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Decoding EV Choices: How Pre-Purchase Behavior, Technology, and Policy Influence Buyers Through Mediating Effect of Behaviour

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ABSTRACT

Purpose

This study investigates the influence of pre-purchase behavior, technological factors, and policy mechanisms on consumer purchasing decisions for electric cars (EVs) in Nepal, with c behavior as a mediating variable.

Design, methodology, and approach

The research utilized descriptive and causal-comparative design. The study focused on electric car owners, and 400 participants were selected via a purposive selection method. Primary data were obtained from respondents through a standardized 5-point Likert Scale questionnaire. Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed to examine the relationships among variables, emphasizing direct and mediated effects.

Results

The findings demonstrate that pre-purchase behavior, technological factors, and policy mechanisms affect electric vehicle purchase decisions. Technological aspects emerged as the most significant direct and indirect predictors, underscoring the critical role of innovation and performance in influencing customer decisions. Policy instruments, including subsidies and tax incentives, demonstrated significant effects. Behavior served a crucial moderating function, highlighting decision-making's cognitive and emotional aspects. Notably, whereas pre-purchase behavior exerted a positive direct effect, its indirect influence via customer behavior was negative,

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indicating a possible dissonance between early assessments and emotional involvement.

Limitations and implications of the research

This study is confined to Nepal, an emerging economy, thereby limiting the findings' applicability to other contexts. Subsequent studies may broaden the model to incorporate supplementary mediators or investigate longitudinal impacts for enhanced understanding.

Practical implications

The study provides practical recommendations for politicians, manufacturers, and marketers to improve electric vehicle adoption. Strategies must promote technical innovation, formulate supportive policy frameworks, and address customer perceptions to reconcile discrepancies between pre-purchase assessments and final purchasing decisions.

Originality/Value

This research offers a complete framework for analyzing electric vehicle purchase decisions by integrating pre-purchase behavior, technological considerations, regulatory mechanisms, and behavioral mediation. It addresses theoretical deficiencies and comprehensively comprehends the interaction between behavioral elements and external influences in an emerging market setting.

Keywords: Behavior, Consumer purchase decision, pre-purchase behavior, technological factor, and policy mechanisms

INTRODUCTION

Consumer behavior is a pivotal factor influencing purchase decisions, involving the actions consumers undertake during the processes of finding, acquiring, utilizing, and assessing items and services to fulfill their needs (Schiffman et al., [1]). It is a fundamental aspect of marketing strategy, offering insights into how customers distribute resources like time, money, and energy towards consumption activities (Hawkins et al., [2]). Consumer attitudes, which embody preferences, inclinations, and dispositions, significantly influence purchasing decisions (Khan, 2012; Kinnear & Taylor [3] [4]). The purchasing choice constitutes a significant aspect of customer behavior, influenced by intuition, experience, and pre-purchase actions of the seller, among other factors, as noted by Manandhar [5].

In Nepal, cultural and technical progress is influencing changes in consumer behavior, especially around personal mobility. The rising dependence on personal vehicles arises from the inconsistency of public transit and the heightened demand for convenience and time efficiency among professionals. This tendency has increased automobile ownership, intensifying environmental issues, especially air pollution in the Kathmandu Valley. From 2000 to 2016, the number of registered vehicles surged over 32 times, considerably exacerbating Kathmandu's declining air quality (Department of Transport Management, [6]). These situations have led to health concerns and underscored the pressing necessity for sustainable transport solutions (Saud & Paudel). [7].

Electric vehicles (EVs) are a viable alternative to conventional petrol and diesel vehicles, supporting worldwide initiatives to mitigate greenhouse gas emissions and decrease reliance on fossil fuels (Bigerna & Micheli) [8]. Notwithstanding these benefits, electric vehicle adoption in Nepal is constrained, representing merely approximately 1% of the whole vehicle fleet (Shrestha, 2020; MoFE) [9] [10]. The Nepalese government has instituted initiatives including tax rebates and enhanced

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financing schemes to encourage electric vehicle adoption; yet, obstacles remain in comprehending the elements that affect consumer choices.

This study examines the interaction of pre-purchase behaviour, technological influences, and policy frameworks in determining customer purchasing decisions for electric vehicles in Nepal. Additionally, it examines the function of consumer behaviour as a mediating element, providing a thorough framework to enhance comprehension of these dynamics within emerging economies.

A complex interaction of legislative mechanisms, pre-purchase variables, and technological innovations shapes consumer purchasing decisions. Current research has predominantly examined these elements in isolation, resulting in a substantial deficiency in comprehending their collective impact on consumer behavior, especially in developing economies such as Nepal. Furthermore, the mediating influence of consumer behaviour in connecting these characteristics to purchasing decisions has not been sufficiently examined.

