Indian Management Students' Electric Car Purchase Intention

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Abstract

This study uses structural equation modeling to understand the purchase intention of postgraduate management students who are expected to be early adopters of electric cars (e-cars). Based on the sample of 436 students from India, the results indicate that environmental concern is the most important factor influencing purchase intention. However, the students also prefer an automotive design and value social norms. The study also identifies that government policy influences purchase intention through the mediation of charging and driving convenience. These findings imply that the government's adoption of electric vehicle policy might boost the production of and demand for e-cars in the country. Furthermore, producers can gain a competitive edge by addressing driving convenience, charging convenience, and vehicle design, and by highlighting the environmental benefits of e-cars.

Keywords: Electric Cars; Electric Vehicles; Purchase Intention; Confirmatory Factor Analysis; Structural Equation Modelling; India.

1. Introduction

Among the fossil fuel passenger vehicles, cars are one of the major contributors to air pollution. There are a few studies that ascertain the determinants of intentions to purchase electric cars (e-cars) (Higueras-Castillo *et al.*, 2021). Hackbarth and Madlener, 2013, study finds that the younger, well-educated and environmentally aware group is one of the potential groups for alternative fuel vehicles. Therefore, the knowledge about the determinants of purchase intention of the young adults, which are still not consumers but are expected to enter the market for EVs/ e-cars soon, is important from the perspective of marketers and policymakers.

Very few studies have examined the purchase intentions of the population cohort that is soon going to enter the early adopters' group or more likely to embrace alternative fuel vehicles. Egbue and Long, 2012 surveyed 481 students, and teaching and non-teaching staff, considering them as technology enthusiasts, to understand the barriers to widespread acceptance of EVs. However, not all students are likely to be potential

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consumers of EVs or e-cars. But, it is the students' group, well aware of the latest technological developments, likely to join the workforce soon and expected to receive a good salary package, which is going to be the potential consumer group for the EVs. Therefore, this study examines the purchase intentions of students doing their post-graduation in management, ascertains the factors that are relevant for the potential consumers, and suggests policy changes and promotional strategies. Postgraduate management students in India are potential consumers or potential early adopters of e-cars because: (i) They are young and less risk-averse (Albert and Duffy, 2012). (ii) Fresh management postgraduate students in India receive on an average more than INR 0.9 million (USD 12605) per annum (Mettl, 2019). Therefore, they can afford a mid-range car within 2 to 3 years of their entry into the corporate world. (iii) Management students are well aware of new technological developments. Their interactions with their peers facilitate the exchange of ideas and the sharing of the latest developments in different technological and managerial fields.

The rest of the paper is structured as follows: Based on the review of empirical studies on intentions to purchase or actual purchases of EVs/ e-cars, section 2 proposes a conceptual framework and hypotheses. Section 3 describes the data and methodology. Section 4 presents the findings and section 5 discusses the results. Section 6 concludes by highlighting the theoretical and practical implications along with the limitations and further research directions.

2. Theoretical Framework and Research Hypotheses

The majority of empirical studies, analyzing consumers' intentions to purchase EVs, have been conducted in developed countries (Li *et al.*, 2017). As the sales of EVs in most developing countries, such as India, is quite limited, it is difficult to identify the factors affecting the actual purchase behavior in these countries. However, some researchers have studied the purchase intentions (Habich-Sobiegalla, Kostka and Anzinger, 2018). Studies assessing the purchase intentions of young adults or students, which are soon going to enter the potential customer group, are rather limited. The available empirical studies are based on a wide range of theoretical models varying from Theory of Reasoned Action (Lai, 2017); (Fishbein and Ajzen, 1975), Theory of Planned Behavior (TPB) (Ajzen, 1991), to Unified Theory of Acceptance and Use of Technology (Venkatesh *et al.*, 2003). Most of the recent work uses combinations of these various theories to assess the purchase intentions.

