Research Article

The Predictors of Green Purchase Intention for Electric Vehicles: A Mediation Analysis of Chinese Working Adults in Shanghai, China

Kang DeJun[1*], Zhang JuanJuan[2], Gong Xue[3], Ratneswary Rasiah[4]

[1] *Postgraduate, Graduate School of Business, SEGi University (Malaysia), Beijing, China. 4adv2099@gmail.com*
[2] *Postgraduate, Graduate School of Business, SEGi University (Malaysia), Xin Jiang, China. 654864654@qq.com*
[3] *Postgraduate, Graduate School of Business, SEGi University (Malaysia), HU Nan, China. gsonw068@gmail.com*
[4] *Graduate School of Business (GSB), SEGi University (Malaysia), Kota Damansara, Malaysia. ratneswaryrasiah@segi.edu.my*

ARTICLE INFO	ABSTRACT
	The growing demand for Electric Vehicles is crucial in reducing carbon emissions, yet consumer adoption remains slow despite their environmental benefits. This discrepancy underscores the critical need to investigate Green Purchase Intention, which is essential for advancing Sustainable Development Goal 13 (Climate Action). Immediate research is needed to identify and address the barriers influencing consumer purchase intention. The use of Electric Vehicles greatly reduces the atmospheric pollution caused by fuel vehicles. However, there are still many obstacles to the wider popularization of Electric Vehicles. This research examines the principal determinants affecting Green Purchase Intention (GPI) regarding Electric Vehicles, focusing on Environmental Knowledge (EK), Perceived Behavioral Control (PBC), and Social Media (SMM) as exogenous variables, with Subjective Norm (SN) and Green Perceived Value (GPV) serving as mediators. Rooted in the Theory of Planned Behavior (TPB) and the Value-Belief-Norm (VBN) Theory, explore how these variables influence consumers' intentions to choose Electric Vehicles in their purchasing decisions. A sum of 429 valid responses was collected among working adults in Shanghai using a purposive sampling method. A rigorous quantitative analysis was conducted using PLS and revealed Green Perceived Value, Subjective Norm, and Perceived Behavioral Control significantly affect the Green Purchase Intention of Electric Vehicles. However, Environmental Knowledge and Social Media do not. Green Perceived Value and Subjective Norm were identified as major mediators in explaining connections between Environmental Knowledge and Green Purchase Intention, and between Social Media and Green Purchase Intention, respectively. Given the lack of direct influence from Environmental Knowledge and Social Media, policymakers should prioritize strategies that enhance the social networks to shape consumer attitudes. Additionally, targeting Green Perceived Value and Subjective Norm through interventions may effectively increase adoption and promote sustainable transportation. **Keywords:** Green Perceived Value, Perceived Behavioral Control, Green Purchase Intention, Subjective Norm, Social Media

INTRODUCTION

The most critical urgent issue facing the world now is the changing climate (Akpuokwe et al., 2024), as quite a bit of carbon emissions stems from the transport sector (X. Zhang et al., 2025). Human activities have substantially elevated greenhouse gasses (GHGs), resulting in a worldwide temperature increase and indirectly influencing the climate, Nevertheless, environmental metrics are predominantly linked to the detailed levels of material consumption, including the use of fossil fuels (Alola & Adebayo, 2023). Around 25 to 30 percent of carbon emissions worldwide originate from the transport industry, especially in developing countries (R. Kumar et al., 2024). China's carbon dioxide emissions Ranked first from 1960 to 2020 (Pradhan et al., 2024). The burning of fuels like gasoline and diesel in transportation greatly contributes to climate change. (Abrar et al., 2023; Aminzadegan et al., 2022). This releases large amounts of harmful gases, can lead to problems such as air pollution, smog, and acid rain, which

are detrimental to human health. This pollution can lead to health problems, such as premature death, respiratory problems, heart problems, and even autism (Gheissari et al., 2022; Tota et al., 2024).

China has established ambitious goals, including the intention to attain peak emissions by 2030 and to accomplish carbon neutrality by 2060, which are collectively known as China's "dual carbon" goals. The transportation industry in China has grown to become the third-largest consumer of energy, contributing significantly to greenhouse gas emissions (J. Zhang et al., 2022). Importantly, the global shift toward cleaner air and low-carbon economies is closely aligned with Sustainable Development Goals, which emphasizes climate action(Salman et al., 2024). SDG 13 advocates for effective actions to reduce greenhouse gas emissions(Khalid, 2023), Transitioning to Electric Vehicles ultimately reduces reliance on non-renewable energy (Alanazi, 2023). China has intensified its efforts to advance the green economy and circular economy, as well as to fully support the development of Electric Vehicles, China's EV market is largest, fastest-growing. (Goyal, 2024) (figure 1).
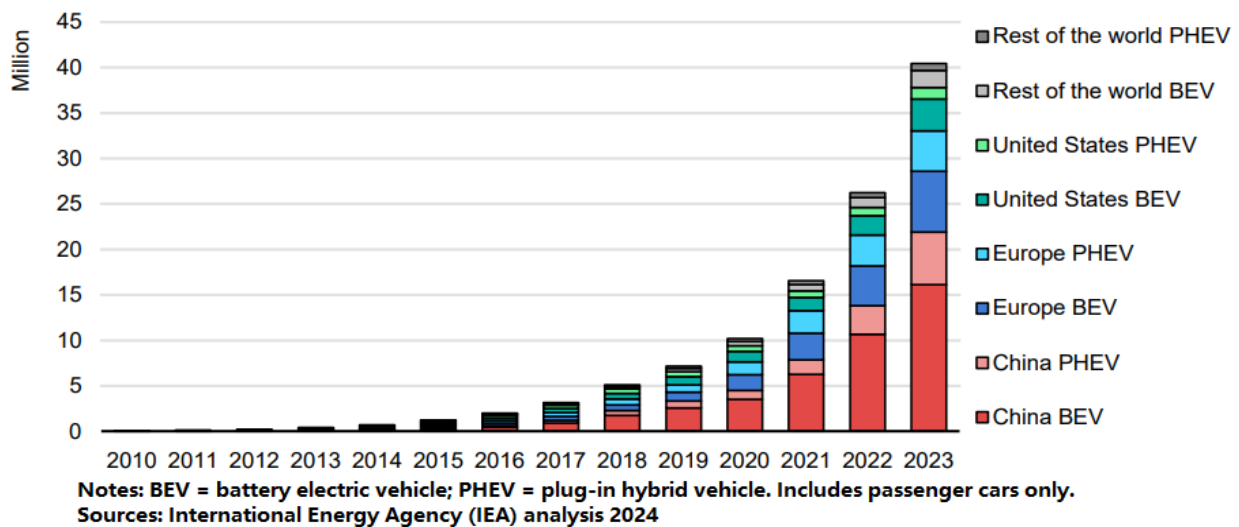

Figure 1. Global Electric Vehicles Trends 2010-2023

Shanghai, one of the pioneering cities in China for new Electric Vehicles, has accomplished remarkable success over the past decade (Wei et al., 2023). Despite leading in Electric Vehicles (EV) sales, Shanghai is having trouble expanding the use of EVs once purchasing subsidies were removed in 2022 (Li et al., 2023). Electric Vehicles purchase intention is still influenced by various components (He et al., 2023; Vafaei-Zadeh et al., 2022a), which are crucial to understanding the slower adoption rates. Although several studies have investigated Green Purchase Intention (GPI) among adults (Fitriana, 2023; Rasiah et al., 2023) and some studies highlight self-efficacy (Rahnama Haratbar et al., 2024; Zhao et al., 2024), the specific predictors of Electric Vehicles purchase intention among Chinese working adults have not been comprehensively explored. This study uses both the TPB Theory and the Value-Belief-Norm (VBN) theory to investigate the factors affecting Green Purchase Intention (GPI) among working adults in Shanghai. These two theories provide a comprehensive framework for analyzing how Environmental Knowledge (EK), Perceived Behavioral Control (PBC), Social Media (SMM), Green Perceived Value (GPV) and Subjective Norm (SN) influence Green Purchase Intention in the context of EVs. Understanding the Green Purchase Intention, particularly in a highly urbanized and industrialized city like Shanghai, is essential for shaping policies and interventions aimed at promoting sustainable transportation.

LITERATURE REVIEW

The Green Purchase Intention (GPI) denotes an individual's inclination and readiness to acquire eco-friendly products. (Rasiah et al., 2023; Sharma et al., 2023), GPI intends to promoting sustainability, encouraging practices that lead to a healthier planet and a more eco-conscious society, Previous studies on GPI have revealed various factors, including Environmental Knowledge, which signifies individuals' awareness and sensitivity to ecological challenges (Panda et al., 2024; L. Wang, 2022). Despite extensive research on Green Purchase Intention, Most existing studies are grounded in Western perspectives, which may not capture the unique cultural and social

dynamics influencing pro-environmental behaviors in China (C.-P. Wang et al., 2023), Few studies addressed the diverse factors influencing expansion EV in developing countries (Vafaei-Zadeh et al., 2022b). Environmental Knowledge substantially impacts the decision-making process for green products, as consumers aware of ecological challenges tend to favor eco-friendly alternatives (Qomariah & Prabawani, 2020). GPV reflects the shopper's comprehensive examination of the advantages obtained from acquiring a green goods, compared with its cost, including both monetary expenditure and ecological impacts (Vu et al., 2022). PBC plays a crucial role by influencing whether consumers feel capable of making environmentally friendly purchasing decisions, such as buying Electric Vehicles. Subjective Norm, reference to adopting ecologically sustainable habits from others, might incentivize individuals to make eco-friendly purchases (Duong et al., 2022). Social media (SMM) has become an influential tool, shaping environmental messaging and encouraging sustainable practices. (Al Aflak & Vij, 2024).

