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Environment Friendly Car: A study of Consumer Awareness with special reference to Maharashtra State

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Abstract: The aim of the study is to understand the behaviour of the customer in the state of Maharashtra which is one of the most developed states of India. The study is being carried out to understand the customer awareness on environment friendly car (EFC). The objective of the study is to understand the awareness levels and create awareness of the EFC so that the efforts of the manufacturing the green car will be achieved. SPSS version 17.0 has been used for analysis of the data. 500 respondents have been asked to fill in a questionnaire. The study has been done keeping in mind age group and the geographical area of the respondents. With reference to the age group, it is observed that there is no significant difference in the awareness levels but with reference to the geography, it is observed that there is a significant difference in the awareness levels with reference to the EFC.

Keywords: *Customer awareness, Environment friendly car, age group, geographical distribution*.

1. Introduction

The Indian automotive industry is witnessing a trend of volume growth, which has been defying all seasonality trends of the past. This is reflecting the structural change in customer patterns driven by the strong economic performance adding strength to the income levels of the urban as well as rural customers. The volume growth (Pandey, 2010) of the industry as on Sep 2010 has been around 26% with the passenger car segment growing at the rate of 34% approx. and commercial vehicle segment growing at 45% approximately leading the way. The robust growth across the segment has led to demand surpassing supply in all major segments with suppliers facing acute capacity shortages. The surprising and heartening trend can be ascertained from the fact that despite the OEMs having raised prices in response to higher commodity prices and newer emission norms, demand growth has not been deterred. One business area which has a good share in the economy of a country is the Automobile sector where environmental issues have received a great deal of discussion in the popular and professional press. Terms like "Green Car" and "Environmental friendly car" appear frequently in the press. This is one sector of the industry which takes care into account everything right from the idea generation to customer delight. It includes the production process, the raw material, the consumption and the disposal. It has been observed there is a lot of scope to make the product greener and the production process cleaner. Many governments around the world have become so concerned about green automobile that they have attempted to regulate them. Wide spread public acceptance of the global environment crisis have caused a gradual shift in the focus of the environmental movement. For marketers, environmentalism has become a criterion influencing customer purchase behaviour. Environmentally responsible consumption Follows & Jobber (2000) emanated from criticism that the marketing concept ignored the impact of individual consumption upon the society as a whole. Terms like green marketing and green customer have evolved and a lot of work is being done to understand the awareness levels of the customer, their attitudes towards the green products and their willingness to accept and pay a premium for the green car or green product.

Every year people living on the earth throw away enough garbage to cover a huge part of the world. Most of the waste ends up in landfills which are very costly and which may have a major impact on the environment and on the health of the people living on this planet. Saving the environment has become a big issue in recent times. The messages are being promoted as REDUCE, RE-USE and RECYCLE. Consumer product companies are always selling us a new bill of goods (Eisenberg, 2008). The latest is that we can shop our way to a healthier planet. Over the years, it is told to us that cool cars would make us free and diet soda would make us popular. But there are some things money -- and advertising -- can't buy, and a clean environment is one of

them. The hard fact is that global warming, deforestation and other earthly ills cannot be solved by switching brands. It takes resources to manufacture and transport all products, even those made from recycled content. More often, it is greener to follow the old dictum: reduce, reuse, and recycle. Even if the phrase 3Rs has been heard a thousand times before, but with the "green" word now co-opted in the sales of services, the three R's are a phrase -- and a principle -- worth reviving. This study focuses on customers and customer behaviour in relation to environmental friendly car. It starts from the assumption that environmental problems are closely related to individual customer behaviour, and that individual customer behaviour is one of the major causes for the existing environmental problems. Without substantial changes, in the long term these consumption practices present a serious threat to the environment and to society as a whole.

This study narrows down on one specific area and that is to measure the awareness level of the customers with reference to the green cars. Understanding the subject and the outcome of the study should help the marketers and the government to device the strategies which will motivate the customers to buy green product and save the earth. Prospective customers who visit the dealers' showroom for test drive or purchase of the car n the Mumbai and Pune and small districts places have been asked to fill in the questionnaire to study their awareness for the environment friendly car. It is assumed that customer behaviour can be changed and be made less environmentally damaging through the development and successful market introduction of innovative products and services. In this approach, industry has a key-role to play. By means of innovative products and services, it is possible to intervene in current unsustainable consumption practices and to provide alternatives to individual customers.

2. Review of Literature

Many studies broach the issue of environmental concerns related to consumer behaviour and their purchase decision for personal cars. Many researchers (Ottman, 1993 and Polonsky, 1994) have studied that a majority of people believe that green marketing refers solely to the promotion or advertising of products with environmental characteristics. Brower and Leon (1999) have urged the customers to take steps such as driving fuel –efficient, low polluting cars, eating less meat and making their homes energy efficient. Rothe and Benson's (1974) notion of "intelligent consumption" and Fisk's (1973) concept of "ecological imperatives" reflect the need to educate the consumer to become aware of environmental problems and their relation to his/her consumption patterns.

