Heuristics of sustainable decision making: psychographic predictors of green purchase intention in the electric vehicle market

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Received 11 Sep 2025; Accepted 1 Oct 2025; Published 4 Nov 2025

DOI: https://doi.org/10.64171/JSRD.4.S1.59-63

Abstract

Purpose: Transportation has now become one of the major contributors to greenhouse gas emissions, thereby exacerbating global warming. In response to this escalating peril of climate change, consumer behavior is undergoing a transformation aimed at environmental conservation. This evolution in consumer decision-making necessitates an examination of the green purchase intentions exhibited by consumers. The purpose of this research is to study various psychological factors that may influence the consumer's intention towards electric vehicles.

Methodology: This qualitative research study involves a comprehensive review of the existing literature to gather pertinent information.

Findings: The study reveals that the theory of planned behavior and the technology acceptance model are central to this enquiry, which states that intention is the result of subjective norms, perceived behavioral control, attitude, perceived ease of use, and perceived usefulness.

Originality: Only a few studies in the domain of sustainable consumer behavior have focused on the emerging industry of electric vehicles. Therefore, this study originally synthesizes the extant corpus of literature and highlights the role of psychological factors of consumer behavior towards electric vehicles.

Limitation: This investigation is restricted to the exploration of psychological factors; however, various other dimensions, such as infrastructural, political, and product-related factors, may also significantly affect the purchase intention towards electric vehicles.

Practical implication: Research findings will not only add to the existing corpus of literature but will furnish essential insights for policymakers and marketers in their initiatives to foster the adoption of electric vehicles.

Keywords: Electric vehicles, Green purchase intention, Innovation, Sustainability

1. Introduction

Today, increasing environmental degradation has become a major global concern due to the overconsumption of resources (Joshi & Rahman, 2015) [18]. Exhaustion of natural resources & adverse impacts of environmental degradation exacerbate the challenges that the world is facing (Hameed *et al*., 2022) [15]. One of the major reasons for environmental degradation is carbon dioxide (CO_2) emission (Salim *et al*., 2024; Monge *et al*., 2020) [29, 8]. In response to this exacerbating global threat, the Government, business sector & individuals should contribute to changing unsustainable consumption and production patterns. In various government conferences and agreements like the UNESCO conference in Belgrade in 1975, the Kyoto protocol in 1997, the Paris agreement in 2015, the idea to save the environment has been enforced (Chen & Kim, 2024) [11].

Facing the revenge of nature, consumers have also begun to change their thinking and behavior to live in harmony with nature (Esty, 2021) [14]. This paradigm shift in consumer behavior has made it important to study green purchase behavior (Sharma *et al*., 2023) [35]. Sustainable consumption is a concept that requires people, businesses, and countries to reduce the incorrect application of resources (Sharma *et al*., 2023) [35]. According to the survey, which was conducted in 2013, named Green Gap Trend Tracker found that around 70 percent or more of US consumers consider environmental problems while purchasing goods (Miller and Washington, 2014). Although the demand for sustainable products is rising but there is still an exigency to bolster green purchase intention (GPI). So, this investigation aims to assess the psychological constructs that can influence the green purchase intention of consumers towards electric vehicles. The study specifically focuses on the industry of electric vehicles because transportation has now become the major contributor to CO_2 emissions, and electric vehicles (EVs) are considered a good alternative to internal combustion engine vehicles (ICEVs) (Asadi *et al*., 2021; Borthakur, 2023; Virmani *et al*., 2023) [3, 7, 38].

Being a qualitative descriptive study, the secondary source of data will be used, necessitating the examination and analysis of existing literature in order to draw informed conclusions that will effectively guide the investigation. The research outcomes

suggest that a range of elements, including green purchase attitude, subjective norms, perceived behavioral control, perceived ease of use, and perceived usefulness, positively influence their intention to participate in sustainable behaviors. In light of these findings, marketers possess the opportunity to strategically leverage this research to develop marketing strategies, increasing the market share of electric vehicles. The overall structure of this comprehensive study is organized into several distinct sections, which include Section 2: Methodology, Section 3: Literature review, and Section 4: Conclusion and Future Directions.

