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FACTORS THAT INFLUENCE PURCHASING ELECTRIC VEHICLE IN

DAVAO CITY

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ABSTRACT

Air pollution is one of the major environmental issue that affects health and environment. So electric vehicle is view as one of the alternative solution to ease the carbon dioxide emission. This study discussed the reason that may shift on the purchase of electric vehicle, it employs quantitative method approach through likers scale and by the use of Mean as a statistical tool. The area of the study is in the Davao City using Google Form through online survey. Result showed that all the factors mentioned in this study may influence on the purchase of electric vehicle, however, the most influential factor is lower carbon emission and being environment friendly with a mean of 4.27 and 45% are strongly agree. For further research, it is recommended to conduct research with a large sample size.

Keywords: Electric Vehicle, Likert-Scale, Air Pollution

1. INTRODUCTION

Air Pollution is one of the major environmental and societal challenges since it affects health and the environment (ADB, 2019). Air Pollution can be referred to as indoor or outdoor air solids and gases that can alter its inherent properties (WHO, 2019). Since a considerable portion of the population still uses traditional biomass fuels for cooking and heating, which emit high levels of smoke in a small space, indoor air pollution poses a health risk. Fossil fuel burning (coal, oil, and natural gas) is the primary cause of pollution in all urban areas. The majority of fossil fuel burning occurs in buildings, vehicles, houses, and in the production of electricity. Transportation, however, is the main cause of air pollution in the majority of Asian nations (UNESCAP) The majority of cars in Asia utilize diesel fuel with high sulfur content and lead content, and many of their older engine types produce more pollution than newer ones (UNESCAP)

Due to the fact that rising earnings are always correlated with greater levels of car ownership and usage, the transportation sector has contributed to the increase in carbon emissions as a result of the improvement in economic position and consumer purchasing power worldwide. In the transportation sector, the majority of Asian countries already contribute to the country's carbon emissions. Therefore, in any endeavor to reduce emissions, the transportation sector should be the main emphasis (Sang and Bekhet, 2015)

Electric vehicles are viewed as one answer to the problem of fossil fuel depletion and associated carbon dioxide emissions (Jian & Wei, 2019). Electric vehicles run on electricity and a motor, therefore no petroleum was utilized. It produces fewer greenhouse gases. As a result, it emits less greenhouse gas than standard combustion engine cars powered by gasoline or diesel (Kim & Kang, 2022).

Although it contributes significantly to severe air pollution, the transportation industry is important to socioeconomic development. Despite the difficulties and widespread use of electric vehicles and their various forms of technology, consumer-focused research on these topics is still lacking (Bhutto and Sharma 2021). We need to understand the consumer's perception of electric vehicles in an unpredictable environment and pinpoint the elements that affect consumer acceptance of electric vehicles if we're to increase consumer adoption of these vehicles. (Tu & Yang, 2019). This paper aims to understand the factors that affects or influence the purchase of electric vehicle

2. METHOD

The study employs a quantitative method approach, which is defined as a methodical strategy to examine a phenomenon and its relationship that works with numbers and anything that is measurable. It is gathered through closed-ended questions. To achieve the intended outcome, models based on theories, hypotheses, and mathematical models are developed and put into action using the data (Mohajan, 2020). The Likers scale, which spans from 5 for strongly agree to 1 for strongly disagree with a 3 for neutral sort of response, was used to measure the elements that influence the decision to buy an electric vehicle (Croasmun and Ostrom, 2011).

The area of the study is in the vicinity of Davao City. Since we need to identify the factors that might persuade respondents to buy electric vehicles, we asked respondents who do not currently use electric vehicles. We only received 20 responses due to time constraints. Google Forms, a free and widely used web tool, is used to collect the core data.

By using a Google Form and distributing it to email, Messenger, and other social media accounts, it was possible to distribute an electronic survey without spending a lot of money. The respondent can access an online survey by clicking on the link provided on a Facebook page or by providing the link via email or Messenger (Torrentina, 2020). The data will be processed through Microsoft Excel and by using Mean as a statistical tool.