The lack of a cohesive framework that integrates regulatory mechanisms, pre-purchase considerations, and technological effects constrains both theoretical advancement and practical implementation. Theoretical models like the Theory of Planned Behaviour (Ajzen) [11] and Innovation Diffusion Theory (Rogers) [12] offer limited insights, as they do not account for the interrelatedness of these variables in shaping consumer behavior. Moreover, the majority of research has been undertaken in developed markets, neglecting the distinct dynamics of emerging nations marked by varying economic situations, technological accessibility, and regulatory environments.

This work seeks to address these gaps by formulating and empirically validating a model that incorporates regulatory mechanisms, pre-purchase considerations, and technology influences, with consumer behaviour serving as a mediating variable, to elucidate electric vehicle purchase decisions. This research will advance consumer behavior theories and provide actionable insights for governments and businesses aiming to improve EV adoption in Nepal.

In light of these challenges, the study examines customer purchasing decisions about electric automobiles. The research aims to address the following questions:

What is the effect of pre-purchase factors on the purchase decision of electric vehicles in Nepal?

How do policy mechanisms, pre-purchase factors, and technological influences affect consumer purchase decisions for electric vehicles?

What is the mediating role of consumer behavior between policy mechanisms, pre-purchase factors, technological factors, and purchase decisions?

How do these relationships vary across different market contexts, particularly in emerging economies with distinct economic conditions, technological access, and regulatory frameworks?

This study seeks to provide a comprehensive understanding of the determinants of EV purchase decisions, offering critical insights for stakeholders aiming to promote sustainable transportation solutions in Nepal.

1. Literature review and hypothesis formulation:

This section reviews the theoretical and empirical literature supporting the conceptual framework that examines the relationships between policy mechanisms, pre-purchase factors, technological factors, behavior (mediator), and purchase decisions.

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THEORETICAL REVIEW

This study adopts a theoretical approach integrating traditional consumer behaviour models with recent research to explore how pre-purchase behaviour, policy mechanisms, and technical factors influence consumer purchasing decisions. In this context, behavior serves as a mediating variable. This section combines relevant concepts and empirical data to contextualize the interactions of key variables related to electric vehicle (EV) adoption in Nepal.

Pre-Purchase Behavior: Pre-purchase behavior encompasses the evaluative and cognitive processes that consumers undertake before making a purchasing decision. The theory of Planned Behavior (TPB) emphasizes that attitudes, subjective norms, and perceived behavioral control are significant predictors of consumer intentions and subsequent actions (Ajzen) [11]. Specifically, in the context of EVs, these factors include cost considerations, perceived convenience, and environmental benefits (Rezvani et al., [13].

Pre-purchase behavior aligns with the Consumer Decision-Making Model (Blackwell, Miniard, & Engel) [14], underscoring the importance of awareness, knowledge, and perceived value in shaping consumer choices. Additionally, Cognitive Dissonance Theory (Festinger) [15] suggests that consumers actively seek consistency between their beliefs and behavior, thereby reducing uncertainty before purchase. This rational evaluation process includes assessing charging infrastructure, battery durability, and government incentives (Li et al.) [16].

Policy Mechanism: Policy mechanisms are essential catalysts for sustainable consumption practices, especially in facilitating electric vehicle uptake. These encompass financial incentives (subsidies and tax advantages), regulatory measures, and public awareness initiatives. The Rational Choice Theory asserts that individuals make decisions by assessing costs and benefits, indicating that subsidies and tax incentives effectively diminish perceived financial obstacles. Becker [17]. The Theory of Planned Behavior further supports the influence of policy as an external factor shaping attitudes and behavioral intentions toward EVs (Ajzen) [11]. Thøgersen and Hardman et al. [18] [19] highlight the pivotal role of aligned policy frameworks in facilitating EV adoption by addressing economic and environmental concerns.

Technological Factors: Technological Acceptance Models (TAM) highlight how perceived ease of use and usefulness of technology influence consumer behavior (Davis) [20]. Digital accessibility, automation, and technological innovation align with the Innovation Diffusion Theory (Rogers) [12], which explains how consumers adopt new technologies based on their perceived advantages [12]. Technological reliability and convenience are primary drivers of consumer trust and satisfaction Sovacool et al.[21]. Furthermore, advancements in digital connectivity and smart vehicle features have increasingly become differentiators in the competitive EV market Helveston et al. [22].

