pISSN: 1906 - 3296 © 2020 AU-GSB e-Journal.
eISSN: 2773 – 868x © 2021 AU-GSB e-Journal.
https://assumptionjournal.au.edu/index.php/AU-GSB

Factors Impacting Attitude and Purchase Intention Toward Electric Vehicle: A Case Study of Post-70s Customers in Nanning, China

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Received: March 13, 2024. Revised: May 3, 2024. Accepted: February 22, 2025.

Abstract

Purpose: This paper focuses on factors impacting attitude and purchase intentions toward electric vehicles for post-70s customers in Guangxi Nanning, China. The primary focus of this paper is to examine the causal relationship between perceived usefulness, perceived ease of use, compatibility, personal innovativeness, environmental consciousness, environmental attitude and attitude toward behavior. **Research design, data, and methodology:** This paper mainly uses the quantitative research (N=500). A questionnaire was sent to the post-70s population in Nanning, China. Purposive sampling, stratified random sampling, and convenient sampling were used to collect data Index of Item-Objective Congruence (IOC), and Cronbach's Alpha score were used to assess validity and reliability before the data collection. Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA) were used to analyze the data. **Result:** Research has shown that perceived usefulness, perceived ease of use, compatibility, environmental attitudes, environmental awareness, and behavioral attitudes have a significant impact on consumer purchase intention. Their purchase intention is significantly affected, with environmental awareness having the least impact on consumer purchase intention. **Conclusion:** Managers of new energy vehicle brands can develop corresponding plans based on evaluations to improve the attitudes and willingness of consumers born in the 1970s to purchase new electric vehicles.

Keywords: Consumer Attitude, Consumer Purchase Intention, Environmental Protection, Infrastructure

JEL Classification Code: E44, F31, F37, G15

1. Introduction

In recent years, there has been a notable surge in interest surrounding Attitude and Purchase Intention Toward Electric Vehicles. This heightened attention stems from the dynamic shifts and challenges in emission pollution and environmental conservation. The imperative to comprehend and tackle these challenges has become increasingly evident for professionals, policymakers, and researchers alike. Against the backdrop of this evolving landscape, our study zeroes in on the nuanced aspects of Attitude and Purchase Intention. (Dragan & Topolšek., 2014). This focus holds particular significance due to its far-reaching impact on future development trends, especially in sustainable and eco-friendly transportation. As technological advancements, globalization, and various other factors reshape the automotive industry, a deeper exploration of attitudes and purchasing intentions becomes crucial to unravel the intricacies and implications. (Annamdevula & Bellamkonda, 2016).

Appleton et al. (2006). The Sustainable Development Goals (SDGs) outlined in the United Nations' 2030 agenda have emerged as a central point of interest for scholars and policymakers. These global objectives serve as a guiding framework, urging a holistic understanding of how attitudes and purchase intentions align with the broader ambitions of sustainable and responsible consumption. In dissecting these dynamics, our study aims to contribute valuable insights that can inform strategies, policies, and practices geared toward achieving the sustainable future envisioned by the SDGs. The urgency and shared responsibility to address global challenges have become increasingly apparent. Many

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countries worldwide grapple with many interconnected issues, including insufficient resources, extreme weather conditions, the spread of diseases, air pollution, and declining economic productivity (Vardoulakis et al., 2020). A pivotal factor contributing to climate change is the emission of greenhouse gases (GHGs), as emphasized in the study by Chatzoglou et al. (2017). To effectively combat environmental health threats like climate change, there is a critical need to underscore the promotion of the Sustainable Development Goals (SDGs).

We can amplify efforts to enhance overall well-being and public health by prioritizing the SDGs. Focusing on the SDGs emerges as a crucial strategy to address climate change and foster improved health outcomes (Chatzoglou et al., 2017). Utilizing the framework provided by the Sustainable Development Goals to confront challenges such as climate change reinforces global efforts and contributes to overall well-being, thereby ensuring good health for all. Consumer attitudes and purchase intentions wield substantial influence over consumer behavior, significantly impacting various industries, including the electric vehicle sector. In recent years, China has undergone remarkable social progress and rapid economic development, resulting in increased income for its residents and a sharp rise in private car ownership. As of 2020, China's automobile production reached approximately 252.25 million units, with sales totaling around 253.11 million vehicles. These figures indicate a noteworthy trend, where the number of vehicles sold slightly surpassed the production figures. This suggests the possibility of a small inventory or stockpile of vehicles from previous years contributing to the variation. This pattern has been consistently maintained at a high level for several years. By the end of 2020, statistics from the Traffic Management Bureau of the Ministry of Public Security revealed 372 million motor vehicles in the country, with 281 million automobiles. This signifies a substantial presence of automobiles on China's roads, reflecting the nation's robust automotive landscape.

