

THE INFLUENCING FACTORS OF NEW ENERGY VEHICLE CONSUMERS' PURCHASE INTENTIONS: A CASE STUDY OF IDEAL BRAND

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Abstract: Sustainable energy vehicles are being developed in China, aiming to promote a low-carbon society and environmentally friendly transportation. This paper aimed to study the influencing factors of consumer purchase intention of Ideal Brand-New Energy Vehicles. The objectives of the study were 1) to explore the influencing factors that affect the purchase intention of consumers of Ideal Brand-New Energy Vehicles and 2) to determine whether functional value, emotional value, social value, green value, and economic value have any influence on the purchase intention of consumers of Ideal Brand-New Energy Vehicles. This study adopted the quantitative research method. A total of 410 questionnaires were distributed, and 403 valid questionnaires were recovered, with a recovery rate of 98.3%. Based on the purchasing decision theory and the sustainable development theory, this paper found that: 1) Functional value, emotional value, social value, green value, and economic value are the factors influencing consumer purchase intention for new energy vehicles; 2) The factors influencing consumer purchase intention of new energy vehicles, which are functional value, emotional value, social value, green value, and economic value, all have a significant positive effect on consumer purchase intention. For recommendations, Ideal Brand should focus on the following aspects: 1) Enhancing functional value; 2) Strengthening emotional value; 3) Enhancing green value; 4) Rationalizing economic value; 5) Improving social value.

Keywords: New Energy Vehicle, Consumers' Purchase Intentions, Green Value, Functional Value, Emotional Value, Social Value, Green Value, Economic Value

Introduction

With the rapid development of social and economic development, people's production and living standards have made qualitative progress and have new consumption concepts and lifestyles (Anderson et al., 2020). Consumption is more and more concerned about the changes in the ecological environment, in addition to focusing on the economic benefits of the product, but also on the social benefits of the product. In China's efforts to develop a green economy, consumers pursue a green



lifestyle, and the manufacturing industry and other heavy industrial enterprises have also begun to improve the concept of technological upgrading and green production while reforming the management structure, resulting in the overall realization of the transformation and upgrading of intelligent, low-carbon systems (Tiebout, 2020).

Enterprises want to seize the opportunity and open up new development spaces; the key is to focus on the green economy and sustainable development (Verhoef et al., 2021). The automobile industry is an important pillar industry for the national economy. The development of traditional automobiles is accompanied by various environmental problems, such as exhaust pollution and an imbalance between energy supply and demand. New energy vehicles are characterized by low energy consumption, cleanliness, and light pollution. To realize the transformation and upgrading of China's automobile industry structure, it is necessary to develop new energy vehicles (Xu et al., 2014). New energy vehicles are a breakthrough in solving environmental problems. At present, low carbon intelligence has become the general trend of global automobile technology, and new energy vehicles are gradually replacing traditional fuel vehicles (Gong et al., 2012).

Therefore, replacing conventional vehicles with new energy vehicles is not only for the eventual establishment of an environmentally friendly and low-carbon society but also an inevitable choice for the sustainable development of the automobile industry in the future. The development of new energy vehicles in China for more than ten years has been carried out and has made progress (Dong & Liu, 2020). Whether in terms of technology or application, as well as market expansion, the Chinese government has vigorously subsidized new energy vehicles. Along with the gradual implementation of the subsequent subsidy regression policy, it will make users less motivated to buy cars. The lack of internal drive for sustainable development of new energy vehicles will be more evident (Chu & Majumdar, 2022). Then, what should be done to continue to promote consumer consumption and how to occupy a larger market share in the automobile industry? New energy automobile enterprises can better define their production strategies. It provides targeted marketing advice for companies' product development and helps Chinese government departments make rational decisions.

In comparison to the conventional automobile industry, new energy vehicles present numerous advantages. They decrease energy consumption and reliance by utilizing eco-friendly energy sources like solar power, leading to reduced pollution. Additionally, new energy vehicles emit lower emissions, aiding in excessive carbon dioxide emissions. Lastly, new energy vehicles can optimize China's industrial structure, signifying an industry upgrade that will propel the entire sector forward.

China ranks first in the world in terms of new energy vehicle sales. However, the support for new energy vehicle sales comes from government behavior. Encouraged policies such as preferential and unrestricted purchases of new energy vehicles in China, consumers have started to try to use new energy vehicles. The Chinese government has introduced a series of policies to support the



development of new energy vehicles in the hope of promoting the further development of the automotive industry. However, the role of the Chinese government in guiding the industry does not determine the direction of the industry. There are still difficulties in shifting the new energy vehicle industry from policy-oriented to market-oriented.