Mediating Role of Behavior: Behaviour is a mediating variable connecting external influences, such as policy and technology, with consumer purchase decisions. The interplay between cognitive assessments (e.g., cost-benefit analysis) and affective responses (e.g., environmental concern) underscores the dual pathway through which decisions are made. Mediating behaviors also reflect the internalization of external influences, such as policy-driven incentives or technological advancements, into actionable purchase intentions White et al. [23]. The Stimulus-Organism-Response Model (Mehrabian & Russell) emphasizes [24] that external stimuli (policy mechanisms, pre-purchase factors, and technological factors) influence an organism's internal state (behavior), which determines the final response (purchase decision). Likewise, the Theory of Reasoned Action (Fishbein & Ajzen) [25] supports the role of behavior as a mediator between external variables and decisions

Consumer Purchase Decision: The consumer purchasing decision synthesizes findings from several theoretical frameworks. Conventional consumer behavior models prioritize utility maximization

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and risk mitigation (Kotler & Keller) [26], but modern studies underscore the increasing importance of sustainability-focused values (Grewal et al.) [27]. In the context of electric vehicles, consumer choices are shaped by a confluence of personal beliefs, external influences, and experience elements, including test drives and peer endorsements (Rezvani et al., Bockarjova & Steg) [13] [28]. The Hierarchy of Effects Model (Lavidge & Steiner) [29] explains that purchasing decisions result from cognitive, affective, and conative responses influenced by various stimuli. It aligns with the conceptual framework by linking behavior to the final purchase decision.

Interrelationships in the Conceptual Framework: The conceptual framework asserts that pre-purchase behavior, regulatory processes, and technology factors directly affect consumer purchase decisions, with behavior acting as a mediating component. The effectiveness of governmental incentives or technological improvements depends on their incorporation into consumers' cognitive and emotional processing (Hardman et al.) [30]. Furthermore, pre-purchase assessments frequently enhance or diminish the perceived significance of policy and technology characteristics, underscoring these factors' interrelation. This theoretical assessment highlights the complex nature of consumer purchasing decisions in the electric vehicle market. The framework establishes a solid foundation for comprehending the dynamic interaction among cognitive, emotional, and external elements by synthesizing insights from the Theory of Planned Behaviour, the ABC model, and current sustainability research. Future research should continue to examine the changing influence of developing technologies and policy changes on sustainable consumer behaviors.

EMPIRICAL REVIEW

This section examines existing empirical studies related to the effect of pre-purchase behavior, technological factors, and policy mechanisms on consumer purchase decisions of electric vehicles (EVs) in Nepal, with a focus on the mediating role of behavior. It integrates insights from various studies to highlight empirical evidence and identify research gaps.

Policy Mechanisms and Purchase Decisions: Empirical research demonstrates that policy mechanisms substantially affect consumer behavior and purchasing decisions. Wang et al [31] discovered that government incentives for electric vehicles positively influenced consumer perceptions, resulting in increased adoption rates. Thøgersen and Noblet [32] highlighted the significance of eco-labeling and regulatory frameworks in bolstering customer trust and propensity to purchase sustainable products. In emerging countries, research by Zhang and Zhou [33] revealed that financial incentives, including subsidies and tax advantages, are essential in overcoming cost barriers and promoting adoption. Research conducted by Montian et al. [34] in Thailand indicated that policy mechanisms require enhancement through substantial technology and infrastructure improvement to attain optimal effectiveness. Pre-purchase factors, including product knowledge, perceived value, and brand awareness, are well-established determinants of consumer purchasing behavior.

Per-purchase behavior and Purchase Decisions: Kotler and Keller [26] emphasized the significance of pre-purchase expectations in influencing consumer satisfaction and decision-making. Ha and Jang [35] further established that such expectations are essential in assessing alternatives, especially in high-involvement purchases such as electric vehicles (EVs). Slot's findings [36] indicate that practical criteria like charging station availability and electric vehicle range influence pre-purchase evaluations more than emotional or experiential elements.

Technological Factors and Purchase Decisions: Technological aspects significantly influence consumer trust and acceptance of electric vehicles. Kim and Park [37] examined the effect of AI-driven recommendation systems in e-commerce and found that usability and personalization significantly enhanced purchasing decisions. Alalwan et al. [38] demonstrated that adopting mobile technology impacts consumer engagement and purchasing behaviour in electric vehicles.

