FACTORS INFLUENCING CONSUMER'S PURCHASE INTENTION TOWARDS NEW ENERGY VEHICLE: CONVERGING THE THEORY OF CONSUMPTION VALUE AND GOAL-FRAMING THEORY

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Abstract

The conflict between fulfillment of self-interest (egoistic appeal) and societal or others welfare (altruistic appeal) is an important reason for the attitude-behavior gap. leveraging the merits of both the theory of consumption value and goal-framing theory, this study constructs an integrated framework to better predict and explain new energy vehicle purchase intention. Empirical analysis was conducted using multiple regression analysis based on 509 sampling data. The results showed that consumption value and normative goals positively influenced purchase intention, with consumption value serving as the primary factor. Concretely, social value, conditional value, epistemic value and normative goals positively influence purchase intention, while functional value and emotional value insignificantly influence purchase intention. The five dimensions of consumption value and normative goals positively influence product involvement, and product involvement positively influences purchase intention. Moreover, product involvement plays a mediation role in the relationship between antecedents and purchase intention. Finally, based on the findings, some recommendations for expanding the new energy vehicles consumption are proposed. This study makes some theoretical contributions and practical implications due to the integrated framework simultaneously considers egoistic and altruistic appeals, offering higher explanatory power.

Keywords: New energy vehicles, integrated model, egoistic appeals and altruistic appeals

Introduction

Promoting low-carbon transformation in transportation is a key strategy for achieving sustainable mobility, a claim well-supported by relevant studies (e.g., Aamaas et al., 2013). In addition to encouraging public transport, fostering green private transportation offers a more practical approach to cultivating green lifestyle. This shift helps transform low-carbon societies and green mobility from campaign-driven advocacy into voluntary practice (Yang et al., 2020). Notably, despite strong governmental promotion and extensive media coverage, non-green mobility remains widespread. Positive environmental attitudes do not always translate into actual behavior—a phenomenon known as the "attitude-behavior gap". This gap underscores the complexity of residents' green consumption. Existing models therefore require further improvement to better explain and stimulate the adoption of new energy vehicle (NEV).

The widespread green attitude-behavior gap has led researchers to start a comprehensive reflection in terms of research methods, data quality, model explanatory power, etc. (Duong, 2022), among which improving model explanatory power has become an important coping strategy adopted by researchers (Duong, 2022; Yang et al., 2020). Some theoretical models such as the Norm Activation Model and Theory of Planned Behavior emphasize altruistic motivations in pro-environmental behaviors, while overlooking individuals' rational egoism, and some models such as the theory of consumption value explain green consumption from a purely egoistic perspective (Sheth et al., 1991), simplifying environmental essence. Recently, more and more literature has adopted extended or integrated models to predict residents' pro-environmental behavior (Han, 2015). Thus, to narrow the knowledge gap, leveraging the theory of consumption value and the goal-framing theory, this study constructs an integrated model that balance the egoistic and altruistic appeals to better understand VEV consumption. Meanwhile, due to the negative influence of implicit attitudes, social desirability, false memory and other factors, it is difficult to measure real green purchasing behavior through self-reported questionnaires. Therefore, this study will measure consumers' intention to purchase NEV.

Research Objectives

The purposes of this study are as follow:

(1) Constructing a research framework that integrated the theory of consumption value and goal-framing theory.

(2) Testing the causal relationships among variables in the model.

(3) Examining the mediation effect of product involvement.

Research Scope

This research resides within the domain of consumer behavior, focusing on NEV consumers. Drawing on the theory of consumption value and goal-framing theory, it explores the interplay between egoistic appeals (consumption value) and altruistic appeals (normative goals) and their combined effect on purchase intention through product involvement. Additionally, the study will determine the relative importance of these appeals.

Research Framework

Based on the above arguments, the research framework was portrayed in Figure 1.