Many believe that social marketing (Andreasen, 1994) can have a major impact on the society's myriad social problems. However, this impact can be seriously compromised if the technology is applied incorrectly or to areas in which is not appropriate. Consumers have more power than ever before. Schiffman & Kanuk (2004) has used intelligent agents to locate the best prices for the products or services, bid on various marketing offerings, bypass distribution outlets and middlemen, and shop for goods around the globe and around the clock from the convenience of their homes. To understand about the awareness of the consumers and their behaviors, in depth, study has been done on the various literatures available in the area of green marketing. From an empirical perspective, a substantial academic and professional literature explores the areas like sustainable marketing, consumer behaviour and green car and its response in the marketplace. The methodologies of these studies vary widely but the major findings have been observed to define the research objective The above literature review gives an in-depth idea on the topic and it is also observed that not much work has been done in India in reference to the environment friendly car and customer's behaviour with reference to the eco friendly cars.

3. Rationale of the Study

The concern for the environment has increased significantly during the past decades and at the same time people's values and attitudes towards nature have changed substantially. As far as the automobile Industry is concerned and that also the passenger cars many research results have shown that environmental awareness has more to do with the customer attitudes and values. In other words there is lack of involvement of the customer in greening the earth.

Vehicular pollution is a bigger threat to human health than any other type of air pollution because this pollution exists at that level from where humans use air to breath. Rapid increase in the number of personal cars is the major cause of deteriorated air quality in the metro and non metro in India. Cars have two opposite personalities. One is friendly and attractive the other is destructive and lethal. The desire to own a car is linked to pleasure, social status, convenience and freedom. There is a strong need for a joint effort of car manufacturers, the marketers, the government, the car customers and all the stake holders in the system to control and reduce the ever increasing problem of pollution and its impact on the earth.

Green marketing of environment friendly car important for the future

The mankind has limited resources on the earth, with which she/he must attempt to provide for the worlds' unlimited wants. In market societies where there is "freedom of choice", it has generally been accepted that individuals and organizations have the right to attempt to have their wants satisfied. As firms face limited natural resources, they must develop new or alternative ways of satisfying these unlimited wants. People do not realize where our future generation is going to live. The dumping yards in Japan are already full and similar is the state in Netherlands. It is the need of the hour that in India customer need to understands the importance of environment friendly car and start using it.

Social responsibility

There is a need to identify real needs of customers and align that with the marketing mix. Customers need to go through, asking themselves for example: “Do they buy a cleaner car? Should they rather rent a cleaner car? Can they use public transport? Do they have to travel at all?” It appears that customers are not overly committed to improving their environment and may be looking to lay too much responsibility on industry and government. Customers should look forward to creating a cleaner environment and should prepare themselves to "pay" for it, possibly through higher priced goods, modified individual lifestyles, or even governmental intervention. Until this occurs, it will be difficult for marketers and government alone to lead the green marketing revolution.

When thinking along the lines of sustainable innovation, automakers must change the way they balance “green” with the bottom line. The auto industry seems to lack the financial foresight to take the advantage of the long term savings and the goodwill that comes with being green. There is a need for creating and marketing an environment friendly car which is going to have reduced detrimental impacts on the mother earth and creating a sizeable awareness for the same. Not much work has been done in this sphere in India and there exist a need for research on this particular area.

Objective of the study

The understanding of consumer behavior is important for any business activity and more over if the product is to deal with the environment. The research focuses primarily on ascertaining the links between customer’s beliefs, knowledge, attitude, intentions and vehicle purchase behaviour/ use behaviour as well as preference of the customers given to the environment while buying the car. This research study is to understand the customer behaviour towards the environment friendly car. The main objectives have been defined as:

- To study the awareness levels of the customer in the various age groups regarding their understanding about eco-friendly car.
- To study the awareness levels of the customer in the various geographical areas regarding their understanding about eco-friendly car.

Research hypothesis:

The following Null hypothesis has been tested as a part of research:

H01: There is significant difference in the awareness levels of the customers in the various age groups regarding the eco-friendly car.

H02: There is significant difference in the awareness levels of the customers in the various geographical areas regarding the eco-friendly car.

4. Research Methodology

The study has been exploratory in nature and a sample survey method has been employed for data collection. Primary data is used for the purpose of the study. Research design for this research is planned structure and strategy of investigation conceived so as to obtain answers to research question or objectives and also to control variances. The said study is conducted to understand the behaviour of the customers in Maharashtra while purchasing an environment friendly car and also to understand their willingness to pay more incase the environment friendly car cost more. The scope of the research is limited to environment friendly car in Maharashtra.