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Behavioral Mediation: The mediating role of behavior supported by empirical evidence in various contexts. Choi and Johnson [39] showed that consumer attitudes and intentions mediated the effects of marketing stimuli on online purchases, while Zhang et al. [40] demonstrated that cognitive and emotional behaviors mediated the impact of digital advertising on purchase decisions. Navalagund et al. [41] found that pro-environmental behavior partially mediated the relationship between external stimuli, such as policy incentives, and purchase intentions in the EV market. The finding aligns with the Stimulus-Organism-Response Model (Mehrabian & Russell, [24], which posits that behavior plays a vital role between external factors and consumer responses.

Recent studies support integrated frameworks for comprehending consumer purchasing decisions. Hennig-Thurau et al. [42] introduced a model that connects emotional and rational influences on consumer behaviour, highlighting the interaction between cognitive and affective elements. Kushwaha and Agrawal [43] emphasized integrating technology, policy, and psychological elements to forecast decision-making in sustainable markets. Jayasingh et al. [44] revealed cost savings and environmental considerations as key motivators for electric vehicle purchases, with significant gender disparities affecting adoption trends. The individual impacts of policy mechanisms, pre-purchase behavior, and technical factors are well-documented, although their collective effect on consumer behavior remains insufficiently examined. Research by Wang et al. [45] and Alalwan et al. [38] examines individual factors, overlooking the possible synergy among them.

Thøgersen & Schrader [18] and Slot [36] perform in developed economies. Research in emerging markets, including Nepal, where economic and technological conditions vary, is scarce. Technological Integration: Technological variables have predominantly been examined concerning adoption and usability, as noted by Davis [20], although their interplay with policy and pre-purchase elements is insufficiently investigated. This empirical analysis highlights the significance of comprehending the interaction of legislative processes, pre-purchase considerations, and technology improvements in influencing customer purchasing decisions for electric vehicles. It underscores behavior as a significant mediating variable, connecting external factors and consumer responses.

Addressing the recognized research deficiencies, especially in Nepal, could yield significant insights for policymakers and industry stakeholders seeking to advance sustainable transportation solutions. The current increase in electric car adoption in Nepal has created a heightened demand for study. Neupane [46] concentrated on pre-purchase behavior in automobile acquisition. Manandhar [5] examined customer behavior on the acquisition of non-durable items. By PLS-SEM analysis, Shrestha [9] evaluated the determinants affecting vehicle acquisitions in urban environments. Nonetheless, a gap persists in comprehending the elements influencing purchasing four-wheel electric vehicles. This research employed an explanatory quantitative approach for data gathering and analysis. The current study utilized the advanced PLS-SEM methodology for quantitative data analysis. No prior researchers have recorded the use of this program for quantitative data analysis in the context of the study done in Nepal, as described in the review above. Notwithstanding the expanding corpus of literature on consumer behaviour, notable gaps persist, especially in comprehending the interaction of policy mechanisms, pre-purchase considerations, technology influences, and their combined effect on purchase decisions mediated by behaviour.

This research seeks to establish a comprehensive framework that integrates regulatory mechanisms, pre-purchase considerations, and technological effects to elucidate consumer purchase decisions, with consumer behavior acting as a mediating variable. It aims to evaluate the mediating effect of consumer behaviour on the correlations between these independent variables and purchasing decisions. This research will improve the theoretical comprehension of consumer behavior and offer practical insights for marketers, policymakers, and technology developers seeking to impact consumer purchase choices.

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Hypothesizes

H1: Pre-purchase factors have a significant positive effect on purchase decisions.

H2: Technological factors have a significant positive effect on purchase decisions.

H3: Policy mechanisms have a significant positive effect on purchase decisions.

H4: Pre-purchase factors have a significant positive effect on behavior.

H5: Technological factors have a significant positive effect on behavior.

H6: Policy mechanisms have a significant positive effect on behavior.

H7: Behaviour has a significant positive effect on purchase decisions.

H8: Behavior mediates the relationship between pre-purchase factors and purchase decisions.

H9: Behavior mediates the relationship between technological factors and purchase decisions.

H10: Behavior mediates the relationship between policy mechanisms and purchase decisions.

2. Conceptual Framework

This research's conceptual framework synthesizes essential theoretical viewpoints to examine the intricate dynamics of consumer decision-making around electric vehicle uptake. The theory of planned behavior, consumer choice theory, and the ABC Model encapsulate the complex interaction among logical assessments, emotional reactions, and external factors. Consumer choice theory highlights logical, utility-based evaluation of options, concentrating on how customers assess costs, advantages, and preferences while evaluating electric vehicles. The ABC Model emphasizes the interplay of affective, behavioral, and cognitive elements in influencing customer behavior and decision-making. The theory of planned behavior concentrated on the significance of attitudes, and perceived behavioral control in influencing buying intentions and behavior, providing a systematic framework for comprehending behavioral mediation. These theories offer a thorough framework to analyze how pre-purchase behavior, regulatory mechanisms, and technology factors mediated by emotional and cognitive responses affect consumer purchasing decisions. This integration highlights the comprehensive character of consumer behavior, along with the study's aim to identify the determinants of sustainable purchasing decisions in Nepal's electric car industry.