GPI serves as a crucial metric of consumers' preparedness to embrace environmentally sustainable transportation options. In China, Electric Vehicles are crucial to the government's strategy for environmental sustainability, providing them a primary target for research on green consumption (Wu et al., 2021). Although technological progress and governmental incentives have facilitated the development of Electric Vehicles, the uptake of such vehicles has been incremental, underscoring the necessity of comprehending customers' Green Purchase Intention and the diverse elements that affect it, well understanding of these factors ultimately aiding policymakers and businesses to extend the adoption of Electric Vehicles and advancing sustainability goals.

Although Shanghai has become known as a global leader in electric car adoption (Zhao et al., 2022), the determinants affecting Green Purchase Intention (GPI) among its working adults are still inadequately examined. The research gap lies in the lack of focus on understanding the factors influencing Electric Vehicles usage intention in markets like Shanghai, where green purchase intention (GPI) for EVs among working adults remains unexplored, despite studies on EV adoption focusing on other contexts such as India (Kumar, 2022). Shanghai's leadership in Electric Vehicles adoption offers a unique chance to analyze the various factors that can aspire to or impede Green Purchase Intention. By clarifying insights from the study of GPI in a city in the lead of EV adoption, thereby informing policies and marketing tactics applicable not just to Shanghai but also to other cities aiming to enhance their electric car adoption rates.

The TPB theory is moulded by their attitude (Dutta et al., 2022) and how they interact with behaviours (Kamalanon et al., 2022). The VBN theory examines values as one of the background factors to attitudes and intentions (Hein, 2022), emphasizing the impact of individuals' values and beliefs regarding environmental responsibility on their behaviour (Majeed et al., 2023a). VBN integrates Environmental Knowledge (EK) and GPV, emphasizing values, beliefs, and personal norms guiding pro-environmental behavior. Building upon these theories, this study proposes an integrated research framework that combines key constructs from both TPB and VBN. The framework explores how Environmental Knowledge (EK), Perceived Behavioral Control (PBC), and Social Media (SMM) as exogenous variables, Subjective Norm (SN) and GPV mediate consumers' GPI to Electric Vehicles. The proposed framework is depicted in Figure 2, illustrating the hypothesized relationships among the variables:
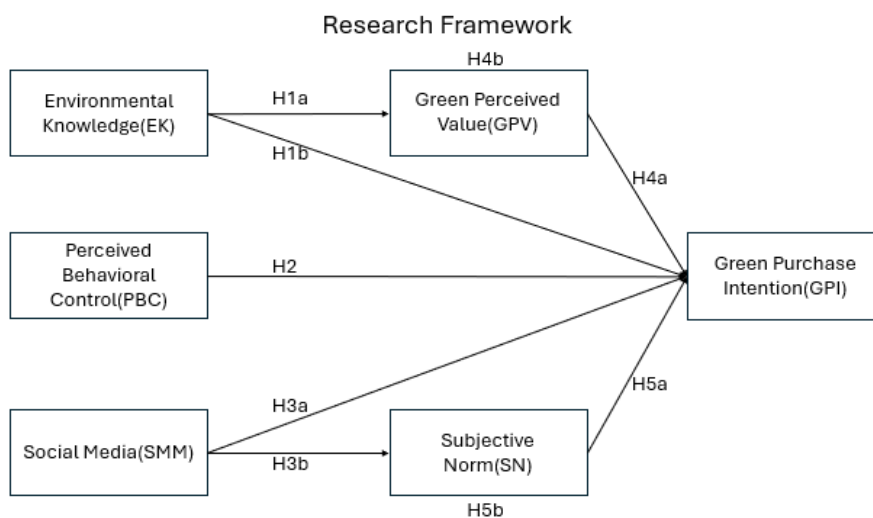

Figure 2. Research Framework

2.1 Environmental Knowledge

Environmental knowledge (EK) shapes how customers perceive and interact with green products (Jaiswal et al., 2022). EK significantly enhances consumers' comprehension of the environmental advantages of these items, such as diminished emissions, cost efficiency, and reduced maintenance requirements (Bakır, 2023). Consumers recognize the value of eco-friendly products directly affects their purchasing intention for these items (Nguyen et al., 2024). In the realm of Electric Vehicles, EK assists consumers in identifying long-term advantages such as fuel efficiency and governmental incentives, hence enhancing their beliefs (Lavuri et al., 2024). Furthermore, EK addresses preconceptions around green products, like apprehensions about driving range or charging infrastructure for Electric Vehicles (Cui et al., 2024).

Furthermore, EK cultivating a green attitude (Malhotra & Srivastava, 2024), As consumers' environmental awareness increases, their capacity to assess the ecological and economic advantages of green products improves, hence augmenting purchase intention. These insights culminate in the subsequent assumptions for working people in Shanghai:

H1a: Environmental Knowledge is significantly associated with Green Purchase Intention among working adults in Shanghai.

H1b: Environmental Knowledge is significantly associated with Green Perceived Value among working adults in Shanghai.

2.2 Perceived Behavioral Control

PBC influences consumers' decisions to acquire green items, including Electric Vehicles (EVs) (Upadhyay & Kamble, 2023). PBC is associated with executing the intended action, such as acquiring Electric Vehicles (EVs). Financial and practical factors substantially impact PBC, including the expense of Electric Vehicles, accessibility to charging infrastructure, and maintenance issues (Moon, 2022). The substantial upfront expense of Electric Vehicles, despite potential long-term savings, may present a financial obstacle, whereas incentives such as subsidies or tax advantages could improve purchase intention by rendering the acquisition more attainable (Singh et al., 2023). Practical considerations, such as the availability of charging stations, influence consumers' Perceived Behavioral Control, as inadequate infrastructure could discourage new buyers (Chang, 2023). Research indicates that persons who perceive enhanced access to Electric Vehicles infrastructure, including charging stations, have increased confidence in their capacity to handle Electric Vehicles ownership (Shanmugavel & Balakrishnan, 2023). Consumers who see themselves as financially competent and logistically equipped to acquire and sustain Electric Vehicles are more inclined to have robust Green Purchase Intention. Consequently, individuals' perceive significantly influence their decision-making process. therefore, the subsequent hypothesis is as follows:

H2: Perceived Behavioral Control has a significant association with Green Purchase Intention among working people in Shanghai.

2.3 Social Media

Social Media (SMM) shapes consumer perceptions by raising awareness and encouraging an eco-conscious culture (Nazish et al., 2024), the research showed that social media campaigns promoting EVs' environmental benefits and user experiences can dramatically impact Green Purchase Intention (GPI) by fostering a positive attitude towards these goods. According to (Panopoulos et al., 2023) Social Media can encourage pro-environmental behaviours and develop positive attitudes towards green items (A. Kumar & Pandey, 2023), engaging with eco-friendly content on Social Media enhances users' promotion of green products, raising consumer awareness of GPI, Effective communication enhances the relationship between awareness and habits, hence increasing the GPI (Alam et al., 2023). Social Media not only raises awareness but also motivates consumers by highlighting the decreased carbon footprints and government incentives (Pinem et al., 2024). Additionally, user-generated content influences consumer intentions by providing peer validation and real-world success stories for green product adoption (Fatima et al., 2024). Thus, Social Media raises awareness, reinforces the Environmental protection concept, and also influences the Subjective Norm, which affects Green Purchase Intention, especially among environmentally conscious consumers who use these platforms for information and social validation. Given these findings, the following possibilities are proposed:

H3a: Social Media is significantly related to Green Purchase Intention among working adults in Shanghai.

H3b: Social Media is positively related to Subjective Norm among working adults in Shanghai.

2.4 Green Perceived Value

The Green Perceived Value (GPV) greatly impacts customer decision-making, especially for environmentally friendly items such as EVs. GPV includes consumers' perceptions of the environmental advantages and social accountability linked to green products, directly influencing their propensity to engage in eco-conscious purchasing (Chun et al., 2023). Consumers who recognize significant environmental advantages and social worth of purchasing Electric Vehicles are more likely to develop reliable GPI, The Green Perceived Value also cares about economic savings, including fewer fuel expenses and maintenance, as consumers possessing heightened environmental knowledge are more adept at identifying the enduring advantages of green items, which subsequently strengthens their GPI (Becerra et al., 2023). The mediating impact is essential as it indicates that simply enhancing environmental information is insufficient; customers must recognize an obvious value in adopting green products to convert that knowledge into purchasing decisions (Kar & Harichandan, 2022). GPV motivates GPI, especially among young and environmentally aware customers (Sajjad et al., 2024). Additionally, EK contribute to enhancing Green Purchase Value (Majeed et al., 2023b), Businesses and marketers can utilize GPV by improving the functional and social dimensions of green products, enabling consumers to acknowledge the comprehensive advantages of eco-friendly options, thus promoting a more sustainable consumption pattern (Cam, 2023). So, the following hypotheses are set up for discussion:

H4a: Green Perceived Value is positively related to Green Purchase Intention among working adults in Shanghai.