Despite the growing interest in electric vehicles (EVs), there remains a gap in understanding the specific factors influencing the attitudes and purchase intentions of post-70s consumers in Guangxi Nanning, China. While previous studies have explored various determinants of EV adoption, there is limited research focusing specifically on this demographic group within this geographic context. Therefore, there is a need to bridge this gap by conducting targeted research that addresses the unique preferences and concerns of post-70s customers in Guangxi Nanning regarding EVs.

The research problem addressed in this paper is the lack of comprehensive understanding regarding the causal relationships between perceived usefulness, perceived ease of use, compatibility, personal innovativeness, environmental consciousness, environmental attitude, and attitude toward behavior concerning EV adoption among post-70s consumers in Guangxi Nanning, China. By investigating these relationships, the study aims to provide insights into the key drivers influencing the attitudes and purchase intentions of this demographic group toward EVs, thereby addressing a critical gap in the existing literature.

2. Literature Review

2.1 Perceived Usefulness

Lent et al. (2007). Academic pursuits are the amalgamation of theoretical knowledge and practical application. This approach serves as a systematic method to scrutinize and address life's challenges. Numerous research studies underscore the significance of contentment in academia, highlighting its influence on academic persistence, adaptability to one's surroundings, adherence to discipline, and psychological well-being. These findings emphasize the pivotal role that academic satisfaction plays in shaping individuals' educational journeys and overall life experiences. (Ojeda et al., 2011).

Chen and Lu (2016) introduces the concept of "Green Perceived Value," which pertains to how consumers perceive the advantages of environmentally friendly products or services. This encompasses the perceived benefits of adopting eco-friendly options, such as potential cost savings or personal satisfaction. Additionally, "Green Perceived Usefulness" involves how consumers perceive the utility of environmentally friendly products or services in addressing their specific needs. This aspect revolves around the effectiveness of these products or services in serving a purpose.

Miller (2011) pointed out that factors such as compatibility, personal innovation ability, environmental awareness, and perception of environmental attitudes significantly impact consumer purchasing and student academic performance. How to motivate and guide students, as well as what factors can affect their learning motivation, is a question that few scholars have studied and paid attention to. Many scholars focus on the habits, methods, anxiety, or motivational factors that affect students' academic performance, but they have not analyzed the factors that lead to anxiety or such motivation. In addition, they have not yet reached a consensus on how to stimulate students' deep learning (Junquera et al., 2016). Therefore, this research proposes a hypothesis:

H1: Perceived usefulness has a significant influence on attitude toward behavior.

2.2 Perceived Ease of Use

Davis (1989) 's Perceived Ease of Use (PEOU) is a crucial concept in the realm of technology adoption. It encapsulates users' subjective assessments of how straightforward a particular system is to use. Rooted in the Technology Acceptance Model (TAM) proposed by Davis in 1989, PEOU has become a key determinant in understanding users' attitudes toward technology. This concept delves into the perceived simplicity or complexity of interacting with a technological system. (Legris et al., 2003).

Venkatesh et al. (2003) Several factors contribute to perceptions regarding ease of use. System characteristics like interface design, functionality, and user guidance play pivotal roles. Additionally, individual differences, including prior experience, technological expertise, and cognitive styles, shape how users perceive the ease with which they can interact with technology, Wang and Wang (2012). Perceived ease of use influences consumer purchasing decisions, particularly in the context of new energy vehicles (NEVs). As the automotive industry undergoes a transformative shift towards sustainable and environmentally friendly alternatives, understanding consumers' perceptions of ease of use is essential for adopting NEVs successfully.

Bhutto et al. (2022). Perceived ease of use in the context of NEVs encompasses intuitive interface design, simplified charging processes, and straightforward maintenance. Consumers are more likely to consider purchasing an electric vehicle if they perceive it as user-friendly, with features that align with their technological expectations and lifestyle. The ease with which consumers can charge their NEVs significantly influences their purchasing decisions. A well-developed and easily accessible charging infrastructure contributes to a positive perception of ease of use. Concerns about range anxiety and inconvenience related to charging can be alleviated through the availability of reliable and convenient charging stations. Perceived ease of use is closely tied to consumers' understanding of NEV technology. Educational initiatives that demystify the complexities of electric vehicles explain charging processes, and highlight the benefits of sustainable transportation contribute to a positive perception. Informed consumers are more likely to view NEVs as user-friendly and make informed purchasing decisions. (Chatzoglou et al., 2017). Therefore, this research proposes a hypothesis:

H2: Perceived ease of use has a significant influence on attitude toward behavior.

