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Perception and Awareness Level of Potential Customers towards Electric Cars

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Abstract: Environmental sustainability is one of the most important concerns as it decides the life span of our Earth. Transport sector ids second largest in emitting carbon into environment. This is right time to go for an alternative (electric cars), understanding the potential buyers awareness about the environment friendly electric cars and their perception level towards various features offered by electric cars will help in formulating the campaigns by manufacturers and Government as well.
Keywords - Electric cars, awareness, perception, environment, Potential customers

I. INTRODUCTION

India's automobile industry is the sixth largest in the world and accounts for 22% of the country's total manufacturing output. In the last decade, India has been growing at a faster rate on the motorization curve. As a result, urban traffic congestion and the air quality gets affected in the all major metropolitan cities and town. In India, the transport sector alone contributed around 18% in terms of carbon emission. Indian government is trying to move to alternative fuel based vehicle technology. The Electric Vehicle (EV) is one of the most feasible alternative solutions to overcome the crises. Several automotive companies are slowly venturing into the EV space and are expanding their portfolio. Promoting Electric vehicles through innovative ways can help reduce fossil fuel dependence and pollution, and prove to be beneficial for both consumers and the nation in the long run. Electric vehicles can have a significant impact on the reduction of greenhouse and pollutant gas emissions associated to the transportation sector. The awareness about new products among the consumers has an impact on their behavior in the long term. The consumers with knowledge about products develop an attitude towards specific products. In this paper the awareness about environmental-friendly cars among automobile involvement consumers is discussed.

II. OBJECTIVE OF THE STUDY

The major objective of the study is to understand the awareness level of potential customers of Electric cars. Among those who are aware, perception towards EV changes from person to person. Hence, it is important not only to make people aware about the product but also to understand their perception in order to cater them effectively. They perceive the various features adopted in Electric cars as well as the amenities required for the maintenance of Electric cars. Understanding the potential buyer's awareness about the environmental friendly electric cars and their perception level towards various features offered by electric cars will help in formulating the campaigns by manufacturers and Government as well.

III. RESEARCH DESIGN

Based on the review of literature and theoretical framework, Questionnaire is formed to perform the survey. The Questionnaire has four parts. The first part of the Questionnaire asks for the respondents' demographic factors. The second part is to understand the awareness level of respondents about the benefits offered by electric cars. The third part contains the perception of respondents towards electric cars. The demographic factors are recorded using nominal scale. Likert scales are used to record the awareness and perception of respondents. The questions are selected carefully in such a way it best suit the research objectives. Most of the questions are in Likert scale and so closed ended.

A. Method of Data Collection

The survey Questionnaire is circulated entirely through offline and none of the Questionnaire is circulated online. This is because the prospecting customers, who would buy electric cars would not be very active online and so offline is preferred for collecting data. The data are collected in prime locations of Coimbatore, where prospecting customers would gather. The locations from where the data are collected include Brook fields and Fun mall car parking and some of the apartments in Coimbatore. Some of the Questionnaire is also circulated among students because they are the future prospects and also play a highly influential role in purchase decision of cars. At most care was taken to include all the demographic segments to avoid bias towards any particular factor.

B. Population

The population for this survey would be the people above the age of 18 in India. This is because only people above the age of 18 would have a significant role in purchasing decision of valuable possession like cars. It is highly difficult to reach out to the entire population and even not possible. Hence sufficient sampling technique should be adopted to collect the data. This sampling technique should be in such a way that it should represent the entire sample.

C. Sampling Design

Here the entire population is split geographically for our convenience. The size of the sample is chosen sufficiently atleast to represent all the options included in the demographic factors. Sample data is collected offline through hard copies that are distributed among the respondents. Final results are made to understand the potential customers' perception towards electric cars using descriptive, frequency analysis and also through cross tabs of influencing factors.

C. Sampling Method and Sample Size

The subgroup chosen for our survey is Coimbatore district. Hence, all the individuals above the age of 18 in Coimbatore would represent our sample. Probability sampling technique is used in order to provide an equal chance to all the elements in the population. Simple random probability sampling technique is used to collect the data. This sampling technique is used because of time constraints and to have a fair spread of data when demography is considered. Sample size chosen is 200. Hence, data is collected around 200 elements from the sample i.e. around 200 individuals, who are in the age of above 18 in Coimbatore district are chosen randomly for data collection.

D. Tools of Analysis

The tools of analysis used are SPSS (Statistical Package for Social Science) Statistics 17.0 and Microsoft Excel. The required graphs and charts for interpretation is made using Microsoft Excel.