H4b: Green Perceived Value mediates the relationship between Environmental Knowledge and Green Purchase Intention among working adults in Shanghai.

2.5 Subjective Norm

Subjective Norm reflects individuals' tendencies to engage in or avoid specific actions. In highly interconnected societies such as Shanghai, Peer influence, familial expectations, and celebrity endorsements significantly shape consumer decisions towards green product acquisition. Social Media contributes to this phenomenon by providing a platform for influencers, friends, and celebrities to advocate environmentally friendly activities, therefore influencing individual judgments. Repeated exposure to green information on Social Media alters individuals' perceptions of socially acceptable or desirable behavior, leading them to adopt greener consumption choices (Islam & Khan, 2024), This shift highlights how Subjective Norm not only directly influence GPI but also moderate its relationship with Social Media (Mishra & Kaur, 2023). The widespread adoption of Social Media into daily life signifies that online opinions and endorsements can serve as influential social cues, prompting individuals to adjust their intentions to what is regarded as socially responsible (Laheri et al., 2024). This is especially apparent in environmentally conscious behaviors, where Subjective Norm can induce effective alterations in Green Purchase Intention, such as the adoption of Electric Vehicles (Güniker, 2023). Furthermore, Subjective Norm (SN) serves as a mediating factor between Social Media Marketing (SMM) and GPI (Terwee, 2023). The mediating function illustrating how Social Media can shape individual intensions through the lens of social influence (Bhardwaj et al., 2023). Specifically, the influence of SMM fosters Social Norm that encourage pro-environmental intensions, thereby enhancing SN, which in turn strengthens GPI (Tian et al., 2023). Accordingly, the hypotheses are assumed:

H5a: Subjective Norm positively affects Green Purchase Intention among working adults in Shanghai.

H5b: Subjective Norm mediates the relationship between Social Media and Green Purchase Intention among working adults in Shanghai.

METHODOLOGY

3.1 Research Approach and Sampling

The research employed a cross-sectional quantitative methodology, aimed at analysing the main factors of Green Purchase Intention (GPI) among working adults in Shanghai, China. Specifically, the research examined the effects of Environmental Knowledge (EK), Perceived Behavioral Control (PBC), and Social Media (SMM) on GPI, with GPV and SN serving as mediators. PLS was employed to evaluate the direct and indirect relationships between the exogenous variables (EK, PBC, SMM) and GPI (Legate et al., 2023).

The study focuses on working adults aged 18 and above in Shanghai, China, who either currently owned or had considered purchasing an Electric Vehicles (EV). Given that EVs represent a relatively high-involvement product, it was crucial to survey individuals with the financial capability and environmental awareness to engage in such purchases (Zhou et al., 2022). From 500 responses, 429 valid responses were used for analysis, which is essential for reliable results (Lakens, 2022). The G*Power analysis result is shown in Figure 3.
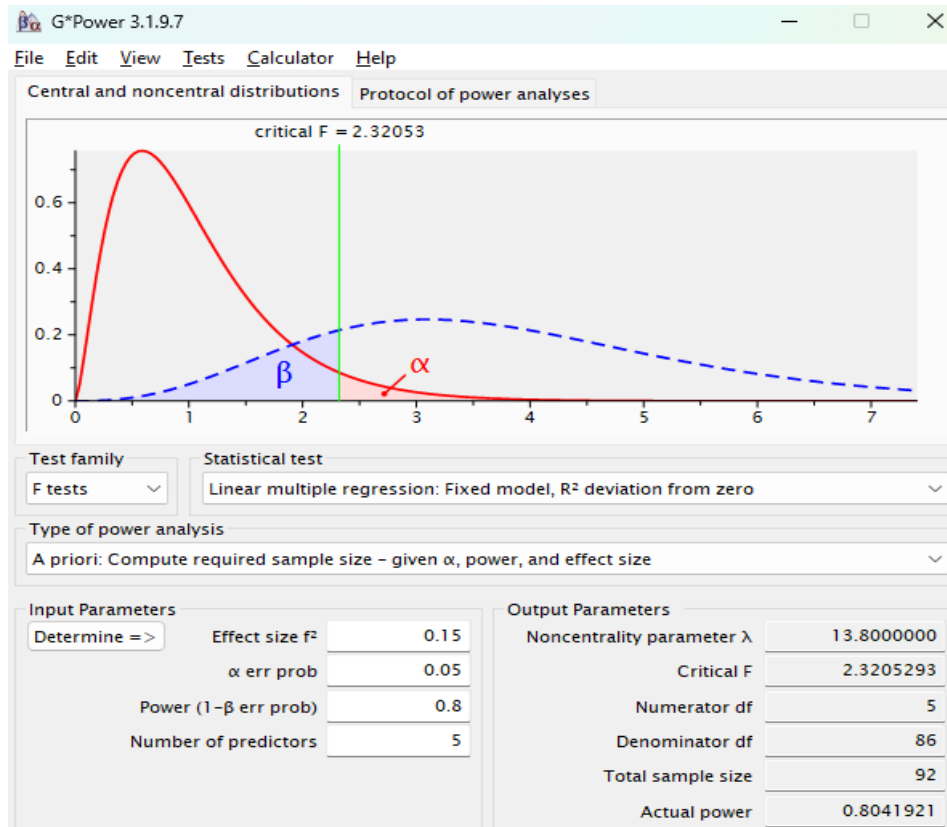

Figure 3 Sample size by G*Power

This sample size exceeds the minimum threshold of 92 cases recommended for reliable estimates.

3.2 Data Collection Procedure and Measures

The survey, which required approximately 10 minutes to complete, was filled in WJX. A pilot test was carried out with 30 respondents before the full survey, and feedback was used for refinement and validation.

Each variable in the study was measured using previously validated and customized to suit Electric Vehicles, and responses were scored using a 7-point Likert scale, ranging from 1 for strong disagreement to 7 for strong agreement. The following variables were assessed:

Environmental Knowledge (EK): EK was adapted from (Mostafa, 2007) with 5 Items, which assesses participants' understanding of environmental issues, particularly in relation to Electric Vehicles and their environmental benefits. Sample items included "I am very knowledgeable about environmental issues." The Cronbach alpha coefficient of this scale was 0.868, signifying high consistency. Green Perceived Value (GPV): GPV got a five-item (Chaudhuri, 1997), The scale focuses on their environmental, social, and economic benefits. Sample items included "Green products environmental functions provide good value to me." and "Green products have more environmental concern than non-green products." The Cronbach's alpha for GPV was 0.899. Perceived Behavioral Control (PBC): PBC from (Y. Kim & Han, 2010) has three questions which evaluate participants' perceived ease or difficulty in purchasing an Electric Vehicles. Item included "I can buy green product at place of conventional non-green product." The Cronbach's alpha for PBC was 0.802. Social Media (SMM): Social media influence was assessed with an adapted scale consisting of four items. (Bashir & Gupta, 2018). The scale assesses how social media content related to Electric Vehicles influences participants' attitudes and behaviors. Sample items included "I use social networking sites for getting Electric Vehicles-related information." The scale's Cronbach's alpha for PBC was 0.834. Subjective Norm

(SN): SN was assessed with a three-item scale derived from (Chan & Lau, 2001). Sample items included "I should purchase green products for personal use." The Cronbach's alpha coefficient for SN was 0.859. Green Purchase Intention (GPI): GPI was the dependent variable, measured using a five-item scale adapted from (Akbar et al., 2014; Y. J. Kim et al., 2013).This scale assesses participants' intention to purchase an EV car. Sample items included "I will make an effort to purchase green products." Cronbach's alpha for GPI indicated a coefficient of 0.882.

3.3 Data Analysis Techniques and Measurement Model Assessment

The Study used SmartPLS 4.1.0.3 software to analyse the data, SmartPLS supports complicated models that contain a number of mediators and latent variables (Sarstedt et al., 2020). Following this, the measurement model was constructed, and the hypothesized relationships were tested.

The measuring model has been checked for reliability and validity. Reliability was assessed via Cronbach's alpha and CR, with thresholds above 0.70 denoting adequate internal consistency (Hair Jr. et al., 2021). Convergent validity was determined using AVE, where values above 0.50 indicate adequate construct explanation of indicator variance (Fornell & Larcker, 1981). Discriminant validity was assessed by the Fornell-Larcker criterion and HTMT ratio, with thresholds below 0.85 indicating acceptability. (Henseler et al., 2014). The structural model has been tested by path coefficients, t-values, and p-values to examine the direct and indirect correlations among the variables. Bootstrapping with 2,000 resamples was employed to calculate standard errors and confidence ranges for the path coefficients (Sarstedt et al., 2011). The Study checked the Standardized Root Mean Square Residual (SRMR) as well as Normed Fit Index (NFI). An SRMR value around 0.08 signifies an excellent match (McNeish & Wolf, 2022), whereas an NFI value near 0.9 denotes an adequate fit (Bentler & Bonett, 1980). Following the route coefficients, the R-squared (R^2) values were computed to evaluate the model's explanatory ability. The R^2 values indicate the extent to which the independent variables (Lee & others, 2022), namely, EK, GPV, PBC, SN, and SMM, explain the variance in the dependent variable, GPI.

RESULTS

4.1 Descriptive Statistics

The demographic analysis showed 80.42% of respondents' ages spanned from 30 to 39 years old, and 91.14% held at least a Bachelor's degree. For more details, please refer to Table 1.