The commonly studied factors in the extant literature (Li *et al.*, 2017) are environmental concerns, economic benefits, government policies, technical features such as charging convenience and driving convenience, automotive design, and social benefits. To understand the impact of these factors on the students' purchase intention, we have conceptualized the framework as depicted in Fig. 1.
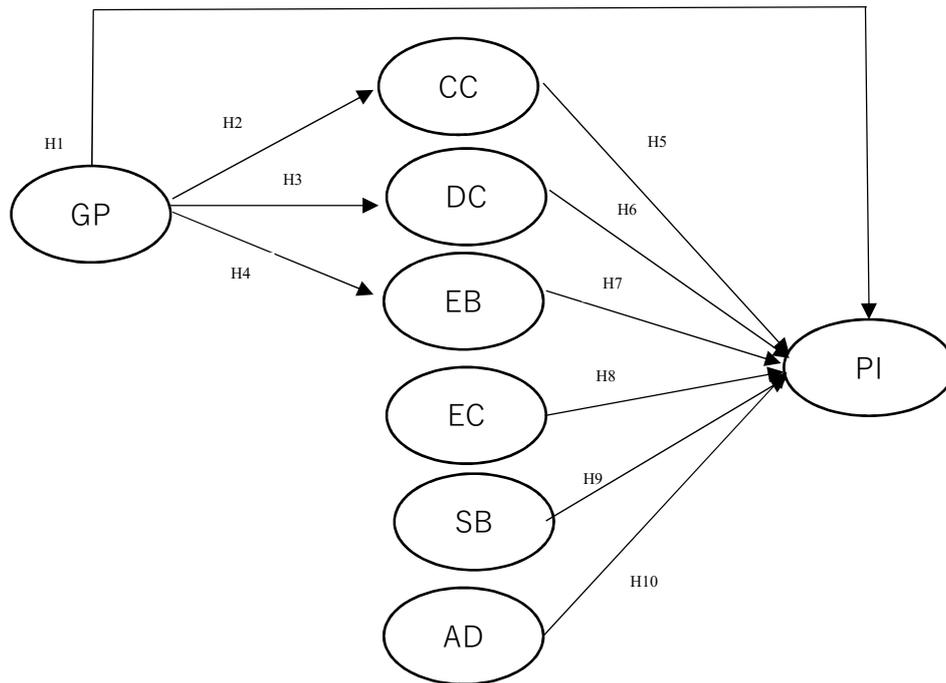
Fig. 1. Proposed Conceptual Framework
Notations: GP: Government Policy, CC: Charging Convenience, DC: Driving
Convenience, EB: Economic Benefits, EC: Environmental Concerns, SB: Social
Benefits, AD: Automotive Design, PI: Purchase Intention

Given this conceptual framework our hypotheses are as follows:

Government policies: Although the direct impact of government policies on purchase intentions has been widely studied (Lane and Potter, 2007), studies on the impact of such policies through the mediation of charging and driving convenience and the economic benefits are needed. Thus, we propose the following hypotheses:
H1: Management students' perception of government policy has a positive influence on their purchase intention.
H2: Management students' perception of government policy has a positive influence on their perception of charging convenience.
H3: Management students' perception of government policy has a positive influence on their perception of driving convenience.
H4: Management students' perception of government policy has a positive influence on their perception of economic benefits.

Charging Convenience: Jensen, Cherchi and Mabit, 2013, find that the consumers commuting longer distances prefer charging facilities at workplaces, while Bunce, Harris and Burgess, 2014, report that UK drivers prefer recharging at home. But, the Spanish population is less concerned with the charging time and frequency (Junquera, Moreno and Álvarez, 2016). In the context of developing countries, charging infrastructure is significant in Brazil but not in China and Russia (Habich-Sobiegalla, Kostka and Anzinger, 2018). In India also infrastructure support is not a significant factor in explaining consumers' purchase intentions (Mishra and Malhotra, 2019). However, our

study is analyzing a different group of potential consumers. Therefore, the following hypotheses is proposed:
H5: Management students' perception of charging convenience has a positive influence on their purchase intention.

Driving Convenience: A relatively small driving range is a major concern in the widespread adoption of EVs (Junquera, Moreno and Álvarez, 2016). However, many studies have observed heterogeneity in preferences. Hoen and Koetse, 2014, find that the consumers with lesser yearly mileage are lesser concerned for driving range. Similarly, a study by Jensen, Cherchi and Mabit, 2013, indicates that households with several cars are less apprehensive about a low driving range of EVs. Thus, we hypothesize that:
H6: Management students' perception of driving convenience has a positive influence on their purchase intention.