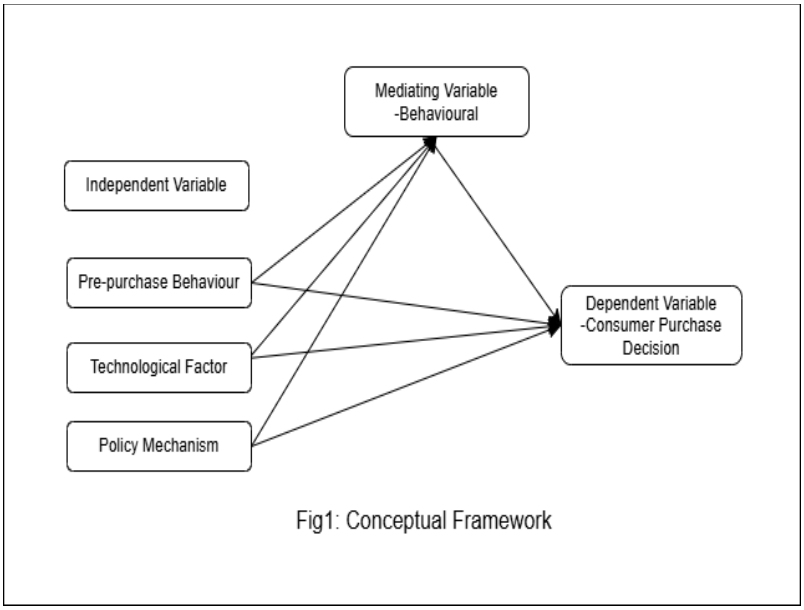

Fig1: Conceptual Framework

(**Source:** Adapted from Montian, Suthikarnnarunai, and Rattanwong, 2019)

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RESEARCH METHODOLOGY

This research utilizes a descriptive and causal-comparative methodology to examine the factors affecting customer purchase decisions for electric cars (EVs) in Nepal, emphasizing the mediating function of attachment in consumer behaviour. The descriptive component analyses variables, including pre-purchase behavior, technical determinants, and policy mechanisms, whereas the causal-comparative part investigates the linkages and possible causal pathways among these variables. The target audience consists of persons engaged in electric vehicle ownership in Nepal, and purposive sampling was employed to choose 400 respondents with pertinent knowledge and experience in electric vehicle decision-making. This sample size guarantees statistical reliability, validity, and generalizability to the larger population. The study collected primary data using a structured questionnaire based on established theoretical components, utilizing a 5-point Likert scale to measure subjective attitudes and perceptions. Data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The study examines the direct impacts of pre-purchase, technological, and policy factors on purchasing decisions, alongside the mediating effects of affection, with model fit measured by path coefficients, t-values, and p-values.

3. Results and Analysis

Measurement Model

Table 2 summarizes the construction, scaling of items, standardized factor loadings, Cronbach's Alpha, Rho-Average, Composite Reliability, and average variance extracted (AVE). Fornell and Larcker [47] introduced three indices to assess the convergent validity of measuring items: the item reliability of each measure, referred to as the square multiple correlation; the composite reliability of each construct; and the average variance extracted. The composite dependability of all indicators within a construct is termed the internal consistency of its reliability.

Table 2 - Evaluation of the Measurement Model

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
BEH	0.761	0.960	0.885	0.795
POM	0.914	0.980	0.936	0.786
PRE	0.784	0.796	0.860	0.607
PUD	0.864	0.863	0.907	0.711
TEC	0.791	0.795	0.864	0.613

Methods for assessing convergent and discriminant validity and evaluating the measurement model's internal reliability were utilized (Haire et al. [48]). The composite reliability (CR), computed using Dijkstra and Henseler's rho A for all constructs, exceeds 0.70, and all indicator loadings surpass 0.7. Fornell & Larcker [47]; Hair et al. [49]; Hair et al. [48]. In recent years, the value of rho A has exceeded that of Cronbach's Alpha (Hair et al., [50]). All constructs in this investigation have an average variance extracted (AVE) score beyond 0.5, signifying convergent validity. As presented in Table 2, each standardized factor loading ranges from 0.71 to 1, which is an acceptable range. The result shows that all inquiries are equally genuine. The composite reliabilities of the constructions range from 0.82 to 1, exceeding the proposed threshold of 0.7 by Nunnally and Bernstein [51], indicating that all constructs exhibit internal consistency. In conclusion, the average variance extracted (AVE) values span from 0.60

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to 1, surpassing the 0.5 threshold and, signifying that all constructs possess sufficient convergent validity (Fornell & Larcker, [47].