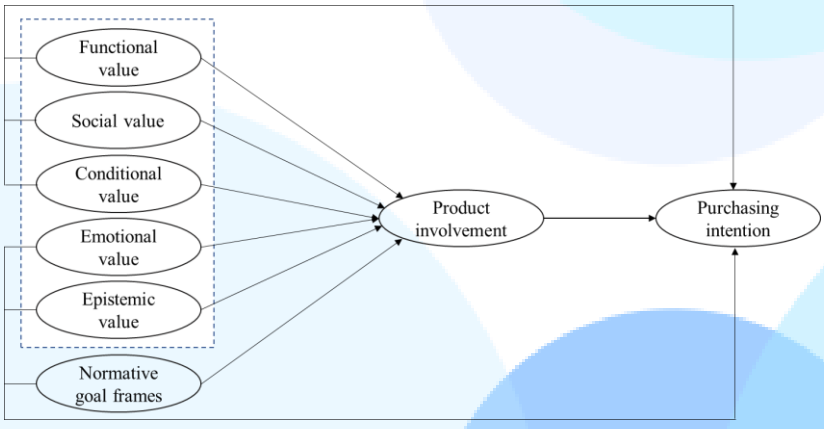

Figure 1 Research Conceptual Framework

Literature Review

Theory of consumption value

The concept of consumption value can be traced back to Porter's (1985) discussion of "value creation" in competitive advantage, but it does not form a formal definition. Subsequently, more and more scholars conducted research on consumption value, and the concept began to form and improve (Parasuraman, 1997). Zeithaml (1988) defined consumption value as the comprehensive evaluation of perceived gains and losses made by consumers in the process of purchasing and using a product. The researchers continuously explored the connotative structure of consumption value based on unidimensional structure (Zeithaml, 1988), according to the research object, content and context, the concepts and measures of dual-dimensional (Ozturk et al., 2023) and multi-dimensional (Biswas & Roy, 2015) were developed. The most representative of these is Sheth et al.'s (1991) study, which categorizes consumption value into functional, emotional, social, epistemic, and conditional value based on its constituent elements. Functional value is derived from a product's utility and practical benefits; emotional value, from its capacity to elicit affective states; social value, from its symbolic meaning and ability to enhance social connections; epistemic value refers to the ability to satisfy curiosity and novelty; and conditional value, from its context-dependent utility, which may diminish significantly when the context changes (Woo & Kim, 2019).

Goal-framing theory

The goal-framing theory proposed by Lindenberg & Steg (2007) states that pro-environmental behavior is the result of the joint drive of multiple goals, which can be equivalent to behavioral motives, and the central goal composed of numerous sub-goals can be classified as utilitarian goal frames, hedonic goal frames, and normative goal frames. The goal-framing theory focuses on the impact of goal motives on individual pro-environmental behavior from a social psychological perspective (Tang et al., 2020), human pro-environmental behavior is simultaneously driven by three goal frames (Khan, 2023). Utilitarian goals, hedonic goals, and

normative goals do not exist independently, they come together and compete with each other, and the activation of one goal frame suppresses others (Yang et al., 2020). The utilitarian goal frames follow the "rational person" orientation, pursues the maximization of personal interests, expands the possession of personal economic, material and social resources, and emphasizes personal rational choices (Tang et al., 2020). The hedonic goal frames refer to an individual's pursuit of instant pleasure, convenience, avoidance of pain and discomfort, and focus on the current emotional experience (Onwezen, 2023). The normative goal frames are driven by personal values, a sense of social responsibility and moral obligation, and regulates personal actions follow social expectations and moral standards (Khan et al., 2023). The utilitarian goal and the hedonic goal reflect egoistic appeals, while the normative goal frames embody individuals' altruistic appeals (Yang et al., 2020).

Methodology

Data collection and sample structure

This study randomly conducted questionnaire survey with Chinese consumers as the sampling frame. The questionnaire was set up on the Wenjuanxing platform to conduct the online survey. Electronic questionnaire links were sent via Wechat and QQ, along with electronic red envelopes. Meanwhile, 200 paper questionnaires were distributed to collect more samples. Finally, 684 samples were collected, 175 invalid samples and 509 valid samples were identified, with an effective rate of 74.42%.

Measures

Consumption value using the scale developed by Awuni & Du (2016) and Woo & Kim (2019), functional value, emotional value, conditional value, and cognitive value each contained three items, while social value consists of four items. Cronbach's alpha=0.763, 0.753, 0.866, 0.728, 0.757. The normative goals are Tang et al.'s (2020) scale, which consists of 4 items, Cronbach's alpha=0.758. Scale of product involvement developed by Ghali-Zinoubi & Toukabri (2019), with 5 items and Cronbach's alpha=0.832. measure for purchase intention was adopted from Yadav & Pathak (2017), with three items and Cronbach's alpha=0.740. All items used a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Harman's single-factor test via EFA indicated that the first unrotated factor accounted for approximately 44% of the variance, implying that common method bias is not a serious threat.