2.3 Compatibility

Lee and Lee (2019). Relates to the financial aspects of NEV ownership, including purchase costs, operating expenses, and potential savings. NEVs should be economically compatible with consumers' budgets. Factors such as government incentives, reduced operational costs, and long-term financial benefits contribute to economic compatibility. Considers how NEV adoption aligns with societal trends, cultural perceptions, and peer influence. NEVs that are socially compatible and reflect broader societal values and trends may gain more acceptance. Social factors, including community support and cultural perceptions, can impact the perceived compatibility of NEVs. (Beard et al., 2017).

Plötz et al. (2017). Refer to the integration and interoperability of NEV technology with existing infrastructure and charging systems. Consumers seek NEVs that easily align with their current technological ecosystems. Compatibility with charging infrastructure, home charging solutions, and mobile apps for monitoring and control is vital for a seamless ownership experience. (Beard et al., 2017)). Examines the alignment of NEVs with consumers' environmental values and concerns. As sustainability is a key driver for NEV adoption, consumers seek vehicles that align with their environmental consciousness. The compatibility of NEVs with green initiatives and a reduced carbon footprint enhances their attractiveness.

Chao et al. (2008). Compatibility positively impacts consumer willingness to purchase new energy vehicles. According to Mehadi et al. (2021), there is a wealth of literature on the relationship between compatibility and consumer purchase intention. Butt pointed out in a survey that the five most important factors affect consumer purchase intention, including compatibility, convenience, durability, usage costs, and infrastructure construction. Therefore, this research proposes a hypothesis:

H3: Compatibility has a significant influence on attitude toward behavior.

2.4 Personal Innovativeness

Abbasi et al. (2021). Personal innovativeness is an individual's predisposition or willingness to adopt and use new ideas, technologies, or practices. This trait is crucial in determining how quickly and readily an individual embraces innovation. Personal innovativeness is a personality characteristic that influences a person's openness to change and readiness to explore and adopt novel concepts. Personal innovativeness is often defined as an individual's willingness and ability to try new ideas, products, or technologies. The concept is closely associated with innovation adoption theories, such as Everett Rogers' Diffusion of Innovations theory. According to these theories, individuals are classified as innovators, early adopters, early majority, late majority, and laggards based on their innovativeness.

Abu-Alkeir et al. (2020). In the context of technology adoption, personal innovativeness is a key determinant. Those with high personal innovativeness are more likely to embrace and integrate new technologies into their lives. Personal innovativeness is linked to certain personality traits, such as openness to experience, curiosity, risk-taking propensity, and a positive attitude toward change. Innovators who exhibit high personal innovativeness are typically the first to adopt new ideas or technologies. They are followed by early adopters with a considerable degree of personal innovativeness. Several factors can influence personal innovativeness, including education, exposure to diverse experiences, social influence, and the perceived benefits or advantages of adopting innovations.

Bamberg and Möser (2007). The concept is closely associated with innovation adoption theories, such as Everett Rogers' Diffusion of Innovations theory. According to these theories, individuals are classified as innovators, early adopters, early majority, late majority, and laggards based on their innovativeness—survey research methods. Understanding personal innovativeness is crucial for marketers, technology developers, and educators as it helps tailor strategies to effectively reach and engage individuals based on their readiness to adopt new ideas. Therefore, this research proposes a hypothesis:

H4: Personal innovativeness has a significant influence on attitude toward behavior.

2.5 Environmental Consciousness

Ajzen (2019) The influence of environmental consciousness on purchase intention is a well-documented phenomenon in consumer behavior research. Environmentally conscious consumers are more likely to consider the environmental impact of products and make purchase decisions that align with their values. With growing awareness of environmental issues such as climate change, pollution, and resource depletion, consumers are becoming more conscious of the ecological footprint associated with their consumption choices. (Asadi et al., 2021).

Awang (2012) The influence of environmental consciousness on purchase intention is a well-documented phenomenon in consumer behavior research. Environmentally conscious consumers are more likely to consider the environmental impact of products and make purchase decisions that align with their values. With growing awareness of environmental issues such as climate change, pollution, and resource depletion, consumers are becoming more conscious of the ecological footprint associated with their consumption choices. (Bentler & Chou, 1987). Companies adopting environmentally friendly practices and demonstrating corporate social responsibility appeal to environmentally conscious consumers. These consumers are more likely to support businesses that are committed to sustainability. Consumers with high environmental consciousness are more likely to consider the environmental impact of a product as a key attribute during the decision-making process. Numerous studies have found a positive correlation between environmental consciousness and purchase intention. (Bentler & Chou, 1987).

