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A STUDY ON ATTITUDE TOWARDS ENVIRONMENTAL CONCERN BY THE CUSTOMERS OF ELECTRICAL VEHICLES

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ABSTRACT

The electric vehicle industry has developed along regional lines, with the U.S. market being served by U.S. companies, the Asia/Pacific market dominated by Japan, and West Europe dependent on European models. Exceptions are the Honda EV-Plus, Toyota Elec-RAV4, and Nissan Altra models, made in Japan, and sold in the U.S. mostly in California. By 2007, as commercial-scale production is realized, manufacturers will export outside their regional markets and are likely to globalize production. Environmental pollution is currently a global concern. toxical emission from internal combustion is one of the air pollutants. This study is conducted to find out if the buyers of Electrical vehicle have any environmental concern in mind while making their purchase decision. The data collected is analyzed and the findings of the study confirm that the electric vehicles can become a suitable instrument for a much more sustainable future in the mobility industry.

Keywords: *Environmental Pollution, Electric Vehicle, Globalize Production, Sustainable Future.*

Introduction

In order to minimize the issues and challenges of fossil fuel emissions and address environmental concerns, electric vehicles are being promoted by all the governments by providing various incentives. The Government of India has given a call for 'only Electric Vehicles' on Road by 2030. India's commitment to controlling pollution and reducing carbon footprint is also increasing.

Electric charging infrastructure consists of electricity generation, transmission and distribution, and PEV charging equipment and stations. It is expected that most charging will occur overnight when the EV is at home in a dedicated parking space. The EVSE in the home can be a conventional circuit and receptacle that provide 2-3 kW of power (this has been designated 'Level 1' charging), or a higher-voltage (240 V or higher), higher-amperage (30 A plus) circuit and special recharging equipment that provide 6 to 12 kW or more of power (sometimes called 'Level 2' charging)

Environmental Concern

It is the individual's awareness of environmental problems and their willingness to address these issues. EVs are purely battery-powered and have no exhaust and produce no emissions. Local residents, pedestrians, and cyclists are most affected by the emissions of fossil fuel vehicles, but people traveling by car can also be affected by the poor air quality in the area. The EVs have a clear lead in this respect, although internal combustion vehicles have improved significantly in recent years – especially in terms of particulate matter emissions.

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Apart from this the disposal of used battery is also a challenge. Recycling methods would not only prevent pollution, but also help governments boost their economic and national security by increasing supplies of key battery metals. Disposing of EV batteries is a waste management problem.

Literature Review

Delucchi, A. M. A., et.al., (2019) have researched on infrastructural requirements for maintaining an electric vehicle. Like all automobiles, PEVs provide important functions, such as mobility, but also have symbolic meaning and can engender strong emotional attachments. As a result, EVs do not merely replace and serve the traditional functions of conventional vehicles—they also can provide access to revised and wholly new personal and social values. As consumers experiment with, the most important strategies are motivating PEV manufacturers, targeting specific regions and local PEV clusters, and restructuring and streamlining regulation of PEV charging

Kah, M. (2018) in the article on Electric Vehicles and their Impact on Oil Demand mentioned that the passenger vehicle sector represents only about one-quarter of the oil demand barrel, the sector receives a significant amount of attention from some governments and the media. This transition is because of the belief of a rapid transition from conventional oil-powered cars to electric vehicles (EVs). This is necessary to reduce greenhouse gas emissions and improve the urban air quality. Various studies have analyzed the impact of EVs on oil demand. The author wanted to determine whether the reason for choosing EV is to reduce fossil fuel consumption. The study found that it was di\u /,ficult to derive insight from comparing these published forecasts because they were not calculated on the same basis and they failed to provide some key underlying assumptions. To bridge that gap, the author conducted a survey of 15 of these forecasters representing governments, think tanks, consultants, investment banks, and oil companies to obtain comparable data along with their underlying assumptions, with the agreement that the sources of the data would not be disclosed.