Economic benefits: Though the high cost of EVs is found to be a deterrent in their adoption (Simsekoglu and Nayum, 2019), they are considered to be fuel-efficient, and perceived to have a lower running cost (Razak *et al.*, 2014). In the context of developing countries, Habich-Sobiegalla, Kostka and Anzinger, 2018, find price having a significant negative effect on purchase intentions in Brazil, China and Russia. However, the cost of EVs and other financial or economic benefits, according to Mishra and Malhotra, 2019, are not significant determinants of consumers' purchase intentions. On the contrary, Higueras-Castillo *et al.*, 2021, indicate that perceived economic benefits moderate the relationship between attitude towards EVs and EV adoption behavior. Thus we hypothesize that:
H7: Management students' perception of economic benefits has a positive influence on their purchase intention.

Environmental concerns: Examining the role of environmental concerns, Krupa *et al.*, 2014, find a positive association between environmental concerns and EV adoption behavior. However, given the amount of pollution generated during the battery and EV manufacturing stage, some studies (Graham-Rowe *et al.*, 2012) find that the consumers are apprehensive of the positive impact of EV adoption on the environment. Even in the context of developing countries, environmental concern is an important factor affecting purchase intentions (Habich-Sobiegalla, Kostka and Anzinger, 2018; Higueras-Castillo *et al.*, 2021; Mishra and Malhotra, 2019). Thus, we hypothesize that:
H8: Management students' environmental concern has a positive influence on their purchase intention.

Social Benefits: Graham-Rowe *et al.*, 2012, find that the drivers in the UK associate the use of EVs with different symbiotic meanings. In this study, one group of drivers associates EVs with a dull lifestyle, whereas another group of drivers associates these vehicles with a progressive, contemporary, and technology-focused mindset. Ng, Law and Zhang, 2018, in the context of Hong Kong, find that the self-expressive benefits, such as perception of 'superior lifestyle,' have a positive influence on willingness to pay a premium for EVs. However, a study by Simsekoglu and Nayum, 2019, suggests that symbiotic attributes have no significant effect on purchase intentions. Social influence is also not significant in the Indian context ((Mishra and Malhotra, 2019; Higueras-Castillo *et al.*, 2021). Given inconclusive influence of social benefits on purchase intentions, it is

worth exploring its impact on the purchase intentions of students. Thus, we hypothesize that:

H9: Management students' perception of social benefits has a positive influence on their purchase intention.

Automotive Design: Hoen and Koetse, 2014*,* study confirmed that the availability of different models enhances the likelihood of selecting an EV. Other technical attributes, such as comfort, ease, and quietness, can create a positive attitude towards EVs (Lai, 2017). Therefore, we hypothesize that:

H10: Management students' perception of automotive design has a positive influence on their purchase intention.

3. Data and Methodology

The postgraduate management students are used as a sample in this study, for the reasons specified earlier in the introduction, to ascertain the dimensionalities of e-car purchase intentions. The first part of the questionnaire of this study aims at assessing the respondent's demographic profile. The second part, which consists 39 items, aims at measuring the purchase intentions of the respondents on a 5- point Likert scale (1= "strongly disagree", 5= "strongly agree"). The study has adopted the existing scales for different model constructs from the previous studies. Items relating to environmental concerns are adopted from Hackbarth and Madlener, 2013, and Razak *et al.*, 2014. Items relating to economic benefits are taken from Krupa *et al.*, 2014, and Razak *et al.*, 2014. Items relating to charging convenience and driving convenience are derived from Haustein and Jensen, 2018, Higueras-Castillo *et al.*, 2021, and Krupa *et al.*, 2014, whereas items relating to automotive design are derived from Hackbarth and Madlener, 2013. Social benefits are measured using the items from Haustein and Jensen, 2018, whereas government policy is measured using the items from Hackbarth and Madlener, 2013, and Razak *et al.*, 2014. Purchase intention is measured using the items of Haustein and Jensen, 2018, and Lai *et al.*, 2015, studies. Presenting the items in a random order in the questionnaire, a pilot study is conducted to validate the questionnaire. Using the initial responses of 106 students, the questionnaire is amended to include 33 items. The data is collected through an online platform and via emails from the respondents from different colleges located across the country. The data is cleaned by deleting invalid, straight-lined responses, and replacing missing values with the mean substitution approach (Hair *et al.*, 1998), yielding 436 valid responses for this investigation.