Table 1. Demographic Characteristics

		Frequency	Percent
Gender	Female	267	62.24
	Male	162	37.76
Age	20-29	16	3.73
	30-39	345	80.42
	40-49	55	12.82
	50-59	9	2.10
	60 & Above	4	0.93
Education level	Pre-University (Certificate and Diploma)	38	8.86
	Bachelor's degree	368	85.78
	Master's degree	11	2.56
	PhD/DBA	12	2.80

The R-square value for GPI is 0.555(Table 1), meaning that 55.5% of the variance in GPI is explained by Environmental Knowledge, Green Perceived Value, PBC, Social Media, and SN. This suggests that the model has moderate explanatory power in predicting GPI. Similarly, the R-square for Green Perceived Value (GPV) is 0.339, indicating that 33.9% of the variance in GPV is explained by the model, which also represents a moderate fit. Lastly, the R-square value for Subjective Norm (SN) is 0.146, suggesting that 14.6% of the variance in SN is explained by the independent variables. The R-square adjusted values are slightly lower but remain close to the R-square values (0.550 for GPI, 0.337 for GPV, and 0.144 for SN), indicating minimal overfitting (Table 2). Overall, these results demonstrate that the model effectively accounts for the variables.

Table 2. R-Square

	R-square	R-square adjusted
GPI	0.555	0.550
GPV	0.339	0.337
SN	0.146	0.144

All constructs exhibit Cronbach's alpha values exceeding 0.70, demonstrating high internal consistency and reliability. For instance, Environmental Knowledge (EK) had an alpha value of 0.868, Green Perceived Value (GPV) had 0.899, Perceived Behavioral Control (PBC) had 0.802, Social Media (SMM) had 0.834, and Green Purchase Intention (GPI) had 0.882 (Table 3). Additionally, Composite Reliability (CR) further validated the constructs' reliability. EK had a CR of 0.905, Green Perceived Value (GPV) had 0.926, and Green Purchase Intention (GPI) had 0.913, all exceeding the recommended threshold of 0.70. Additionally, the Composite Reliability (rho_a) values provide an unbiased measure of internal consistency. While rho_a is a more recent and unbiased metric, rho_c remains the more commonly accepted measure in SEM literature (Chanda et al., 2023), making it preferable for reporting in this study.

The AVE for Environmental Knowledge (EK) was 0.655 (Table 3), for Green Perceived Value (GPV), it was 0.714, and for Perceived Behavioral Control (PBC), it was 0.718. The values surpassed 0.50, as suggested by (Cheung et al., 2023) indicate good convergent validity, further supporting the model's overall validity.

Table 3. Construct reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
EK	0.868	0.872	0.905	0.655
GPI	0.882	0.892	0.913	0.678
GPV	0.899	0.902	0.926	0.714
PBC	0.802	0.807	0.884	0.718
SMM	0.834	0.834	0.889	0.668
SN	0.859	0.860	0.914	0.781

A common threshold for HTMT is 0.85 (Henseler et al., 2014), where values below this level indicate sufficient discriminant validity.

Table4. HTMT results

	EK	GPI	GPV	PBC	SMM	SN
EK						
GPI	0.593					
GPV	0.653	0.692				
PBC	0.734	0.744	0.738			
SMM	0.483	0.513	0.669	0.547		
SN	0.642	0.751	0.678	0.788	0.450	

The HTMT value between Green Purchase Intention (GPI) and Subjective Norm (SN) is 0.751(Table 4), and between Environmental Knowledge (EK) and Perceived Behavioral Control (PBC) is 0.734, both within the acceptable range. Similarly, other HTMT values, such as the one between Social Media (SMM) and PBC (0.788), confirm that the constructs remain distinct. The AVE square root for GPI, as detailed in Table 5, is 0.824, exceeding its correlations with GPV (0.624) and EK (0.532). Together, these results from HTMT and Fornell-Larcker provide consistent evidence that all constructs in the model are sufficiently distinct and demonstrate strong discriminant validity.

Table 5. Fornell-Larcker

	EK	GPI	GPV	PBC	SMM	SN
EK	0.809					
GPI	0.532	0.824				
GPV	0.582	0.624	0.845			

PBC	0.619	0.633	0.626	0.847		
SMM	0.410	0.439	0.578	0.442	0.817	
SN	0.558	0.666	0.597	0.654	0.382	0.884

The cross-loadings in Table 6 help further assess discriminant validity by examining how well indicators load on their corresponding constructs compared to other constructs.

Table 6. Cross-loadings

	EK	GPI	GPV	PBC	SMM	SN
EK1	**0.791**	0.505	0.507	0.585	0.257	0.516
EK2	**0.790**	0.429	0.415	0.481	0.255	0.456
EK3	**0.846**	0.448	0.520	0.478	0.402	0.429
EK4	**0.829**	0.386	0.426	0.492	0.352	0.423
EK5	**0.789**	0.367	0.471	0.451	0.399	0.423
GPI1	0.325	**0.748**	0.430	0.436	0.351	0.412
GPI2	0.387	**0.818**	0.492	0.476	0.392	0.499
GPI3	0.440	**0.857**	0.498	0.496	0.337	0.539
GPI4	0.498	**0.853**	0.535	0.578	0.353	0.569
GPI5	0.507	**0.837**	0.589	0.593	0.378	0.677
GPV1	0.508	0.578	**0.820**	0.520	0.460	0.483
GPV2	0.469	0.513	**0.872**	0.542	0.554	0.472
GPV3	0.522	0.519	**0.874**	0.553	0.490	0.537
GPV4	0.504	0.543	**0.881**	0.533	0.460	0.549
GPV5	0.450	0.474	**0.773**	0.493	0.483	0.479
PBC1	0.414	0.499	0.495	**0.783**	0.479	0.523
PBC2	0.564	0.566	0.530	**0.881**	0.322	0.591
PBC3	0.585	0.542	0.564	**0.873**	0.335	0.545
SMM1	0.365	0.329	0.459	0.372	**0.857**	0.337
SMM2	0.269	0.383	0.478	0.345	**0.842**	0.283
SMM3	0.299	0.372	0.504	0.371	**0.777**	0.294
SMM4	0.406	0.349	0.448	0.357	**0.792**	0.333
SN1	0.505	0.621	0.544	0.549	0.325	**0.887**
SN2	0.484	0.584	0.495	0.571	0.299	**0.902**
SN3	0.489	0.558	0.541	0.613	0.386	**0.861**

Environmental Knowledge (EK) indicators load highest on EK, with values 0.791 (Table 6) for EK1 and 0.846 for EK3, These figures markedly surpass the factor loadings on alternative constructs, confirming strong discriminant validity (Campbell & Fiske, 1959). Similarly, GPI, GPV, PBC, SMM and SN indicators show greater factor loadings on their respective constructs compared to other constructs. These results confirm that the indicators are well-aligned with their constructs, Hence, validating the model's construct validity.

Variance Inflation Factor (VIF) in Table 7 is used to assess collinearity between indicators.

Table 7. Collinearity Statistics

	VIF
EK1	1.730
EK2	1.856
EK3	2.251
EK4	2.375
EK5	1.976
GPI1	2.157
GPI2	2.508
GPI3	2.476
GPI4	2.486
GPI5	2.284
GPV1	2.070

GPV2	2.775
GPV3	2.926
GPV4	2.959
GPV5	1.877
PBC1	1.451
PBC2	2.079
PBC3	2.062
SMM1	2.269
SMM2	2.096
SMM3	1.605
SMM4	1.713
SN1	2.260
SN2	2.565
SN3	1.937

VIF values below 5 indicate that collinearity is adequately controlled in the model. (Shrestha, 2020). Environmental Knowledge (EK) indicators show VIF values ranging from 1.730 to 2.375 (Table 7), all well below the threshold of 5, indicating no significant collinearity issues. Green Purchase Intention (GPI) indicators exhibit VIF values between 2.070 and 2.508, confirming that collinearity is not a concern for these items. Green Perceived Value (GPV) indicators have VIF values between 1.877 and 2.959, and all values are below the acceptable threshold, confirming no multicollinearity. The VIF values for Perceived Behavioral Control (PBC) range from 1.451 to 2.079, and for Social Media (SMM) they range from 1.605 to 2.269, ensuring that collinearity is not problematic. Lastly, the Subjective Norm (SN) indicators show VIF values ranging from 1.937 to 2.565, all well below 5, confirming no collinearity issues. Overall, the VIF values for all constructs fall within acceptable limits, confirming that multicollinearity does not affect the model's estimates.

4.2 Direct Effects Analysis:

The direct effects between the variables are summarized in Table 8.

Table 8: Direct Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EK -> GPI	0.060	0.058	0.057	1.050	0.294
EK -> GPV	0.582	0.584	0.035	16.732	0.000
GPV -> GPI	0.216	0.214	0.059	3.632	0.000
PBC -> GPI	0.207	0.211	0.071	2.903	0.004
SMM -> GPI	0.068	0.070	0.049	1.369	0.171
SMM -> SN	0.382	0.382	0.051	7.474	0.000
SN -> GPI	0.343	0.342	0.060	5.744	0.000

Environmental Knowledge (EK) significantly influences Green Perceived Value (GPV) by 0.582 (Table 8), p value less than 0.001, indicating a strong positive relationship between EK and GPV. Individuals with higher environmental knowledge perceive greater value in green products, such as Electric Vehicles (EVs). Similarly, GPV has a positive and significant effect on GPI, confirming that consumers who see higher environmental and social value in EVs are intent to purchase intentions. PBC also plays a significant role in shaping GPI, indicating that consumers who feel capable of purchasing and using EVs, especially in terms of financial and infrastructural considerations, are more likely to form positive purchase intentions. Furthermore, Subjective Norm (SN) have a significant impact on GPI (path coefficient = 0.343, p< 0.001), highlighting that social pressure and societal expectations strongly influence GPI. Lastly, Social Media (SMM) has a significant direct effect on SN (path coefficient = 0.382, p < 0.001), suggesting that exposure to green content on social media platforms shapes societal norms regarding environmentally friendly intensions.

