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ANALYZING ELECTRIC VEHICLE CONSUMER PURCHASE INTENTION USING PERCEIVED VALUE THEORY

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ABSTRACT

Excessive energy use in various countries has caused global environmental problems, one of the main causes is the use of energy from transportation so it is necessary to change the use of oil-fueled vehicles to electric This study examined the influence of perceived value theory in the form of functional value, price value, emotional value, social value and environmental value on consumer intention to buy electric vehicles. This study used quantitative descriptive methodology with survey method, data was collected from 100 respondents through an online questionnaire using google form which was analyzed using SEM PLS 3.2.9. The results showed that consumer intention to buy an electric vehicle is positively and significantly influenced by emotional value, social value and environmental value. Meanwhile, functional value and price value do not affect consumer intention to buy electric vehicles. This research also provides theoretical implications in the form of empirical evidence, decision making by electric vehicle marketers and the government from the influence of consumer intentions to buy electric vehicles in the Indonesian context.

Keywords: *Perceived value theory, electric vehicle, functional value, price value, environmental value*

1. Introduction

Currently, the excessive use of energy in various countries has caused various global environmental problems such as climate change that is too extreme and difficult to predict. Excessive energy consumption has caused a lot of carbon emissions and other toxic gases, which can harm the environment and health. One of the main causes of excessive energy use is the heavy use of transportation as it is completely dependent on petroleum fuels and produces carbon dioxide (CO2) gas. Excessive energy use wasalso caused by high population growth because the more the population, the more energy use is required.

With climate change becoming the focus of world attention, many people are beginning to realize the importance of the environment and the impact of energy consumption on the environment (Strielkowski et al., 2019). Indonesia is one of the countries with the fourth highest population density in the world with a population of 278.7 million people so that the required energy use is also getting higher (Annur, 2023). The transportation sector, especially petroleum-fueled motorized vehicles, is the second largest contributor to pollution and energy in Indonesia, so it needs to get more attention to the current significant increase in the number of motorized vehicles (Maghfiroh et al., 2021). Over the past few decades there has been an increase of 8.6% per year in the fossil fuel transportation use sector (Zhong et al., 2019).

An alternative method that can be done to overcome this problem is to educate users of oil-fueled motorized vehicles to switch to using electric motorized vehicles that can use lower energy and are pollution-free because they do not emit CO2 gas (Narasipuram & Mopidevi, 2021). The Indonesian government has issued presidential regulation number 55 of 2019 which contains the acceleration of the battery-based electric motor vehicle program for road transportation, the regulation states that buyers of electric motor vehicles such as cars and

motorbikes will get an intensive tax on motor vehicle registration fees (BBN-KB) this is done by the Indonesian government in order to stimulate the willingness of the public to switch, buy and use electric vehicles (Presidential Regulation (PERPRES) Number 55 of 2019, 2019).

The use of electric vehicles in Indonesia has become very important after the emergence of various environmental issues caused by the high number of oil-fueled motor vehicles that cause pollution that is harmful to health, extreme climate change, global warming, and scarcity of petroleum resources in Indonesia. Various initiatives have been carried out by the government such as providing subsidies when buying electric vehicles, this is done in order to stimulate users of oil-fueled vehicles to switch to buying and using electric vehicles. However, it is important to know people's preferences or expectations of electric vehicles, considering that this electric vehicle is a new product in Indonesia know what consumers want from electric vehicles more electric vehicle users. Consumers consider the theory of perceived value to assess electric vehicles, namely functional value, price value, emotional value, social value and environmental value.

Three studies have studied consumer purchasing behavior for a product that is influenced by the perceived value of a product, namely in the form of functional value, price value, emotional value, social value and environmental value. When using the perceived value theory, it is also influenced by consumer characteristics such as experience in purchasing environmentally, friendly products, gender, monthly income and domicile of residence because consumer behavior will change according to the product purchase experience they get (Sun et al., 2021). The use of a product can change consumer perceptions and attitudes so that consumer perceptions about purchasing a product that they have bought and used are different from consumers who have never used and bought the product.

Luo et al., (2022) stateed that functional value, emotional value, conditional value and environmental value have the positive influence on customer satisfaction to increase the intention to purchase energy-efficient products while social value is not significant to consumer satisfaction. Lin and Dong (2023) stated that functional value, price value and environmental value significantly and positively affect attitudes towards purchasing energy-efficient household appliances while social and emotional values do not significantly affect attitudes. Arifin et al. (2023) stated that social value, functional value, and price value have an effect on consumer satisfaction that affects micro-purchase intention in Valoran while emotional value has no effect on consumer satisfaction.