6.1 Discriminant Validity - Fornell-Larcker Criterion

Discriminant validity is demonstrated when assessments of theoretically unrelated constructs do not exhibit substantial correlations. In reality, the magnitude of the discriminant validity coefficients should be significantly less than that of the convergent validity coefficients (Hubley, [52]). In their seminal study on testing structural equation models, Fornell and Larcker [47] assert that discriminant validity is demonstrated when a latent variable accounts for more of the variance among its corresponding indicator variables than among itself and other constructs within the same model. The average variance extracted (AVE) for each construct must be assessed against its squared correlations with other constructs inside the model to fulfill this criterion Fornell & Larcker, [47].

Table 3 - Discriminant Validity

Fornel and Lrcker Criteria

	BEH	POM	PRE	PUD	TEC
BEH	0.892				
POM	0.182	0.886			
PRE	-0.032	0.081	0.779		
PUD	0.395	0.232	0.255	0.843	
TEC	0.350	0.052	0.279	0.562	0.783

The study's discriminant validity has been calculated. Table 3 shows that the average square root variance obtained from each diagonal line construct (bold) is greater than its correlation with the other constructs, confirming the validity of discriminating and separating each construct from the others.

6.2 Discriminant Validity: Heterotrait-Monotrait (HTMT) Criterion

The Heterotrait-Monotrait correlation ratio, introduced by Henseler, Ringle, and Sarstedt [53], is a novel approach to assessing discriminant validity (HTMT). The HTMT quantifies the resemblance of latent variables. Discriminant validity is proved if the HTMT is below one. A threshold of 0.85 consistently distinguishes legitimate latent variable pairings from invalid ones in numerous real-world contexts. The enhanced classification efficacy of the HTMT is corroborated by Monte Carlo simulations (Franke & Sarstedt, [54]). The discriminant validity was subsequently assessed using the Heterotrait-Monotrait criterion.

Table 4 - Discriminant Validity- Heterotrait-Monotrait Criterion

	BEH	POM	PRE	PUD	TEC
BEH					
POM	0.191				
PRE	0.082	0.248			
PUD	0.460	0.221	0.301		
TEC	0.400	0.086	0.356	0.671	

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Path Analysis of Factors Affecting Consumer Purchase Decision of Electric Vehicles in Nepal

Table - 5

	sample	mean	S.D.	T stat	P value
PRE -> PUD	0.125	0.128	0.041	3.051	0.002
TEC -> PUD	0.444	0.443	0.051	8.697	0.000
POM ->PUD	0.159	0.163	0.037	4.265	0.000
BEH -> PUD	0.215	0.214	0.049	4.382	0.000
POM -> BEH	0.175	0.177	0.039	4.470	0.000
PRE -> BEH	-0.153	-0.156	0.049	3.105	0.002
TEC -> BEH	0.384	0.387	0.050	7.703	0.000
PRE -> BEH -> PUD	-0.033	-0.033	0.013	2.455	0.014
TEC -> BEH -> PUD	0.082	0.083	0.022	3.693	0.000
POM -> BEH -> PUD	0.037	0.038	0.012	3.055	0.002

ANALYSIS OF STRUCTURAL EQUATION MODELING RESULTS

The findings from the structural equation modeling (SEM) analysis offer significant insights into the determinants affecting consumer purchase decisions (PUD) for electric vehicles in Nepal, exploring both direct and indirect relationships among pre-purchase behavior (PRE), technological factors (TEC), policy mechanisms (POM), and behavioral mediators (BEH). Technological factors (TEC) emerged as the predominant direct driver of PUD, exhibiting the highest path coefficient (0.444), highlighting the significance of innovation and sophisticated technology in influencing customer choices. Policy mechanisms (POM) and behavioral mediators (BEH) exerted significant direct effects on PUD, with path coefficients of 0.159 and 0.215, respectively, underscoring the influence of advantageous policies and consumer perceptions on electric vehicle uptake. Pre-purchase behavior (PRE) exhibited a modest but substantial direct effect on PUD (0.125), alongside a noteworthy negative indirect effect via BEH, suggesting possible dissonance between pre-purchase evaluations and emotional involvement. The indirect effects indicated that TEC (0.082) and POM (0.037) significantly impacted PUD through BEH, confirming their contribution to promoting favorable consumer sentiments. TEC showed direct and indirect superiority, whereas POM played a dual role in influencing behavioral changes and purchasing decisions. The findings underscore the essential role of technology innovations, favorable legislation, and comprehension of consumer behavior in facilitating electric vehicle adoption in emerging economies such as Nepal.