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3. RESULT AND DISCUSSION

Fable 1. Factors that influence or	n purchasing electric	vehicle using Likert Scale
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Question	Strong Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	Mean
Lower Price in Electric Vehicle motivates me to buy electric vehicle	6	11	1	3	1	3.81
Higher Mileage in Electric Vehicle that would travel more distance would motivate me to buy electric vehicle	6	10	5	1	0	3.95
Arising of New Technology and New Electric Design that would shift me to buy me electric vehicle	6	9	5	1	1	3.81
Tax Exemption and Government Incentives from purchasing Electric Vehicle would make me buy electric vehicle	6	8	5	3	0	3.77
Visibility of Charging Station on Electric Vehicle would make me buy Electric Vehicle	7	10	3	2	0	4
Lower maintenance and lower cost of repair of Electric Vehicle would shift me to buy electric vehicle	10	7	2	2	1	4.05
Short Charging time of electric vehicle would shift me to buy electric vehicle	7	8	5	2	0	3.91
Lower Carbon Emission and being environmentally friendly would shift me to Electric Vehicle	10	9	2	1	0	4.27

Table 2. Percentage on the factors that influence purchase on Electric Vehicle

Percentage	Strong Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Lower Price in Electric Vehicle motivates me to buy electric vehicle	27%	50%	5%	14%	5%
Higher Mileage in Electric Vehicle that would travel more distance would motivate me to buy electric vehicle	27%	45%	23%	5%	0%
Arising of New Technology and New Electric Design that	27%	41%	23%	5%	5%



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would shift me to buy me electric vehicle					
Tax Exemption and Government Incentives from purchasing Electric Vehicle would make me buy electric vehicle	27%	36%	23%	14%	0%
Visibility of Charging Station on Electric Vehicle would make me buy Electric Vehicle	32%	45%	14%	9%	0%
Lower maintenance and lower cost of repair of Electric Vehicle would shift me to buy electric vehicle	45%	32%	9%	9%	5%
Short Charging time of electric vehicle would shift me to buy electric vehicle	32%	36%	23%	9%	0%
Lower Carbon Emission and being environmentally friendly would shift me to Electric Vehicle	45%	41%	9%	5%	0%

Table 1. shows the likert scale result on the factors that influence on the purchase on electric Vehicle and Table 2 shows its percentage result. Result showed that 50% of the respondent is agree that lowering price would motivate them to purchase electric vehicle with a mean of 3.81 that correspond to the result of the study of (KV. Et. Al., 2022) that they would consider buying electric vehicle if it is lower the price than the Internal Combustion Engine vehicle. Also, result present that 45% are agree that higher mileage in electric vehicle would push them to buy electric vehicle with a mean of 3.95 as match in the study of (Kim and Kang, 2022) that mileage is one of the factor in purchasing electric vehicle. Moreover, survey presented that 47% of the respondent with a mean of 3.81 would motivate them to buy electric car if they are new technology arises as discussed in the study of (Panday, Et. Al., 2021) that new technologies in electric vehicle would attract consumers. Furthermore, Tax Exemption with a mean of 3.77 and visibility of electric charging infrastructure has a mean of 4 that means that is among the factors that would motivate consumer to buy electric vehicle as the result of the study of (Kim and Kang, 2022).

4. CONCLUSION

The Philippines are facing environmental issues such as air pollution from the transport sector. Hence, the alternative solution is the adoption of electric vehicle since it uses electricity rather than diesel fuel. Therefore, this study examined the factors that would influence in purchasing electric vehicle. The result showed that all factor mentioned in this study can shift consumer to electric vehicle. However, the most influential factor with the higher mean and percentage is the lower maintenance and lower cost of repair. This study had various limitation such small sample size, time constraint in collecting data, and this only focus on factor on electric vehicle alone. Thus, further research studies relevant on purchasing electric vehicle with a large sample size are highly recommendable.

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