The research supplements and completes the missing research on green perceived value in the past. In the past, scholars have defined the perceived value from various perspectives, and new research orientations have been developed in different fields (Huang et al., 2020). However, for the research on the green perceived value of consumers' environmental goods, many of them simply put forward the conceptual definition, and the division and research on its sub dimensions are rare, and even appear to be studied simply as a single-dimensional variable in the research, this study will include the green value as a variable in the research model.

Green value is specifically added to the research model and introduced into the decision-making process of new energy vehicles, comparing the degree of influence of different dimensions of green perception on the purchase intention of new energy vehicles, so as to further improve the study of green perceived value variables. Second, under the framework of purchase decision theory, customer functional value, emotional value and social value are taken as research variables. It aims to reveal the role of consumer innovativeness in the process of consumer perception influencing purchase intention and draw theoretically relevant conclusions through empirical research. Moreover, based on the theory of diffusion of innovation, focusing on and giving full play to the innovativeness of customers has an important practical value for promoting the development of new energy vehicles.

Through the exploration of consumer innovation, enterprises and governments can indirectly enhance consumers' willingness to purchase new energy vehicles. New energy vehicles are not only a mode of transportation, but also a technological innovation and progress (Sajjadi et al., 2021). Therefore, if this wave of development trend can be grasped, China's automobile industry will be very likely to go to the forefront of the development of the world's automobile industry.

Research Objectives

Starting from the consumer purchase intention of new energy vehicles, this study explores the role of different factors on the consumer purchase intention of new energy vehicles through theoretical research and empirical analysis of the purchase decision theory and sustainable development theory, so as to provide corresponding suggestions for the new energy vehicle industry and related departments.

- To explore the influencing factors that affect the purchase intention of consumers of Ideal Brand-New Energy Vehicles.
- 2) To determine whether functional value, emotional value, social value, green value, and



economic value affect the purchase intention of consumers of Ideal Brand-New Energy Vehicles.

Research Hypotheses

Therefore, the following hypotheses are proposed in this study:

H1: Functional value has a significant positive effect on consumer purchase intention for Ideal Brand-New Energy Vehicles.

H2: Emotional value has a significant positive effect on consumer purchase intention for Ideal Brand-New Energy Vehicles.

H3: Social value has a significant positive effect on consumer purchase intention for Ideal Brand-New Energy Vehicles.

H4: Green value has a significant positive effect on consumer purchase intention for Ideal Brand-New Energy Vehicles.

H5: Economic value has a significant positive effect on consumer purchase intention for Ideal Brand-New Energy Vehicles.

Literatures Review

New Energy Vehicles

New Energy Vehicles (NEV) refers to automobiles with new technologies and structures that use non-conventional automotive fuels as their power source and are formed by adopting advanced technologies in comprehensive vehicle power control and drive (Peng, 2017). In this paper, we select the definition of new energy vehicles and their categories that are generally agreed upon for discussion, i.e., in a broad sense, those that use all energy sources other than internal combustion engines such as gasoline and diesel engines, e.g., hydrogen-powered, gas-powered, hybrid, etc., are new energy vehicles.

New energy vehicles have the advantages of energy saving, low pollution, etc., the number of pure electric vehicles and hybrid vehicles on the market is relatively large, the new energy vehicles studied in this paper include these two categories, as well as fuel cell vehicles, natural gas vehicles, and alcohol ether-powered vehicles, although the scope of input production is small (Tu & Yang, 2019), but still belongs to the new energy vehicles within the scope of the larger classification. Through market research, it can be concluded that Chinese consumers' understanding of new energy vehicles is between pure electric vehicles and hybrid vehicles. The term "new energy vehicles" in this study refers to vehicles powered by new energy (Du et al., 2018).

Relevant theories

Consumer decision-making is a psychological process. Consumers in the final purchase



decision before the perception and evaluation of goods or services, in the individual need to stimulate the internal or external environment, such as the joint role of the publicity and encouragement factors, the desire to buy into a complete process of practical action, and in the end of the whole process of the goods to feedback on the views. This is a relatively complete set of systematic decision-making processes, including consumer information perception, consumer interest, need motivation, purchase decision, complete the purchase (Sari, 2021), the use of experience. Consumers make decisions by selecting relevant goals and refining the overall plan, then making choices that lead to purchase intent. The buying experience then influences the next consumption, thus constituting a kind of complete cycle of consumer decision making.