The results in Table 9 reveal significant indirect effects on GPI via mediators. Specifically, Environmental Knowledge (EK) impacts GPI through Green Perceived Value (GPV) suggesting that higher environmental knowledge enhances

the perceived value of eco-friendly purchases, thereby increasing purchase intentions. Similarly, Social Media (SMM) affects GPI through Subjective Norm (SN) (O = 0.131, T = 4.916, p = 0.000), indicating that Social Media strengthens SN and indirectly promotes GPI.

Table 9: Specific Indirect Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EK -> GPV -> GPI	0.125	0.125	0.035	3.565	0.000
SMM -> SN -> GPI	0.131	0.130	0.027	4.916	0.000

The result in table 10 showing in SMM → GPI has a significant total effect (p = 0.000), driven primarily by the indirect path through SN.

Table 10: Total Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EK -> GPI	0.185	0.183	0.063	2.934	0.003
EK -> GPV	0.582	0.584	0.035	16.732	0.000
GPV -> GPI	0.216	0.214	0.059	3.632	0.000
PBC -> GPI	0.207	0.211	0.071	2.903	0.004
SMM -> GPI	0.198	0.200	0.055	3.613	0.000
SMM -> SN	0.382	0.382	0.051	7.474	0.000
SN -> GPI	0.343	0.342	0.060	5.744	0.000

The indirect effects are presented in Figure 4 given the non-significant direct paths from EK → GPI (p = 0.294) and SMM → GPI (p > 0.05), the relationships are fully mediated. Environmental Knowledge (EK) → GPI through Green Perceived Value (GPV) is significant (path coefficient = 0.125, p< 0.001), confirming full mediation. This indicates that individuals with higher environmental knowledge do not directly form Green Purchase Intention for EVs but do so through GPV. Similarly, the indirect effect of Social Media (SMM) → GPI through Subjective Norm (SN) is significant, validating full mediation in this relationship as well.

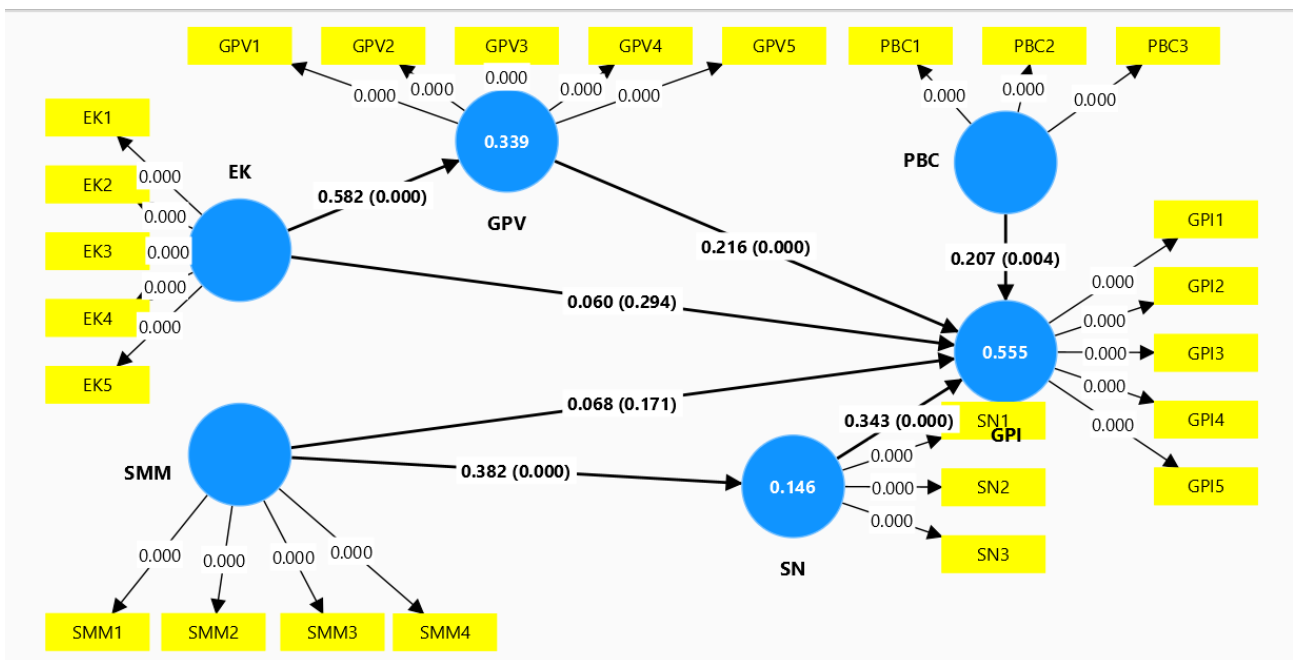**Figure 4**. Path Diagram

This implies that Social Media shapes SN to influence GPI, In both cases, the mediators (GPV for EK → GPI and SN for SMM → GPI) fully explain the relationship, meaning that without these mediators, there is no notable direct effect on GPI.

Overall, the results strongly support the hypothesized relationships, emphasizing the critical roles of GPV, PBC, and SN in predicting GPI for Electric Vehicles in Shanghai. The Standardized Root Mean Square Residual (SRMR) of 0.061 less than the threshold 0.08 (Henseler et al., 2015) and the Normed Fit Index (NFI) of 0.829 which is slightly below 0.90 still be considered marginally acceptable (Bentler & Bonett, 1980), confirm the robustness and reliability of the measurement model. The results strongly support the framework model of Green Purchase Intension in this study.

DISCUSSION

5.1 Environmental Knowledge and Green Perceived Value

Previous research also identified that while EK does not direct affect GPI (Asif et al., 2022), And the significant correlation between EK and GPV align with the study of (Sinha & Annamdevula, 2024), who also discovered that EK influences GPI indirectly through GPV, Highlighting that although environmental knowledge can not predict GPI, it shapes attitudes, which in turn drives GPI.

5.2 Perceived Behavioral Control and Green Purchase Intention

The positive relationship between PBC and GPI indicates that people who believe they have more control over the buying process are more probable to have good intents to buy an Electric Vehicles, Which is consistent with the TPB Theory (Ali et al., 2023), The significant influence of PBC in this study highlights that practical factors, such as financial affordability and the convenience of charging affect GPI, (Djokic et al., 2023). The expansion of charging infrastructure and the provision of financial incentives directly influence consumers' perceptions of their intensions to purchase Electric Vehicles.

5.3 Social Media and Subjective Norm

Social Media (SMM) does not directly influence GPI, it affects GPI by SN. Social media platforms are used for spreading information about environmental issues, green products, and sustainable lifestyles. This exposure helps shape societal norms and expectations, encouraging individuals to adopt eco-friendly intentions to purchasing Electric Vehicles. As people engage with green content on social media, they begin to perceive greater social pressure to conform to sustainable actions, driven by what they believe their peers, family, or the broader society expects of them.

The findings confirm that SMM influences GPI indirectly through SN, reinforcing the concept of full mediation. This aligns with the TPB theory, which when individuals believe that important others or society expects them to act in environmentally conscious ways, they are more likely to internalize these expectations and form intentions to purchase green products, such as Electric Vehicles. Recent studies have highlighted the significant role of Social Media in shaping SN related to sustainability (Nekmahmud et al., 2022; Yeğin & Ikram, 2022), further supporting the findings of this study.

In conclusion, by fostering societal expectations around GPI, Social Media helps create a social environment where green purchases like Electric Vehicles are perceived as the Subjective Norm, encouraging individuals to align with these expectations.

5.4 Subjective Norm and Green Purchase Intention

The notable connection between SN and GPI aligns with prior studies (Hassan et al., 2024; Yeow & Loo, 2022), who found that SN is crucial in enhancing GPI, particularly in cultures that value collective welfare and social responsibility; it suggests that marketing campaigns and policy efforts aimed at promoting Electric Vehicles should focus on leveraging Social Norms to encourage GPI.

5.5 Mediating Roles of GPV and SN

The mediating functions of GPV and SN are important in comprehending how customers develop Green Purchase Intention for electric cars (EVs). Both GPV and SN serve as important mediators, linking key antecedents, such as

EK and SMM to GPI. The study confirms that EK and SMM do not directly influence GPI but instead exert their effects through these mediators. Recent studies have similarly highlighted the GPV mediating role in influencing GPI (Kamboj & Kishor, 2022). Similarly, SN mediates the relationship between SMM and GPI. While SMM does not directly drive GPI, it significantly shapes the social environment and norms surrounding GPI. Through exposure to eco-friendly content on social media platforms, individuals internalize societal expectations to engage in environmental consciousness, This social pressure, reflected in SN, becomes a key motivator for consumers to act in accordance with what they believe their peers and society expect of them (Xu et al., 2022). In this study, SN mediates the effect of SMM on GPI, indicating that the power of social influence, as cultivated by Social Media, is crucial in driving Green Purchase Intention.

