A Study of the Influence of Consumer Perceived Value on the Purchase Intention of New Energy Vehicle Consumers by Taking the Degree of Involvement as the Moderating Variable

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Abstract

Background and Aim: With the rapid development of China's economy, cars have become a necessary commodity for every family, but it brings about problems in transportation energy, and environmental protection. Adhering to new energy vehicles, the design concept of energy conservation and environmental protection, replacing traditional fossil energy with electric energy, and avoiding the generation of automobile exhaust, which has a very positive role in the emission reduction of greenhouse gases. Thus, this paper aims (1) to investigate the direct effect of the perceived value of consumers on the purchase intention of new energy vehicles. (2) to investigate the direct effect of consumer involvement on the purchase intention of new energy vehicles. And (3) to investigate the role of involvement as the moderating variable for the effect of the perceived value of consumers on the purchase intention of new energy vehicles.

Materials and Methods: This study still starts from the perspective of consumers' perceived value, but combined with the variable of involvement degree, to deeply explore the perceived value of consumers of new energy vehicles. According to the research model of the three factors of consumer purchase intention, the researcher constructed the research hypothesis and distributed the questionnaire. After 416 valid questionnaires were analyzed,

Results: It is finally concluded that the perceived quality value, perceived price value, perceived emotional value, and perceived social value of new energy vehicle consumers all have a positive impact on the purchase intention of new energy vehicle consumers. Moreover, the degree of consumer involvement in the process played a positive moderating role.

Conclusion: That is to say, as the degree of involvement deepens the impact of consumers' perceived value on consumers' willingness to purchase new energy vehicles will become stronger.

Keywords: New Energy Vehicles; Perceived Value;   Degree of Involvement; Consumer Purchase Willingness

Introduction

With the rapid development of China's economy, cars have become a necessary commodity for every family, but it brings about problems in transportation energy, and environmental protection. Adhering to new energy vehicles, the design concept of energy conservation and environmental protection, replacing traditional fossil energy with electric energy, and avoiding the generation of automobile exhaust, which has a very positive role in the emission reduction of greenhouse gases. As for the research on the consumption of new energy vehicles, the macro research mainly focuses on government policies and supporting infrastructure of new energy vehicles. In the related research on new energy vehicles from the perspective of consumers 'purchase, the variable of purchase intention is always accompanied by consumers' perceived value and perceived risk, and the relevant studies are also relatively rich, but the relative research variables on the perspective of perceived risk and perceived value are relatively repeated. China's development of new energy vehicles is relatively late. Research and development began in the early 21st century, and it was not until 2008 that it successfully entered the market. China's new energy vehicle market was first entered by Tesla car companies and began to generate consumer recognition. Accompanied by the continuous injection of capital, China began to gradually develop domestic brands of new energy vehicles. In addition to technology research and development, the development of new energy vehicles in China also attaches great importance to the dependence on government policies. With the weakening of government policy support in recent years, new energy vehicle enterprises are facing severe challenges.

This study still starts from the perspective of consumers' perceived value, but combined with the variable of involvement degree, to deeply explore the perceived value of consumers of new energy vehicles. And with the impact of the epidemic, a large number of consumers have seen a consumption downgrade, so whether consumers' perception of the value of new energy vehicles has also changed? Therefore, this paper takes the consumer purchase intention as the dependent variable and wants to deeply explore the consumer demand for new energy vehicles, starting from the two aspects of consumers 'perceived value and the degree of involvement, to find the influence path of consumers' purchase intention, and get ways to improve the purchase probability of consumers.

Research Objectives

The author should adjust the research objectives in accordance with the research hypothesis and results as follows: (1) To investigate the direct effect of the perceived value of consumers on the purchase intention of new energy vehicles. (2) to investigate the direct effect of consumer involvement on the purchase intention of new energy vehicles. And (3) to investigate the role of involvement as the moderating variable for the effect of the perceived value of consumers on the purchase intention of new energy vehicles.

Literature review

New energy vehicles are not only different from traditional cars in terms of energy, but also have many different designs in terms of traditional cars due to the different use of energy. The development of new energy vehicles so far can be divided into five categories: the first is a hybrid vehicle (HybridElectricVehicles, HEV); The second type is pure electric vehicles (Blade Electric Vehicles, BEV); The third type is the hydrogen fuel cell electric vehicle (FCEV); The fourth type is a gas-fired vehicle (Gas Vehicles, GV); The fifth new energy vehicle is bio-fuel vehicles (Bio Fuel Vehicles, BFV).

