DEMOGRAPHIC, SOCIAL-PSYCHOLOGICAL, TECHNICAL AND ECONOMIC FACTORS AFFECTING ELECTRIC VEHICLE PREFERENCES OF TURKISH CONSUMERS

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AI Acknowledgment

This section acknowledges the AI tools that were utilized in the process of completing this assignment.

Tool Name	Brief Description	Link to tool
DeepL	Translation from Turkish to English	https://www.deepl.com/tr/translator
ChatGPT	Using artificial intelligence to find articles on consumer preferences, then brainstorming on comparing the results of the literature review and the survey results obtained	https://chat.openai.com/

Description of AI Usage

This section provides a more detailed description of how the AI tools were used in the assignment. It includes information about the prompts given to the AI tool, the responses received, and how these responses were utilized or modified in the assignment. **One table should be used for each tool used**.

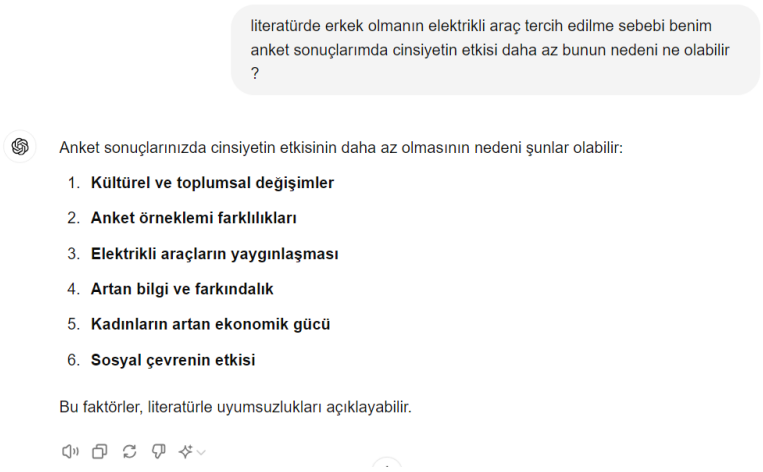
DeepL	
Deeple was used to check the translation of what was written	
N/A	N/A

ChatGPT	
ChatGPT	
In the literature, the reason why being a man is preferred to be an electric vehicle in my survey results, the effect of gender is less, what could be the reason for this?	The reason why gender has less influence on your survey results may be the following: 1. **Cultural and social changes** 2. **Survey sample differences** 3. **Widespread use of electric vehicles** 4. **Increased knowledge and awareness** 5. **Increasing economic power of women** 6. **Influence of the social environment** These factors may explain discrepancies with the literature.

Evidence of AI Usage

This section includes evidence of significant prompts and responses used or generated through the AI tool. It should provide a clear understanding of the extent to which the AI tool was used in the assignment. Evidence may be attached via screenshots or text.

Additional Evidence:



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Abstract

The aim of this study is to determine the attitudes and behaviours of Turkish consumers towards electric vehicles. Based on the findings, it has been determined that participants with past experience of using electric vehicles are generally satisfied with this experience and this satisfaction has an impact on their purchase intention. Perceived social norms arising from the positive attitudes of other electric vehicle owners affect the participants' electric vehicle purchase preferences. The domestic production factor was also found to have a supportive stance towards the purchase of electric vehicles. When the masses are analysed, it is seen that the response is higher among young people, educated people and high income earners. The main factors that constitute obstacles and negatively affect the intention to purchase electric vehicles are charging infrastructure, vehicle range and cost. Environmental impacts, less power application and low maintenance costs are the main reasons for respondents to purchase electric vehicles. Regarding the innovative characteristics of individuals, the research shows that innovative respondents have a higher purchase intention towards EVs and tests the hypothesis that owning an EV increases the status in the relevant segments among young respondents. An important insight from this analysis is that the impact of government incentives and infrastructure spending is insufficient. Therefore, it is expected that consumer awareness should be raised, existing infrastructure facilities should be provided and domestic products should be preferred.

1.Introduction

The world is facing serious environmental problems such as climate change, air pollution and energy security concerns due to unconscious and excessive fossil fuel consumption (Efendioğlu, 2024).

In order to prevent these problems, it is very important to switch to environmentally friendly and sustainable energy sources. At this point, electric vehicles are in a very important position with their advantages such as zero emission and high efficiency (Kocagöz & İğde, 2020).

Concerns about environmental awareness and energy security are increasing day by day in the world. Countries have made various incentives and regulations for the spread of electric vehicles. As a result, the use of electric vehicles has become increasingly widespread.

In Turkey, the interest in electric vehicles is gradually increasing. For example, electric vehicle sales in Turkey reached 68,700 units in 2023 with an 8-fold increase compared to the previous year (Anadolu Agency, 2023a). Moreover, the number of electric vehicles exceeded 100,000, accounting for 10 per cent of total vehicle sales.

Many variables are influential in this rapid growth trend. Low operating costs of electric vehicles, advanced battery technologies, increasing environmental awareness of consumers and government incentives have led to an increase in demand in this sector (Kırmızıgül and Baykal, 2023; Karamehmet and Morgül, 2018). TOGG, a domestic production, has significantly increased the confidence and interest in electric vehicles (Kocagöz et al., 2020). Tax reductions and incentives implemented by the government to encourage the production of electric vehicles have also helped the sector grow. For example, according to a regulation issued by the Ministry of Treasury and Finance, the investment amounts of companies producing electric vehicles in Turkey will be deducted from the Special Consumption Tax (SCT) and SCT discount can be applied on the first purchase of vehicles. A maximum of 960,000 vehicles will be eligible for this incentive until 31 December 2035 (Anadolu Agency, 2023b).

Worldwide climate agreements and incentives also contribute to the expansion of the electric vehicle market. Agreements such as the Kyoto Protocol and the Paris Agreement have encouraged countries to invest in renewable energy sources and reduce carbon emissions (United Nations, 1992; United Nations Framework Convention on Climate Change, 2015). In this context, Turkey encouraged the use of renewable energy by enacting the Renewable Energy Law in 2005 and aimed to meet 30% of its electricity generation from renewable sources by 2023 (Basaran et al., 2015).

Turkish consumers prefer to use electric vehicles for various reasons such as environmental awareness, low operating costs, advanced battery technology and government incentives. In addition, a study conducted in Konya showed that factors such as income level, weekly travel distance, level of knowledge about electric vehicles, prestige perception and promotion of TOGG positively affect consumers' intention to purchase electric vehicles (Uslu and Demirel, 2022).

1.2. History of Electric Vehicles

Electric cars started their journey in 1828 by Aynos Jedlik, but this journey of electric cars was overshadowed by the internal combustion engine, which reached its peak in the 1920s (Machedon-Pisu & Borza, 2020). Although there were actually more electric cars on the market than internal combustion engines in the past, the popularity and low price of petrol, as well as its high efficiency, put an end to the electric car for a while (Gyimesi & Viswanathan, 2011; Schuitema, Anable, Skippon, & Kinnear, 2013).

1.2.1. Development of Alternative Fuelled Vehicles

From the recent past to the present, alternative fuels have started to be used due to the decisions taken to increase the price of oil due to the decrease in oil reserves known in the world, the increase in environmental pollution and the effects of global warming (Sezen & İşler, 2017; Al-Alawi & Bradley, 2013). Hybrid cars play an important role in reducing carbon dioxide emissions and are increasing over time. Mass production of plug-in hybrid cars and battery electric cars started in 2011 (Al-Alawi and Bradley, 2013).

1.2.2. Electric Vehicle Types and Technologies

There are currently two main types of fully electric vehicles, battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs). Plug-in hybrid vehicles (PheV) and hydrogen fuel cell plug-in hybrid vehicles (FCHEV) play a critical role in this transition. Manufacturers can use these hybrid technologies to reduce emissions without the need for major technological change. However, these vehicles do not offer a definitive solution to completely eliminate pollution (Tury, 2019). Although the use of electric vehicles produces zero carbon emissions in cities, the emissions that occur during the generation of electricity to charge the batteries should also be taken into account. Electricity from renewable energy sources reduces the environmental impact of electric vehicles (Ustabaş, 2014).

A hybrid electric vehicle (HEV) consists of a conventional internal combustion engine (petrol) and a supporting electric motor (Liao, Molin, & van Wee, 2017). The battery is charged by a regenerative braking system and does not require external charging. The popularity of hybrid vehicles has also increased due to increasing environmental awareness and government subsidies.

Plug-in Hybrid Electric Vehicles (PHEVs) have larger batteries than conventional Hybrid Electric Vehicles (HEVs) and can achieve longer ranges thanks to their external rechargeability. In these vehicles, the battery works in harmony with the internal combustion engine and can continue to run on petrol when the battery is depleted. This is a great advantage for users on long-distance journeys. In addition, the ability to be charged externally offers more advantages in terms of fuel saving than full hybrid vehicles (Egbue and Long, 2012).

Battery Electric Vehicles (BEV) do not require an internal combustion engine and fuel tank and operate by external charging of their batteries. In these vehicles, the electric motor is designed to directly rotate the wheels (Egbue and Long, 2012). Not needing extra parts is advantageous in many aspects. Although battery production costs and lack of infrastructure are currently a problem, they are expected to be the most preferred vehicle type in the near future. Electric vehicle sales in Turkey increased more than 8 times in 2023 compared to the previous year (Anadolu Agency, 2023c).

Fuel Cell Vehicles (FCEV) charge the battery using the energy obtained from hydrogen through electrolysis and do not need an internal combustion engine (Kerem, 2014). In order for them to become widespread like electric vehicles, a lot of infrastructure work and change in usage habits are required. Many brands have focused on hydrogen fuelled vehicle technologies and increased their investments in this field. Despite the ongoing debate, this topic has been attracting a lot of attention recently. The 1.4 billion euros of support for the development of hydrogen vehicles has been an important step in the development of hydrogen technologies (Anadolu Agency, 2024).