Cronbach's Alpha is calculated using these 436 valid responses. The Cronbach Alpha estimate of 0.870 is greater than the standard of 0.6 (Hair *et al.*, 1998), which indicates that the items have a high level of internal consistency. Also, the reliability coefficients of all the constructs are larger than 0.7 (Table 2), indicating the desired level of internal consistency of the items within the construct. To evaluate the proposed measurement model, confirmatory factor analysis (CFA) is used, while to test the hypothesis about the structural relationship among the latent constructs, structural equation modeling (SEM) is applied.

3.1. Respondents Profile

Males made up the majority of the 436 responders (67.6%). At the graduate level, the respondents had a wide range of educational backgrounds, with 43.7% having a degree in Engineering/Technology, 40.6% having a degree in commerce, and the rest having a

degree in Arts and Science. In terms of age, the respondents' average age was 23.41. The standard deviation in the age was 2.02 years. The majority of the surveyed students (47.3%) had a family income of roughly INR 0.5-1 million (USD 7,000-14,000) per year, 22.2% had less than INR 0.5 million (USD 7,000), and the remaining (30.6%) had more than one million (USD 14,000) per year. The majority of the surveyed students (60%) were without any work experience, while 29.4% had one to five years of work experience. In terms of car ownership, 80% of those surveyed said they had one.

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4. Data Analysis

A CFA is used to investigate the proposed measurement model. The parameters of the model are estimated using the Maximum Likelihood Method with IBM SPSS AMOS 27.0. The resulting indices suggest an acceptable fit with a $x^2 = 1233$ (d.f. =425, p=0.00), a x^2/df of 2.901, a Goodness of Fit Index (GFI) of 0.903 , a Comparative Fit Index(CFI) of 0.913 and a Root Mean Square of Approximation (RMSEA) of 0.061 (Baumgartner and Homburg, 1996). An initial test of convergent validity is conducted by examining the parameter estimates and their associated t-values (Gerbing and Anderson, 1988). Evidence of convergent validity exists when all indicator loadings (λ) are statistically significant (Diamantopoulos and Siguaw, 2000). As all factor loadings of all the items considered in this study are significant, convergent validity is ensured. A scale purification process is conducted and all indicator variables with standardized factor loadings smaller than 0.4 (Diamantopoulos and Siguaw, 2000) are removed.

To assess the convergent validity of each construct, we have computed the average variance extracted and composite reliability to know how well each construct is measured by its indicators (Table 1). Composite reliability, or the shared variance among a set of indicators that measure an underlying construct, is greater than the threshold value of 0.6 (Bagozzi, Yi and Phillips, 1991) while the average variance extracted for each construct is larger than 0.5 except for social benefits. From the results we conclude that our constructs are reliable and unidimensional (Gerbing and Anderson, 1988). To assess the discriminant validity, we have compared the square root of AVE of each construct presented in the upper diagonal of Table 2 with the respective construct's correlation coefficients. All the AVEs are greater than the correlations indicating further support for the discriminant validity.

Table 1: Standardized item loadings, Cronbach's Alpha, AVE and CR

Construct/Item	Standardized Loading	Cronbach's Alpha	Average Variance Extracted	Composite Reliability
Automotive Design		*0.71*	*0.57*	*0.89*
I think e-cars are sleek	0.685			
I think e-cars are durable	0.769			
I think e-cars available in different size, colors and design	0.735			
I think e-cars aesthetically appealing	0.705			
I think e-cars technologically superior	0.867			
I think e-cars give comfortable ride	0.755			
Driving Convenience		*0.71*	*0.50*	*0.86*
I think sufficient battery charging points are available on highways	0.741			
I think adequate service centers are available for e-cars	0.699			
I think charging speed of e-cars is adequate	0.701			
I think the range of e-cars is adequate for me	0.689			
I think e-cars makes less noise	0.711			
I think pickup of e-cars is adequate	0.721			
Government Policy		*0.76*	*0.58*	*0.87*
I think the government is providing incentives for the purchase of e-cars	0.721			
I think the government is providing subsidies to the manufacturers	0.847			
I think the government is incentivizing research and development in EV technologies	0.645			
I think the government is investing on the establishment of EV charging points	0.744			
I think the government is planning to introduce EV policy	0.824			
Environmental Concern		*0.70*	*0.55*	*0.83*
Conventional vehicles are contributing to increasing level of air pollution in the country	0.826			
I care about energy conservation	0.722			
I think e-cars have better fuel efficiency	0.743			
I prefer to purchase ecologically safe products	0.653			
Charging convenience		*0.70*	*0.51*	*0.76*