In conclusion, both GPV and SN serve as essential mediators in the formation of GPI. By converting EK into GPV and transforming SMM influence into SN, these mediators facilitate the process through which consumers develop GPI for Electric Vehicles. Understanding these mediating roles is key to designing strategies that effectively encourage GPI.

IMPLICATIONS

6.1 Theoretical Implications

This study identifies GPV and SN as mediators in the GPI framework. The results suggest that while Environmental Knowledge (EK) and Social Media (SMM) have indirect effects on GPI, their influence is primarily mediated by GPV and SN, respectively. This finding extends the existing literature by highlighting the importance of GPV and SN in driving GPI.

The study promotes Perceived Behavioral Control (PBC) by demonstrating its significant role in shaping GPI. The results suggest that practical considerations, such as financial affordability and access to charging infrastructure, are critical factors in shaping GPI, particularly in products like Electric Vehicles.

6.2 Practical Implications

This study suggests that public awareness campaigns should aim to improve consumers' Environmental Knowledge (EK) and emphasize the long-term environmental and financial benefits of Electric Vehicles (EVs), thereby enhancing consumers' Green Perceived Value over the Green Purchase Intension. Policymakers can influence their Green Perceived Value (GPV) and encourage the adoption of sustainable products. Social media platforms should also be leveraged to create a sense of social pressure and highlight the societal benefits of purchasing an Electric Vehicles. By collaborating with influencers and environmental advocates, marketers can use social media to shape Subjective Norm (SN) and encourage GPI. Companies involved in the Electric Vehicles industry should focus on providing trial programs or test drives to allow consumers to experience the ease of use and benefits of Electric Vehicles, By addressing these concerns and improving consumers' perceptions of value, companies can increase the likelihood of purchase intention.

This study also raises awareness of the factors influencing Electric Vehicles Green Purchase Intention (GPI), helping to promote sustainable consumption and contribute to global efforts in reducing carbon emissions and achieving Sustainable Development Goals (SDGs).

CONCLUSION

This study examines factors influencing Green Purchase Intention for EVs in Shanghai, China. The findings confirm the significant roles of GPV, PBC, and SN in shaping GPI. Additionally, EK and Social Media (SMM) were found to have significant indirect effects on GPI through the mediators GPV and SN, respectively.

The study provides suggestions for policymakers, marketers, and companies involved in promoting Electric Vehicles. By focusing on enhancing consumers' Perceived Behavioral Control of Electric Vehicles and leveraging Subjective Norm through Social Media, stakeholders can influence GPI and promote the adoption of sustainable transportation solutions.

In conclusion, this study offers significant implications for advancing sustainable transportation and supporting international efforts to combat climate change and accomplish Sustainable Development Goal 13 (Climate Action) by shedding light on the variables influencing GPI in the context of Electric Vehicles. Stakeholders may shift to a more sustainable method by addressing the factors this study found.

8. Acknowledgement:

9. Funding Statement:

10. Data Availability:

No new data were created or analysed in this study. Data sharing is not applicable to this article.

11. Conflict of interest:

None.

REFERENCES

[1] Abrar, I., Arora, T., & Khandelwal, R. (2023). Bioalcohols as an alternative fuel for transportation: Cradle to grave analysis. Fuel Processing Technology, 242, 107646. https://doi.org/10.1016/j.fuproc.2022.107646

[2] Akbar, W., Hassan, S., Khurshid, S., Niaz, M., & Rizwan, M. (2014). Antecedents affecting customer's purchase intentions towards green products. Journal of Sociological Research, 5(1), 273–289.

[3] Akpuokwe, C. U., Adeniyi, A. O., Bakare, S. S., & Eneh, N. E. (2024). LEGISLATIVE RESPONSES TO CLIMATE CHANGE: A GLOBAL REVIEW OF POLICIES AND THEIR EFFECTIVENESS. International Journal of Applied Research in Social Sciences, 6(3), Article 3. https://doi.org/10.51594/ijarss.v6i3.852

[4] Al Aflak, A., & Vij, P. (2024). Going Green: The Effects of Moral Obligation and Social Media on Green Purchase Intention. In S. Taneja, P. Kumar, Reepu, B. Balusamy, K. Sood, & S. Grima (Eds.), Sustainability Development through Green Economics (Vol. 114, pp. 289–304). Emerald Publishing Limited. https://doi.org/10.1108/S1569-375920240000114017

[5] Alam, M. N., Ogiemwonyi, O., & Alsolamy, M. (2023). Do social media influence altruistic and egoistic motivation and green purchase intention towards green products? An experimental investigation. Cleaner Engineering and Technology, 15, 100669. https://doi.org/10.1016/j.clet.2023.100669

[6] Alanazi, F. (2023). Electric Vehicles: Benefits, Challenges, and Potential Solutions for Widespread Adaptation. Applied Sciences, 13(10), Article 10. https://doi.org/10.3390/app13106016

[7] Ali, N., Nakayama, S., & Yamaguchi, H. (2023). Using the extensions of the theory of planned behavior (TPB) for behavioral intentions to use public transport (PT) in Kanazawa, Japan. Transportation Research Interdisciplinary Perspectives, 17, 100742. https://doi.org/10.1016/j.trip.2022.100742

[8] Alola, A. A., & Adebayo, T. S. (2023). Analysing the waste management, industrial and agriculture greenhouse gas emissions of biomass, fossil fuel, and metallic ores utilization in Iceland. Science of The Total Environment, 887, 164115. https://doi.org/10.1016/j.scitotenv.2023.164115

[9] Aminzadegan, S., Shahriari, M., Mehranfar, F., & Abramović, B. (2022). Factors affecting the emission of pollutants in different types of transportation: A literature review. Energy Reports, 8, 2508–2529. https://doi.org/10.1016/j.egyr.2022.01.161

[10] Asif, M. H., Zhongfu, T., Irfan, M., & Işık, C. (2022). Do environmental knowledge and green trust matter for purchase intention of eco-friendly home appliances? An application of extended theory of planned behavior. Environmental Science and Pollution Research, 30(13), Article 13. https://doi.org/10.1007/s11356-022-24899-1

[11] Bakır, M. (2023). The influence of environmental knowledge on green purchase intention in the air travel industry: The mediating role of green attitude. International Journal of Sustainable Aviation, 9(4), 371–388. https://doi.org/10.1504/IJSA.2023.134332

[12] Bashir, L., & Gupta, S. (2018). Social Networking Usage Questionnaire: Development and Validation in an Indian Higher Education Context. Turkish Online Journal of Distance Education, 19, 214–227. https://doi.org/10.17718/tojde.471918

[13] Becerra, E. P., Carrete, L., & Arroyo, P. (2023). A study of the antecedents and effects of green self-identity on green behavioral intentions of young adults. Journal of Business Research, 155, 113380. https://doi.org/10.1016/j.jbusres.2022.113380

[14] Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin, 88(3), 588–606. https://doi.org/10.1037/0033-2909.88.3.588

[15] Bhardwaj, S., Sreen, N., & Das, M. (2023). Product specific values and personal values together better explains green purchase. Journal of Retailing and Consumer Services, 74, 103434.

[16] Cam, L. N. T. (2023). A rising trend in eco-friendly products: A health-conscious approach to green buying. Heliyon, 9(9), e19845. https://doi.org/10.1016/j.heliyon.2023.e19845

[17] Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56(2), 81–105. https://doi.org/10.1037/h0046016

[18] Chan, R. Y. K., & Lau, L. B. Y. (2001). Explaining Green Purchasing Behavior: A Cross-Cultural Study on American and Chinese Consumers. Journal of International Consumer Marketing, 14(2–3), 9–40. https://doi.org/10.1300/J046v14n02_02

[19] Chanda, R. C., Vafaei-Zadeh, A., Hanifah, H., & Thurasamy, R. (2023). Modeling eco-friendly house purchasing intention: A combined study of PLS-SEM and fsQCA approaches. International Journal of Housing Markets and Analysis, ahead-of-print(ahead-of-print). https://doi.org/10.1108/IJHMA-04-2023-0059

[20] Chang, T.-W. (2023). An indispensable role in promoting the electric vehicle Industry: An empirical test to explore the integration framework of electric vehicle charger and electric vehicle purchase behavior. Transportation Research Part A: Policy and Practice, 176, 103824. https://doi.org/10.1016/j.tra.2023.103824

[21] Chaudhuri, A. (1997). Consumption Emotion and Perceived Risk: A Macro-Analytic Approach. Journal of Business Research, 39(2), 81–92. https://doi.org/10.1016/S0148-2963(96)00144-0

[22] Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2023). Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. Asia Pacific Journal of Management, 41(2), Article 2. https://doi.org/10.1007/s10490-023-09871-y

[23] Chun, Y.-Y., Chinen, K., & Matsumoto, M. (2023). How to attract newness-conscious consumers to a circular electric vehicle economy. Sustainable Production and Consumption, 40, 147–158. https://doi.org/10.1016/j.spc.2023.06.018

[24] Cui, M., Li, Y., & Wang, S. (2024). Environmental Knowledge and Green Purchase Intention and Behavior in China: The Mediating Role of Moral Obligation. Sustainability (2071-1050), 16(14).