1.3. Global Distribution of Electric Vehicles and Turkey's Situation

The global distribution of EV sales and use reveals that there are certain countries that account for the overwhelming majority of sales. In 2023, 8.1 million new EVs are registered in China, which will account for around 60 per cent of global sales. 3.2 million electric vehicles will be registered in Europe and 1.4 million in the USA. In Turkey, electric vehicle sales are still not at the desired level. The number of fully electric vehicles in Turkey has increased from approximately 23,000 in 2020 to over 100,000 in 2023. (IEA, 2023; Yeşil Ekonomi, 2023; Hedef Filo, 2024). However, technical and psychological barriers such as not being able to travel long distances due to short battery life, concerns about battery life, lack of sufficient charging stations continue to prevent people from turning to electric cars. These barriers create difficulties in the adoption process of this technology and negatively affect sales (Rezvani, Jansson, & Bodin, 2015; Schuitema et al., 2013).

1.4. Barriers to the Adoption of Electric Vehicles

Although electric vehicle sales are making rapid strides across the world, consumer ignorance of facts about electric vehicles hurts the adaptation process. Unless there is total avoidance of concerns like range, insufficiency of charging stations, time taken to charge and battery life, it will impact the sale of electric vehicles adversely. The need to use alternative fuel vehicles that require charging challenges consumers due to the change this brings to existing habits. This has been a complicating factor in the process of adaptation to electric vehicles (Rezvani et al., 2015; Schuitema et al., 2013).

1.5. Environmental Awareness and the Role of Electric Vehicles

The society holds a bad impression about the electric vehicles as a result of no environmental awareness. Carbon dioxide emissions from transport increased by 23% between 1990 and 2010, and this rate is still rocketing (Rezvani et al., 2015). By the year 2022, global carbon dioxide emissions from transport have surged to around 8 billion tonnes CO_2. In this respect, personal vehicles, defined as passenger cars, are one of the important sources of GHF. Thus, the analysis of consumer perception and factors influencing purchase behaviour becomes very significant in bridging the psychological distance of consumers towards EVs and encouraging consumers to buy them. Some reasons which already justify buying an electric vehicle are no exhaust fumes, quiet driving, low fuel, and low operating costs. Evolving battery technologies increase the range and reduce the costs for EVs. The increased environmental impacts of fossil fuels and threat of depletion raise the stakes on the importance of alternative sources of energy and EVs.

1.6. Renewable Energy and Global Developments

Global warming, climate change, and the role of sustainable energy within it have been the reasons why countries have made international agreements and organized policies for renewable energy so as to reduce its bad effects on climate change and global warming. Fossil fuels have very bad characteristics like environmental pollution, harming the life of living things, and having limited reserves. This has therefore made it necessary to reduce the dependence on fossil fuels and to use only sustainable energy sources. The negative effects of global warming and climate change called for more effective steps of renewable energy use and sustainability. Therefore, the simple objectives of renewable energy are to reduce air pollution caused by the use of fossil fuels, to reduce the effects of climate change caused by global warming, to prevent the external dependence of countries on energy due to the use of fossil resources, to access cheap energy resources, to diversify energy resources and to meet the energy need uninterruptedly in the face of a possible negative scenario, to provide employment in the society and to ensure economic development (Kırmızıgül & Baykal, 2023).

Countries follow different renewable energy policies based on their development levels, energy needs and geographical characteristics. These policies generally focus on building, transport and industrial sectors. In 2022, investments made globally in energy transformation technologies reached a record high of USD 1.3 trillion. Investment in this area was up 19% compared with 2021, and more than 70% from 2019, before the start of the pandemic, according to IRENA in 2023. The main areas of investment include several technologies: renewable energy and energy efficiency, electric transport and heat, energy storage, hydrogen, and carbon capture and storage (IRENA, 2023).

In 2022, USD 772 billion is devoted to renewable energy and energy efficiency. However, the share of total investment in this area has declined because other technologies started to attract more investment. In 2022, a 54% increase in electric transport technologies made an investment of USD 466 billion for electric vehicles and related charging infrastructures. In 2022, investment in electric heating technologies will reach USD 64 billion. In 2022, investment in hydrogen triples compared to 2021, reaching USD 1.1 billion. Most of the energy transition investments are in renewable energy and energy efficiency, but investments are also being made in other technologies. Significant progress has been made in energy capture and storage, electric transport, electric heating, and hydrogen and carbon capture and storage (IRENA, 2023).

1.7. Turkey's Renewable Energy Strategies

Turkey enacted the Renewable Energy Law on 18 May 2005 to increase the use of renewable energy sources in electricity generation. With this law, various regulations promoting renewable energy were introduced and updated over time. The government aims to increase the share of renewable energy sources in electricity generation to at least 30% and to reduce the use of natural gas by 30%. To achieve this target, it is planned to fully utilise all economically viable hydroelectric, wind, geothermal and solar energy resources by 2023. In particular, it is aimed to increase the installed capacity of hydroelectricity to 20,000 MW and the installed capacity of wind energy to 19,200 MW (Basaran et al., 2015).

In addition, the Government has set targets such as providing 30% of total electricity generation from renewable energy sources by 2023, utilising all economically available hydroelectric resources in electricity

generation, operating 600 MW geothermal energy capacity and operating 20,000 MW wind energy capacity (Saygın & Çetin, 2011).

1.8. Differences between Electric Vehicle Taxation Policies in Turkey and Other Countries

European Union countries offer various tax reductions and incentives to support the use of electric vehicles. For example, Germany offers an incentive of 9,000 euros to those who buy electric vehicles and provides VAT exemption for 10 years. France offers an incentive of 5,000 euros for electric vehicles and provides VAT exemption. The Netherlands, Sweden and Spain also offer tax reductions and incentives. These incentives significantly support the growth of the electric vehicle market in the EU (Ökde, 2022). In EU countries, new electric vehicle registrations account for 10 per cent of all vehicle registrations (Ökde, 2022).

Taxes applied to electric vehicles in Turkey are not as easy as in EU countries. In Turkey, Special Consumption Tax (SCT) rates for these vehicles vary between 10% and 60% depending on engine power and 18% VAT is added. Furthermore, Turkey imposes a high annual motor vehicle tax on electric cars and does not offer direct monetary incentives. This complicates the adoption of electric vehicles in Turkey and increases the final price. New EV registrations in Turkey account for only 0.3 per cent of all vehicle registrations (Ökde, 2022). These tax policy differences directly affect the growth rates of the EV market. While tax reductions and subsidies in EU countries reduce the total cost of electric vehicles and make people more likely to choose these vehicles, high taxes and lack of incentives in Turkey prevent the spread of electric vehicles (Ökde, 2022).

1.9. Status of Charging Stations in Turkey

Parallel to the widespread use of electric vehicles in Turkey, the number of available charging stations has also increased. By the end of 2020, a total of 1340 charging points were installed in all 81 provinces in Turkey. The charging infrastructure in Turkey is mainly provided by Eşarj, Gersan (G-Charge), Sharz, Voltrun and ZES. In addition, companies such as BD Otomotiv, Yeşil Güç Enerji and DMA Oto also have an active share in the installation of charging stations (Çakmak and Turan, 2022). According to the distribution map of charging stations, Istanbul is the province with the highest number of charging stations in Turkey with 531 charging stations. However, if we evaluate in terms of electric vehicle charging stations per capita, other provinces with high values are Muğla and Çankırı. For example, Muğla has 41.97 electric vehicle charging stations per 1 million people. The number of charging stations per electric vehicle in Turkey is below the EU average. The EU's target is to reach 1 charging station for every ten electric vehicles, but this ratio is 0.36 in Turkey. However, the calculation includes hybrid vehicles. If the number was checked only for 100% electric vehicles, this ratio would be higher (Çakmak and Turan, 2022). The power values of charging stations vary. There are charging stations with power ratings ranging from 3.7 kW to 175 kW (Çakmak and Turan, 2022).

2. Literature Review

In the study conducted by Önder and Kaya in 2019, electric vehicle sales data of 12 countries between 2012-2015 were examined and the effects of various socio-economic factors on electric vehicle sales were analysed according to these data. It was found that electric vehicle sales increased in regions with dense urbanisation and increasing renewable energy production had a positive effect on these sales. However, the increase in oil prices

and the rise in education level have a negative impact on electric vehicle sales. In addition, it has been determined that individuals with high education level prefer vehicles with large engine volume and status indicators rather than electric vehicles. Income level and population density do not have a significant impact on electric vehicle sales. Urbanisation and renewable energy production stand out as the factors with the highest impact on electric vehicle sales (Önder and Kaya, 2019).

Accordingly, Uslu and Demirel conducted a study in Konya province in 2022 to find out the factors affecting consumers' electric car purchase preferences. Results of the study shows, having a high income level tends to enable individuals to purchase electric cars. People with income between 5,000 TL and 10,000 TL are more likely to buy an electric car. People who travel more than 300 kilometers per week are more likely to buy an electric car. Being informed about electrical vehicles increases the buying an electric car by 11% . It is understood that the perception of electric cars as prestigious and the evaluation of electric cars as TOGG will be the most important factor that will positively affect electric car preferences in the future. The perception of prestige and the TOGG brand effect increase the likelihood of purchasing electric cars by 22% and 11%, respectively (Uslu and Demirel, 2022).

In Diamond's 2006 study, various factors affecting consumer acceptance of hybrid-electric vehicles were analysed. High income level was found to increase the tendency to purchase hybrid vehicles. Demand for hybrid vehicles increases during periods of high fuel prices, but the high initial costs of the vehicles make it difficult to adopt these vehicles. Environmental concerns and social responsibility awareness are important motivators for consumers to prefer hybrid vehicles. Average income, effective tax incentives, fuel prices and annual mileage variables were found to have a positive and significant effect on consumer demand for hybrid electric vehicles (Diamond, 2006).