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Table 5 - R Square value

Constructs	R Square
Behavioral	0.349
Purchase Decision	0.495

The R-squared (R^2) values in Table 5 evaluate the explanatory capacity of the constructs in the structural model. The R^2 value for the behavioral construct is 0.349, signifying that 34.9% of the variance in consumer behavior is elucidated by the independent variables in the model, which encompass pre-purchase conduct, technical aspects, and regulatory processes. The values indicate that although these factors substantially affect consumer behavior, other variables beyond the model may contribute considerably to behavioral changes. Conversely, the R^2 value for the buy choice construct is 0.495, indicating that the independent variables and the mediating influence of behaviour explain 49.5% of the variance in purchase decisions. A higher R^2 value signifies that the model accurately reflects the key determinants influencing customer purchasing decisions for electric cars (EVs) The result shows the behavioral mediator significantly elucidates the factors affecting EV adoption in this study environment. The unexplained variance underscores future studies' need to incorporate supplementary variables or contextual factors that may improve the model's predictive precision.

Table 7 - Hypothesis Testing

	Path	**P values**	**Impact**
H1	**PRE -> PUD**	0.002	Accepted
H2	**TEC -> PUD**	0.000	Accepted
H3	**POM ->PUD**	0.000	Accepted
H4	**BEH -> PUD**	0.000	Accepted
H5	**POM -> BEH**	0.000	Accepted
H6	**PRE -> BEH**	0.002	Accepted
H7	**TEC -> BEH**	0.000	Accepted
H8	**PRE -> BEH -> PUD**	0.014	Accepted
H9	**TEC -> BEH -> PUD**	0.000	Accepted
H10	**POM -> BEH -> PUD**	0.002	Accepted

H1: Pre-purchase behavior significantly influences purchase decisions and positively impacts the decision to adopt EVs.

H2: Technological factors have the strongest impact on purchase decisions to adopt EVs.

H3: Policy mechanisms significantly affect purchase decisions to adopt EVs.

H4: Behavioral factors significantly impact purchase decisions to adopt EVs.

H5: Pre-purchase behavior significantly influences behavioral factors for purchase decisions of EVs.

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H6: Technological factors strongly and positively influence behavioral factors for purchase decisions of EVs.

H7: Policy mechanisms positively and significantly impact behavior for purchase decisions of EVs.

H8: Pre-purchase behavior affects purchase decisions through the mediating role of behavioral factors.

H9: Technological factors indirectly impact purchase decisions through the mediating role of behavior.

H10: Policy mechanisms indirectly influence purchase decisions through the mediating role of behavioral.

7 Findings and Discussion

Findings

Examining direct influences on customer purchasing decisions indicates that pre-purchase behaviour (PRE) significantly impacts electric vehicle (EV) adoption decisions, evidenced by a p-value of 0.002. This research demonstrates that customer choices are shaped by their preliminary information search, assessments of options, and expectations, all of which constitute an essential component of the decision-making process. Technological considerations (TEC) significantly influence buying decisions, evidenced by a p-value of 0.000, underscoring the importance of product qualities, including EV performance, sophisticated technology, and environmental advantages. The significance of policy mechanisms (POM) is evident, with a p-value of 0.000, indicating that government incentives such as subsidies, tax exemptions, and advantageous financing alternatives substantially enhance EV adoption. Likewise, behavioral factors (BEH), encompassing customer attitudes and emotional involvement, significantly impact purchase decisions (p = 0.000), suggesting that psychological elements are critical determinants in the electric vehicle acquisition process. The investigation of direct impacts on behavioral mediators highlights the substantial impact of policy mechanisms (POM) on consumer behavior (p = 0.000). The value indicates that governmental initiatives significantly influence consumer perceptions regarding the uptake of electric vehicles. Pre-purchase behaviour (PRE) strongly influences customer behaviour (p = 0.002), indicating that although early assessments are crucial, they must correspond with consumer attitudes to facilitate effective adoption. Technological characteristics (TEC) significantly affect consumer behavior (p = 0.000), underscoring that innovation and performance are essential in cultivating favorable attitudes towards electric vehicles (EVs). The indirect effects via behavioral mediation corroborate these findings, demonstrating significant routes from PRE to BEH to PUD (p = 0.014), TEC to BEH to PUD (p = 0.000), and POM to BEH to PUD (p = 0.002). The results indicate that although pre-purchase behaviour may negatively influence purchasing decisions, technological considerations and regulatory mechanisms favorably influence consumer behaviour, increasing the possibility of electric vehicle adoption. This thorough comprehension underscores the intricate interaction of external influences, consumer perceptions, and behavioral mediation in influencing electric vehicle purchase decisions.