2. Methodology

The present research uses a qualitative approach rooted primarily in the well-established Theory of Planned Behavior (TPB), which provides a solid framework for explaining the complexity of consumer behavior. In this conceptual model, the study identifies and defines four key variables that significantly influence consumer choices: green purchase attitude, subjective norms, perceived behavioral control, and green purchase intention. To ensure the relevance and academic value of this research, it relies heavily on secondary data, carefully collected from a selection of peer-reviewed scholarly articles accessed through reputable databases like Scopus and Google Scholar. Additionally, the study focuses specifically on publications from 2017 to 2023, ensuring that the analysis reflects the most recent developments and scholarly perspectives in this rapidly evolving field. This methodological approach enhances the depth of analysis and allows for a comprehensive understanding of the factors that significantly impact consumers' intentions to make environmentally friendly purchases within the specified period. Through this rigorous approach, the study aims to contribute valuable insights to the body of knowledge on sustainable consumer behavior toward electric vehicles and their determinants. In conclusion, this research is positioned to offer important lessons that can influence both academic discussions and practical efforts to promote consumer acceptance of electric vehicles.

3. Literature review

Our planet is running out of resources, but populations are continuing to grow. According to census data, the global population reached 7.95 billion in 2022 (World Bank, 2023), which is represented by Figure 3. If the world population reaches 9.8 billion by 2050, then natural resources of almost three planets will be required to maintain the present lifestyle (United Nations, 2023). Therefore, to avoid this jeopardizing situation, consumption patterns and energy supplies should be diverted to green and sustainable ones to bring down the level of consumption (United Nations, 2023). As per the literature reviewed, green products are linked with the protection of the environment as they lead to reduced wastage during production, low energy consumption, fewer emissions, etc. (Barbu *et al*., 2022) [4]. In response to the exacerbating environmental issues, the businesses that have traditionally been involved in the aggravation of ecological degradation (Chawla *et al*., 2018) [10] are today increasingly being pushed, in the face of escalating consumer pressures for sustainability and environmental responsibility (Sharma *et al*., 2023) [35], towards more sustainable, conscious operational strategies, especially in the transportation sector. This industry not only acts as a pillar of international commerce but also as a major contributor to greenhouse gas emissions (Castillo *et al*., 2023) [16]. The internal combustion engine vehicles (ICEVs) are major polluters within this sector (Virmani *et al*., 2023) [38] and thus provoked a growing call for the immediate requirement of decarbonisation, a critical process with great potential through embracing and merging EVs as a conceivable option (Secinaro *et al*., 2022; Umar *et al*., 2021) [31].

The current research provides a review of the literature on sustainable consumer intention and outlines the variables of the Theory of Planned Behavior to guide researchers and practitioners in fostering sustainable intention and developing strategies to increase the penetration of EVs in the global economy.

a) Green purchase attitude

GPA refers to favourable or unfavourable belief which bolster up an intention towards GPB (Sharma and Aswal, 2017; Patwary *et al*., 2022, Ajzen and Fishbein, 1988) [33]. It is difficult to change attitude which are developed over certain period of time but can be affected with psychological motivation (Lien and Cao, 2014, Peña-García, 2020) [25]. When attitudes changes, people learn new concepts (Shaouf *et al*., 2016, Peña-García, 2020) [25]. Usually, if attitude of a person is positive towards buying online then, intention to make online purchase will increase Peña-García, 2020) [25]. According to most of literature reviewed, positive GPA leads to positive GPI (Sharma, Aswal and Paul, 2023, Sharma and Aswal, 2017; Jaiswal and Singh, 2018; Patel, Trivedi and Yagnik, 2020; Taufique and Islam, 2021; Bong and Jin, 2017; Patwary *et al*., 2022; Peña-García, 2020) [35, 33, 17, 24, 36, 6, 25]. In support, Klöckner *et al*. (2013) identified pro-environmental attitudes as increasing the willingness to adopt green cars. Therefore, attitude of consumer can be a significant factor in predicting their intention towards electric vehicle.