Ajzen and Fishbein (1975). Environmental consciousness influences purchase intention and can drive broader behavioral changes. Consumers may adopt more sustainable lifestyles, including reducing waste, conserving energy, and choosing products with minimal environmental impact. Younger generations, such as Millennials and Generation Z, are often more environmentally conscious. Their values and preferences are shaping market trends, and businesses are adapting by incorporating sustainable practices to meet the expectations of these environmentally aware consumers. Bhattacharyya and Thakre (2021) Environmental consciousness are further reinforced by government initiatives and regulations promoting sustainability. Policies that incentivize eco-friendly practices can contribute to a shift in consumer behavior and purchase intentions. Campbell and Fiske (1959) In summary, the influence of environmental consciousness on purchase intention underscores the changing dynamics of consumer preferences in favor of sustainable and eco-friendly options. As businesses increasingly recognize the importance of environmental responsibility, integrating sustainable practices into products and marketing strategies becomes a key driver of success in the contemporary market. Therefore, this research proposes a hypothesis:

H5: Environmental consciousness has a significant influence on purchase intention.

2.6 Environmental Attitude

Carley et al. (2013). The relationship between environmental attitude and purchase intention has been the subject of extensive research in consumer behavior. Environmental attitude refers to an individual's overall evaluation and feelings about environmental issues, sustainability, and the importance of ecological considerations in decision-making (Chen & Chai, 2010). Consumers with a positive environmental attitude will likely prioritize products and brands that align with their values. The alignment of personal values with environmentally friendly options positively influences purchase intention. Environmental attitudes are closely tied to ethical consumption. Consumers with positive environmental attitudes often prefer ethically sourced, sustainably produced products that have minimal negative environmental impact.

Chen (2013). Green marketing strategies, including eco-friendly branding, labels, and messaging, resonate strongly

with consumers with positive environmental attitudes. These strategies shape consumer perceptions and, consequently, their purchase intentions. Environmental attitudes influence how consumers evaluate products. Individuals with positive environmental attitudes often view products with environmentally friendly attributes more favorably, increasing the likelihood of purchase. (Conner & Armitage, 1998). Consumers with positive environmental attitudes tend to use more extensive information processing when purchasing decisions. They will likely seek information about a product's environmental impact, leading to more informed and sustainable choices. Consumers with positive environmental attitudes tend to use more extensive information processing when purchasing decisions. They will likely seek information about a product's environmental impact, leading to more informed and sustainable choices. (Dragan & Topolšek, 2014).

Dillman (2000). Positive environmental attitudes can be influenced by social factors, including peer influence and social norms. Consumers may adopt environmentally friendly behaviors and purchasing patterns to align with perceived societal expectations and values. Consumers with positive environmental attitudes often exhibit a long-term perspective in their decision-making. They are more likely to consider products' sustainability and environmental impact, influencing their intention to make choices that support a sustainable lifestyle.

In conclusion, the significant influence of environmental attitude on purchase intention underscores the importance of businesses incorporating sustainable practices and communication strategies into their offerings. As consumer awareness and concern for environmental issues continue to grow, fostering positive environmental attitudes can be a key driver of success in the marketplace. Therefore, this research proposes a hypothesis:

H6: Environmental attitude has a significant influence on purchase intention.

2.7 Attitude Toward Behavior

Davis et al. (1989). Certainly, the Theory of Planned Behavior (TPB) posits that attitudes toward a behavior significantly influence an individual's intention to engage in that behavior, which, in turn, influences actual behavior. This theory has been widely applied in consumer behavior, including the context of purchase intention. Attitude toward behavior refers to an individual's positive or negative evaluation of engaging in a particular behavior. In the context of purchase intention, it involves the consumer's overall purchase assessment. (Davis, 1989). The TPB proposes that attitudes, subjective norms, and perceived behavioral control collectively influence an individual's intention to perform a behavior. Attitude toward behavior plays a central role in shaping this intention. Attitude toward behavior is influenced by the perceived consequences associated with the behavior. Consumers weigh the positive and negative outcomes in the context of purchasing, such as product benefits, perceived value for money, and overall satisfaction (Desa, 2018).

According to the literature from ElTayeb et al. (2010), Attitude toward behavior includes both affective (emotional) and cognitive (rational) components. A consumer's emotional response to a product, brand, or the act of making a purchase and rational evaluations collectively contribute to their overall attitude.

Positive attitudes toward a behavior, such as purchasing a specific product, contribute to more favorable evaluations of that product. Consumers with positive attitudes are more likely to view the product positively, leading to an increased likelihood of purchase intention. External factors, such as advertising, word-of-mouth, and product reviews, can influence attitudes toward behavior. Positive external cues can enhance attitudes and, consequently, influence purchase intentions. (Eom & Ashill, 2018).