[25] Djokic, N., Milicevic, N., Kalas, B., Djokic, I., & Mirovic, V. (2023). E-Bicycle as a Green and Physically Active Mode of Transport from the Aspect of Students: TPB and Financial Incentives. International Journal of Environmental Research and Public Health, 20(3), Article 3. https://doi.org/10.3390/ijerph20032495

[26] Duong, C. D., Doan, X. H., Vu, D. M., Ha, N. T., & Dam, K. V. (2022). The Role of Perceived Environmental Responsibility and Environmental Concern on Shaping Green Purchase Intention. Vision, 09722629221092117. https://doi.org/10.1177/09722629221092117

[27] Dutta, B., Chen, C.-C., & Peng, M.-H. (2022). INFERRING CRITICAL FACTORS PREDICTING CONSUMERS'SUSTAINABLE GREEN PURCHASE BEHAVIOR FROM THE PERSPECTIVE OF DEVELOPING NATION. Trames: A Journal of the Humanities and Social Sciences, 26(1), 75–102.

[28] Fatima, M., Ahmed, Q. M., & Paracha, O. (2024). Examining sustainable consumption patterns through green purchase behavior and digital media engagement: A case of Pakistan's postmillennials. Foresight.

[29] Fitriana, A. (2023). Young Customer's Green Purchase Intention: Study From Developing Country, Indonesia. JEMBA: Journal of Economics, Management, Business and Accounting, 1(4), Article 4. https://doi.org/10.54783/jemba.v1i4.32

[30] Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50.

[31] Gheissari, R., Liao, J., Garcia, E., Pavlovic, N., Gilliland, F. D., Xiang, A. H., & Chen, Z. (2022). Health Outcomes in Children Associated with Prenatal and Early-Life Exposures to Air Pollution: A Narrative Review. Toxics, 10(8), Article 8. https://doi.org/10.3390/toxics10080458

[32] Goyal, K. (2024, April 29). China could surpass a 50% EV sales share by 2025: IEA - REGlobal - Mega Trends & Analysis. REGlobal. https://reglobal.org/china-could-surpass-a-50-ev-sales-share-by-2025-iea/

[33] Güniker, E. L. (2023). Antecedents of Green Purchase Intention: The Case of Personal Luxury Goods. Universidade Catolica Portuguesa.

[34] Hair Jr., J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R. https://library.oapen.org/handle/20.500.12657/51463

[35] Hassan, M., Mahmood, Z., & Khakwani, I. (2024). Impact of religiosity on Pakistani youth green purchase intensions and behavior: Extending theory of planned behavior. Journal of Islamic Marketing, ahead-of-print(ahead-of-print). https://doi.org/10.1108/JIMA-03-2023-0095

[36] He, Z., Zhou, Y., Wang, J., Shen, W., Li, W., & Lu, W. (2023). Influence of emotion on purchase intention of electric vehicles: A comparative study of consumers with different income levels. Current Psychology, 42(25), 21704–21719. https://doi.org/10.1007/s12144-022-03253-1

[37] Henseler, J., Ringle, C. M., & Sarstedt, M. (2014). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), Article 1. https://doi.org/10.1007/s11747-014-0403-8

[38] Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

[39] Islam, Q., & Khan, S. M. F. A. (2024). Assessing Consumer Behavior in Sustainable Product Markets: A Structural Equation Modeling Approach with Partial Least Squares Analysis. Sustainability, 16(8), 3400.

[40] Jaiswal, D., Kant, R., Singh, P. K., & Yadav, R. (2022). Investigating the role of electric vehicle knowledge in consumer adoption: Evidence from an emerging market. Benchmarking: An International Journal, 29(3), 1027–1045. https://doi.org/10.1108/BIJ-11-2020-0579

[41] Kamalanon, P., Chen, J.-S., & Le, T.-T.-Y. (2022). "Why Do We Buy Green Products?" An Extended Theory of the Planned Behavior Model for Green Product Purchase Behavior. Sustainability, 14(2), Article 2. https://doi.org/10.3390/su14020689

[42] Kamboj, K., & Kishor, N. (2022). Influence of Customer Perceived Values on Organic Food Consumption Behaviour: Mediating Role of Green Purchase Intention. FIIB Business Review, 23197145221125283. https://doi.org/10.1177/23197145221125283

[43] Kar, S. K., & Harichandan, S. (2022). Green marketing innovation and sustainable consumption: A bibliometric analysis. Journal of Cleaner Production, 361, 132290. https://doi.org/10.1016/j.jclepro.2022.132290

[44] Khalid, A. M. (2023). Creating Synergies among the Sustainable Development Goals and Climate Action: Insights from a Developing Economy. Sustainability, 15(17), Article 17. https://doi.org/10.3390/su151713137

[45] Kim, Y., & Han, H. (2010). Intention to pay conventional-hotel prices at a green hotel – a modification of the theory of planned behavior. Journal of Sustainable Tourism, 18(8), 997–1014. https://doi.org/10.1080/09669582.2010.490300

[46] Kim, Y. J., Njite, D., & Hancer, M. (2013). Anticipated emotion in consumers' intentions to select eco-friendly restaurants: Augmenting the theory of planned behavior. International Journal of Hospitality Management, 34, 255–262. https://doi.org/10.1016/j.ijhm.2013.04.004

[47] Kumar, A., & Pandey, M. (2023). Social Media and Impact of Altruistic Motivation, Egoistic Motivation, Subjective Norms, and EWOM toward Green Consumption Behavior: An Empirical Investigation. Sustainability, 15(5), 4222. https://doi.org/10.3390/su15054222

[48] Kumar, R., Kanwal, A., Asim, M., Pervez, M., Mujtaba, M. A., Fouad, Y., & Kalam, M. A. (2024). Transforming the transportation sector: Mitigating greenhouse gas emissions through electric vehicles (EVs) and exploring sustainable pathways. AIP Advances, 14(3), 035320. https://doi.org/10.1063/5.0193506

[49] Laheri, V. K., Lim, W. M., & Arya, P. K. (2024). A multidimensional lens of environmental consciousness: Towards an environmentally conscious theory of planned behavior. Journal of Consumer Marketing, 41(3), 281–297.

[50] Lakens, D. (2022). Sample Size Justification. Collabra: Psychology, 8(1), 33267. https://doi.org/10.1525/collabra.33267

[51] Lavuri, R., Parida, R., & Singh, S. (2024). Unveiling ways to examine the purchase intension of green products in emerging markets. Benchmarking: An International Journal, 31(5), 1385–1401. https://doi.org/10.1108/BIJ-06-2022-0379

[52] Lee, S. W. & others. (2022). Regression analysis for continuous independent variables in medical research: Statistical standard and guideline of Life Cycle Committee. Life Cycle, 2.

[53] Legate, A. E., Hair Jr, J. F., Chretien, J. L., & Risher, J. J. (2023). PLS-SEM: Prediction-oriented solutions for HRD researchers. Human Resource Development Quarterly, 34(1), 91–109. https://doi.org/10.1002/hrdq.21466

[54] Li, G., Walls, W. D., & Zheng, X. (2023). Differential license plate pricing and electric vehicle adoption in Shanghai, China. Transportation Research Part A: Policy and Practice, 172, 103672. https://doi.org/10.1016/j.tra.2023.103672

[55] Majeed, S., Kim, W. G., & Kim, T. (2023a). Perceived green psychological benefits and customer pro-environment behavior in the value-belief-norm theory: The moderating role of perceived green CSR. International Journal of Hospitality Management, 113, 103502. https://doi.org/10.1016/j.ijhm.2023.103502

[56] Majeed, S., Kim, W. G., & Kim, T. (2023b). Perceived green psychological benefits and customer pro-environment behavior in the value-belief-norm theory: The moderating role of perceived green CSR. International Journal of Hospitality Management, 113, 103502. https://doi.org/10.1016/j.ijhm.2023.103502

[57] Malhotra, G., & Srivastava, H. (2024). Green purchase intention in omnichannel retailing: Role of environmental knowledge and price sensitivity. Journal of Strategic Marketing, 32(4), 467–490. https://doi.org/10.1080/0965254X.2023.2241464

[58] McNeish, D., & Wolf, M. G. (2022). Dynamic fit index cutoffs for one-factor models. Behavior Research Methods, 55(3), Article 3. https://doi.org/10.3758/s13428-022-01847-y

[59] Mishra, S., & Kaur, R. (2023). Investigating consumer's buying behavior of green products through the lenses of extended theory of planned behavior. Management of Environmental Quality, 34(2), 115–127.

[60] Moon, S.-J. (2022). Effect of consumer environmental propensity and innovative propensity on intention to purchase electric vehicles: Applying an extended theory of planned behavior. International Journal of Sustainable Transportation, 16(11), 1032–1046. https://doi.org/10.1080/15568318.2021.1961950

[61] Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. International Journal of Consumer Studies, 31(3), 220–229. https://doi.org/10.1111/j.1470-6431.2006.00523.x

[62] Nazish, M., Khan, M. N., & Khan, Z. (2024). Environmental sustainability in the digital age: Unraveling the effect of social media on green purchase intention. Young Consumers.