In a study conducted by Erdem et al. (2010) in Turkey, high income level, high education level and being male positively affect the purchase of electric vehicles. Concern about global warming and positive attitude towards alternative energy sources positively affect the desire to purchase electric vehicles, and risk-loving also increases this desire. However, openness to innovations and the tendency to adopt innovations early may create negative attitudes towards electric vehicles. The high number of vehicles owned reduces the desire to purchase a new electric vehicle. High performance expectation reduces the willingness to purchase of individuals who do not find the performance of electric vehicles sufficient (Erdem et al., 2010).

In a study conducted by Hong et al. in 2013, the factors affecting the adoption of hybrid vehicles in Malaysia were analysed. In the study, it was observed that men are more likely to adopt hybrid vehicles than women, and higher income level and higher education level increase the likelihood of hybrid vehicle adoption. It was found that individuals aged between 29-39 years tended to adopt hybrid vehicles. Higher income level has a positive effect on hybrid vehicle adoption, but petrol prices do not have a significant effect. The fuel efficiency and low operating costs of hybrid vehicles are important advantages that encourage the adoption of hybrid vehicles. Environmental friendliness and environmental concerns play an important role in the preference of hybrid vehicles. However, social norms and social influences were found to have no significant effect on the adoption of hybrid vehicles. The results of the study show that fuel economy is positively related to factors such as compatibility and environmental friendliness, and being men, high income and educated individuals tend to adopt hybrid vehicles (Hong et al., 2013).

The results show that vehicle operating costs and vehicle purchase price significantly influence consumer preferences. There are many reasons why electric vehicles are of interest to a large mass of consumers. Some of them are charging time, range and easy charging infrastructure. Especially with the availability of fast charging infrastructure at medium and high level, the demand for these vehicles is increasing. While socio-psychological motives such as environmental adaptation and sustainability positively affect the desire to use hybrid/electric vehicles among consumers, social norms in the process such as the influence of friends and family are not very important. (Ščasný et al., 2015).

In the study conducted by Thananusak and Punnakitikashem in Thailand in 2017, the factors that positively affect consumers' intention to purchase electric vehicles (EVs) include higher education level, environmental concerns and technical performance of vehicles. Individuals with higher education level show more interest in electric vehicles and are more aware of technical performance and environmental concerns. Environmentally conscious consumers tend to gain social status through environmentally sensitive behaviours. This tendency increases the intention to purchase electric vehicles. In addition, performance features of vehicles such as driving range, speed and safety also positively affect purchase intention. In addition, the Thai government's tax breaks and incentives increase the attractiveness of electric vehicles. However, the high purchase and usage costs of electric vehicles and consumers' lack of sufficient information about the total cost of ownership of electric vehicles have a negative impact on purchase intention (Thananusak and Punnakitikashem ,2017).

In 2018, a study conducted by Egnér and Trosvik in Sweden investigated individual preferences for electric vehicles, and the results showed that higher levels of education and income would be the target of most electric vehicle adopters. In addition, the increase in the number of public charging points and the inclusion of electric vehicles in public fleets by municipalities also positively affect electric vehicle adoption rates. According to social-psychological factors, environmental concerns and voting for a green party increase the use of electric vehicles by increasing environmental awareness. Moreover, the expansion of charging infrastructures in urban areas has increased the use of electric vehicles. However, it is found that people living in rural areas have difficulty in adopting electric vehicles due to range anxiety, while financial incentives offered at the national level have a weak effect on the adoption of electric vehicles. In addition, inadequate charging infrastructure in rural areas was found to be a factor limiting the adoption of electric vehicles (Egnér and Trosvik ,2018).

In a study conducted by Lin and Wu in 2018 in major cities of China (Beijing, Shanghai, Guangzhou, Shenzhen), the factors affecting individuals' electric vehicle (EV) purchase intention were analysed. It is analysed that young, married and male individuals show more interest in EVs. In terms of economic factors, subsidies provided by the government and acceptable price levels of EVs positively affect EV purchase intention. In terms of social-psychological factors, environmental concerns and air pollution in cities increase the adoption rates of electric vehicles. As technical factors, the performance of electric vehicles and the adequacy of charging infrastructure play an important role, but the inadequacy of existing charging infrastructure is a barrier (Lin and Wu, 2018).

According to Palmer et al. market share is calculated from the cost of ownership of electric vehicles in the UK, USA and Japan. The result of the study reveals that the purchase cost of electric vehicles has a relationship with the market share of electric vehicles in each country. This means that the government helps subsidise electric vehicles to ensure that they cost the same as internal combustion vehicles. This is the reason why the cost of EVs

corresponds to the market quantity. As Palmer et al. point out government incentive programmes play a key role in market share adoption in Japan and the USA. However, in the UK, EV ownership costs have fallen the least due to the lack of incentives (Palmer et al.,2018).

The study by Priessner et al. (2018) assesses trends in the diffusion of electric vehicles in Austria. As has been noted, the study shows that psychological variables are at once relevant for and significantly predict the adoption trends of electric vehicles. In this regard, environmental attitude and openness toward new technologies strongly favor EV adoption propensity. On the other hand, having an individualistic worldview with less egalitarianism reduces the likelihood of adopting electric vehicles (Priessner et al., 2018).

Hamamoto's 2019 study examined the impact of variables such as age of the household head, education level, self-employment, household size, living in a detached house, income level, hybrid electric vehicle (HEA) ownership, annual mileage, ownership period, vehicle design, performance, importance given to fuel economy, importance given to tax reduction, lack of information, reluctance of family members and uncertainty about energy saving and energy prices on consumer preferences for electric vehicles. The results of the study show that environmentally conscious and fuel economy conscious consumers tend to prefer HEVs. Moreover, consumers' preferences may be negatively affected by lack of information, reluctance of family members, and uncertainty about energy savings and prices (Hamamoto, 2019).

In 2019, Huang and Ge analysed various factors affecting electric vehicle (EV) purchase intention in Beijing. It was found that people with higher education level and higher income have higher EV purchase intentions. Monetary incentive policies (tax reductions, subsidies), consumer attitude and perceived behavioural control have a positive impact on EV purchase intention. In addition, product perception factors such as range, performance and safety also positively affect EV purchase intention. However, non-monetary incentives such as free car parking and discounts on motorway tolls do not have a significant effect (Huang and Ge, 2019).

Pusa investigated the factors affecting the willingness to purchase alternative fuelled vehicles in Adana-Mersin region in 2019. It was found that university graduates were more likely to purchase these vehicles. Environmental concerns and increasing environmental awareness increase consumers' interest in low-emission vehicles. It has been observed that the desire to purchase decreases as the vehicle price increases, but vehicles with high fuel economy and low CO2 emissions are preferred. While the technical performance and reliability of vehicles positively affect purchase decisions, distrust of new technologies may negatively affect the desire to purchase in some consumers (Pusa, 2019).

Tu and Yang's study in 2019 shows that consumers' having the necessary financial resources to purchase electric vehicles positively affects purchase intention; however, high initial costs, i.e. the initial purchase price of electric vehicles, may be a deterrent for consumers. In terms of social-psychological factors, environmental awareness and the level of acceptance of technology products positively affect the intention to purchase electric vehicles, while the opinions of the people around do not show a significant effect.

Regarding technical factors, the perception of electric vehicles as convenient and easy to use increases purchase intention, while inadequate charging infrastructure and range anxiety have negative effects on consumers' preferences (Tu and Yang, 2019).In the study conducted by Şaşmaz in Bursa in 2020, it was observed that demographic factors such as gender, education level and occupational status did not have a significant effect on

attitudes towards the use of electric cars. It was determined that benefits such as convenience and safety provided by electric vehicles positively affect consumer attitudes.

The price of the vehicles alone is not a sufficient criterion, the functionality of the vehicle and the value it provides should also be taken into consideration. According to the findings of the study, while the benefits and ease of use provided by electric vehicles have a positive effect, the lack of emphasis on technical and safety elements has a negative effect (Şaşmaz, 2020).

Based on Lin and Wu's 2021 study of electric vehicle growth in China, China's oil demand will ultimately peak in 2029. The using of electric vehicles can drive economic growth. When the public electricity source is generated by non-fossil fuel, either to be heat-extracted from electric power onto oil, there is a notable decrease of the nitrogen in photochemical substances along with the reduction to air of carbon dioxide. However, if a large number of electric vehicles are used, energy consumption may increase. Unfortunately, if this increased consumption of energy is supported by coal sources, there will be an increase in carbon dioxide emissions (Lin and Wu, 2021).

In 2023, Buhmann and Criado researched how status and reputation really impact electric vehicle preferences. From the answers they were able to solicit through a survey, the ways by which higher adoption of EVs is affected by age, being male, having children, education level, living in urban areas, and having experience driving an EV were eliminated. The economic determinants dictated that the more costly electric vehicles are, the more they become preferred by reputation-oriented consumers. Perceptions about electric vehicles as a sustainable product and status symbol influence consumer preference positive, socially-psychologically. Technically, improvement in infrastructure and access to information also favor the adoption of electric vehicles in the selected market (Buhmann and Criado, 2023).

The study conducted by Sahoo in India in 2023 analysed the positive and negative effects on consumers' preferences and attitudes towards using electric vehicles. Among those who prefer to use electric vehicles, there is a higher potential among young, highly educated and males. Greater environmental awareness and openness to innovation, social and family norms encouraging adoption, mitigating the negative effects of costly government incentives, and an extensive EV charging network. Negative aspects of the use of electric vehicles include high cost and inadequate charging infrastructure and low range. These results suggest that economic incentives should be used in combination with infrastructure development to increase the adoption of electric vehicles (Sahoo,2023).

According to Sun et al. (2024), several mechanisms are involved in the acceptance of electric vehicles and the concomitant diffusion of the charging station. Perception of the number and availability of charging stations, along with the enhancement of environmental awareness, promotes the use of electric vehicles by reducing concerns regarding vehicle charging. In contrast, lack of knowledge and habits seem to act as barriers. As more and more EV users are concentrated in urban centers, more installations of the charging stations are required in these areas, whereas the investment in infrastructure remains modest in rural areas. The study supporting charger station expansion with government incentives and subsidies, additional heavy taxation on the petrol stations will accelerate this transformation even more (Sun et al., 2024).