I think batteries can be charged at home	0.695				
I think batteries can be charged at my college/workplace	0.746				
I think e-cars batteries can be charged conveniently	0.706				
Purchase Intentions			*0.77*	*0.53*	*0.77*
I would recommend my friends and relatives to purchase an e-car	0.768				
I intend to buy an e-car in the near future	0.788				
I would like to be part of promotional campaign of e-cars	0.623				
Economic Benefits			*0.78*	*0.64*	*0.78*
I think e-cars have better fuel efficiency	0.822				
I think e-cars have lesser maintenance cost	0.781				
Social Benefits			*0.81*	*0.47*	*0.64*
The society perceives that the persons with e-vehicles are more concerned for the environment	0.643				
The society perceives that person with e-vehicles are more concerned for the societal health	0.722				

Note: Items included under each construct are from Pailwar, V.K., & Srinivasan, M. (2022). Management students' electric car purchase intentions: an exploratory study. *Academy of Marketing Studies Journal, 26*(2), 1-11.

Table 2: Discriminant validity of constructs

Construct	GP	DC	CC	EC	SB	EB	TB	PI
GP	**0.76**							
DC	0.19	**0.71**						
CC	0.17	0.37	**0.72**					
EC	0.41	0.29	0.26	**0.74**				
SB	0.26	0.26	0.10	0.44	**0.68**			
EB	0.13	0.37	0.34	0.24	0.17	**0.80**		
TB	0.34	0.49	0.46	0.55	0.33	0.25	**0.74**	
PI	0.31	0.40	0.28	0.53	0.32	0.20	0.49	**0.73**

Notations: Same as in Fig. 1.

4.1. Hypothesis Testing

A two-step approach of CFA and SEM is adopted to examine the hypothesized relationships, (Hair et al., 2010) using AMOS 27.0. From Table 3, it is evident that government policy (β=0.13, $p<0.01$), environmental concern (β=0.80, $p<0.001$), social

benefits (β=0.08, p<0.05), and technological benefits (β=0.48, p<0.001) have significant positive impacts on intention to purchase e-cars. The results also indicate that the mediating constructs charging convenience (β=0.09, p<0.05) and driving convenience (β=0.36, p<0.001) have significant positive impacts, whereas economic benefits (β=-0.04, p>0.05) does not have a significant impact on purchase intention. Hence, hypothesis H1 to H6 and H8-10 are accepted.

Table 3: Structural Model Results

Hypothesis	Path Relationship	B	SE	Results
H1	GP – PI	0.13**	0.046	Supported
H2	GP – CC	0.22**	0.070	Supported
H3	GP – DC	0.18***	0.053	Supported
H4	GP – EB	0.20*	0.086	Supported
H5	CC – PI	0.09*	0.040	Supported
H6	DC – PI	0.36***	0.056	Supported
H7	EB – PI	-0.04ns	0.033	Not Supported
H8	EC – PI	0.80***	0.077	Supported
H9	SB – PI	0.08*	0.035	Supported
H10	AD – PI	0.48***	0.071	Supported

***p < .001. **p < .01. *p < .05. ns=not significant.
Notations: Same as in Fig. 1.

4.2. Mediating Effect
The mediating effect of the constructs charging convenience, driving convenience and economic benefits between government policy and purchase intention is examined. It is evident from Table 4 that partial mediation exists between government policy and purchase intention through charging convenience and driving convenience. No mediation exists between government policy and purchase intention through economic benefits.

Table 4: Mediation effect results

Path	Direct Effect		Indirect Effect		Total Effect		Results
	Beta	P value	Beta	P value	Beta	P value	
GP – PI (GP – CC – PI)	0.13	**	0.02	*	0.15	*	Partial mediation
GP – PI (GP – DC – PI)	0.13	**	0.06	***	0.19	**	Partial mediation
GP – PI (GP – EB – PI)	0.13	**	0.01	*	0.12	Ns	No mediation

Notations: Same as in Fig. 1.

