cent (Clausing and Pugh, 1991). In terms of the future scope of research on the topic, it may be observed that, firstly, among others, India's Honda Motor cycle & Scooter India (HMSI), is now the largest contributor to parent Honda Motor Company's two-wheeler business world-wide, both in production and sales (Sengupta, 2017), whereas, secondly, number of fatalities on Indian roads are also increasing day by day. Such a situation demands more extensive research on the VOC so that in light of the demanded customers' needs, future designers might be required to pay more attention in evolving the future motorbikes from the 'industrial design' point of view.

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