Sampling Design

In the present study, all the cars owners or prospective car buyer in Maharashtra is considered as the population. The prospective car owners could be all those people who intend to buy a car in near future or are visiting the car showroom for a test drive or for collecting the information of the cars. This population includes people from Mumbai and from non metros who own a car or who wish to purchase a car. Based on the convenience the Mumbai and Pune have been taken as Metros and other parts of the state have been taken as non-metro part of Maharashtra. The domestic sales data of the passenger cars as per Society of Indian Automobile Manufacturers (SIAM) is 1.552 million units for the year 2008-09 and it is assumed from the review that approx 10% of the customers may actually afford the green cars like Prius, Honda Hybrid etc.

The Sample

The sampling plan used has been consistent with the methodological guidelines provided for conducting survey research in marketing. The stratified random sampling technique was used for the present work. A sample of 500 respondents was selected with the help of stratified random sampling method. The sample has been chosen at selected dealers of cars in Metros and few non metros. These included prospective car buyers and people who came to buy their next car. The sample consisted on the basis of demographical variables such as, qualifications, and place of stay.

Data Collection Tools

A non–disguised structured questionnaire has been used as the tools for collection of data from the field. It has been designed with utmost care so that accuracy of the work could be high. The five point Likert scale has been used for the research purposes. A pilot study was undertaken first in order to determine whether the questionnaire and the scale is easily understood and responded to by the respondents.

Data Collection Process

The data for the present work has been collected personally by the researcher as well as helps has been taken from others in getting structured non- disguised questionnaire filled properly. A pilot study was also undertaken to pretest the questions in order to determine whether they are easily understood and responded to by the respondents. The automobile dealers were selected in both metros and non-metros as the ideal place for identifying the respondent who would be interested in buying a car. The people who had already owned cars or who are thinking of buying a car and have approached the showroom of a car dealer for buying a car have been considered as potential respondents.

Data was collected with the help of the structured questionnaire has been tabulated, analyzed and interpreted using suitable statistical tools including the t test, and simple percentages. Tables have facilitated the representation of the data. The data was analyzed using the SPSS (Statistical Package for Social Sciences).

While constructing the questionnaire researcher has made every effort to take the views of the prospective buyers towards the manufacturer. The flow of the questions is from the most general topic about the basic awareness on pollution by automobiles, car pooling, use of public transport etc to set the flow of the respondent. Customer's expectation from the government is also being measured as a part of the study. Role of the regulator and legislation which can prompt customers to buy EFC is also explored in the questionnaire. The various factors which are important in buying a car have been care fully considered after discussing with the buyers and the sellers in the market place. Customers were expected to rank these factors in the order of their preference. Environment friendly design has also been considered as a factor to understand where this factor stands in the order of the preference while buying the EFC. The reliability of the scale was checked with the sample size as 100 which is 20 percent of the total sample size. All the filled up questionnaires have been screened for completeness and the ones in which responses of all the statements have been complete, were selected for analyses. The questionnaires incomplete in any respect were rejected.

5. Data Analysis and Discussion

The data collected was analyzed with the help of SPSS. After applying the appropriate hypothesis testing procedures the following analyses was obtained.

H01: There is significant difference in the awareness levels of the customers in the various age groups regarding the eco-friendly car.

Table 1: Awareness with reference to Age of the respondents

Awareness	AGE	N	Mean	Std. Deviation	Levine's Test for Equality of Variances F	Sig.	t-test for Equality of Means	Df	Sig. (2-tailed)
Equal variances assumed	Less than 35	320	3.5008	0.4269	.394	.531	1.489	493	.137
Equal variances not assumed	More than 35	175	3.4429	0.3894			1.529	386.73	.127

From the table it can be seen that measure of awareness values for both the age groups viz 3.5008 and 3.4429 respectively do not have significant difference.
The hypothesis is rejected.

H02: There is significant difference in the awareness levels of the customers in the various geographical areas regarding the eco-friendly car.

Table 2: Awareness with reference to Geographical Region

Awareness	AGE	N	Mean	Std. Deviation	Levine's Test for Equality of Variances F	Sig.	t-test for Equality of Means	Df	Sig. (2-tailed)
Equal variances assumed	Non-Metro	340	3.4125	0.4265	15.263	.000	-5.588	493	.000
Equal variances not assumed	Metro	155	3.6303	0.3430			-6.057	365.22	.000

From the table it can be seen that measure of awareness values for non metro and metro viz 3.4125 and 3.6303 do have significant difference. Respondents from metro have higher level of awareness.
The hypothesis is accepted.