Attitude toward behavior interacts with subjective norms (perceived social pressure) and perceived behavioral control to form the overall intention to perform a behavior. For purchase intention, attitudes, social influences, and perceived control collectively shape the decision-making process. (Ellen et al., 1991). Attitude toward behavior is considered a robust predictor of long-term behavior. A positive attitude toward purchasing a particular product or category suggests a sustained intention to make similar purchases in the future. According to Diamantopoulos and Siguaw (2000), the influence of attitude toward behavior on purchase intention is a fundamental aspect of consumer decision-making. Businesses can benefit from understanding and positively influencing consumers' attitudes toward their products to enhance overall purchase intentions and drive actual purchasing. Therefore, this research proposes a hypothesis:

H7: Attitude toward behavior has a significant influence on purchase intention.

2.8 Purchase Intention

Purchase intention is a crucial aspect of consumer behavior, reflecting an individual's willingness or inclination to buy a product or service. Numerous factors influence purchase intention, and understanding these dynamics is essential for businesses aiming to predict and shape consumer behavior. Consumers often assess the perceived quality of a product before forming an intention to purchase. Positive perceptions of quality increase the likelihood of purchasing (Zeithaml, 1988). A strong and positive brand reputation can significantly impact purchase intention. Consumers are likelier to choose products from reputable

and trusted brands (Keller, 1993). The pricing strategy plays a crucial role in shaping purchase intention. Consumers assess whether the perceived value aligns with the product's price (Monroe & Krishnan, 1985).

Recommendations from friends, family, and influencers can strongly affect purchase intention. Social factors contribute to decision-making (Brown & Reingen, 1987). Convenience is a key factor influencing purchase intention, especially in online shopping. Consumers often favor easy and hassle-free purchasing experiences (Childers et al., 2001).

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework of this article mainly consists of the first three theoretical frameworks. Arroyo and Carrete lead the first theoretical framework. In 2019, we mainly discussed the relationship between perceived usefulness and perceived ease of use, as well as the relationship between compatibility and personal innovation. Tu and Yang (2019) proposed the second theoretical framework, mainly discussing the concept of process awareness. The third theoretical framework was proposed by Xu et al. (2018), which mainly discusses the relationship between link attitude (EA) and purchase intention. Figure 1 shows the conceptual framework of this study.

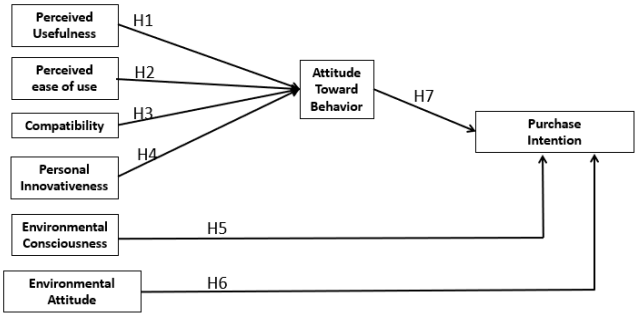

Figure 1: Conceptual Framework

H1: Perceived usefulness has a significant influence on attitude toward behavior.
H2: Perceived ease of use has a significant influence on attitude toward behavior.
H3: Compatibility has a significant influence on attitude toward behavior.
H4: Personal innovativeness has a significant influence on attitude toward behavior.
H5: Environmental consciousness has a significant influence on purchase intention.
H6: Environmental attitude has a significant influence on purchase intention.
H7: Attitude toward behavior has a significant influence on purchase intention.

3.2 Research Methodology

The author employed a non-probability sampling technique to distribute questionnaires to the target group through Questionnaire Star and offline paper formats. The study focused on consumers across various age groups in Nanning, China, post-70s generations. The investigation aimed to collect and analyze factors influencing purchase intention.

To refine the survey scope, the researchers initially employed screening questions, measuring each independent variable using a five-point Likert scale, ranging from strongly disagree (1) to agree (5). This study employed quantitative methodologies, employing both the project-objective consistency (IOC) test and Cronbach's Alpha test. A group of three experts assessed the Index of Item-Objective Congruence (IOC) to ensure the accurate representation of each item's intended construct, thereby enhancing the validity of the assessment. The pilot test, involving 50 participants, yielded a Cronbach's Alpha score exceeding 0.7, affirming the reliable measurement of the designated construct and reinforcing the overall reliability of the test outcomes, in accordance with the principles delineated by Nunnally and Bernstein (1994).

Subsequently, a questionnaire was distributed to 500 respondents, and all responses were collected. Statistical analysis was performed using SPSS and Amos software. Confirmatory Factor Analysis (CFA) was employed to test the data to enhance the validity and reliability of the results, and Structural Equation Modeling (SEM) was utilized to validate causal relationships between variables.