Yadav and Yadav examined various factors influencing the adoption of electric vehicles in India. These are age, education level, place of residence; it is recorded that young and educated consumers have a predisposition

toward EVs, while aged and rural consumers are not much interested in EVs. The economic factors are the government incentives and subsidies that cut the prices of EVs, hence encouraging their uptake. High initial costs may discourage consumers from adopting EVs. Of the socio-psychological factors, environmental concerns and social trends have a positive effect on the adoption of EVs. On the negative side, consumer distrust in EV technology reduces its adoption. Among technical factors, although technological developments usher in positive effects like increasing range capacity and reducing charging times, it is infrastructure deficiencies and an insufficient number of charging stations that are extremely critical barriers to making EVs rather limited for use (Yadav and Yadav, 2024).

In a study conducted by Tunçel in Turkey in 2022, various factors affecting the intention to purchase electric vehicles were analysed. It was observed that young and educated people have a relatively positive attitude towards electric vehicles, while rural and elderly consumers show less interest in electric vehicles. Environmental issues and interest in innovative products positively affect the adoption of EVs, while consumers' needs related to authenticity and innovation tendency have positive effects on EV purchase attitude and intention. From an economic perspective, government incentives and subsidies have been found to encourage EV uptake by reducing costs, but high upfront costs are a significant barrier to entry for the consumer. While the functional, technical, good performance and innovative technologies of electric vehicles create positive attitudes, infrastructure deficiencies and lack of charging stations stand out as the main barriers (Tunçel, 2022).

Efendioğlu analysed the factors affecting the purchase intention of electric vehicles in Turkey from demographic, economic, technical and social-psychological perspectives. It was observed that young and educated consumers showed more interest in electric vehicles. In terms of economic factors, price and value perception have been proven to have positive effects on consumer purchase intention. Among the technical factors, perceived ease of use and perceived usefulness of electric vehicles motivated consumers to buy these vehicles. Secondly, within the scope of social-psychological factors, hedonic consumer innovativeness and environmental concern had positive effects on EV purchase intention. Therefore, those who prefer electric vehicles are consumers who are highly concerned about the environment. The general findings from this study are that hedonic innovativeness, price value, perceived usefulness, perceived ease of use and environmental concerns all have positive effects on the intention to purchase electric vehicles (Efendioğlu, 2024).

Kocagöz et al. conducted a study in Turkey to analyze initial consumer evaluations of electric vehicles . The authors' findings showed that young and educated consumers were more positive to the introduced vehicles. The price of the vehicle is among the economic factors that the consumers indicate to be important and if it is favorable, it will increase their purchase intention. As for the technical factors, the most important information was that these are electric, fast charge capacity, and technological elements. These features then led to positive evaluations of these vehicles by consumers. As for sociopsychological factors, national and domestic statements about these vehicles were positive in the minds of consumers and led to the triggering of their feelings of nationalism. The general findings of the research are that the design and technological features of the vehicles are liked by the consumers, but the consumers are quite cautious about the price. The price and performance of the vehicles determine the purchase intention of the consumers.

From the study carried out by Schmalfuß et al. 2017 in Germany, it can be seen that when people have direct experience with battery electric vehicles, this serves as a highly important determinant of the evaluation of

vehicle characteristics, attitude and purchase intention. In terms of demographic factors, the study revealed that players responded differently depending on whether they had experience or not and on demographic variables such as age and gender. Results showed that the experience changed the attitude of the participants towards social norms and the environment positively. The positive change in purchase intention came from family and friends after experiencing. Despite the experience, technical barriers such as cost, reach and insistent evaluation of running time for electric vehicles remain an important obstacle. Attributes affecting the reach and speed characteristics were even more appreciated after the experiment, but the range and charging remained an issue. Therefore, from the results of the study conducted by Schmalfuß et al. 2017, it can be seen that direct experience has an extremely strong effect on the perception of the characteristics of electric vehicles, attitude and purchase intention.

Research on the adoption of electric vehicles has generally focused on demographic, economic, social-psychological and technical factors separately. These factors include age and gender as demographic factors; vehicle prices and maintenance costs as economic factors; environmental awareness and innovation as social-psychological factors; and driving range and charging time as technical factors.

However, comprehensive studies examining all of these factors together with consumers in Turkey are limited. In particular, the impact of status-seeking, environmental awareness, innovativeness and user experiences on electric vehicle purchase intention has not been sufficiently investigated.

3. Methodology

This research was conducted using the descriptive method. Descriptive method aims to explain a past or current situation as it exists. Karasar (2006) defines this method as "survey model". The survey model refers to the researcher's endeavour to define events, individuals or objects within their own conditions. This method makes an in-depth examination in the data collection and analysis stages depending on the purpose of the research. Events and situations are examined in detail and these examinations provide information to understand the current situation.

3.1. Subject of the Research

This study comprehensively analyses how Turkish consumers' user experiences, personal attitudes, social influences, and domestic production and brand preferences for electric vehicles are affected.

3.2. Purpose of the Study

The purpose of this research is to answer the question of what are the technical, psychological, demographic and economic factors of affecting consumer intention of purchasing consume a product in Turkey. With respect to demographic factor, the questions of how does age, gender, education level, marital status or income level of consumers become effective on their preferences have been analyzed before Turkish consumers.As to economic factors, questions of how do directions of price, maintenance cost and fuel economy of electric vehicles become effective on consumers' preferences is analyzed. Besides, the questions of how do psychological and social factors such as awareness about environment, social expectation, innovation, vehicle design or domestic production of electric vehicles become effective on preferences of Turkish consumers will be analyzed. In addition, the impact of how much do technical factors of driving range, charging time and charging station become effective

on consumer preferences are analyzed. This study will make a judgment of all these questions in order to test attitude, experience and intention of purchase towards electric vehicle of Turkish consumers in terms of diversity.

3.3. Theoretical Framework

Planned and behavioural theory and technology acceptance model have been widely used in the studies examining consumers' attitudes towards electric cars. The technology acceptance model focuses on the perceived benefit and ease of use factors that determine individuals' intentions to accept and use technology. The model states that the factors such as low energy use, the quality of the environment and easy-to-use characteristics of electric vehicles are on the agenda (Davis, 1989). Theory of planned behaviour also suggests that perceived behavioural intentions and norms are considered to have control. The theoretical framework comprehending the awareness of the environment, being an innovative person and the social norms that determine the intention to purchase electric vehicles, can be used (Ajzen, 1991). With the completion of this theoretical framework, various factors affecting the consumers' experiences of purchasing electric vehicles in Turkey can also be examined. The data obtained in the researches were evaluated based on the theory.

3.3. Data Collection Methods and Tools

The researcher prepared the questionnaire in accordance with the determined subject and subheadings of this subject. This questionnaire form was used to analyse the preferences of consumers. This questionnaire form consists of two parts. In the first part, there are personal information questions in which socio-demographic characteristics are analysed. In the second part, questions such as users' electric vehicle experiences, personal attitudes, social effects, the effect of the vehicle being domestically produced and brand preferences were included.

3.4. Data Collection Process

This questionnaire was delivered to the participants on a voluntary basis on the internet. This process was done through google form.

3.5. Population and Sample of the Study

The participants of the study consisted of all adult individuals in Turkey. Convenience sampling method was used to collect the sample of the research. This method was preferred because it is easier and cheaper to access than other methods. The sample of the research consists of 409 participants residing in various provinces of Turkey.166 (40.6%) of the participants were female and 243 (59.4%) were male. 49 (12.0%) of the participants were between the ages of 18-25, 58 (14.2%) between the ages of 26-35, 88 (21.5%) between the ages of 36-45, 165 (40.3%) between the ages of 46-55, and 49 (12.0%) between the ages of 56-65. Of the participants, 51 (12.5%) were high school graduates, 294 (71.9%) were undergraduate, 64 (15.6%) were postgraduate/doctoral, 119 (29.1%) were single and 290 (70.9%) were married. The monthly income of the participants was 39 (9,5%) between 0-20.000 TL, 68 (16,6%) 20.000 000 TL - 40.000 TL, 159 (38,9%) 40.000 TL - 60.000 TL, 46 (11,2%) 60.000 - 80.000 TL, 34 (8,3%) 80.000 - 100.000 TL, 63 (15,4%) 100.000 TL and above. 115 (28.1%) of the participants live in Bursa, 63 (15.4%) in Istanbul, 99 (24.2%) in Izmir and 132 (32.3%) in other cities.

3.6. Data Analysis

IBM SPSS 25.0 programme was used for all statistical analyses. In the analyses, descriptive statistics were determined as frequency (f), percentage (%), mean ($\bar{X}$), standard deviation (SD), minimum and maximum values. Kolmogorov-Smirnov test was used to determine whether the variables fit the normal distribution hypothesis. According to the results of Kolmogorov-Smirnov test, parametric and nonparametric tests were used in the study. While examining the differentiation status of the group scores of the variables, "independent sample t test" was used in two group comparisons of variables that meet the assumption of normal distribution, Mann-Whitney U test was used in those that do not meet the assumption of normal distribution, "ANOVA" was used in three or more group comparisons of variables that meet the assumption of normal distribution, and Kruskal-Wallis Test was used in those that do not meet the assumption of normal distribution. "Chi-square test" was used in the comparisons of categorical variables. The relationship between the participants' attitudes and behaviours towards electric vehicles and their personal characteristics was determined by correlation (Spearman) analysis. The statistical significance of all the results obtained was evaluated at $p<0.05$ level.

4. Findings and Interpretation

In this section, the results of the analyses conducted within the framework of the research questions are presented and the findings are interpreted.