Data analysis and results

Causal relationships among variables

First, Consumption value ($\beta = 0.486$, $p < 0.001$) has a greater impact on purchase intention than normative goals ($\beta = 0.207$, $p < 0.001$). Even though consumers are environmentally conscious, egoistic appeals are the strongest driver for NEV consumption. Second, as shown in Table 1. taking the five dimensions of consumption value and the normative goals as independent variables, it was found that social value, conditional value, epistemic value and normative goals significantly influenced purchase intention, with conditional value having the strongest impact on purchase intention ($\beta = 0.328$, $p < 0.001$), Next was the normative goals ($\beta = 0.154$, $p < 0.01$), while functional value and emotional value insignificantly affected purchase

Table 1 Results of multiple regression analysis (N = 509)

Variables	Dependent variable = PI			Dependent variable = PINV	
	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	0.092 *	0.034	0.023	0.100 *	0.030
	(2.323)	(1.098)	(0.793)	(2.596)	(1.108)
Age	0.005	−0.012	−0.011	0.037	−0.001
	(0.127)	(−0.369)	(−0.373)	(0.936)	(−0.044)
Education	0.071	0.006	0.024	−0.005	0.054 † -
	(1.780)	(0.178)	(0.818)	(−0.140)	(−1.954)
Marriage	0.417 * * *	0.099 * *	0.072 *	0.445 * * *	0.075 *
	(10.175)	(2.718)	(2.084)	(11.061)	(2.340)
Income	0.097 *	0.027	0.017	0.102 *	0.026
	(2.364)	(0.837)	(0.573)	(2.536)	(0.942)
Functional value		0.053	0.008		0.128 * *
		(1.096)	(0.171)		(3.016)
Emotional value		0.021	−0.011		0.091 *
		(0.428)	(−0.236)		(2.116)
Social value		0.100 †	0.036		0.181 * * *
		(1.945)	(0.733)		(4.002)
Conditional value		0.328 * * *	0.237 * * *		0.258 * * *
		(7.326)	(5.342)		(6.556)
Epistemic value		0.151 * *	0.111 * *		0.115 * *
		(3.426)	(2.615)		(2.961)
Normative goals		0.154 * *	0.104 *		0.143 * * *
		(3.387)	(2.370)		(3.568)
Product involvement			0.351 * * *		
			(7.235)		
R^2	0.229	0.552	0.595	0.256	0.652
ΔR	0.229	0.324	0.366	0.256	0.397
F-value	29.846 * * *	55.741 * * *	60.737 * * *	34.531 * * *	84.771 * * *

Notes: † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, * * * $p < 0.001$. Product involvement = PINV, Purchase intention = PI.

intention. Third, Functional value (β = 0.128, $p < 0.01$), emotional value (β = 0.091, $p < 0.05$), social value (β = 0.181, $p < 0.001$), conditional value (β = 0.258, epistemic value (β = 0.115, $p < 0.01$) and normative goals (β = 0.143, $p < 0.001$) positively affect product involvement, and product involvement positively affects purchase intention (β = 0.351, $p < 0.001$).

Mediation effect testing

Casual steps approach has been widely questioned by scholars due to its low power (Fritz & MacKinnon, 2007). Researchers have agreed that a significant main effect is not a prerequisite for mediation effect (Zhao et al., 2010). Therefore, this paper uses the

Bootstrapping method to test the significance of the coefficient product a*b (Zhao et al., 2010; MacKinnon, 2008). PROCESS 4.0 was used, with confidence level set at 95%, model 4 was selected, and resampling 5000 times. **Table 2** reveals that product involvement has significantly mediated the relationship between functional value, social value, conditional value, epistemic value, and normative goals and purchase intention, the confidence intervals excluded 0, with the strongest mediation effect on the link of conditional value and purchase intention.

Broadly in line with the hypotheses proposed in the conceptual model, we found that NEV purchases is a rational decision, consumption value and normative goal constrain each other, manifest as mutual "crowding out" effect. they are pivotal in activating product involvement, thus, enhancing product involvement is an effective pathway to expand NEV consumption.