3.3 Population and Sample Size

This article focuses on studying consumers born in the 1970s and 1990s in Nanning City, Guangxi Zhuang Autonomous Region, predominantly from Wanxiang City, Hangyang City, and Qingxiu Wanda. Following the guidance of Tabachnick and Fidell (2007), who recommend a minimum sample size of 300 in the literature, the researchers calculated the minimum sample size to be 425 based on relevant factor parameters and the number of variables (Soper, 2020). To ensure precision in the calculation, the researchers opted for a sample size of 500. 500 questionnaires were distributed, and all of them were successfully collected.

3.4 Sampling Technique

The author adopts nonprobability sampling, first using purposive sampling to select consumers from Nanning city (born in the 1970s and 1990s), then using stratified random sampling to determine the sampling quota for different age groups, and using convenient sampling methods to publish online and offline questions to collect data. The distribution ratio is shown in Table 1.

Table 1: Sample Units and Sample Size

Three Main Subjects	Population Size	Proportional Sample Size
Hangyang City	1985	176
Wanxiang City	1661	183
Qingxiu Wanda	1435	141
Total	**5081**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

A questionnaire survey was conducted on 500 consumers born in the 1970s in Nanning, Guangxi. Table 2 shows a questionnaire survey was conducted on 500 consumers born in the 1970s in Nanning, Guangxi. Table 2 shows 489 males and 11 females, accounting for 97.8% and 2.2%, respectively. Five hundred individuals born between 1970 and 1979; 99 professionals (teachers, doctors, lawyers, etc.), accounting for 19.8%; 52 service industry personnel (catering industry, drivers, etc.), accounting for 10.4%; 15 freelancers, accounting for 3%; 82 personnel from public institutions and government, accounting for 16.4%; 143 frontline workers, accounting for 28.6%; The other 109 people (businessmen and housewives) account for 21.8%. One hundred fourteen people with high school education or below, accounting for 22.8%; 150 associate degree holders, accounting for 30%; 118 college students, accounting for 23.6%; 58 graduate students, accounting for 11.6%; 60 people with a doctoral degree or above, accounting for 12%.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	489	97.8%
	Female	11	2.2%
When were born	1970's-1979's	500	100%
	1990's -1999's	0	0%
	None of them	0	0%
Occupation	Professionals	99	19.8%
	Service industry personnel	52	10.4%
	Freelancer	15	3%
	Workers	82	16.4%
	Public institutions	143	28.6%
	Others (businessmen, housewives)	109	21.8%
Educational level	High school and below	114	22.8%
	College degree	150	30%
	Undergraduate	118	23.6%
	Graduate student	58	11.6%
	Doctor and above	60	12%

4.2 Confirmatory Factor Analysis (CFA)

Bollen (1989) highlighted that Confirmatory Factor Analysis (CFA) is primarily employed to assess the effectiveness and acceptability of items in the conceptual model. The factor load must be greater than 0.5, and the p-value must be less than 0.05. Structural reliability should exceed 0.7, and the average variance extracted should be greater than 0.5 (Fornell & Larcker, 1981).

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Usefulness (PU)	Tu and Yang (2019)	4	0.848	0.619-0.884	0.857	0.601
Perceived Ease of Use (PEU)	Tu and Yang (2019)	4	0.875	0.766-0.856	0.878	0.644
Compatibility (C)	Tu and Yang (2019)	5	0.886	0.726-0.886	0.891	0.621
Personal Innovativeness （PIN）	Tu and Yang (2019)	4	0.844	0.747-0.779	0.844	0.576
Environmental Consciousness (EC)	Arroyo and Carrete (2019)	4	0.884	0.675-0.873	0.890	0.672
Environmental Attitude (EA)	Xu et al. (2018).	7	0.923	0.721-0.893	0.926	0.643
Attitude toward behavior (ATB)	Tu and Yang (2019)	3	0.874	0.772-0.893	0.878	0.707
Purchase Intention (PI)	Tu and Yang (2019)	4	0.846	0.692-0.829	0.849	0.587

In this study, various fit indices, including chi-square (/df), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normalized Fit Index (NFI), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Approximation Error (RMSEA), etc., were utilized to assess the goodness of fit for the model.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1.922
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.893
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.873
NFI	≥ 0.80 (Wu & Wang, 2006)	0.909

Fit Index	Acceptable Criteria	Statistical Values
CFI	≥ 0.80 (Bentler, 1990)	0.954
TLI	≥ 0.80 (Sharma et al., 2005)	0.948
RMSEA	< 0.08 (Pedroso et al., 2016)	0.043
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index, and RMSEA = root mean square error of approximation

Fornell and Larcker (1981) suggested that discriminant validity is acceptable if the square root of the average variance extracted is larger than the coefficient of other related structures. As indicated in Table 5, all results in this study adhere to the discriminant and convergence validity criteria.