Perceived value has always been a topic of continuous research in the consumer field, and many scholars have a different understanding of the definition of perceived value. Zeithaml (1988) In the research, consumers' perceived value is defined as the contrast between before and after purchase and enjoyment when consumers enjoy a service or buy a commodity. If consumers feel value for money after purchase, consumers form the perceived value. Flint, D.J., Woodruff, R.B., & Gardial, S.F. (1997) pointed out that the embodiment of perceived value is mainly based on the expectation theory, and if the expectation exceeds the expectation, the value of the commodity is realized. If not, there will be a good sense of the loss. Chen M.L. (2003) pointed out in the article that the perceived value of consumers is mainly reflected in the subjective will of consumers, and the subjective evaluation is greater than the objective evaluation, so different consumers will have different feelings about the perceived value. In his research, Cheng, H.Q. (2007) believes that in the process of consumption, the consumers have contact with the goods and the company producing the goods, and the feelings and evaluation of the consumers toward the goods and the manufacturers of the products in this contact can determine the perceived value of the consumers. This perceived value changes with further understanding and contact.

This concept comes from the literature on persuasive communication in the field of social psychology and the first introduction to marketing through Krugman, H. E. (1966). Many different studies have followed, especially in the 1980s (Michaelidou & Dibb, 2008; Guthrie & Kim, 2009). Some scholars believe that the degree of involvement is the importance of consumers as the product, others believe that involvement is only the degree of consumers' interest in a certain category, and others believe that involvement is only a popular synonym for cognitive risk (Laurent, G., & Kapferer, J.N., 1986). Some researchers suggest that the degree of involvement is the key factor influencing consumer choice (Huddleston, P., Behe, B.K., Minahan, S., & Fernandez, R.T., 2015); many theories about consumer behavior patterns usually assume that consumers will actively and actively collect relevant information to make smart choices; however, consumers are not so complicated in many purchasing decisions, so scholars divide consumer behavior into low involvement and high involvement (Zaichkowsky, 1985).

Research Hypothesis and Methods

Wood & Scheer (1996) found that consumers' willingness to buy generally increased with the increase in perceived value. The research body of this paper is the new energy vehicles, new energy vehicles as emerging things in the field of automobiles, consumers in the face of necessary to do more balance, only the consumer perceived buying new energy vehicles value and expectations, consumers

will abandon the traditional car and choose new energy vehicles as a family car options. Therefore, this study believes that the perceived value of new energy vehicle consumers will be an important factor affecting the purchase intention of their new energy vehicles.

For the above reasons, this study will explore the relationship between consumers' perceived value of neV on their purchase intention, and propose hypothesis H1:

H1: The perceived value of consumers has a significant positive impact on the purchase intention of new energy vehicles.

H1a: Perceived quality value has a significant positive impact on the purchase intention of new energy vehicles.

H1b: The perceived price value has a significant positive impact on the purchase intention of new energy vehicles.

H1c: The perceived emotional value has a significant positive impact on the purchase intention of new energy vehicles.

H1d: Perceived social value has a significant positive impact on the purchase intention of new energy vehicles.

Consumer reviews of companies come from Lenovo (Berens, Riel, & van Rekom, 2007), which is composed of their products and capabilities (Marin, Ruiz, & Rubio, 2009). The consumer's purchasing behavior will be affected by his association with the enterprise (Xinming, D., Zhilong, T., Guohua, L., & Lu, C.,, 2011). High-quality products and positive enterprise information can help enterprises to win the trust and recognition of consumers, and then enable consumers to develop their loyalty to enterprises and their products (Oeberseder, Schlegelmilch, Murphy, & Gruber, 2014).

Therefore, this study puts forward the hypothesis of the degree of involvement in the purchase intention of new energy vehicles:

H2: The degree of consumer involvement has a significant positive impact on the purchase intention of new energy vehicles.

The degree of product involvement significantly affects the consumer response to many marketing or advertising stimuli, or the psychological and physical effort invested in the purchase process (Kapferer & Laurent, 1986; Michaelidou & Dibb, 2008; Huddleston, P., Behe, B.K., Minahan, S., & Fernandez, R.T., 2015). When consumers want to meet the needs of a product or a brand, they will invest more in the product or the source of the brand, and different competitive product attributes will also make consumers have different degrees of involvement. With the increase in consumers 'demand for a product, the degree of involvement will also increase, which usually has a positive impact. The difference in the degree of involvement will affect consumers' purchase intention and the difference in the purchase decision-making process (Blackwell, Miniard, & Engel, 2001).