This study provided a model to better understand consumer intention to purchase electric vehicles using the theory of perceived value in the form of functional value, price value, emotional value, social value and environmental value. The perceived value of electric vehicles affected customer satisfaction which led to consumer behavior on whether to buy or not. The purpose of this study was to analyze the perceived value of electric vehicles and what factors influence consumer intention to buy electric vehicles in Indonesia.

This research contributed to the literature to deepen understanding of consumer intention to purchase electric vehicles in Indonesia which was influenced by perceived value theory. This research also provided theoretical implications in the form of decision making by electric vehicle marketers and the government from the influence of consumer intention to purchase electric vehicles in the Indonesian context.

2. Literature Review

2.1. Theory of perceived value

Perceived value theory is the consumer's overall assessment of the advantages and disadvantages obtained from a product or service on the grounds that the assessment provided by consumers is the consumer's evaluation of product components and their usefulness that can help or hinder the purpose of the product (Woodruff, 1997). Sheth et al. (1991) stated that

perceived value theory can be classified into five values, namely functional value, emotional value, social value, price value, and environmental value. Therefore, this research used the perceived value theory and focused on five values namely functional value, emotional value, social value, price value, and environmental value.

2.1.1. Functional Value

Functional value is an important factor in consumer perceptions of usefulness, performance, reliability, durability, and quality in the consumption decision-making process because it is the basic value that consumers seek from a product when they want to use and buy a particular product (Woo & Kim, 2019). Consumers prefered products that have more functional uses than those with fewer functional uses. Therefore, it can be said that consumer intention to buy an Electric vehicle is influenced by functional value, so it is hypothesized that:
H1. Functional value positively influences consumer intention to buy an Electric vehicle

2.1.2. Price Value

Price value is the least visible value of a product but refers more to the benefits perceived by consumers in a product based on its short-term and long-term costs whether it is in accordance with the price given (Tsay, 2009). Consumers will be more willing to pay for a product at a higher price if it is in accordance with the benefits provided by the product. Therefore, it can be said that consumer intention to buy an Electric vehicle is influenced by functional value, so it is hypothesized that :
H2. Price value positively influences consumer intention to buy an Electric vehicle

2.1.3. Emotional Value

Emotional value is the perception that consumers feel from a product that evokes certain feelings or emotional states when using and buying a particular product (Hur et al., 2013). Consumers will prefer to use and choose a product that makes them happier when using and buying it than a product that does not give them a sense of pleasure and happiness. Therefore, it can be said that consumer intention to buy an Electric vehicle is influenced by emotional value, so it is hypothesized that:
H3. Emotional value positively influences consumer intention to buy an Electric vehicle

2.1.4. Social Values

Social value is the perception that consumers feel and get from social groups, family and friends when using and buying a particular product (Biswas & Roy, 2015). Consumers will prefer to use and buy a certain product that can give them recognition from others rather than products that do not provide recognition from others. Therefore, it can be said that consumer intention to buy an Electric vehicle is influenced by social value, so it is hypothesized that:
H4. Social value positively influences consumer intention to buy an Electric vehicle

2.1.5. Environmental Value

Environmental value is the perception felt and obtained by consumers related to environmental friendliness when using and buying a particular product (Ding et al., 2022). Consumers will prefer to use and buy products that provide more benefits to the environment than those that do not provide benefits to the environmental. Therefore, it can be said that consumer intention to buy an Electric vehicle is influenced by environmental values, so it is hypothesized that:
H5. Environmental values positively influence consumer intention to purchase electric vehicles

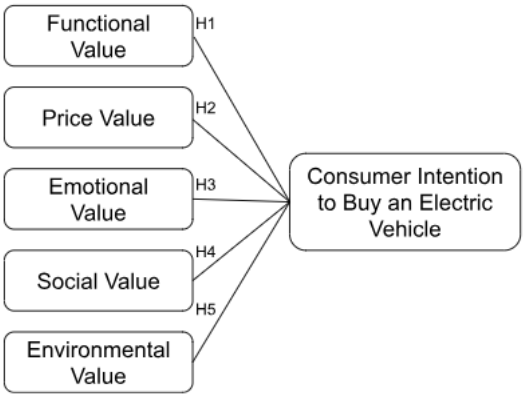

Figure 1. Conceptual Framework

3. Research Methods

3.1. Research Design

This research is designed with a quantitative approach that uses descriptive research to collect information about something and then describe it (Abd.Mukhid, 2021). The research uses a survey method which will be carried out by distributing questionnaires and verifying the validity of their contents to collect information directly from the sample which is carried out online through a questionnaire in the form of a google form distributed via social media in the form of whatsapp, Instagram, facebook and tiktok with the aim of knowing the sample's opinion about the subject being investigated in the study.

3.2. Population and sample

Data was collected with the condition that the respondent must have an age above 17 years and a monthly expenditure of 2,000,000. This questionnaire used a Likert scale consisting of 5 points from strongly disagree (1) to strongly agree (5). From the questionnaire that has been distributed online, there were 100 respondents who met the conditions that had been made.