Jin, L., et.al., (2021) in their article on Driving a Green Future: A Retrospective Review of China's Electric Vehicle Development and Outlook for the Future first unfolds China's amazing electric vehicle development journey. Before 2009, China was talking about a path towards a world-leading the auto industry and identified new energy vehicles, From 2009 to 2012, with a confirmed electric vehicle development strategy, China introduced new energy vehicle pilot programs on a large scale; a number of cities prioritized deployment in public vehicles and there was tremendous government support in the forms of investment in research and development and direct subsidies. The period from 2013 to 2017, witnessed rapid growth of China's electric vehicle industry. This was driven by air quality and oil security goals, in addition to the desire to achieve the auto industry's revitalization goals. After 2018, China started providing a combination of incentives and regulations to further release the market's potential. This policy shift, together with increasing market openness and competition, showed China's increased confidence in its electric vehicle strategy and the maturing of its electric vehicle market

Scope of the Project

The study is conducted in Mangalore. The electrical vehicles is not used extensively by the people of rural parts of the city because of the charging infrastructure problem.

Objectives of the Study

- To know the reason for the purchase of electrical vehicles.
- To know the attitude towards environment by the customers of EV.
- To know the challenges faced by electric vehicle owners.

Methodology

The data collection was done through a structured questionnaire. The questionnaire had three parts that is related to the demographic characteristic of the respondents, dependent variables and independent variables like Environmental Concerns. The questionnaire was administered to 100 respondents who are the owners of Electric auto rickshaws and two-wheelers so that both domestic and commercial vehicle owners are taken into consideration.

Hypotheses was framed. Regression analysis was used to test the hypotheses. All other questions were analyzed using tables and charts in MS Excel and conclusions were drawn.

Hypothesis

H_0: Environmental concern affects the attitude of the buyer

H_1: Environmental concern does not affect the attitude of the buyer

Data Analysis

Table 1: showing response of survey

Concern regarding the Conservation of Environment	
Strongly Agree	45
Agree	46
Neutral	7
Disagree	0
Strongly disagree	2
Total	100

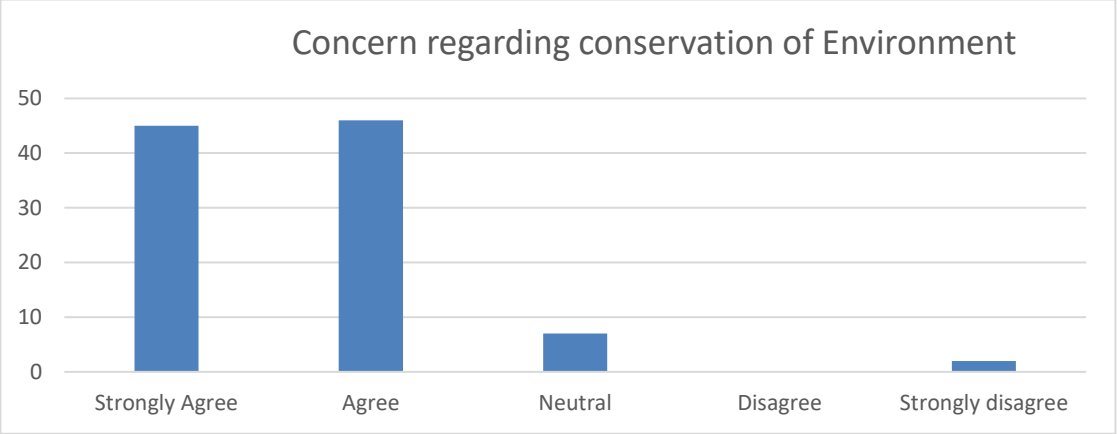

Chart 1: depicting Table 1

The table shows that 45% of the respondents strongly agree and 46% agree on the Environmental concern on the whole they had while buying the Electrical vehicle.