4.1. Distribution of Responses of Participants Regarding Attitudes and Behaviours Related to Electric Vehicles

4.1.1. Views and Experiences of Participants on Electric Vehicles

In terms of the status of the use pattern of the participants about electric vehicle, 83.6% of the 276 participants had not used the electric vehicle before, while the remaining 16.4% of them have the prior experience of the use of the electric vehicle. It was stated that the participants using an electric vehicle are generally satisfied with this situation, and they considered this satisfaction as 3.79 point out of 5. Those who own electric vehicles in their social environment are 3.38 out of 5 based on this perceived insight regarding those evaluating this situation and electric vehicle purchase preference for the point they consider that this situation is average. Furthermore, it was detected that it is 3.33 out of 5 to which those who have an electric vehicle seem to have a high status in the society and that they also think the same about themselves. On the other hand, the effect of the domestic production of the vehicle on purchasing decisions of the participants is 2.87 out of 5 points, and the intention about purchasing an electric vehicle in the near future is considered to be 2.54.

4.1.2. Reasons of Participants for Purchasing Electric Vehicles

According to the answers given by the participants regarding the reasons for purchasing electric vehicles, it was observed that the highest rate was low energy consumption with 61.9%, followed by environmental concerns with 50.1% and the absence of carbon emissions with 49.4%. It was observed that technological innovations were stated as the reason for preference by 40.8%, quiet operation by 34.2%, low maintenance and operating costs by 29.3%, modern design by 23.0%, and no fuel odour by 19.1%, high performance by 18.9%, vibration-free driving by 17.1%, not shifting gears by 14.2% and government incentives by 12.7%. These findings show that the most

important factors for the participants to prefer electric vehicles are low energy consumption and environmental concerns. Meanwhile, features such as technological innovations and quiet operation were also among the important reasons for preference.

4.1.3. Reasons for Not Purchasing Electric Vehicles

During the analysis of reasons for not purchasing an electric vehicle, it was observed that inadequate charging infrastructure topped the list with 61.6 percent, followed by short range with 59.7 percent and long charging time with 43.8 percent. Other reasons which the respondents quoted are technical safety concerns with 41.8 percent and high purchase cost with 40.3 percent. Other significant factors that make people pause at buying an electric vehicle include problems with availability of spare parts, 32.5 percent; uncertainty of second-hand value, 28.9 percent; and fears related to radiation, 25.7 percent. 19.8 percent of the respondents mentioned that they did not have sufficient information about electrical vehicles and 16.1 percent said that the charging charges were a bit too much on their pocket. From these findings, it is concluded that insufficient recharging infrastructure, limited range, and high prices have been identified as the main influential factors in the decision not to purchase an electric vehicle.

4.1.4. Electric Vehicle Brands that Participants Want to Buy

While answering the question about which electric vehicle brands they would like to purchase, the highest rate received was TOGG with 39.1%. This is followed by Mercedes with 36.2% and Tesla with 31.8%. Volkswagen was preferred by 30.6%, BMW, and Audi by 25.9%. Other brands are BYD12.0%, Renault10.0%, Hyundai9.3%, Ford7.3%, Opel6.1%, MG5.4%, Peugeot5.1%, and Fiat2.9%. These data showed that the tendency was in favor of locally produced TOGG. At the same time, very prestigious brands like Mercedes and Tesla were favored. Then, German brands such as Volkswagen, BMW and Audi were also popular choices among the respondents.

4.2. Distribution of Attitudes and Behaviours of Participants Regarding Electric Vehicles According to Socio-Demographic Characteristics

In this part of the study, the distribution of the participants' attitudes and behaviours towards electric vehicles according to the personal characteristics of the participants was evaluated by t-test / Mann Whitney U. When the relationship between the gender of the participants and their attitudes and behaviours towards electric vehicles was investigated, no significant difference was found between male and female participants with $p = 0.919$ in terms of experience of using electric vehicles. For male respondents, defining themselves as innovative did not show a significantly different mean with $p = 0.352$ compared to female respondents. Furthermore, the significance of owning an electric vehicle to increase social status ($p = 0.260$) and the extent to which domestic production of the electric vehicle has a positive effect on the purchase decision did not show any significant difference between genders, at $p = 0.652$. There was no significant difference between the male and female respondents in considering purchasing an electric vehicle in the near future, at $p = 0.698$. However, in the case that the social environment, i.e. the opinions of other people in the community who own electric vehicles, has an influence on the purchase preference, female respondents were more influenced than male respondents with $p = 0.002$. These findings indicated that gender does not have a great influence on EV attitudes and behaviours in general, but the social environment factor has a more significant influence on women.

When the relationships between the marital status of participants and their attitude and behavior regarding electric vehicles were evaluated, no significant difference was noted between single and married subjects with p-values of 0.508, 0.316, 0.609, and 0.888 in terms of experience of using electric vehicles, owning an electric vehicle to increase social status, the positive effect of domestic production of electric vehicles on the purchase decision, and intention to purchase electric vehicles in the near future, respectively. However, a significant difference was observed with a p-value of 0.034 for self-identification as an innovative individual and a p-value of 0.032 for the effect of the opinions of EV owners in the social environment on purchase preferences. Thus, single participants identified themselves as a more innovative individual compared to married participants. In addition, married participants are more influenced by the opinions of electric vehicle owners in their social environment compared to single participants.

When the relationship between the education level of the participants and their attitudes and behaviours towards electric vehicles is evaluated, all variables except the variables of education level and experience of using electric vehicles (p=0.894), defining oneself as an innovative person (p=0.372), opinions that people who own electric vehicles in the social environment affect their purchase preferences (p=0.233), the positive effect of the domestic production of the electric vehicle on the purchase decision (p=0.782) and the state of considering purchasing electric vehicles in the near future did not create a significant difference on the perception of electric vehicles. However, it was decided that there was a significant difference in the level of education and the status of owning an electric vehicle to increase social status with p=0,046. It is also perceived perceptively that high school graduates have a higher perception that owning an electric vehicle or owning an electric vehicle will increase social status as compared to bachelor's and master's/doctorate graduates.

The income level and defining oneself as an innovative person (p=0,839) did not reveal any significant difference when the relationship between participants' attitudes to electric vehicles and their income levels were analysed. No significant differences were determined between the opinions that people of the social environment owning electric vehicles affect purchase preferences; owning an electric vehicle increases social status; the domestic production of the electric vehicle has a positive effect on the purchase decision; and the idea of purchasing an electric vehicle in the near future. The analysis showed that most of those participants with experience, however, had a monthly income ranging from 20,000-40,000 TL. There has been a trend that participants with an income of 20,000-40,000 TL have more experience in the use of electric vehicles as opposed to other groups of income categories. On the other hand, it was determined that there was a significant and negative relationship between the income of the participants and the status of owning an electric vehicle to increase social status. As the income level decreases, the perception that owning an electric vehicle increases social status increases.

When the effect of place of residence on consumers' EV attitudes is analysed, no significant difference is found between the experience of driving an EV, p=0,334; self-identification as an innovator, p=0,566; opinions on the purchase preferences of EV users in the social environment, p=0,233; and thinking of buying a car in the near future, p=0,178. On the other hand, there is a significant difference in the place of residence variable; however, there is a p=0,046 difference among the purchasers, p=0,046, and a p=0,014 difference between the impact of domestic production on the purchase decision. In particular, respondents clearly feel that owning an EV increases their perception of social status and the impact of domestic production of EVs on their purchase decision is perceived more favourably than people in other states.

4.3. Correlation Analysis of the Relationship between the Attitudes and Behaviours of the Participants Regarding Electric Vehicles and Their Personal Characteristics

In this section, I evaluated the relationship between the participants' attitudes and behaviours towards electric vehicles and their personal characteristics by correlation analysis.

Table 1: Analysis of the Relationship between Participants' Attitudes and Behaviours Related to Electric Vehicles and Their Personal Characteristics

		Experience of driving an electric vehicle	Self-identification as an innovative person	The opinions of people who own electric vehicles in the social environment affect their purchasing preferences	Ownership of an electric vehicle is expected to increase social status	The fact that the electric vehicle is a domestic production positively affects my purchase decision	Thinking about purchasing an electric vehicle in the near future
Age	Correlation Coefficient	,152	-,085	-,049	-,097	-,027	-,062
	Significance (2-tailed)	,218	,086	,323	,050	,589	,211
Education	Correlation Coefficient	,056	-,021	,016	-,089	-,066	-,079
	Significance (2-tailed)	,653	,678	,749	,074	,184	,111
Income	Correlation Coefficient	,072	-,014	,010	-,099	-,073	-,089
	Significance (2-tailed)	,564	,774	,843	,045	,141	,071
Experience of driving an electric vehicle	Correlation Coefficient	1,000	,219	,309	,252	,121	,443
	Significance (2-tailed)	.	,075	,011	,039	,331	,000
Self-identification as an innovative person	Correlation Coefficient	,219	1,000	,119	,037	,034	,233
	Significance (2-tailed)	,075	.	,016	,452	,493	,000
The opinions of people who own electric vehicles in the social environment affect their purchasing preferences	Correlation Coefficient	,309	,119	1,000	,242	,091	,208
	Significance (2-tailed)	,011	,016	.	,000	,065	,000
Ownership of an electric vehicle is	Correlation Coefficient	,252	,037	,242	1,000	,212	,275

expected to increase social status	Significance (2-tailed)	,039	,452	,000	.	,000	,000
The fact that the electric vehicle is a domestic production positively affects my purchase decision	Correlation Coefficient	,121	,034	,091	,212	1,000	,297
	Significance (2-tailed)	,331	,493	,065	,000	.	,000
Thinking about purchasing an electric vehicle in the near future	Correlation Coefficient	,443	,233	,208	,275	,297	1,000
	Significance (2-tailed)	,000	,000	,000	,000	,000	

*Correlation Analysis (Spearman) was used

In the study, a negative relationship was found between the age of the participants and the belief that owning an electric vehicle increases social status. As the age increases, the perception that owning an electric vehicle contributes to social status increases. Moreover, the perception that an EV increases social status is diminishingly proportional to the income level of the participants for the simple fact that there exists a significant negative relationship between this perception and the level of income.