[63] Nekmahmud, Md., Naz, F., Ramkissoon, H., & Fekete-Farkas, M. (2022). Transforming consumers' intention to purchase green products: Role of social media. Technological Forecasting and Social Change, 185, 122067. https://doi.org/10.1016/j.techfore.2022.122067

[64] Nguyen, T. T., Duc, M. D., Dinh, M. T., & Phan, H. T. T. (2024). Impact of Religiosity Beliefs on Green Purchase Intention: The Role of Environmental Concern and Environmental Knowledge. The International Journal of Religion and Spirituality in Society, 15(2), 1.

[65] Panda, D., Singhal, D., Jena, S., & Tripathy, S. (2024). Assessment of Indian consumers' green purchase intention: An integration of theory of planned behaviour and meta-analysis. Environment, Development and Sustainability. https://doi.org/10.1007/s10668-024-04897-8

[66] Panopoulos, A., Poulis, A., & Theodoridis, P. (2023). Influencing Green Purchase Intention through Eco Labels and User-Generated Content. Sustainability, 15(1), 764. https://doi.org/10.3390/su15010764

[67] Pinem, R. J., Kim, T., & Zhao, X.-W. (2024). Factors affecting green purchase behavior of Chinese consumers in South Korea. Journal of Korea Trade, 28(5), 33–59.

[68] Pradhan, R. P., Nair, M. S., Hall, J. H., & Bennett, S. E. (2024). Planetary health issues in the developing world: Dynamics between transportation systems, sustainable economic development, and CO2 emissions. Journal of Cleaner Production, 449, 140842. https://doi.org/10.1016/j.jclepro.2024.140842

[69] Qomariah, A., & Prabawani, B. (2020). The Effects of Environmental Knowledge, Environmental Concern, and Green Brand Image on Green Purchase Intention with Perceived Product Price and Quality as the Moderating Variable. IOP Conference Series: Earth and Environmental Science, 448(1), 012115. https://doi.org/10.1088/1755-1315/448/1/012115

[70] Rasiah, R., Song, L., Kanjanapathy, M., & Chong, K. M. (2023). Towards a Greener Future: Exploring Factors Influencing Green Purchase Intention and Pro-Environmental Behavior among Young Consumers. Environment-Behaviour Proceedings Journal, 8(26), Article 26. https://doi.org/10.21834/e-bpj.v8i26.5155

[71] Sajjad, A., Zhang, Q., Asmi, F., Anwar, M. A., & Bhatia, M. (2024). Identifying the motivating factors to promote socially responsible consumption under circular economy: A perspective from norm activation theory. Journal of Retailing and Consumer Services, 76, 103544. https://doi.org/10.1016/j.jretconser.2023.103544

[72] Salman, M., Wang, G., Cui, X., & He, X. (2024). Transition towards a low-carbon global economy: An integrated analysis of club convergence, catch-up and the agenda 2030. Gondwana Research, 134, 48–65. https://doi.org/10.1016/j.gr.2024.06.016

[73] Sarstedt, M., Hair, J. F., Nitzl, C., Ringle, C. M., & Howard, M. C. (2020). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses! International Journal of Market Research, 62(3), 288–299. https://doi.org/10.1177/1470785320915686

[74] Sarstedt, M., Henseler, J., & Ringle, C. M. (2011). Multigroup Analysis in Partial Least Squares (PLS) Path Modeling: Alternative Methods and Empirical Results. In M. Sarstedt, M. Schwaiger, & C. R. Taylor (Eds.), Measurement and Research Methods in International Marketing (Vol. 22, pp. 195–218). Emerald Group Publishing Limited. https://doi.org/10.1108/S1474-7979(2011)0000022012

[75] Shanmugavel, N., & Balakrishnan, J. (2023). Influence of pro-environmental behaviour towards behavioural intention of electric vehicles. Technological Forecasting and Social Change, 187, 122206. https://doi.org/10.1016/j.techfore.2022.122206

[76] Sharma, K., Aswal, C., & Paul, J. (2023). Factors affecting green purchase behavior: A systematic literature review. Business Strategy and the Environment, 32(4), 2078–2092. https://doi.org/10.1002/bse.3237

[77] Shrestha, N. (2020). Detecting multicollinearity in regression analysis. American Journal of Applied Mathematics and Statistics, 8(2), 39–42.

[78] Singh, H., Singh, V., Singh, T., & Higueras-Castillo, E. (2023). Electric vehicle adoption intention in the Himalayan region using UTAUT2 – NAM model. Case Studies on Transport Policy, 11, 100946. https://doi.org/10.1016/j.cstp.2022.100946

[79] Sinha, R., & Annamdevula, S. (2024). Bridging the knowledge-intention gap in sustainable consumption: An extended model. Journal of Modelling in Management, ahead-of-print(ahead-of-print). https://doi.org/10.1108/JM2-02-2024-0052

[80] Terwee, T. H. (2023). Understanding Purchase Intentions of Eco-Labeled Sportswear Using the Theory of Planned Behavior. Universidade Catolica Portuguesa.

[81] Tian, H., Li, Y., & Zhang, Y. (2023). Digital and intelligent empowerment: Can big data capability drive green process innovation of manufacturing enterprises? Journal of Cleaner Production, 377, 134261.

[82] Tota, M., Karska, J., Kowalski, S., Piątek, N., Pszczołowska, M., Mazur, K., & Piotrowski, P. (2024). Frontiers | Environmental pollution and extreme weather conditions: Insights into the effect on mental health. https://doi.org/10.3389/fpsyt.2024.1389051

[83] Upadhyay, N., & Kamble, A. (2023). Examining Indian consumer pro-environment purchase intention of electric vehicles: Perspective of stimulus-organism-response. Technological Forecasting and Social Change, 189, 122344. https://doi.org/10.1016/j.techfore.2023.122344

[84] Vafaei-Zadeh, A., Wong, T.-K., Hanifah, H., Teoh, A. P., & Nawaser, K. (2022a). Modelling electric vehicle purchase intention among generation Y consumers in Malaysia. Research in Transportation Business & Management, 43, 100784. https://doi.org/10.1016/j.rtbm.2022.100784

[85] Vafaei-Zadeh, A., Wong, T.-K., Hanifah, H., Teoh, A. P., & Nawaser, K. (2022b). Modelling electric vehicle purchase intention among generation Y consumers in Malaysia. Research in Transportation Business & Management, 43, 100784. https://doi.org/10.1016/j.rtbm.2022.100784

[86] Vu, D. M., Ha, N. T., Ngo, T. V. N., Pham, H. T., & Duong, C. D. (2022). Environmental corporate social responsibility initiatives and green purchase intention: An application of the extended theory of planned behavior. Social Responsibility Journal, 18(8), 1627–1645. https://doi.org/10.1108/SRJ-06-2021-0220

[87] Wang, C.-P., Zhang, Q., Wong, P. P. W., & Wang, L. (2023). Consumers' green purchase intention to visit green hotels: A value-belief-norm theory perspective. Frontiers in Psychology, 14, 1139116.

[88] Wang, L. (2022). Determinants of Consumers Purchase Attitude and Intention Toward Green Hotel Selection. Journal of China Tourism Research, 18(1), 203–222. https://doi.org/10.1080/19388160.2020.1816241

[89] Wei, F., Walls, W. D., Zheng, X., & Li, G. (2023). Evaluating environmental benefits from driving electric vehicles: The case of Shanghai, China. Transportation Research Part D: Transport and Environment, 119, 103749. https://doi.org/10.1016/j.trd.2023.103749

[90] Wu, Y. A., Ng, A. W., Yu, Z., Huang, J., Meng, K., & Dong, Z. Y. (2021). A review of evolutionary policy incentives for sustainable development of electric vehicles in China: Strategic implications. Energy Policy, 148, 111983. https://doi.org/10.1016/j.enpol.2020.111983

[91] Xu, Y., Du, J., Khan, M. A. S., Jin, S., Altaf, M., Anwar, F., & Sharif, I. (2022). Effects of subjective norms and environmental mechanism on green purchase behavior: An extended model of theory of planned behavior. Frontiers in Environmental Science, 10, 779629.

[92] Yeğin, T., & Ikram, M. (2022). Analysis of Consumers' Electric Vehicle Purchase Intentions: An Expansion of the Theory of Planned Behavior. Sustainability, 14(19), Article 19. https://doi.org/10.3390/su141912091

[93] Yeow, P. H. P., & Loo, W. H. (2022). Antecedents of green computer purchase behavior among Malaysian consumers from the perspective of rational choice and moral norm factors. Sustainable Production and Consumption, 32, 550–561. https://doi.org/10.1016/j.spc.2022.05.015

[94] Zhang, J., Jia, R., Yang, H., & Dong, K. (2022). Does electric vehicle promotion in the public sector contribute to urban transport carbon emissions reduction? Transport Policy, 125, 151–163. https://doi.org/10.1016/j.tranpol.2022.06.002

[95] Zhang, X., Yin, S., Lu, X., Liu, Y., Wang, T., Zhang, B., Li, Z., Wang, W., Kong, M., & Chen, K. (2025). Establish of air pollutants and greenhouse gases emission inventory and co-benefits of their reduction of transportation sector in Central China. Journal of Environmental Sciences, 150, 604–621. https://doi.org/10.1016/j.jes.2023.12.025

[96] Zhou, W., Dai, L., Zhang, Y., & Wen, C. (2022). Personal information management on social media from the perspective of platform support: A text analysis based on the Chinese social media platform policy. Online Information Review, 46(1), 1–21. https://doi.org/10.1108/OIR-06-2020-0249