Functional value in purchase decision theory refers to the functions and performance that consumers believe a product or service provides in actual use. When purchasing new energy vehicles, functional value may be one of the important factors influencing purchase intention. According to the literature review, consumers' purchase intention to buy new energy vehicles is influenced by fuel economy in functional value. New energy vehicles usually run with lower energy consumption, which means lower fuel costs (Morgan & Hunt, 2020). Consumers prefer to buy new energy vehicles because they are more economical in use. The performance and driving experience of new energy vehicles are also important influences on consumer choice in the study. Consumers are more willing to buy new energy vehicles when their performance and driving experience are comparable or even superior to that of traditional fuel vehicles.

Emotional value in purchase decision theory refers to the emotional experience and feelings that a product or service evokes in the minds of consumers. Different from functional value, emotional value emphasizes the emotional connection and pleasure associated with the product or service. The influence of emotional value on consumers' willingness to buy new energy vehicles includes brand emotion, appearance design, and emotional connection. Consumers choose to buy new energy vehicles because of the emotional connection to a specific brand. Emotional and functional values are usually intertwined in the purchase decision. For example, consumers may feel emotionally pleasurable (emotional value) because of the car's environmental characteristics (functional value) (Reinoso-Carvalho et al., 2019). Therefore, a combination of these two value aspects can provide a more comprehensive understanding of the factors influencing purchase intention in research.

Social value in purchase decision theory refers to the relevance of a product or service to a consumer's sense of social responsibility, ethical standards, and impact on society. Compared with functional value and emotional value, social value emphasizes the impact of individual purchasing behavior on society and the environment. The influence of social value on consumers' willingness to purchase new energy vehicles includes environmental responsibility and awareness, sustainable development value, and social identity. Social value in the influencing factors of the willingness to buy



new energy vehicles, first of all, need to consider the environmental awareness and environmental responsibility of new energy vehicles. Social value is related to the individual's concern and sense of responsibility for environmental issues. The theory of sustainable development seeks to find a way of development that can simultaneously meet present needs without compromising the fulfillment of future needs. The theory is concerned with striking a balance between the three dimensions - economic, social and environmental - to ensure long-term sustainability. The theory of sustainable development argues that economic development should not come at the expense of the needs of future generations. The theory emphasizes the protection and preservation of natural resources while meeting current needs to ensure that they remain available in the future. The theory of sustainable development emphasizes the consideration of economic, social and environmental factors (Shi et al., 2019).

In the theory of sustainable development, green value emphasizes the importance of environmental protection and sustainable resource use. In the decision-making of consumers to purchase new energy vehicles, green value positively affects the willingness to purchase. Green perceived value then attracts a great deal of attention from the academic community. Green perceived value is not only a psychological feeling (Fuerst & McAllister, 2011) that consumers have when choosing a product, but also an environmentally friendly value of the product, which can promote positive word-of-mouth among consumers and lead them to make green purchases. Green perceived value refers to the overall evaluation of the net benefits that potential buyers of goods or services receive from green products or environmentally friendly services. A customer's decision to buy is the result of a combination of multiple dimensions, and the impact of these factors on willingness to buy varies in different situations.

Economic value, which is the assessment made by consumers of green products or services from an economic point of view, will significantly increase its utility when the cost or pricing of the product is lowered, or the price/performance ratio is improved compared with similar products (Jiang & Kim, 2015). Economic value emphasizes the cost-effectiveness of a product or service. For new energy vehicles, economic value may be related to factors such as fuel cost, maintenance cost and usage cost. Consumers consider whether purchasing a new energy vehicle will provide a return on investment in the long term, for example through lower operating costs and possible government incentives. Consumers are more likely to purchase a new energy vehicle if they perceive that such an investment will provide economic benefits in the long term, such as lower operating and maintenance costs (Chen, 2016).

Methodology

This study adopted the quantitative research method. Quantitative research method was used in this study. This study takes Chinese ideal brand-new energy vehicles as the research object for data



collection. The process of questionnaire design is unfolded in this paper is to first collect and study the mature scale, and then make targeted modifications to improve and optimize the design, and first form a preliminary questionnaire. The questionnaire of this study includes two aspects: on the one hand, the basic demographic characteristics of the respondents were analyzed, and the basic data such as gender, age, literacy, and so on were derived; on the other hand, Functional Value, Emotional Value, Social Value, Green Value, Economic Value, Consumer Purchase Intention and other variables were measured. Except for the basic personal information, all the other questions are based on Likert's "five-point scale", in which the questions consist of numerical choices from 1 to 5, with 1 being "strongly disagree", 2 being "disagree", 3 being "disagree", and 4 being "strongly disagree". The questionnaire survey was conducted from November 1, 2023, to November 20, 2023.