b) Subjective norms

Subjective norms are the motivation from family, friends, and other social groups that a consumer receives, to make purchase (Peña-García, 2020) [25]. For Consumers their peers are trustworthy helpers than biased celebrities of brand. Consumer trust the information shared by their known ones therefore interpersonal communication is considered to be more influencing than advertising campaigns, as they perceive less risk while purchasing goods (Goldsmith & Horowitz, 2006, White *et al*., 2019) [39]. Possibility of interpersonal influence increases through social networks as they act as behavioral cues which further impact intention of consumer to purchase (Bedard and Tolmie, 2018) [5]. Only limited research is there on factors which can influence online green purchase. According

to the literature, if peers of consumer have positive attidute towards green products then green purchase intention of consumer will also increase (Barbu *et al*., 2022; Patwary *et al*., 2022; Bong and Jin, 2017; Zhang and Dong, 2020; Patel, Trivedi and Yagnik, 2020; Bedard and Tolmie, 2018; White *et al*., 2019) [4, 6, 41, 24, 5, 39]. Numerous studies emphasize the relevance of social influence in the adoption of alternative fuel vehicles (AFV) and highlight its significance in promoting electric vehicles (Zhao *et al*., 2024) [42].

c) Perceived Behavioral Control (PBC)

PBC is the amount of control perceived by a person during the process of buying goods and services. People usually prefer situations that they have control over to those in which they do not have control or situations that are under the control of external forces (Peña-García, 2020) [25]. The more consumer feel that their effort can protect nature, the more of their purchase decision will be for green products. Perceived behavioral control is positively related to green purchase intention, which means if one believes that they can protect the environment with their purchase and they will have more positive purchase intention towards green products (Sharma *et al*., 2023; Sharma and Lulandala, 2021; Patel, Trivedi and Yagnik, 2020; Pisitsankkhakarn and Vassanadumrongdee, 2020; Taufique and Islam, 2021; Bong and Jin, 2017; Zhang and Dong, 2020; White *et al*., 2019; Patwary *et al*., 2022) [35, 34, 24, 27, 36, 6, 41, 39]. In modern contexts, perceived behavioural control includes the perception of the individual towards technology, expense, availability, and mastery in the use of PHEVs, with López-Mosquera and Sánchez (2012) positing that higher consumer control over them is associated with increased behavioural intention (Adnan *et al*., 2018) [1].

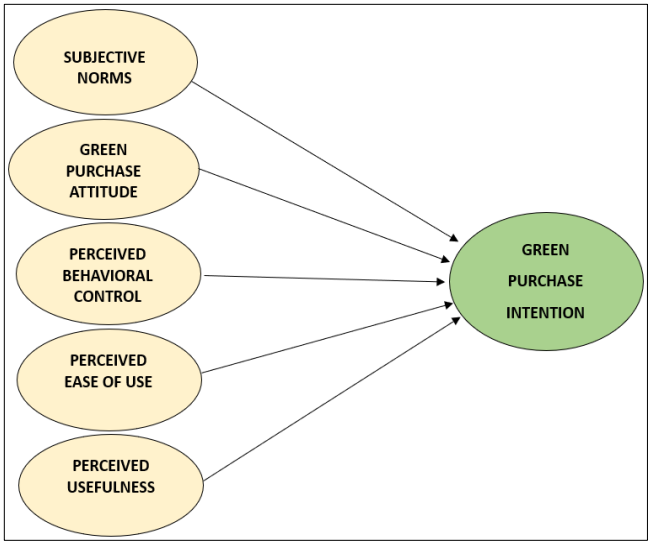
d) Perceived ease of use

The idea generally described as perceived ease of use can also be explained by the term low complexity. The idea of low complexity is actually closely entangled with that of ease of use, including factors like easy operation and simple charging procedures, and it has important relevance to people who are contemplating the use of new technologies like electric vehicles. In light of the academic work provided by Peters and Dutschke (2014), it is significant to note that in the given context of electric vehicles (EVs), the term "perceived ease of use" can well be used as an alternative to "complexity." Subsequently, within the scope of this research study, perceived ease of use is considered a decisive factor, as reported by Xu *et al*. (2020).