Table 5: Discriminant Validity

	PU	PEU	C	PIN	EC	EA	ATB	PI
PU	**0.775**							
PEU	0.505	**0.803**						
C	0.262	0.470	**0.788**					
PIN	0.300	0.314	0.236	**0.759**				
EC	0.281	0.419	0.266	0.325	**0.820**			
EA	0.288	0.527	0.379	0.301	0.292	**0.802**		
ATB	0.315	0.402	0.333	0.247	0.173	0.262	**0.841**	
PI	0.498	0.536	0.531	0.287	0.312	0.548	0.534	**0.766**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

Carlson and Donavan (2008) Structural Equation Modeling (SEM) were primarily utilized to analyze the influence relationships between test variables, ensuring the reliability and validity of the data. As Ferguson et al. (2007) suggested, acceptable values consider GFI greater than or equal to 0.85 and AGFI greater than or equal to 0.8. Values for NFI, CFI, and TLI should be greater than or equal to 0.8, according to Mohammed and Abdullah (2018), Hair and Sarstedt (2115), and Pedroso et al. (2016). The root mean square approximation error (RMSEA) value should be less than or equal to 0.08, as proposed by Peng and Samah (2006)

As indicated in Table 6, Amos version 26 was used for SEM calculations, and the fitting index results demonstrate that CMIN/DF=2.931, GFI=0.821, AGFI=0.797, NFI=0.855, CFI=0.899, TLI=0.891, and RMSEA=0.062. These results indicate that the fitting index meets the specified requirements.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.931
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.821
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.797
NFI	≥ 0.80 (Wu & Wang, 2006)	0.855
CFI	≥ 0.80 (Bentler, 1990)	0.899
TLI	≥ 0.80 (Sharma et al., 2005)	0.891
RMSEA	< 0.08 (Pedroso et al., 2016)	0.062
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index, and RMSEA = root mean square error of approximation

4.4 Research Hypothesis Testing Result

The research model in this article mainly calculates the significant relationship of its variables by standardizing regression weights and variances. When the significance p is less than 0.05, it is considered significant. According to the results presented in Table 7, 7 out of 7 hypotheses are considered significant. Among the factors related to consumer purchase intention, environmental attitude has the greatest impact at 0.451, followed by behavioral attitude (β= 0.434), Perceived ease of use (β= 0.253), and compatibility (β= The impact of perceived usefulness and environmental awareness on consumer purchase intention is relatively small (0.189). As shown in Table 7.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: PU→ATB	0.163	3.365*	Supported
H2: PEU→ATB	0.253	5.084*	Supported
H3: C→ATB	0.189	3.896*	Supported
H4: PIN→ATB	0.111	2.254*	Supported
H5: EC→PI	0.127	2.935*	Supported
H6: EA→PI	0.451	9.405*	Supported
H7: ATB→PI	0.434	9.019*	Supported

Note: * $p<0.05$
Source: Created by the author

The results in Table 7 can be further refined:

H1 indicates that perceived usefulness is one of the factors affecting consumer purchase intention, with a standard coefficient value of 0.163. A study by Martins et al. (2021) found that perceived usefulness positively impacts student satisfaction with consumer intention to purchase new energy. In the survey (Nanning City) area, new energy vehicle companies must improve the perceived usefulness and ideology of new energy vehicles, create a good and convenient usage environment for consumers, enhance their perceived usefulness of using new energy vehicles, and make

consumers feel satisfied during the use of new energy.

H2 indicates that perceived ease of use is one of the key factors affecting consumer purchasing, with a standard coefficient value of 0.253. According to Eberhard and Tarpenning (2006), the ease of getting started with new energy vehicles significantly impacts consumer purchase intention. To improve convenience and familiarity with the operation of new energy vehicles, increase consumer favorability and willingness to use new energy vehicles, and enhance consumer satisfaction with electric vehicles.

H3 indicates that compatibility is one of the key factors affecting consumer purchases of new energy vehicles, with a standard coefficient value of 0.189. Ortar and Ryghaug (2019) concluded that system compatibility positively impacts consumer purchase intention. Strengthening the construction of car infotainment systems and intelligent facilities can enhance the likelihood and stability of consumers choosing new energy vehicles. Improving compatibility and connecting consumers will help create a tighter usage environment, and consumer selectivity will be greatly improved. At the same time, satisfaction has also improved.