3.3. Data Analysis

In this study, the data was processed using the data analysis technique SmartPLS version 3.2.9. The stages in SmartPLS used several processes ranging from outer model evaluation, inner model evaluation, and hypothesis testing.

4. Research Findings and Discussion

4.1. Characteristics of Respondents

This study has several characteristics of respondents which are divided into 4 (four) groups, namely gender, domicile, age, and monthly expenses which are contained in the following table:

Table 1. Demographic Profile

Responden Profile		Total	Percentage
Gender	Female	56	56%
	Male	44	44%
Domicile	Borneo Island	44	44%
	Java Island	47	47%
	Sulawesi Island	2	2%

Responden Profile		Total	Percentage
	Sumatera Island	1	1%
	Papua Island	1	1%
	Bali Island	5	5%
Age	17 - 30	71	71%
	31 - 51	23	23%
	51 - 70	6	6%
Monthly Expenditure	2.000.000 - 3.000.000	65	65%
	3.100.000 - 4.000.000	21	21%
	4.100.000 - 5.000.000	8	8%
	5.100.000 - 6.000.000	6	6%

Source: Data processed by researchers, 2024

4.2. Outer Model Evaluation

The results of the outer model evaluation, inner model evaluation can be seen by performing calculations in smartpls through the Partial Least Squares Algorithm which contains the following results:

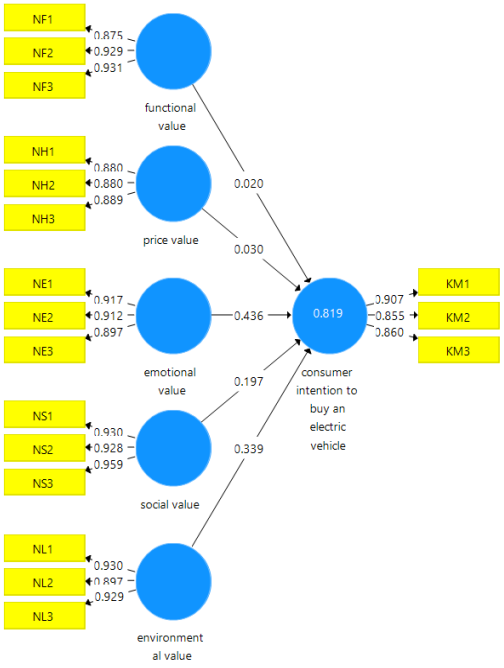

Figure 2. Partial Least Square Model Algorithm
Source: Data processed by researchers, 2024

At this first stage, namely by evaluating the outer model by looking at the outer loading value of each indicator on each construct. According to Hair et al., (2019) an indicator can be said to meet the validity criteria if the outer loading value is > 0.7.

Table 2. Confirmation of Factor Analysis

Variabel	Indikator	Loading Factor
Consumer intention to buy an electric vehicle	KM1	0,907

Variabel	Indikator	Loading Factor
	KM2	0,855
	KM3	0,860
Emotional value	NE1	0,917
	NE2	0,912
	NE3	0,897
Environmental value	NL1	0,930
	NL2	0,897
	NL3	0,929
Functional value	NF1	0,875
	NF2	0,929
	NF3	0,931
Price value	NH1	0,880
	NH2	0,880
	NH3	0,889
Social value	NS1	0,930
	NS2	0,928
	NS3	0,959

Source: Data processed by researchers, 2024

Based on the results of data processing using SmartPLS 3.2.9 displayed in table.2 which shows that all indicators have an outer loading value > 0.7, which means that all indicators are said to be valid.

4.3. Inner Model Evaluation

At the next stage, evaluate the inner model by looking at the Composite Reliability value, Cronbach's Alpha value, and AVE value for each indicator. According to Hair et al., (2019) an indicator can be said to be valid if it meets the criteria used, namely the Composite Reliability value> 0.70, the Cronbach's Alpha value> 0.70 and the AVE value ≥ 0.50.

Table 3. Reliability and Validity Model

Variabel	Cronbach's Alpha	rho_A	AVE
Consumer intention to buy an electric vehicle	0,845	0,847	0,764
Emotional value	0,894	0,896	0,825
Environmental value	0,908	0,914	0,845
Functional value	0,899	0,906	0,832
Price value	0,859	0,864	0,780
Social value	0,933	0,935	0,882

Source: Data processed by researchers, 2024

Based on the results of the Reliability and Validity Model value, it can be stated that all indicators are reliable and valid because they have met the criteria for use, namely the Composite Reliability value> 0.70, the Cronbach's Alpha value> 0.70 and the AVE value ≥ 0.50.