Discussion

The study investigates the awareness levels of the customer in the various age groups regarding their understanding about eco-friendly car. The results of study indicate that there is no significant difference in the awareness of the respondents for environment friendly car with reference to the two age groups which was considered in the research. Study also examines the awareness levels of the customer in the various geographical areas regarding their understanding about eco-friendly car. The results of the study show that customer who responded were either from the metro or a non-metro in Maharashtra. There is a significant difference in the awareness level of the customer in metros and non metros. The results indicate that awareness level of the respondents is higher in the metros as compared to the non-metros in India for environment friendly cars.

There is a need to increase the awareness levels in the non-metros of Maharashtra by the marketers, media houses, and government. Population wise there exists a big potential in rural districts of the state and if one has to really make the impact of the pollution less then focus should be rural parts. Currently the scene is not very bad from the rural front but before it gets the same level of pollution in the rural Maharashtra, it is suggested that preventive steps to be taken right from now to create the right level of awareness amongst the rural population.

6. Conclusion and Recommendations

Conclusion

It is concluded from the result that though customer's have an opinion that they are aware about the EFC but it is very clearly from the results that more awareness has to be created in non metros. As India is growing in the rural and metros seem to be saturated it is more important to focus on non-metro. While testing the awareness of the customers on the academic front there is no difference in the awareness level. The awareness levels are very generic and detail knowledge of the disposal of the car, the batteries and the tyres etc is missing amongst the customer. These are very damaging when it comes to the impact on the mother earth. The results indicate that the awareness amongst the various age groups is similar and hence the marketer and the government should create the desired knowledge and effective use of media should be made so that people are made aware of the environment problem arising out of the cars being used. New papers being the most effective media the benefits regarding EFC should be made public.

Recommendations

In the state of Maharashtra the electric car is yet to be launched in a big way and it is very important that following things need to be kept in the mind by the participants of the ecosystem that unless there is enough work done in term of infrastructure, customer will not be buying the green cars even if they are aware of the benefits. There is a need to create servicing and maintenance facilities service the cars. There is also a need to train professionals for serving the green customer so that the continuity is built in the process itself. The researcher further recommends that further studies and research is required to fully ascertain the attitudes of the car buyers in India and their behaviour for the environment friendly car. Attitudinal issues that require further investigation include vehicle technology; the impacts on the earth through the cars, ownership cost of the car etc which would help provide insights as to how messages are interpreted by the customer. This will further enable the marketers of these cars to improve the design and make the future educational campaigns for effective. The study will help the marketers to design the marketing strategies so that benefits of the environment friendly car are continuously demonstrated in their product promotion to the customer in the form he understands the best.

The efforts will have to be made by the manufacturers that the TCO (Total Cost of Ownership) of the environment friendly car should be made low to the extent possible to reduce the over all financial burden on the customer and this will enable the marketers to promote the cars easily in the market place. The marketers have to understand the segment and based on the preference it is important that environment friendly car be projected as status symbol. This will help promoting the cleaner vehicles. Creating a green parking space or policy for giving preference for parking to the green customer can further enhance the social value in term of status symbol. There is a need to map the customer dynamic behaviour as new green technologies need to be encouraged and adopted.

Limitations of the study

The research has made every effort to contribute best in its own capacity. In spite of this there have been few limitations to the study like, the limited knowledge of the respondents and sample size is small.

References

Andreasen, A. R. (1994). Social Marketing: Its definition and domain, *Journal of public policy & marketing* 13(1): 108-114.

Brower, M. & Leon, W. (1999). The consumer's guide to effective environmental choices: practical advice from the Union of Concerned Scientists. New York: Three Rivers Press.

Eisenberg, S. (2008). The 3R's still Rule", *this green life, a journal of Sorts*, Natural Resources defense council. Retrieved on 27.09.2010 from http://www.nrdc.org/thisgreenlife/0802.asp.

Fisk, G. (1973). Criteria for a Theory of Responsible Consumption. *Journal of Marketing,* 37 (2): 24-31.

Follows, S. B. & Jobber, D., (2000). Environmentally responsible purchase behavior: a test of a consumer model. *European Journal of Marketing*, 34(5/6): 723-746.

Ottman, J. (1998). Green Marketing: Opportunity for Innovation. 2nd ed. NTC Business Books.

Polonsky, M. J. (1994). An introduction to green marketing. *Electronic Green Journal*. 1(2).

Pandey, P. (2010), What seasonality? Demand grows unabated, Motogaze ICICI Direct.com. Equity research. Retrieved on 30.09.2010.

Rothe, J. T. & Benson, L. (1974). Intelligent Consumption: An Attractive Alternative to the Marketing Concept. *MSU Business Topics, Winter* 29-34.

Schiffman, L. G., & Kanuk, L. L. (2004). *Consumer behavior* Pearson Education. New Delhi. PHI Pvt. Ltd.