5. Discussion

The results of the study indicate that students' purchase intentions are influenced by a multitude of factors. Aside from analyzing the impact of a multitude of factors, this study also incorporated government policy as an external factor and assessed its direct impact as well as the indirect impact via the mediation of charging convenience, driving convenience and economic benefits. The results of the study indicate a positive association between all the factors, except economic benefits, examined in this study and

the intention to purchase e-cars. Except for the factor economic benefits all the factors are identified to be significant as well, leading to acceptance of all the hypotheses except H7. This study identifies environmental concern as the most important factor influencing the purchase intention, which is in line with many past studies for developed countries (Higueras-Castillo *et al.*, 2021; Simsekoglu and Nayum, 2019) and developing countries (Lai *et al.*, 2015; Malik and Yadav, 2021; Mishra and Malhotra, 2019). This finding, thus, suggests that the postgraduate management students perceive e-car as a more fuel-efficient vehicle, leading to lesser air pollution. In this respect, they are similar to other consumer segments that are examined in the previous studies.

The study identifies automotive design as the second most important factor influencing purchase intention. This result is supported by earlier studies (Hoen and Koetse, 2014; Lai *et al.*, 2015). Previous studies in the Indian context have not examined this aspect. Indian management students perceive e-cars as sleek, aesthetically appealing vehicles that are accessible in varying sizes, colors, and designs. They also perceive e-cars to be giving comfortable rides.

Driving convenience is the third most important factor influencing purchase intention. Driving convenience arises from the supporting infrastructure, leading to battery charging points and service centers on highways, and technological advancements that enable sufficient range, pick up, and battery charging speed. This result is in concurrence with studies by Higueras-Castillo *et al.*, 2021, and Mishra and Malhotra, 2019. Thus, it appears that management students prefer driving convenience similar to the other consumer segments studied by the previous studies.

Another important component of supporting infrastructure is charging infrastructure. Charging infrastructure, which improves charging convenience has been found to be an important influencing factor by Higueras-Castillo *et al.*, 2021. This study also finds charging convenience to be an important influencing factor, which is in deviation with the result of the previous study by Mishra and Malhotra, 2019, in the Indian context. Thus, it appears that the Indian management students are different from other consumer segments as far as charging convenience is concerned. Despite its importance, the influence of charging convenience is marginal.

Government policy can directly impact the purchase intention by incentivizing the consumers, but it can also indirectly impact the purchase intention by incentivizing the investment in research and development in electric technologies and improving supporting infrastructure. Therefore, this study examined the direct and indirect effects of government policy. The result of this study indicates that government policy has a significant positive impact, as has been found in a few previous studies (Lane and Potter, 2007; Jenn, Springel and Gopal, 2018). The study results also indicate that the perception of government policy also influences purchase intention through the partial mediation of the perception of charging convenience and driving convenience. However, there is no influence of government policy on purchase intention through the mediation of economic benefits. The results, thus, highlight that the management students perceive government policy as having a direct influence and also an indirect influence, on their purchase intentions, via the creation of charging infrastructure and technological development, which can improve their driving convenience.

Social benefits is another significant positively influencing factor in this study. This result is consistent with many previous studies (Higueras-Castillo *et al.*, 2021). However, previous studies in the Indian context (Malik and Yadav, 2021; Mishra and Malhotra, 2019) do not find it to be a significant factor. Thus, it appears that social benefits emerging

from the ownership of e-cars are more important for the Indian management students than the other consumer segments studied by the previous studies in the Indian context. The management students' segment in India prefers to be perceived as environmentally concerned and caring for societal health. Hence, they would be inclined to purchase an e-car to project such an image. However, the impact of social benefits is marginal.

In this study, economic benefits is the only factor with a negative effect on the purchase intention, although it is not significant. Though some studies (Lai *et al.*, 2015) find economic benefits to be an important factor in EV adoption, previous studies in the Indian context are inconclusive on this. Mishra and Malhotra, 2019, find financial or economic benefits to be non-significant, whereas Malik and Yadav, 2021, study indicates that the relationship between attitude towards EVs and EV adoption behavior is moderated by perceived economic benefit. The results of the study indicate that although government policy impacts the economic benefits arising from the operation and maintenance cost, the management students do not perceive them to be an important influencer on their purchase intentions.