Therefore, based on the above research, this paper adds the degree of involvement as a regulatory variable between the perceived value and purchase intention of new energy vehicles consumers, and makes the following assumptions:

H3: The degree of involvement has a regulatory effect on the perceived value of new energy vehicles and the purchase intention.
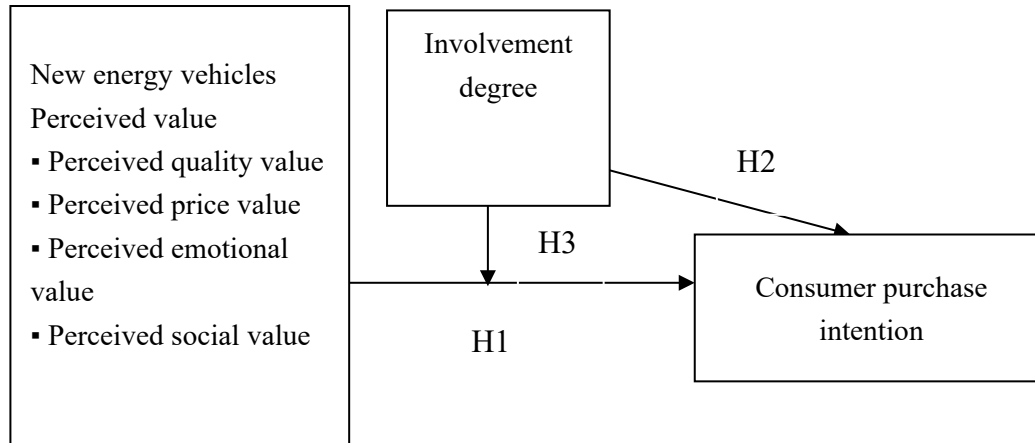
Conceptual Framework

Figure   1 Conceptual Framework

Reliability of the variables

Table 4.2 Results of Cronbach's Alph α coefficient analysis of study variables

Variable	Question item	The Cronbach's Alph α coefficient
Perceived value	17	0.883
Involvement degree	6	0.887
willingness to buy	2	0.933
Scale as a whole	25	0.891

Source: The author analyzed and organized it according to SPSS23.0

Results and Discussion

    Descriptive statistical results

Table 4.1 Sample demographic characteristics (N=416)

Statistical variables	Classify	Frequency	Percentage (%)
sex	man	252	60.57
	woman	164	39.43
age	Under 24	87	20.91
	From age 25 to 29	52	12.50

Statistical variables	Classify	Frequency	Percentage (%)
	Between 30- -and 34 years old	98	23.55
	From 35 to 39	105	25.24
	Over 40 years old	75	18.02
Whether to buy a car	have	249	59.85
	not have	167	40.14
	Less than 10 0,000 yuan	47	11.29
	11 0-20 0,000 yuan	240	57.69
Car purchase price	21 0-30 0,000 yuan	94	22.59
	31 0-40 0,000 yuan	13	3.12
	More than 40 0,000 yuan	22	5.28
	junior college education	104	25.00
	undergraduate course	248	59.61
educational status	Graduate student or above	20	4.80
	other	44	10.57
	Below 5,000 yuan	172	41.34
Monthly disposable income	5,000-10,000 yuan	158	37.98
	10,000 yuan-20,000 yuan	63	15.14
	More than 20,000 yuan	23	5.52

Source: The author analyzed and organized it according to SPSS23.0

Correlation analysis results

Table 4.6 Descriptive statistics for each variable

variable	N	least value	crest value	average value	standard error	median
Quality Value	416	1.000	5.000	3.415	1.091	4.000
Price Value	416	1.000	5.000	3.406	1.196	3.500
Emotional value	416	1.000	5.000	3.264	1.184	3.250
social value	416	1.000	5.000	3.677	1.123	4.000

variable	N	least value	crest value	average value	standard error	median
Involvement degree	416	1.000	5.000	3.692	1.145	3.550
willingness to buy	416	1.000	5.000	3.582	1.078	3.750

Source: The author analyzed and organized it according to SPSS23.0

Table 4.7 The Pearson correlation matrix table

	Quality Value	Price Value	Emotional value	Social will	Involvement degree	willingness to buy
Quality Value	1.000					
Price Value	.535**	1.000				
Emotional value	.367**	.489**	1.000			
social value	.555**	.455**	.334**	1.000		
Involvement degree	.553**	.384**	.380**	.298**	1.000	
willingness to buy	.676**	.597**	.532**	.387**	.346**	1.000

Note: * p <0.05, * * p <0.01

Source: The author analyzed and organized it according to SPSS23.0

Multiple regression analysis

Perceived quality value, perceived price value, perceived price value, perceived emotional value, and perceived social value were used as independent variables in the model, and purchase intention was used as the dependent variable. The specific analysis is as follows:

Table 4.8 perceived value regression analysis table

	Non-standardized coefficients		Standardization coefficient	t	p	R^2	adjust R^2	F
	B	standard error	Beta					
constant	0.280	0.248	-	1.08	0.279			
Quality Value	0.465	0.064	0.193	3.922	0.001**	0.371	0.364	F (4,352)=5278,p=0.000.9
Price Value	0.393	0.067	0.227	3.891	0.000**			

	Non-standardized coefficients		Standardization coefficient	t	p	R²	adjust R²	F
	B	standard error	Beta					
Emotional value	0.236	0.087	0.183	3.165	0.001**			
social value	0.241	0.055	0.125	2.184	0.002**			