These positively affected their purchase preferences: their previous experience with electric vehicles, social status, intentions to buy an electric vehicle in the near future, and opinions of owners of electric vehicles in their social environment. As the experience of driving electric vehicles increases, these perceptions become stronger.

There is a positive correlation between individuals who define themselves as innovative, their thoughts about purchasing electric vehicles in the future and the influence of the opinions of electric vehicle owners in their social environment on their purchase preferences. Innovative individuals prefer these vehicles more as the perception that owning an electric vehicle increases social status and the influence of the social environment increases.

The opinions of electric vehicle owners in the social environment strengthen individuals' perception of social status, the idea of purchasing electric vehicles in the future, and the positive influence of domestic production electric vehicles on the purchase decision. As these opinions increase, these perceptions also increase.

So, there is a positive correlation regarding the positive influence of electric vehicle ownership on the future purchase of electric vehicles and the purchase decision of domestic electric vehicles. While increasing the perception of owning an electric vehicle, there is also an increase in perceptions about enhancement in social status, thinking of buying an electric vehicle in the future, and the positive effect of domestic production. It was finally determined that there is a positive relationship between the purchase decision of the positive effect of the domestic production of the electric vehicle and the idea of purchasing the electric vehicle in the future. With the surging positive effect of domestic production, so does the idea of purchasing an electric vehicle in the future.

4.4. Summary of positive and negative factors affecting the intention to purchase electric vehicles

This section presents a summary of the factors that positively and negatively affect the intention to purchase electric vehicles. Negative factors are high costs, charging infrastructure, range, charging times and technical safety. Positive factors include energy, environmental concerns, no carbon emissions and technical innovations. In addition to these factors, presence of electric vehicles in social environment, experience of an electric vehicle and a domestic production also affects positively purchase intentions. These findings may help understand where and how electric vehicle adoption may be encouraged.

Table 2: Summary of positive and negative factors affecting the intention to purchase electric vehicles

Variables	Direction of Impact	Description
High costs	Negative	It has a negative impact on consumers' purchase intention.
Inadequate charging infrastructure	Negative	increases the difficulties that users experience in daily use, thus negatively affecting purchase intention.
Short range	Negative	It has a negative impact on purchase intention because of its inadequacy in long journeys.
Long charging time	Negative	It causes users to waste time and therefore negatively affects their purchase intention
Technical safety concerns	Negative	It negatively affects consumers' confidence perception and therefore reduces consumers' purchase intentions.
Concern about difficulties in obtaining spare parts	Negative	It negatively affects the purchase behaviour of consumers, especially due to the difficulties that may be experienced in the supply of batteries.
Uncertainty of second-hand value	Negative	Consumers' concerns about the future market value of electric vehicles have a negative impact on consumers' purchase intention.
Not having sufficient knowledge about electric vehicles	Negative	Lack of awareness and lack of information in consumers negatively affect consumers' purchase intention.
Environmental concerns	Positive	Consumers' willingness to reduce their carbon footprint and protect the environment leads them to prefer electric vehicles.
Defining oneself as an innovative individual	Positive	Singles and young people define themselves as more innovative individuals. Innovativeness positively affects the intention to purchase electric vehicles.
Electric vehicle ownership in the social environment	Positive	Positive experiences and recommendations of people who own electric vehicles in the social environment increase the purchase intention of other consumers. Women and married people are more influenced by the opinions of people in their social environment.
Inadequate state incentives	Negative	Consumers may consider existing government incentives inadequate.
Experience of driving an electric vehicle	Positive	Men, individuals between the ages of 26-35, married people, those with a monthly income between 20,000-40,000 TL and those living in Bursa have more electric driving experience.
Domestic production factor	Positive	There is a positive relationship between domestic production and social status perception. Participants living in Bursa have the highest perception of social status and domestic production
Low energy consumption	Positive	Compared to fossil fuels, electric vehicles use less energy, thus low energy consumption has a positive effect on purchase intention.
No carbon emission	Positive	Electric vehicles do not emit carbon emissions and do not release harmful gases into the environment and therefore have a positive impact on consumer preferences.
Technological innovations	Positive	Autonomous driving, advanced battery technology and smart charging systems increase the purchase intention of electric vehicles.

5. Discussion

5.1. Electric Vehicle Driving Experience

The study indicated that 16.4% of the participants had previously used electric vehicles and were very satisfied with their experience. Those with a positive experience indicated that they would purchase an electric vehicle in the future. This finding is similar to Schmalfuß et al. (2017). Electric vehicle experience makes people more sensitive to the environment and this awareness positively affects their purchasing decisions (Rezvani et al., 2015). The satisfaction of the users in Turkey may be due to the fact that the people with experience are generally environmentally conscious and interested in innovative technologies. In addition, the short urban transport distance in Turkey reduces the range problem. This shows that electric vehicles are suitable for daily use and users are satisfied.

5.2. Impact of Social Environment

The study revealed that the opinions of EV owners revealed that the social environment of the participants positively influenced EV purchase intention. However, this finding is contradictory to the results of Ščasný et al. (2015) and Tu and Yang (2019), who find that social influences are less important. The influence of social environment on EV purchase in Turkey can be explained by the importance people attach to close friends and family opinions. Due to their strong social ties and neighbourhood relations, people can trust the experiences and recommendations of the people around them. In addition, the experiences of electric vehicle owners were found to positively influence potential buyers.

5.3. Impact of Domestic Production

The study revealed that the domestic production of an electric vehicle has a positive impact on the respondents' purchase decisions. This factor largely coincides with the findings of Kocagöz et al. (2020), and the promotion of TOGG, which is domestically produced, increases consumers' confidence in Turkish production Kocagöz et al. Moreover, Uslu and Demirel (2022) emphasised that the prestige perception of TOGG products has a strong influence on Turkish consumers' willingness to purchase the produced vehicles. Therefore, the popularity of domestically produced electric vehicles in Turkey can be explained by consumers' national sentiments and their strong trust in national production. Since such vehicles not only take part in the process of economic development but also strengthen the sense of pride in national products, domestic car firms have a better influencing power on consumers.

5.4. Impact of Demographic Factors

In the study, different effects of demographic factors such as age, gender, education level and income level on electric vehicle purchase intentions were observed.

In the research, it was observed that there was a negative relationship between the age of consumers and the idea that owning an electric vehicle increases social status. It was observed that as the average age decreases, people think that their social status increases. This result is similar to Lin and Wu (2018), Sahoo (2023), Yadav and Yadav (2024), Tunçel (2022), Efendioğlu (2024) and Kocagöz (2020). According to literature, young people

in general have higher environmental awareness and interest in novelty technologies. As such, one may conclude the major reason for young people in Turkey to perceive electric cars as a social status symbol is their sustainability concerns and desire for innovations to be introduced. Another possible cause is the higher social media activity of young people, which may make them view electric cars as a fashion and prestige symbol. In this study, it is further observed that gender does not affect electric cars purchase intentions. However, contrary to these findings, some studies in the literature reveal that men show more interest in electric vehicles (Hong et al., 2013; Ščasný et al., 2015; Buhmann and Criado, 2023; Sahoo, 2023; Lin and Wu, 2018). In the study of Erdem et al. (2020), it is stated that increasing education level and being male positively affect the intention to purchase electric vehicles.

Individuals with higher education level were found to attach more importance to environmental concerns and innovative technologies. However, Önder and Kaya (2019) reported that higher education level has a negative effect. In addition, Önder and Kaya (2019) found that individuals with higher education levels prefer vehicles with large engine volume and status indicators rather than electric vehicles. This result can be explained by the fact that educated individuals have higher economic power and prefer prestigious vehicles. On the other hand, many studies emphasise that higher education level positively affects the intention to purchase electric vehicles (Hong et al., 2013; Ščasný et al., 2015; Thananusak and Punnakitikashem, 2017; Egnér and Trosvik, 2018; Hamamoto, 2018; Huang and Ge, 2020; Buhmann and Criado, 2023; Sahoo, 2023; Yadav and Yadav, 2024; Tunçel, 2022; Efendioğlu, 2024; Kocagöz, 2020). These findings can be explained by the fact that educated individuals have higher environmental awareness and interest in innovative technologies. However, in Şaşmaz's (2021) study, it is stated that the level of education does not have a significant effect on the intention to purchase electric vehicles. These differences may be due to factors such as personal values and economic status as well as education level. The fact that educated individuals are more aware of environmental awareness and sustainability issues ensures that electric vehicles are preferred.

The study claims that electric vehicle purchase intentions are positively correlated with an increasing level of income. Only people in the high-income group can bear the upfront costs of electric vehicles and estimate the long-term energy savings coming from electric vehicles. Similar to these results, Uslu and Demirel reported that the higher the income level, the greater the intention to purchase electric vehicles. Önder and Kaya (2011) reported that income level has no significant effect on the intention to purchase electric vehicles. This result seems strange: Even high-income individuals have this concern about high initial costs and sufficiently convenient charging infrastructure for them. However, Diamond (2010) suggests that income level (especially average income level) has a positive effect on EV purchase intention. According to Erdem et al. (2012), Hong et al. (2007), Časný et al. (2009), Egnér and Trosvik (2011), Huang and Ge (2014) and many other researchers, high income level has a positive effect on EV purchase intention. The point emphasised in these studies is that the people who use electric cars are in the affluent segments of the society. Also according to the source, the most significant differentiating factor for future ownership is income. These people can afford the costs of electric vehicles. It is also mentioned that people with high incomes think that they will save money in the long run with these vehicles. This interest can be explained by the fact that high-income earners are comfortable with the costs of these vehicles and are confident that they will save money.