Table 2 Indirect effects of product involvement (N = 509)

Antecedents	Point Estimate	Products of Coefficients		Bootstrap (5000 samples)	
		SE	Z	Boot LLCI	Boot ULCI
			Indirect Effects		
Functional value	0.044 *	0.019	2.316	0.010	0.082
Emotional value	0.030	0.018	1.667	−0.002	0.069
Social value	0.053 * *	0.020	2.650	0.016	0.097
Conditional value	0.094 * * *	0.024	3.917	0.051	0.145
Epistemic value	0.038 *	0.017	2.235	0.008	0.075
Normative goals	0.054 *	0.021	2.571	0.016	0.100

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Conclusion and Discussion

First, regression results reveal clear "net effects" on product involvement and purchase intention, five dimensions of consumption value matter but differ in magnitude (Awuni & Du, 2016; Yang et al., 2020). Simultaneously considers egoistic and altruistic appeals can narrow the estimation bias, which shows that consumption value and normative goals complement each other, and conditional value and normative goals serve as the primary drivers, indicating that balancing egoistic and altruistic appeals can better promote NEVs consumption (Yang et al., 2020), thereby enriching the theory of consumption value and goal-framing theory (Lindenberg & Steg, 2007; Sheth et al., 1991), and these findings reported here shed new light on expanding NEV consumption. "Environmental moral persuasion" and "consumption value highlighting" can effectively reduce individuals' symbolic pro-environmental behaviors. It helps to narrow the attitude-intention/behavior gap.

Second, in line with Awuni & Du (2016), functional value insignificantly influences purchase intention. This finding may be partly explained by Jiang & Xu (2023), who report that NEVs still face technical bottlenecks that limit product competitiveness, while

conventional fuel vehicles maintain strong functional advantages, thereby diminishing consumers' perceived functional value of NEVs. Furthermore, all five dimensions of consumption value significantly influence product involvement (Woo & Kim, 2019; Zailani et al., 2019), with conditional value exhibiting the strongest effect. This reflects the high dependence of NEV consumption on supporting infrastructure, as well as the role of policy subsidies and business incentives (Jiang & Xu, 2023).

Third, increasing product involvement is an effective way to expand NEV consumption. The mediation effect of product involvement on the paths of functional value, social value, conditional value, epistemic value, normative goals on purchase intention are significant, indicating that enhancing consumers' perceived importance of NEV is useful to purchase intention. Consistent with the goal-framing theory (Lindenberg & Steg, 2007), this study further confirms that considers the dual appeals can enhance consumers' environmental motives by activating product involvement. However, product involvement insignificantly mediated the relationship between emotional value and purchase intention, reflecting that the good experience of using NEVs was mitigated by some technical shortcomings (Li et al., 2019), not forming sufficient positive emotions and flow experiences, resulting in insufficient momentum to be transformed into purchase intention through product involvement.

Research Suggestions

First, due to validity of the research model, enterprises should give equal weight to "highlighting consumer value" and "environmental ethics persuasion". Absolute egoism or altruism can easily cross functional boundaries in green context, causing the green consumption market to lag behind. In the future, enterprises and social managers should deeply integrate "consumption value" with "environmental morality", and cultivate the dual engines of the growth in demand for NEVs. For enterprises, it is necessary to put an end to "greenwashing" behavior, position themselves as "value creators" and "environmental responsibility demonstrators", and shape the social image of green product producers.

Second, enhancing the performance of NEVs and highlight their intelligent technological features. Improving user-friendliness and offering exceptional value for money will further win consumer favor. Concurrently, environmental responsibility advocacy strategies should be innovated. By quantifying consumers' immediate contributions to energy saving and emission reduction during vehicle use, we can enhance their perception of the emotional and social value through eco-conscious interactions. This approach aligns egoism with altruism in real-world scenarios. For policymakers, the role must evolve from merely providing subsidies to acting as environmental builders, advocates, and pioneers. This involves refining existing NEV consumption incentives, accelerating the construction of infrastructure like charging piles and battery swap stations to eliminate range anxiety, and actively promoting eco-conscious lifestyle. The goal is to transform environmental responsibility into a desirable consumption trend, strengthen consumers' identity as environmentally conscious citizens, and bolster their positive environmental self-image.

Third, product involvement serves as a critical bridge between factors and purchase

intention. The effectiveness of both consumption value propositions and environmental persuasion depends on whether consumers can develop high attention, sustained interest, and emotional engagement with NEVs. To this end, enterprises should shift from a traditional one-way value delivery model to a strategy of value co-creation. By engaging with user communities to gain deeper insights into real consumer needs, they can collaboratively create unique product experiences and build distinctive brand value. Meanwhile, it is advisable to develop immersive experience spaces. These spaces allow consumers to better perceive the value of NEVs through deep interaction and emotional resonance, thereby naturally integrating them into the green and energy-efficient lifestyle that NEVs represent. Furthermore, incentive policies should evolve from merely creating purchase conditions to building immersive scenarios. This includes supporting the development of experiential facilities that make NEVs easily accessible, understandable, and tangible for consumers.

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