Dependent variable: purchase intention

* $p<0.05$ ** $p<0.01$

Taking the related degree variable as the independent variable and the purchase intention as the dependent variable in the model, the linear regression analysis is conducted as follows:

Table 4.9 Regression analysis table of the degree of involvement

	Non-standardized coefficients		Standardization coefficient	t	p	R²	adjust R²	F
	B	standard error	Beta					
constant	0.350	0.267	-	2.12	0.235			
Involvement degree	0.477	0.046	0.227	3.322	0.001**	0.421	.4064	F (4,352)=54.238,p=0.000

Dependent variable: purchase intention

* $p<0.05$ ** $p<0.01$

Moderator effect analysis

This section wants to understand whether the degree of involvement affects the relationship between perceived value and consumer purchase intention. Therefore, to test the hypothesis proposed in this study, stratum regression analysis was selected, and if the interaction between the independent variable and the regulatory variable was significant on the dependent variable, the regulatory effect was significant.

Table 4.10 Regression table of regulatory effect of involvement

	Dependent variable: purchase intention								
	model 1			model 2			model 3		
	β	t	VIF	β	t	VIF	β	t	VIF
controlled variable									
sex	-.044	-0.784	1.060	-.001	-0.015	1.071	.003	0.055	1.071
age	.086	1.366	1.319	.039	0.692	1.331	.048	0.894	1.332
Whether to buy a car	.103	1.086	2.984	.043	0.499	3.003	.031	0.390	3.004
Car purchase price	-.017	-0.187	2.828	-.035	-0.425	2.841	-.047	-0.598	2.843
educational status	-.020	-0.281	1.717	-.049	-0.760	1.721	-.070	-1.145	1.726
monthly income	-.036	-0.463	2.048	-.086	-1.209	2.065	-.090	-1.354	2.066
main effect									
Perceived value				.324***	5.798	1.287	.188**	3.300	1.500
Involvement degree				.222***	4.018	1.262	.147**	2.749	1.327
interaction									
The degree of perceived value involvement							.348***	6.365	1.386
R^2		0.050			0.244			0.331	
Adj R^2		0.013			0.188			0.279	
F		0.792			4.369***			6.405***	

pour:**$p<.01$, ***$p<.001$
Source: collation of this study

Hypothesis Validation Summary
According to the previous analysis results, the hypothesis test is summarized and sorted out, as shown in Table 4.11:

Table 4.11 Summary of the results of hypothesis testing and verification

Suppose the content	Result
H1: Perceived value affects the purchase intention	pass through
H1a: Quality value has an influence on consumers' purchase intention	pass through
H1b: Price value has an influence on consumers' purchase intention	pass through
H1c: Emotional value has an influence on consumers' purchase intention	pass through
H1d: Social value has an influence on consumers' purchase intention	pass through
H2: The degree of involvement has an influence on consumers' purchase intention	pass through
H3: The degree of involvement plays a role between the perceived value of new energy vehicles and the purchase intention	pass through

Conclusion and recommendations

Influence of perceived value of new energy vehicles on purchase intention

Through the above research and analysis, we can see that the perceived value of new energy vehicles can have a significant positive impact on consumers' purchase intentions. In the influence dimension, the study uses empirical analysis from the four variables of perceived quality value, perceived price value, perceived emotional value, and perceived social value, and shows that these four dimensions all have a positive impact on the purchase intention of new energy vehicle consumers.

Influence of degree of involvement on purchase intention

Through previous research and analysis, this paper proves that the degree of involvement is helpful to improve the purchase intention of consumers. Compared with traditional vehicles, new energy vehicles still have certain advantages in many aspects. For example, the electric energy used by new energy vehicles is much cheaper compared with gasoline and diesel oil. New energy vehicles have low noise, strong power, and more intelligent operation, and these advantages will have a certain attraction to consumers.

The regulation of the degree of involvement affects the study results

Through empirical analysis in this paper, the degree of involvement positively regulates the relationship between consumer perceived value and purchase intention of new energy vehicles. Consumers pay attention to the behavior of new energy vehicle products and enterprises, which helps consumers to know more about the new things and emerging industries of new energy vehicles. With the deepening of the involvement, the value of the new energy vehicle industry to the whole society, the help of the environmental protection cause, and the advantages of the new energy vehicle products themselves can be more visible. For consumers, the degree of consumers' perceived quality value, price value, emotional value and social value will be more direct and deeper, which makes with the deepening of involvement, the perceived value of new energy vehicle consumers will be higher, and the purchase

intention will be strengthened, and finally the consumer purchase behavior will be achieved. Therefore, the degree of involvement can positively regulate the level between the perceived value and the purchase intention of consumers of new energy vehicles, thus affecting the purchase intention.

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