Considering the fast collection speed of online distribution. The study mainly used the online distribution of questionnaires for the research, where respondents could ask and answer questions if they did not understand. A total of 410 questionnaires were distributed during the survey, 410 questionnaires were recovered, and 403 questionnaires were valid, with a validity rate of 98.3%.

Green value is a value of social significance based on environmental protection, emphasizing the internal satisfaction of consumers, which does not come from the recognition of consumers' image and identity by the outside society but from the fact that consumers can satisfy their pursuit of environmental protection after purchasing green products. Economic value is a kind of direct benefit gained in a short period of time or indirect benefit brought in a long period of time, which mainly refers to the consumers' assessment of green products from the aspects of both cost and price.

Results

1). Reliability analysis

The survey data showed that the reliability of the questionnaire was good. The questionnaire had a total of 30 items. When the reliability coefficient of subscale is above 0.7, the reliability coefficient of scale or questionnaire is good; when the coefficient of subscale is between 0.6-0.7, it is also acceptable; when the reliability coefficient of the total scale needs to reach 0.8 or higher, it proves that the overall reliability is very good. The Cronbach's alpha of Functional Value is 0.901. The Cronbach's alpha for Emotional Value is 0.875, Social Value is 0.870, Green Value is 0.878, and Economic Value is 0.881. The Cronbach's alpha of Consumer Purchase Intention is 0.868, and the Cronbach's alpha of each variable is greater than 0.8, which indicates that the scale has high stability and consistency. This indicates that the reliability of the survey research questionnaire is very good.

2). Validity analysis

Validity refers to the degree of validity of a measurement, that is, the accuracy and usefulness of what can be measured, and is generally combined with reliability analysis to jointly test the scale.



The validity of the questionnaire was determined by factor analysis. The KMO test as well as the Bartlett's Sphericity test of the questionnaire need to be tested before principal component factor analysis. Factor analysis can only be performed if the KMO value is greater than 0.7. The survey data shows that the overall KMO value is 0.928 and the significance is 0.000, which is less than 0.05 and reaches the significant level, indicating that factor analysis can be conducted. Confirmatory factor analysis (CFA) was conducted in this study. The result of factor analysis for each variable was informed that the cumulative explanatory rate of Functional Value, Emotional Value, Social Value, Green Value, and Economic Value were 68.624% respectively, which is greater than 0.5. This indicates that it is suitable for factor analysis.

3). Correlation Analysis

The main role of correlation analysis is to define the relationship between individual variables. When the coefficients of two variables are correlated and the correlation is significant it means that there is a correlation between the two variables. When the correlation between two variables is not significant it means that there is no correlation between the two variables. This study analyzes the relationship between the variables Functional Value, Emotional Value, Social Value, Green Value, Economic Value, and Consumer Purchase Intention. The correlation coefficients illustrate the factors influencing Consumer Purchase Intention of new energy vehicles of ideal brands. According to the analysis results. The Pearson correlation coefficients of Functional Value, Emotional Value, Social Value, Green Value, Social Value, Green Value, and Consumer Purchase Intention are between 0.296 and 0.624, which is smaller than 0.9 and P<0.01, indicating that there is a correlation between the variables, and it is positive.

4). Multiple regression

Multiple regression analysis was applied to the data to determine the relationship between the dependent variable Consumer Purchase Intention and the independent variables Functional Value, Emotional Value, Social Value, Green Value, and Economic Value. The regression equation was significant, F=55.298, p<0.001.The Durbin-Watson test value was 1.919, which is between 1.8 and 2.2. The data were independent and met the linear regression requirements. In the diagnostic result of covariance, the VIF values of Functional Value, Emotional Value, Social Value, Green Value, and Economic Value are 1.108,1.001,1.085,1.073,1.051 respectively. The VIFs are all close to 1, which is in accordance with the requirements, indicating that the There is no covariance in the data. Functional Value (β =0.391, P<0.05), Emotional Value (β =0.498, P<0.05), Social Value (β =0.363, P<0.05), Green Value (β =0.482, P<0.05), Economic Value (β =0.699, P<0.05) significantly and positively affect Consumer Purchase Intention. The variables together explain the weight of Consumer Purchase Intention as 64.1%, which meets the requirement.