e) Perceived usefulness

Perceived usefulness can be stated as the extent to which the implementation and use of technological innovations act to enhance and expand the performance capacities of those involved in executing different tasks (Karahanna & Straub, 1999) [19]. The electric car, described as an eco-friendly mode of transport, is a key factor in reducing the negative impacts that accompany greenhouse gas emissions, while at the same time providing a traveling experience that is not only comfortable, convenient, and easy on the environment but one that also greatly accelerates travel and boosts the overall efficiency of travel (Anagnostopoulou *et al*., 2018) [2]. Since the electric vehicle conforms to existing eco-friendly standards and promises a driving experience characterized by ease, speed, safety, and comfort, its existence in the transportation industry plays a pivotal role in promoting perceived trust among stakeholders and users (Lakshmanan *et al*., 2024). Therefore, it can be seen that the placement of electric vehicles into day-to-day transportation is not just a fad but a huge step towards larger environmental objectives and personal performance increase (Wu & Zhang, 2017) [40].

Proposed research model



Source: The author

Fig 2: Model based on TPB and TAM

4. Findings

The literature confirms that the Theory of Planned Behavior (TPB) is a good theory in explaining green purchase intention for electric vehicles (EVs). A positive green purchase attitude, where customers consider EVs as environmentally friendly, economically beneficial, and forward-looking, positively affects their intentions to buy them. This attitudinal tendency gains even greater strength when amplified by subjective norms, given that people have a propensity to do what their social groups do. If influencers and peers show support for green technology such as EVs, consumers will feel more approved and are likely to emulate them; social disapproval, on the other hand, can suppress their willingness to adapt. Extending this, perceived behavioral control introduces yet another key dimension: those consumers who feel that they possess adequate resources, access to infrastructure, or self-efficacy to buy and utilize EVs are likely to follow through with plans. But when there are perceived barriers like excessive cost or poor charging infrastructure, even positive attitude and favourable norms cannot lead to action.

Though TPB considers psychological and social variables, the Technology Acceptance Model (TAM) supports this

knowledge by laying stress on technology-specific perceptions. Perceived usefulness, like operational costs, environmental benefits, or incentives from the government, cements the consumer's perception that it is not only ethical but also sensible to adopt EVs. Likewise, perceived ease of use, manifesting in intuitive user interfaces, quick charging, and digital functions, increases the consumer's feeling of comfort with the product. The combination of TPB and TAM thus offers an overarching framework to explain green purchase intention towards electric vehicles, showing how attitude, social influence, perceived control, and technological perceptions collectively influence consumer decision-making related to sustainable mobility.

5. Practical implications & limitations

Implications for managers: The implications of this research provide useful insights to managers and marketers who seek to market electric vehicles. Knowing the psychological factors influencing green purchase intention, marketers are in a position to design their strategies to create positive consumer attitudes. This can be done through product placement advertising, peer recommendation, and communication strategies that emphasize the environmental and economic advantages of EVs. Designing spaces for consumer engagement, both with others and the brand, is an effective way to enhance social influence and adoption. In addition, improving perceived behavioral control is important; streamlining the purchasing process, providing monetary incentives, and increasing charging facilities can enable consumers to feel more competent and self-assured when purchasing EVs.

Implications for policymakers: For policymakers, this study provides evidence for policy interventions that promote the adoption of EVs through behavioral considerations. Policy interventions like public campaigns, subsidy programs, and investment in infrastructure can augment consumer intention as well as integrate with other sustainable development objectives and facilitate a circular economy.

Limitations and directions for future research: Although the study supports the applicability of the Theory of Planned Behavior in the context of EV, it is restricted to a limited number of psychological variables. Future studies can investigate other factors, including ethical values, product attributes, demographics, and online influence. Additionally, the present study examines generic offline consumer behavior without controlling for geographic or demographic segments. Online purchase channels and segment-specific behavior can be studied by further research to understand in-depth EV promotion.

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