Table 2: Showing Response of Survey

Concern on Increased air Pollution	
Strongly Agree	9
Agree	17
Neutral	32
Disagree	34
Strongly disagree	8
Total	100

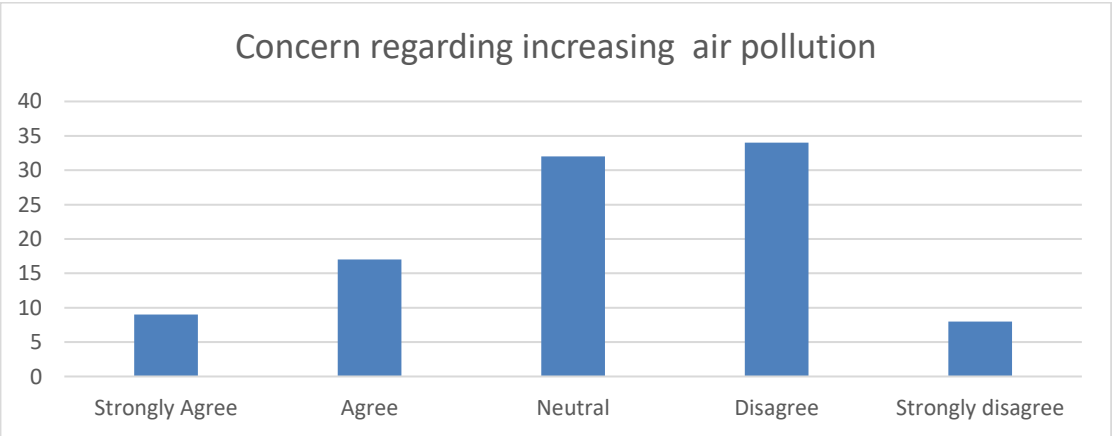

Chart 2: Depicting Table 2

The table and graph above shows that 9% of the people strongly agreed and 17% agreed on the aspect of air pollution as an Environmental issue. Majority have disagreed and had not thought of it as a factor while making buying decision

Regression Analysis

Table 3: Regression values for Attitude as dependent variable and Environmental Concern as Independent variable

Regression Statistics on Attitude and Environmental Concern	
Multiple R	0.534643096
R Square	0.28584324
Adjusted R Square	0.271118358
Standard Error	0.146371796
Observations	100

Table 4: Regression values for Decision as dependent variable and Concern on Air pollution as independent variable

Regression Statistics on Decision and Concern on Air pollution	
Multiple R	0.084092402
R Square	0.007071532
Adjusted R Square	0.003060391
Standard Error	0.171708754
Observations	100

The regression analysis is done to test the hypothesis to find out the relation between the purchase decision and Environmental Concern. It was found from the calculation that the attitude of the buyer is positively affected by the Environmental Concerns of the owners of the EV. The table shows that 28% of the attitude is influenced by the Environmental concerns of the buyers.

The regression run on the dependent variable of the decision-making during purchase is not dependent on the air pollution aspect at all resulting in not accepting the null hypothesis.

Suggestions

The study has shown that more electrical vehicles are purchased for domestic usage rather than commercial purpose. The respondents have suggested to increase charging infrastructure on highways for long distance travelers and urban areas for two-wheelers and auto rikshaws. Few respondents have opined that the cost of the EVs are too high. So the government need to give more subsidies. Since the ordinary man is more bothered about the cost in terms of initial investment and regular maintenance, the environmental issue becomes an ignorant factor for many.

Conclusion

The sales are slowly picking up. The main concern is safety since it is at the initial stage of launch manufacturing defects have caused a few accidents. So people are a bit skeptical about the purchase of electric vehicles.

Based on the research summarized in this paper, the greatest areas of uncertainty that would benefit from future research are the impact on energy and oil demand of autonomous vehicles and new mobility services. Unless the world moves rapidly to a two-degree carbon scenario, it would take decades and significant policy is needed for the world to transit away from oil. It would also likely require more than a slowdown in the rate of demand growth in the passenger transport sector.

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