As for the effect of the marital status variable on the intention of purchasing electric vehicles according to the findings of the study, there is no significant difference between married and unmarried participants. Some

research results have shown that married individuals have higher tendencies towards electric vehicles (Lin & Wu, 2018). The main reason behind this finding is that, in Turkey, people's attitudes towards electric vehicles are not associated with marital status. Probably, the reason behind the low impact of marital status on the purchase decision may be that other factors like environmental awareness, economic status of people, and interest in technology are shaping the decision-making process.

5.5. Barriers to Electric Vehicle Purchase

The major factors highlighted by the study as having a negative influence on the intention to buy electric vehicles were reported to be the insufficient recharging infrastructure, the short range, and related high costs. Insufficient recharging stations for electric vehicles and difficulty in accessing the few already in use had a negative impact on the decisions to buy, according to the participants. Similar findings are also found in the literature. In a study conducted by Çakmak and Turan (2022), it is stated that the number of charging stations per electric vehicle in Turkey lags behind the EU average and this situation reduces the adoption rate of electric vehicles. In addition, Li et al. (2017) emphasised that the high initial costs of electric vehicles constitute a significant barrier for consumers. Short range is also seen as an important barrier. Rezvani, Jansson, and Bodin (2015) state that range anxiety and inadequate charging infrastructure negatively affect electric vehicle sales. The reason why these barriers are more evident in Turkey is that the inadequacy of charging infrastructure and high initial costs create a greater burden on consumers. In addition, economic conditions and the scarcity of charging stations also make it difficult for consumers to prefer these vehicles.

5.6. Reasons for Electric Vehicle Purchase

In the study, low energy consumption with 61.9%, environmental concerns with 50.1% and the absence of carbon emissions with 49.4% were ranked first among the reasons for the participants to purchase electric vehicles. There are similar findings in the literature. Rezvani et al. (2015) suggested that environmental concern and energy efficiency are highly important. This was followed by Egnér and Trosvik in 2018 and Efendioğlu in 2024; these researchers indicated that environmental concerns provide a positive impact on the intention to buy electric vehicles. The reason that environmental concerns and energy efficiency take the front seat in preference for electric vehicles in Turkey is because of growing environmental awareness and reduction in energy costs. Carbon reduction, however, has taken on a more primary role in the light of international debate over climate change and Turkey's environmental policies.

5.7. The Effect of Being an Innovative Person

In the study, it was determined that the participants who defined themselves as innovative individuals had higher electric vehicle purchase intentions. Tunçel (2022) and Efendioğlu (2024) also stated that innovative individuals have positive effects on electric vehicle purchase attitude and intention. The reason for the high interest of innovative individuals in electric vehicles may be that they are generally interested in new technologies and environmentally friendly solutions.

5.8. Social Status and Electric Vehicle Ownership

In general, it was found that owning an electric vehicle increases social status among young people. Buhmann and Criado (2023) stated that the perception of electric vehicles as a sustainable product and status symbol positively affects consumer preferences. It was also emphasised that environmentally conscious consumers tend to gain social status through environmentally conscious behaviours (Thananusak,2022).

5.9. Government Incentives and Infrastructure Investments

In the literature, it has been emphasised that incentives and infrastructures are very important factors for consumers to choose electric vehicles (Sahoo, 2023; Çakmak and Turan, 2022). However, according to the results obtained, it was observed that there was not enough interest in incentives. This may be due to the fact that incentives are found insufficient by consumers and they do not have enough information about incentives.

6. Conclusion

According to the results, participants who have experience of using electric vehicles are generally satisfied with this experience. It was determined that this satisfaction positively affected their intention to purchase electric vehicles. Quiet operation, low fuel costs and environmentally friendly features of electric vehicles are the main factors that increase user satisfaction. The important impact of user experience on satisfaction and purchase intention has also been emphasised in the literature.

It has been observed that the opinions of people who own electric vehicles in the social environment significantly affect the participants' electric vehicle purchase preferences. Participants become more inclined to purchase these vehicles by taking into account the positive experiences and recommendations of electric vehicle owners in their environment. This shows the strong role of social influences on consumer behavior. In the literature, the influence of social environment is seen as a strong factor on individuals' consumption preferences.

The domestic production factor was also found to positively affect electric vehicle purchase decisions. Participants show more interest in domestic production vehicles in order to increase the promotion of domestic brands and consumer confidence. This result emphasises the importance of promoting domestic brands and increasing consumer confidence. Similarly, the positive effect of domestic production on consumer preferences has been reported in various studies in the literature.

Young people more interest in electric vehicles due to the environmental benefits of electric vehicles and their interest in innovative technologies. On the other hand, educated individuals care more about environmental awareness and sustainability and therefore may prefer electric vehicles. High-income individuals prefer electric vehicles more because they can afford the high initial costs of electric vehicles.

The main barriers for respondents are insufficient charging stations, long charging times, short range and high initial costs. These barriers are frequently mentioned in the literature.

Participants listed environmental concerns, low energy consumption and low maintenance costs among the reasons for purchasing electric vehicles. Environmentally friendly features and economic advantages of electric vehicles are important motivators for consumers. Participants find the potential of electric vehicles to reduce

carbon footprint and the opportunity to contribute to the environment by reducing fossil fuel use valuable. This supports the studies in the literature showing that environmentally friendly features and economic advantages of electric vehicles are important motivators for consumers.

It was also found that innovative individuals have a higher intention to purchase electric vehicles and the perception that owning an electric vehicle increases social status is common among young respondents. Innovative individuals prefer electric vehicles due to their interest in new technologies and early adoption tendencies. Young participants believe that owning an electric vehicle increases their social status. This finding supports the studies in the literature showing that innovative individuals are more open to new technologies and that the perception of social status can affect consumer behaviour.

In the study, it was observed that government incentives were not an important reason of preference for consumers. The reason for this may be that the incentives are not sufficient. Therefore, the incentives should be improved.

In conclusion, in order for consumers to demand electric vehicles in Turkey, the factors identified should be emphasised and studies should be carried out to eliminate the deficiencies.

7. Recommendations

According to the results of this study, various predictions can be made to increase the use of electric vehicles. Increasing the number of electric vehicle test drives and organising promotional activities can prevent the prejudices of the public due to ignorance to some extent.

In the study, it was determined that the participants attach importance to domestic production and the domestic production of the electric vehicle is an important reason for purchasing. Increasing the promotion of domestic brands and increasing incentives for domestic production can contribute to consumer preference.

Importance should be given to improving the charging infrastructure and providing fast charging stations. Thus, consumers' range concerns can be indirectly reduced.

Government incentives should be reviewed and expanded. In addition, the implementation of existing incentives should also be increased. Incentives in the form of tax reductions, subsidies and expansion of charging infrastructure will positively affect consumers' tendency to purchase electric vehicles.

Strategies to reduce the high costs of electric vehicles should be prepared. This can be achieved by reducing production costs and providing fiscal incentives such as tax benefits for consumers. It can also be facilitated by providing favourable investment and payment facilities. .

Improving the technical characteristics of electric vehicles would be beneficial. In particular, it is important to increase the range carrying capacity, reduce the charging time and extend the battery life. In conclusion, it is essential to increase R&D investments and support studies for the development of electric vehicle technology. In this way, domestic manufacturers will be stronger and more competitive in the global market.

In order for electric vehicles to be adopted by innovative individuals, it is necessary to focus on innovations. On the other hand, innovative technologies of electric vehicles should be presented to consumers and

it should not be forgotten that these vehicles are actually the vehicles of the future. At this point, focusing on technologies can attract the attention of innovative individuals. At the same time, marketing strategies planned in line with demographic characteristics should be developed. For example, special campaigns and awareness-raising activities should be prepared especially for young, educated and high-income consumers.

In the research, it was determined that factors such as environmental problems, low energy consumption and no carbon emissions are important in the preference of electric vehicles. Therefore, these facts can be utilised. For example, the economic and environmental benefits of electric vehicles can be explained to consumers with a special focus. Organising education and awareness-raising campaigns can be decisive. These campaigns will mainly focus on the advantages of electric vehicles over petrol vehicles and draw attention to both economic and environmental benefits. In addition, programmes can be organised to inform school and university students about sustainable transport and electric vehicle technologies. Co-operation between public and private actors is a key factor. Public institutions and private sector companies should cooperate on charging infrastructure, joint projects, incentives and training programmes. The private sector should be encouraged to include electric vehicles in their fleets. Possible tax reductions or incentives can be made at this point.

The recommendations presented are among the most important factors that can encourage the development of the electric vehicle market in Turkey and increase the customer adoption rate. Offering environmentally friendly and economic benefits can help electric vehicles to be adopted by wider masses compared to today. Moreover, technical developments and innovations can significantly increase the attractiveness of EVs and the number of consumers they can reach in case of updated market assessments.

8. References

Ajzen, I., 1991. The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), pp. 179-211. DOI: 10.1016/0749-5978(91)90020-T.

Al-Alawi, B. M. ve Bradley, T. H., 2013. Review of hybrid, plug-in hybrid, and electric vehicle market modeling studies. Renewable and Sustainable Energy Reviews, 21, pp. 190–203.

Anadolu Agency, 2023a. " Electric vehicle sales in Turkey increased more than 8 times in 2023." Anadolu Ajansı. Available at: https://www.aa.com.tr/tr/ekonomi/turkiyede-elektrikli-arac-satislari-2023te-8-kattan-fazla-artti-/3200718 [Accessed 20 Jun. 2024].

Anadolu Agency, 2023b. " Investment contribution amounts to be paid to electric vehicle manufacturers will be used as an offset against SCT." Anadolu Ajansı. Available at: https://www.aa.com.tr/tr/ekonomi/elektrikli-arac-ureticilerine-yatirima-katki-tutarlari-otvye-mahsuben-kullandirilacak/2866202 [Accessed 20 Jun. 2024].