E. Analysis and Interpretation

1) Profile of the Respondents

a) Age: It is one of the important factors to be considered for the purchase decision of automobiles Here, working professionals and students play a major role in the decision making. In our survey, 18% of the respondents belong to the age group 20 to 24; 25.5%, 26% and 30.5% belong to the age groups 25 to 29, 30 to 34 and 35 and above categories respectively.

b) Gender: As gender is concerned, the survey is inclined towards male (65.5%) when compared to its counterpart (35.5%). This is because, the decision making authority of shopping products like automobiles will generally be with male. But this trend is changing as days pass on. Hence, female cannot be neglected and so a considerable number of respondents belong to the gender female.

c) Education: From the total sample, 30.5% of the respondents hold UG degree, 58% hold PG, 9.5% hold Doctorate and 2% of the respondents had been dropped out of school. As far as occupation is concerned, 26% of the respondents are self employed, 34% are private employee, 14% are government employee, 7.5% are home maker and 18.5% are students.

d) Annul Income: It is one of the important factors which decide the purchasing power of automobiles. In this survey, 14.5% of the respondents have an annual income of below 2.5 lakhs, 14.5% have an annual income in the range of 2.5 to 5 lakhs, 22% have an annual income between 5 to 10 lakhs, 22.5% in the range of 10 to 20 lakhs and 26.5% earn above 20 lakhs per year.

e) Marital status and family: Marital status and Family size are important as those factors play a vital role to decide the type of automobile to be purchased either Sedan or Hatchback or SUV. In this survey, 36.5% of the respondents are single and the rest (63.5%) are married. 10.5% of the respondents say that they reside alone or along with one family member, 68.5% say that their family has 3 or 4 persons and 21% say that their family has more than 5 members. This also proves that Sedan and Hatchback are fast moving automobile types rather than SUV as around 70% say that their family consists of 3 or 4 members.

F. Settlement Hierarchy

Settlement Hierarchy i.e. the background the individual hails from is very important to be considered for studying the awareness and perception of customers because the various hierarchy determines the lifestyle of the individual, which in turn influences his/her behavior. Here, 23.5% of the respondents hail from metropolitan city, around 62% hail from city, 8% from town and 6.5% of the respondents hail from village. This survey fails to cover people from low settlement hierarchy as the survey is taken in Coimbatore.

G. *Awareness Level*

1) *Findings:* 15% of the people do not own a car. Out of those 15%, nearly 55% are ready to own a car. Around 70% believe that the brand of car they possess reflects their social status. More than 70% feel that electric cars will dominate the future. Around 50%, 43% and 25% of people feel that personal opinion, family and friends respectively influence their purchase decision. Around 40%, 46% and 46% of people gather information through company website, social networks and word of mouth respectively. Most of the people are aware that electric cars emits less carbon and eco-friendly but post relatively low awareness towards high efficiency and low maintenance cost. Almost all of the people are not aware of the incentives offered by the Government for the purchase of electric cars.

2) *Inference:* One out of 10 people consider buying a car. It is the right time electric car manufacturers to tap the market. Brand building of any automobile is important as it directly affects the market share. It is the right time for all automobile manufacturers to concentrate in the manufacturing of electric cars. All the campaigns organized regarding electric cars either by the manufacturer or the Government should make an impact to the individual's family members to help better conversion rate. Updating the company website as and when required and active presence in social networking sites are important. Societal advantages offered by electric cars are reached well among the people when compared with economic advantages offered by electric cars. Though Government offers Rs. 795 crores for the manufacturing of hybrid and electric cars through FAME, people hardly know about the same.

H. *Perception Level*

1) *Findings:* People perceive that price, maintenance cost and recharging time are comparatively high for electric cars. People perceive that number of variants available and resale value of electric cars is low as compared with other factors. Education of the people plays a major influence over the awareness level. Performance, safety features and number of variants available are perceived with the major percentage deviation between those who are ready to own an electric car and those who are not ready to own an electric car.

2) *Inference:* People pay price premium for electric cars but maintenance cost and running cost is comparatively low and so electric cars are economical. This fact should be spread through appropriate medium to break the negative perception among the people. Consumer behaviour for purchasing electric cars is complex in nature and hence increase in number of alternatives would provide a better option to potential customers. Societal, environmental and economical benefits offered by electric cars should be communicated through the right medium to reach the people who are uneducated (doesn't hold a degree). Safety features and number of variants should be at par with conventional IC engine cars, so that the deviation would reduce. Performance should be increased with continuous R&D to reduce negative perception level among the people.

IV. CONCLUSION

Education of people has significantly higher influence over their awareness level on electric cars as the people who are school drop outs have very low awareness about the benefits offered by electric cars. Irrespective of the demographics, incentives from the Government for purchase of electric cars has not gained any awareness among the potential customers. People perceive that price and maintenance cost is relatively high over other factors. Even the people who are ready to own electric cars perceive that the price of electric car is relatively high, but they feel that performance offered and maintenance cost is considerably low than the conventional cars. Hence they prefer electric cars. Similarly, charging infrastructure is perceived as low and recharging time is perceived as high.

Apart from manufacturers, Government should strive hard to spread awareness and influence positive perception among the potential customers. Because environmental sustainability is one of the major concerns to be addressed and electric cars would ultimately aid in achieving the same as the carbon emissions from electric cars is almost 90% lower than conventional cars.

People believe that electric cars will dominate the near future and if technological advancements and Government supports considerably, electric cars may even replace the conventional cars in few decades of Tim

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