Item	Un-std. B	Std. Beta	t	Sig.	VIF	F	Durbin-Watson
С	0.747		3.981	0.000		55.298***	1.919
Functional Value	0.391	0.203	4.045	0.000	1.108		
Emotional Value	0.498	0.321	1.996	0.047	1.001		
Social Value	0.363	0.201	3.454	0.001	1.085		
Green Value	0.482	0.277	3.560	0.000	1.073		
Economic Value	0.699	0.411	4.059	0.000	1.051		
R Square	0.641						
Adjusted R Square	0.629						

Table 1: Multiple regression

NOTE: *P<0.05, **P<0.01, ***P<0.001

Discussion

By analyzing the theories of purchasing decision theory and sustainability theory, this paper finds that functional value, emotional value, social value, green value, and economic value are the factors of consumer purchase intention of new energy vehicles. Through correlation analysis and regression analysis, the Pearson's correlation coefficients of functional value, emotional value, social value, green value, economic value, consumer purchase intention were 0.487,0.444 0.470,0.455,0.5010, which are less than 0.9 and P<0.01. The correlation analysis shows that there is a correlation between consumer purchase intention of ideal brand-new energy vehicle and the independent variables functional value, emotional value, social value, green value, economic value, and consumer purchase intention of ideal brand-new energy vehicle. Therefore, it can be shown that these factors affect Consumer Purchase Intention of Ideal Brand-New Energy Vehicles. At the same time, correlation analysis can also be concluded to show that there is a correlation between the variables.

This indicates that each variable is positively correlated with Consumer Purchase Intention of Ideal Brand-New Energy Vehicles. Among the factors influencing Consumer Purchase Intention of ideal brand-new energy vehicles, Functional Value has a significant positive effect on Consumer Purchase Intention of ideal brand-new energy vehicles, supporting the hypothesis H1 is established. Emotional Value has a significant positive effect on Consumer Purchase Intention of ideal brand-new energy vehicles, supporting hypothesis H2. Social Value has a significant positive effect on Consumer Purchase Intention of ideal brand-new energy vehicles, supporting hypothesis H3. Green Value has a significant positive effect on Consumer Purchase Intention of ideal brand-new energy vehicles is the to be established. Economic Value has a significant positive effect on Consumer Purchase Intention of ideal brand-new energy vehicles, which supports hypothesis H5 to be established. Therefore, it shows that each independent variable of Functional Value, Emotional Value, Social Value, Green Value, Economic Value, has a positive effect on the dependent variable Consumer Purchase Intention.

Conclusions

It is necessary to accelerate the technological change within the enterprise, improve the core product technology of new energy vehicles, and improve the quality and performance of the products in order to enhance consumers' confidence in purchasing. Since the emergence and development of new energy vehicles, the core issue that consumers are most concerned about has been the range of its battery. According to the survey results, the most important issues for new energy vehicle companies to overcome include battery life, charging and range time. Therefore, the research and development of technologies such as car batteries and charging equipment should be emphasized more, and only by reducing consumers' concerns about the technical pitfalls of new energy vehicles can we truly and effectively increase the willingness to buy new energy vehicles. Moreover, as a new industry with great investment and risk, new energy vehicles require the joint participation of government, enterprises and research institutes in technical research and development.

Consumers know a lot about new energy vehicles from online media and advertising marketing, but lack of personal experience and experience. Companies can invite users and the media to go for a test drive through offline experience activities, so that they can personally experience the driving pleasure brought by new energy vehicles, and the media can actively publicize them based on their test drive experience. In the field test drive, the field staff should not only use their own professional skills to actively promote the new energy vehicles, but also need to build a good image for the enterprise with a positive and enthusiastic service attitude to enhance the consumers' emotional awareness of the new energy vehicles, and to further enhance the purchase intention of the new energy vehicles based on this. In addition, in order to better improve the customer's sense of experience, each company can also jointly organize new energy electric vehicle expositions, etc., and customers in the real environment to carry out more emotional communication and interaction, so as to enhance the emotional value of the new energy vehicles and promote to the final purchase decision.

Enterprises should carry out marketing campaigns for new energy vehicles. Today's society pursues a sustainable way of development, the consumption pattern has undergone a profound change, the green consumption concept is in line with the current values. As people's environmental awareness has been enhanced and actively seek a healthy and environmentally friendly lifestyle, consumers are more willing to consume green products, including new energy vehicles.

Therefore, new energy vehicle manufacturers can use market research, a more in-depth understanding of consumer demand for purchase, so as to find an accurate target market positioning, develop a marketing program to match the needs of consumers, and improve consumer satisfaction with the product. It is also necessary to increase the frequency of environmental protection publicity and advertisement dissemination, carry out on-site environmental protection activities such as experiential test drives, introduce consumers to the relevant knowledge of environmental protection, publicize the



role of new energy vehicles in maintaining the physical and mental health of consumers, conserving natural resources and protecting the ecological environment, and create a green environmentally friendly atmosphere for the whole population. At the same time, the company's internal training on the green service quality of the staff to create a good service atmosphere, thereby improving the company's image in the minds of consumers.

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