Anadolu Agency, 2023c. " The EU has approved €1.4 billion in support for hydrogen projects." Anadolu Ajansı. Available at: https://www.aa.com.tr/tr/dunya/ab-hidrojen-projelerine-1-4-milyar-avroluk-destegi-onayladi/3233135 [Accessed 20 Jun. 2024].

Basaran, S. T., Dogru, A. O., Balcik, F. B., Ulugtekin, N. N., Goksel, C. ve Sozen, S., 2015. Assessment of renewable energy potential and policy in Turkey–Toward the acquisition period in European Union. Environmental Science & Policy, 46, pp. 82-94.

Buhmann, K. M. ve Criado, J. R., 2023. Consumers' preferences for electric vehicles: The role of status and reputation. Transportation Research Part D, 114, p. 103530.

Çakmak, R. ve Turan, A., 2022. Electric Vehicle Charging Station Infrastructure on the Basis of Provinces in Turkey: Analysis through the Metrics. Karadeniz Fen Bilimleri Dergisi, 12(1), ss. 246-268. DOI: 10.31466/kfbd.1029677.

Davis, F. D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), pp. 319-340. DOI: 10.2307/249008.

Diamond, D., 2006. The determinants of hybrid-electric vehicle adoption: insights from state registration data. Working Paper, F. A. Philip Auerswald, School of Public Policy, George Mason University, Fairfax, Virginia.

Efendioğlu, İ. H., 2024. Electric Vehicle Charging Station Infrastructure on the Basis of Provinces in Turkey: Analysis through the Metrics. İstanbul Gelişim Üniversitesi Sosyal Bilimler Dergisi, 11(1), pp. 106-122.

Egner, F. ve Trosvik, L., 2018. Electric vehicle adoption in Sweden and the impact of local policy instruments. Energy Policy, 121, pp. 584-596.

Egbue, O. ve Long, S., 2012. Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions. Energy Policy, 48, pp. 717-729.

Erdem, C., Şentürk, İ. ve Şimşek, T., 2010. Identifying the factors affecting the willingness to pay for fuel-efficient vehicles in Turkey: A case of hybrids. Energy Policy, 38(6), pp. 3038-3043.

Gyimesi, K., & Viswanathan, R. (2011). The Shift to Electric Vehicles: Putting Consumers in the Driver's Seat.

Hamamoto, M., 2019. An empirical study on the behaviour of hybrid-electric vehicle purchasers. Energy Policy, 125, pp. 286-292.

Hedef Filo, 2024. "Number of Electric Vehicles in Turkey in 2024." Hedef Filo EV Gündem. Available at: https://ev.hedeffilo.com/ev-gundem/blog/2024-yilinda-turkiyedeki-elektrikli-arac-sayisi [Accessed 30 Jun. 2024].

Hong, Y. H., Khan, N. ve Abdullah, M. M. (2013). The determinants of hybrid vehicle adoption: Malaysia perspective. Australian Journal of Basic and Applied Sciences, 7(8), 447-454.

Huang, X. ve Ge, J., 2019. Electric vehicle development in Beijing: an analysis of consumer purchase intention. Journal of Cleaner Production, 216, pp. 361-372.

International Energy Agency (IEA), 2023. Global EV Outlook 2023: Entering the Decade of Electric Drive? International Energy Agency, Paris. Available at: https://www.iea.org/reports/global-ev-outlook-2023 [Accessed 30 Jun. 2024].

International Renewable Energy Agency (IRENA), 2023. World Energy Transitions Outlook 2023: 1.5°C Pathway. International Renewable Energy Agency, Abu Dhabi. Available at: https://www.irena.org/publications/2023/Jun/World-Energy-Transitions-Outlook-2023 [Accessed 30 Jun. 2024].

Karamehmet, B. ve Morgül, E., 2018. Consumer Preferences for Electric Vehicles: Literature Review and Suggestions for Promotion. Karadeniz Uluslararası Bilimsel Dergi, 40, ss. 246-260.

Karasar, N. (2006). Bilimsel Araştırma Yöntemi, Ankara: Nobel Yayın Dağıtım.

Kennedy, C., Hyde, R., & Karney, B. (2002). Development of environmental knowledge and attitudes in engineering students. Bulletin of Science, Technology & Society, 22(6), 460-473.

Kerem, A., 2014. Development of Electric Vehicle Technology and Future Expectations. Mehmet Akif Ersoy Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 5(1).

Kırmızıgül, İ. E. ve Baykal, B., 2023. Consumer Motivation in Electric Vehicle Preference. Sosyal Bilimler Metinleri, 2023(2), ss. 223-241.

Kocagöz, E., İğde, Ç. S. ve Çetindağ, G., 2020.Electric and Smart, Domestic and National: First Evaluations of Consumers On Electric Vehicles Promoted By Turkey's Automobile Joint Venture Group. Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 49(2), pp. 55-74.

Liao, F., Molin, E. ve van Wee, B., 2017. Consumer preferences for electric vehicles: A literature review. Transport Reviews, 37(3), pp. 252-275.

Lin, B. ve Wu, W., 2018. Why people want to buy electric vehicle: An empirical study in first-tier cities of China. Energy Policy, 112, pp. 233-241.

Lin, B. ve Wu, W., 2021. The impact of electric vehicle penetration: A recursive dynamic CGE analysis of China. Energy Economics, 94, p. 105086.

Machedon-Pisu, M. ve Borza, P. N., 2020. Are personal electric vehicles sustainable? A hybrid e-bike case study. Sustainability, 12(32), pp. 1-24.

Palmer, K., Tate, J., Wadud, Z. ve Nellthorp, J., 2018. Total cost of ownership and market share for hybrid and electric vehicles in the UK, US and Japan. Applied Energy, 209, pp. 108-119.

Priessner, A., Sposato, R. ve Hampl, N., 2018. Predictors of electric vehicle adoption: An analysis of potential electric vehicle drivers in Austria. Energy Policy, 122, pp. 701-714.

Pusa, S., 2019. Investigation Of The Willingness Of Purchasing In Alternative Fuel Vehicle In The Tr62 (Adana - Mersin) Region [Master Thesis]. Çukurova Üniversitesi.

Rezvani, Z., Jansson, J. ve Bodin, J., 2015. Advances in consumer electric vehicle adoption research: A review and research agenda. Transportation Research Part D: Transport and Environment, 34, pp. 122-136.

Sahoo, D., Harichandan, S. ve Kar, S. K., 2022. An empirical study on consumer motives and attitude towards adoption of electric vehicles in India: Policy implications for stakeholders. Energy Policy, 165, p. 112941.

Saygin, H. ve Cetin, F., 2011. Recent developments in renewable energy policies of Turkey. In: Nayeripour, M., Kheshti, M. (Eds.), Renewable Energy-Trends and Applications. InTech Publishers, California, pp. 25-40.

Ščasný, M., Zvěřinová, I. ve Czajkowski, M. (2015). Individual preference for the alternative fuel vehicles and their attributes in Poland. EcoMod2015 Conference, Boston College, July 15-17 2015, USA.

Schmalfuß, F., Mühl, K. ve Krems, J. F., 2017. Direct experience with battery electric vehicles (BEVs) matters when evaluating vehicle attributes, attitude and purchase intention. Transportation Research Part F: Traffic Psychology and Behaviour, 46, pp. 47-69.

Schuitema, G., Anable, J., Skippon, S. ve Kinnear, N., 2013. The role of instrumental, hedonic and symbolic attributes in the intention to adopt electric vehicles. Transportation Research Part A: Policy and Practice, 48, pp. 39-49.

Sezen, B. ve İşler, A. U., 2017. Current Status Of Electric Vehicles, Reasons Being Preferred Or Not. Turkish Journal of Marketing, 2(2), pp. 82-103.

Sun, J., Sun, S., Chen, B. ve Hu, Y., 2024. Charging change: Analysing the UK's electric vehicle infrastructure policies and market dynamics. Energy Policy, 191, p. 114178.

Ščasný, M., Zvěřinová, I. ve Czajkowski, M., 2015. Individual preference for the alternative fuel vehicles and their attributes in Poland. EcoMod2015 Conference, Boston College, July 15-17, 2015, USA.

Thananusak, T. ve Punnakitikashem, P., 2017. Factors affecting the intention to buy electric vehicles: Empirical evidence from Thailand. International Journal of Electric and Hybrid Vehicles, 9(4), pp. 361-374.

Tunçel, N., 2022. Intention to purchase electric vehicles: Evidence from an emerging market. Research in Transportation Business & Management, 43, p. 100764.

Tury, G., 2019. Electromobility in the automotive industry: What role does technology change play in geographic pattern of production? Global Economic Observer, 7(2), pp. 112-120.

Uslu, H. ve Demirel, O., 2022. The Factors Affecting The Willingness To Purchase Electric Automobile: The Case Of Konya Province. Süleyman Demirel Üniversitesi Vizyoner Dergisi, 13(35), pp. 961-975.

United Nations, 1992. Kyoto protocol to the United Nations framework convention on climate change. Retrieved March 1, 2022 from https://unfccc.int/resource/docs/convkp/kpeng.pdf

United Nations Framework Convention on Climate Change (UNFCC), 2015. The Paris agreement. Retrieved March 1, 2022 from https://unfccc.int/sites/default/files/english_paris_agreement.pdf

Ustabaş, A., 2014. Micro And Macro Effects Of Electric Cars (The Case Of The Turkish Economy). Marmara Üniversitesi İ.İ.B. Dergisi, 36(1), pp. 269-291.

Yadav, R. ve Yadav, R., 2024. Are consumers ready to adopt electric vehicles? Analyzing the barriers and motivators associated with electric vehicle adoption in India: Policy implications for various stakeholders. Energy Policy, 190, p. 114173.

Yeşil Ekonomi, 2023. " The number of fully electric cars in Turkey has exceeded 100 thousand." Yeşil Ekonomi. Available at: https://yesilekonomi.com/turkiyedeki-tam-elektrikli-otomobil-sayisi-100-bini-gecti/ [Accessed 25 Jun. 2024].