H4 indicates that individual innovation ability is one of the key factors affecting consumer purchase intention, with a standard coefficient value of 0.111, but it is also the least influential factor. Wang et al. (2017) pointed out that individual innovation ability has a positive impact on consumer purchase intention. To encourage consumers to purchase new energy vehicles and increase their recognition of them, personal innovation ability needs to be fully connected with purchase intention. It can increase the purchasing willingness of consumers, thereby enhancing their attitude toward purchasing new energy vehicles.

H5 indicates that environmental awareness is one of the key factors influencing consumers to purchase new energy vehicles, with a standard coefficient value of 0.127. According to Karlsson (2017), an important relationship exists between environmental awareness and purchase intention. With positive environmental awareness, consumers are more likely to be willing to purchase, continue to use, and recommend to those around them.

H6 indicates that environmental attitude is one of the key factors affecting consumer purchase intention, with a standard coefficient value of 0.451. According to Jensen and Mabit (2017), an important relationship exists between environmental attitudes and purchase intention. Only in environments with a high awareness of environmental attitudes are consumers more likely to choose to purchase new energy vehicles and are more willing to continue to agree with environmental attitudes and recommend them to those around them.

H7 indicates that behavioral attitude is one of the key factors affecting consumer purchase intention, with a standard coefficient value of 0.434. Simsekoglu (2018) believes that attitude toward behavior is a powerful predictor of long-term behavior. If a consumer holds a positive attitude towards purchasing a specific product or category, it indicates that they have a sustained intention to make similar purchases in the future. Under the influence of emotional and rational considerations, a positive attitude towards purchasing behavior plays a crucial role in shaping purchase intention.

5. Conclusion and Recommendation

5.1 Conclusion

This study examines the factors influencing the purchasing inclination of post-70s consumers in Nanning, Guangxi, particularly in the context of new energy vehicles (NEVs). The research framework investigates the causal relationships among various factors, including Perceived Usefulness (PU), Perceived Ease of Use (PEU), Compatibility (C), Personal Innovativeness (PI), Environmental consciousness (EC), Environmental Attitude (EA), and Attitude toward Behavior (ATB). The research employs a quantitative approach, with a sample size of 500 consumers born in the 1970s in Nanning, Guangxi. Through data collection and analysis, the study aims to shed light on the factors influencing the purchasing intentions of this demographic group. Confirmatory Factor Analysis (CFA) is the primary method to assess the effectiveness and acceptability of the items in the conceptual model. Structural Equation Modeling (SEM) is also applied to scrutinize the influence relationships among.

The findings of this study highlight several key insights. Firstly, environmental attitudes have become the most important factor influencing consumer purchasing decisions. Personal innovation ability has been identified as a secondary factor, while environmental attitudes directly affect the determining factor of consumer purchase intention. In addition, perceived usefulness and ease of use significantly affect consumer purchase intention. Under strong environmental awareness and positive environmental attitudes, good compatibility, and behavioral attitudes, consumers born in the 1970s are more likely to be guided toward positive purchasing intentions. This positive tendency contributes to reducing carbon emissions, mitigating environmental pollution, and achieving sustainable development globally, which aligns with setting an example for future generations (Goldstein et al., 2002).

5.2 Recommendation

This study underscores the significant impact of compatibility, perceived usefulness, environmental awareness, environmental attitude, personal innovation ability, perceived ease of use, and behavioral attitude on consumer purchase intention. Effectively managing compatibility can foster positive purchasing intentions among consumers, enhancing their personal innovation ability and environmental awareness. To cultivate favorable purchasing attitudes, it is crucial to strengthen the compatibility aspects of new energy vehicles. This involves creating optimal usage scenarios and fostering a widespread adoption environment. By doing so, manufacturers facilitate a smoother initiation for consumers and contribute to an enhanced sense of satisfaction and experiential enjoyment in using new energy vehicles (Dado et al., 2012). Manufacturers in the new energy vehicle sector should prioritize improving the overall compatibility of their products.

5.3 Limitation and Further Study

This study acknowledges certain limitations that warrant consideration. Firstly, the survey was conducted exclusively in selected shopping malls in Nanning, Guangxi, which may only represent some of the consumer population of the region. Consequently, data inaccuracies may be due to this limited sampling. Future research could broaden its scope by including consumers from diverse supermarket settings to obtain a more comprehensive understanding of consumer perspectives. Moreover, this study focused solely on the factors outlined in the conceptual framework, neglecting the exploration of potential influences from other variables on consumer attitudes and purchasing intentions. Subsequent research endeavors could delve into additional factors, such as the presence of environmental supporting facilities, the impact of brand influence, and the influence of government manufacturer subsidies. A more exhaustive examination of these aspects could provide a more nuanced.

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