6. Conclusion, implications and limitations

6.1 Theoretical contribution

Although many studies have been carried out to measure the purchase intentions towards EVs, there is hardly any study analyzing the purchase intention of postgraduate management students. Besides, for the first time, the study extends the TPB by treating government policy as an external variable and examines its direct impact as well indirect impact on purchase intention via the mediation of charging convenience, driving convenience, and economic benefits. Unlike the previous studies in the Indian context, this study also introduces automotive design as a separate factor and examines its impact on purchase intention.

The results of this study point out that environmental concern has the most impact on the management students' purchase intention. This implies that the young adult students prefer to purchase more ecologically safe products. Although these young adult students are environmentally concern, they value social benefits and also exhibit a preference for comfortable drive, sleek designs, availability of vehicles in different colors, and other features in cars that can appeal to their aesthetic sense. Besides, they prefer supporting infrastructure and technological features that can improve their driving and charging convenience. The study also identifies that the management students' perception of government policy positively influences their purchase intention. The government policy also influences the purchase intention through the mediation of supporting infrastructure and technological advancement that improve charging convenience and driving convenience. However, it is surprising to note that the factor economic benefits does not have a positive influence on the purchase intention.

6.2. Practical Implications: Policy and Strategy

India has a low e-car market penetration rate. The development of this market requires policies that can motivate potential early adopters to purchase e-cars. The results of this study highlight that some factors influencing management students' purchase intention are different than those affecting the purchase intention of the consumer segment in general studied in the Indian context by previous studies. These results, thus, suggest that the management student segment is a separate segment. It required to be addressed by the policymakers and the manufacturers separately.

6.2.1. Government Policy Implications

As government policy has a significant direct impact as well as significant indirect impact on the purchase intention through charging and driving convenience, the government should focus on introducing a robust EV policy. There should be adequate subsidies to the manufactures for technological advancements in e-car design, more investment in research and development that can improve the battery capacity and the range of e-cars, and allocation of more funds for the creation of supporting infrastructure leading to better-charging facilities and service centers to capture the potential early adopter group. As the market for e-cars is still underdeveloped, with very few users of such vehicles, the government in its promotional campaigns, can also include the experiences of e-car owners to demonstrate the usefulness, desirability, and ease of using these cars for day to day activities.

6.2.2. Managerial Implications

Environmental concerns, automotive design, driving convenience, and charging convenience being the significant influencer on the intention to purchase e-cars, automakers should focus more on using advanced technology that makes use of greener sources of energy for charging batteries and reducing the pollution emanating from the car directly as well as indirectly. They should invest adequate funds in improving the design of e-cars and ensure that they are comfortable, aesthetically appealing, and meet the differing tastes and preferences of the young adult consumers.

There is also a need for higher investment in battery development to enhance the range that can be achieved by e-cars. The investment in the development of machines that can reduce noise is also desirable. To improve the driving and charging convenience, manufacturers should collaborate with the government for creating more ultra-fast charging infrastructure, with low rates, and for the set-up of repair and maintenance service centers across the country.

6.3. Limitations and Future Research Directions

Although the findings of this study are important from the perspective of capturing a group of potential early adopters, these findings are subject to a set of limitations allowing for a variety of opportunities for future research.

First, though this study covers postgraduate management students across the country, it lacks generalization either to the entire consumer population in India or to other countries. The focus of this study is not on representativeness but on understanding the purchase intention of a potential e-car adopters in the early stages of diffusion where there is neither a noteworthy secondhand market nor many consumers with a prior experience of driving a new e-car. Although management students is one potential early adopter group, there can be other potential early adopter groups (Morton, Anable and Nelson, 2016).

Second, although a wide range of attributes is included in this study, the literature points out several other attributes that may be relevant for understanding the potential consumers of EVs. Inclusion of attributes such as personal norms and values, safety and risk, technical interest, and demographic characteristics might affect the intention to purchase e-cars.

Third, the factor economic benefits has a negative impact though not significant. This construct consists of just two items in this study, which perhaps are not able to represent

the construct adequately. Further research is needed to see whether the sign and significance level of this construct improves by including more relevant items and rephrasing them.

Fourth, as the market for EVs in India is still in a nascent stage, and is continuously evolving, it would be beneficial to have more research on different consumer segments to update the understanding of evolving consumer behavior over time.

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