DISCUSSION

This study investigates the synergistic impact of pre-purchase behaviour, technological influences, and policy frameworks on consumer purchasing decisions for electric cars (EVs) in Nepal, with consumer behaviour acting as a mediating variable. The results align with the Theory of Planned Behaviour (Ajzen, [11]) and the Innovation Diffusion Theory (Rogers, [12]), which underscore the importance of attitudes, innovation attributes, and external factors in influencing customer choices. Pre-purchase behavior directly influences purchase decisions and demonstrates a subtle, indirect effect through behavior. This dichotomy indicates preliminary customer assessments may not consistently correspond with emotional and attitudinal influences. The discovery highlights the necessity of incorporating pre-purchase and psychological elements into a cohesive framework to comprehend customer decision-

making thoroughly. Technological considerations, by their significant direct and mediated effects, substantiate the assertion that perceived novelty and usefulness are essential determinants of consumer behavior and adoption. The results indicate that technological criteria, including performance, dependability, and environmental sustainability, significantly impact purchasing decisions for Evs. The result supports earlier research (Bigerna & Micheli, [8]) that emphasized the significance of innovation in promoting electric vehicle uptake. The focus on technology highlights the necessity of enhancing EV features to satisfy consumer demands. Policy mechanisms show both direct and indirect influences on purchasing decisions. These results correspond with Saud and Paudel [7], who highlighted the significance of subsidies, tax incentives, and finance alternatives in facilitating EV adoption. In Nepal, where cost sensitivity and regulatory frameworks are crucial, supportive policies are essential for enhancing EV adoption. The research emphasizes the intermediary function of behavior in connecting external stimuli (policy mechanisms, technology, and pre-purchase behavior) to purchasing decisions. The study contributes to the current literature by offering empirical findings regarding the influence of behavioral determinants on electric vehicle adoption in emerging economies such as Nepal, where socio-economic and cultural environments diverge from those of developed countries. Behavioral characteristics considerably mediated the influence of external variables on purchasing decisions. Khan [3] argument is that consumer attitudes and emotional involvement are crucial in decision-making. The significant mediation effects highlight the necessity of addressing psychological barriers and incentives to improve adoption rates.

CONCLUSION

The results indicate that the interaction of technological elements, policy processes, and pre-purchase behaviour substantially affects customer purchasing decisions for electric vehicles in Nepal. Behavioral factors serve a vital mediating function in these connections. Policymakers and marketers should utilize technology innovations, formulate supportive regulations, and address behavioral motivators to enhance EV adoption effectively. The mediating function of behaviour provides a refined comprehension of the decision-making process, emphasizing the significance of considering both external and internal influences. The results provide practical guidance for politicians, marketers, and manufacturers to promote electric vehicle adoption in Nepal. Stakeholders can expedite the shift towards sustainable transportation options by fixing technological deficiencies, enhancing legislative support, and influencing consumer perceptions. In conclusion, the government must invest further resources to promote social acceptance of electric vehicles by enhancing infrastructure to satisfy customer expectations. Adopting electric vehicles would help mitigate numerous respiratory conditions, including asthma, lung cancer, chest pain, congestion, throat inflammation, cardiovascular illness, and respiratory disease.

8 Practical Implications

Manufacturers and marketers must prioritize technology innovations that alleviate consumer apprehensions about performance, durability, and environmental sustainability. Effectively conveying these technology advantages can further increase adoption rates. Policymakers must persist in formulating and executing supporting policies, encompassing subsidies, diminished import tariffs, and readily available financing alternatives. These interventions are especially vital in growing economies such as Nepal, where cost-effectiveness is a significant issue. Behavioral variables, such as attitudes and emotional engagement, must be proactively addressed through focused marketing campaigns and awareness initiatives. Advocating for electric vehicles' environmental and economic advantages might favorably influence consumer perceptions and choices. The identified discrepancy between pre-purchase behaviour and mediated decisions underscores the necessity for transparent and uniform information regarding electric vehicles. Improving clarity about electric vehicle costs, performance, and long-term advantages can synchronize initial assessments with purchasing choices.

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