4.4. Hypothesis Testing

The results of hypothesis testing can be seen by doing calculations in smartpls through Partial Least Squares Bootstrapping which contains the following results:

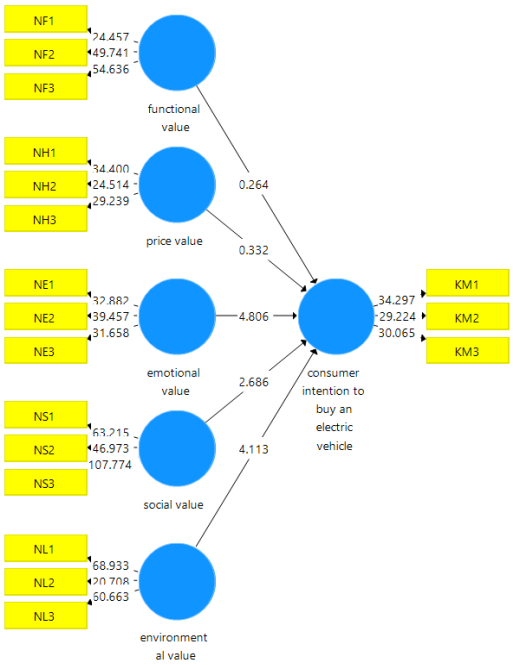

Figure 3. Partial Least Square Model Bootstrapping
Source: Data processed by researchers, 2024

The significance of the research hypothesis can be known through the results of hypothesis testing conducted using the criteria, namely the hypothesis will be supported if the p value <0.05 and the t statistical value> 1.96, then the hypothesis is accepted.

Table 4. Hypothesis Testing

Hypothesis	Description	T Statistic	P Values	Information
H1	functional value -> consumer intention to buy an electric vehicle	0,264	0,792	Not Supported
H2	price value -> consumer intention to buy an electric vehicle	0,332	0,740	Not Supported
H3	emotional value -> consumer intention to buy an electric vehicle	4,806	0,000	Supported
H4	social value -> consumer intention to buy an electric vehicle	2,686	0,008	Supported
H5	environmental value -> consumer intention to buy an electric vehicle	4,113	0,000	Supported

Source: Data processed by researchers, 2024

In testing the hypothesis that functional value positively influences consumer intention to buy an Electric vehicle, the p-value is not in accordance with the criteria, so H1 is declared unsuccessful and rejected. So, it can be said that functional value does not significantly affect consumer intention to buy an electric vehicle. In testing the hypothesis that price value positively influences consumer intention to buy an electric vehicle, the p-value is not in accordance with the criteria, so H2 is declared unsuccessful and rejected. So, it can be said that price value does not significantly affect consumer intention to buy an electric vehicle. In testing the hypothesis that emotional value positively influences consumer intention to buy an electric vehicle, the p-value is obtained in accordance with the criteria, so H3 is declared successful and accepted. So, it can be said that emotional value positively and significantly influences

consumer intention to buy an electric vehicle. In testing the hypothesis that social value positively influences consumer intention to buy an electric vehicle, the p-value is obtained in accordance with the criteria, so H4 is declared successful and accepted. So, it can be said that social value positively and significantly influences consumer intention to buy an electric vehicle. In testing the hypothesis that environmental values positively influence consumer intention to buy electric vehicles, the p-value is obtained in accordance with the criteria, so H5 is declared successful and accepted. So, it can be said that social value positively and significantly influences consumer intention to buy an electric vehicle.

5. Conclusion

Electric vehicle products in Indonesia are still a new product so that there are still many people who do not understand, use and buy electric vehicles so that currently it still requires the introduction of electric vehicle products to the public in Indonesia. In this study, it was found that emotional value has the highest value that affects consumer intention to buy electric vehicles so it can be concluded that if consumers feel happy and like electric vehicle products, consumer intention to buy electric vehicles will be higher. Emotional value positively and significantly influences consumer intention to buy electric vehicles. Electric vehicle marketers must be able to make electric vehicles that consumers like. Environmental value positively and significantly influences consumer intention to buy electric vehicles so that it can be said that when consumers will buy and use electric vehicles they see the environmental value of the vehicle if the environmental value is high then the consumer's intention to buy an electric vehicle is also high and vice versa. Social value positively and significantly affects consumer intention to buy Electric vehicles so that it can be said that when consumers will buy and use Electric vehicles they see the social value it brings whether using Electric vehicles can make them recognized by others or not so that if social value is high then consumer intention to buy Electric vehicles is also high and vice versa. Price value positively at an insignificant level affects consumer intention to buy an electric vehicle so that it can be said that consumer intention to buy an electric vehicle is not influenced by price value. Functional value positively at an insignificant level affects consumer intention to buy an electric vehicle so that it can be said that consumer intention to buy an electric vehicle is not influenced by price value.

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