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Factors Influencing Consumers Buying Intentions towards Electric Cars

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Abstract
Electric vehicle (EV) adoption in Malaysia has significantly increased in recent years and is expected to continue growing. This study uses the Valence Framework to investigate the positive and negative consumer utilities influencing customer purchase intention for electric vehicles in Malaysia. Applying PLS-SEM for data analysis with a sample size of 582, the study identifies that perceived environment, monetary benefit, risk, and symbolism significantly impact consumers' purchase intention. However, the perceived fee was found to be insignificant. The findings provide valuable policy implications and recommendations for policymakers and industry players to foster future EV growth in Malaysia.

Keywords: Electric vehicle; Valence Framework; purchase intention; PLS-SEM

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1.0 Introduction

The global automobile industry is shifting towards sustainable transportation solutions, with electric cars (EVs) emerging as a viable alternative to traditional internal combustion engines (ICE). As worries about environmental pollution, energy security, and climate change grow, governments worldwide are introducing laws and incentives to encourage the use of EVs. Despite these efforts, the rate of EV adoption varies greatly among markets, and customer acceptability is still a vital aspect of the successful shift to electric vehicles (Jordan, 2023).

By 2030, the national target in Malaysia is for EVs to account for 15% of total industrial volume (TIV) (National Automotive Policy, 2020). There are now 2,020 EV charging stations in service in Malaysia. The Ministry of Investment, Trade, and Industry (MITI) maintains its aim of 10,000 EV charging stations running in the country by 2025. To promote the use of low-carbon transportation and facilitate the growth of the EV sector in Malaysia, the government is providing the following incentives: (1) Newly registered Completely Built-Up (CBU) electric cars will be entirely free from import and excise tariffs until December 31, 2025; (2) Electric car owners are eligible for a complete exemption from road tax until December 31, 2025; (3) EV owners can get a maximum of RM2,500 in tax relief for costs linked to the installation, leasing, purchase (including hire-purchase), or subscription fees of EV charging infrastructure. This tax relief is

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effective for the assessment year 2023; Enterprises that hire electric vehicles for non-commercial purposes can qualify for a tax deduction on the rental fee, with a maximum limit of RM300,000, starting with the tax year 2023 and continuing until 2025.

However, the current adoption rate remains relatively low, highlighting the need for a deeper understanding of the factors influencing consumer behaviour towards EVs. The broad acceptance of EVs is contingent mainly upon customer perceptions (Jaiswal et al., 2021). Although many studies have investigated the impact of consumer perception towards the intention to purchase EVs (Asadi et al., 2021; She et al., 2017), limited studies are available in Malaysia. EVs are comparatively new in Malaysia, and limited research has been conducted on the factors influencing public acceptance and user intentions in this nation (Asadi et al., 2021). Thus, the study aims to explore and analyse the factors influencing consumers' intention to purchase EVs. The positive and negative consumer utilities that influence customer purchase intention for electric vehicles are investigated from a behavioural decision perspective in Malaysia. The positive utilities encompass perceived monetary benefit, perceived environment, and perceived symbol. On the other hand, the negative utilities are made up of perceived risk and perceived fee.

This study adds to the existing body of research on consumer behaviour towards sustainable mobility solutions by analyzing how these factors affect the intention to purchase electric cars. The research findings can offer valuable insights for policymakers, automotive manufacturers, and other stakeholders in formulating successful strategies to encourage the adoption of electric vehicles (EVs) in Malaysia and in other markets with comparable socio-economic and cultural backgrounds.

The rest of this paper is presented as follows: Section 2—theoretical background and literature review; Section 3—methodology; Section 4—results, discussion, and implications; Section 5—conclusion.

2.0 Theoretical Background

The Valence Framework (Peter &Tarpey, 1975) is a consumer decision-making theory from an economics and psychology perspective that customers intend to engage in behaviour with the anticipation of a maximum net valence by taking into consideration positive and negative utilities. The perceived risk postulates that consumers decide what to do by minimizing the projected negative utility of that course of action. In contrast, the perceived benefit postulates that consumer decision-making is predicated on optimizing the projected positive utility of an activity. Consumers' subjective assessments of the positive values of their purchase decision include monetary and non-monetary rewards, and bare negative cost comprises financial and non-financial costs (such as time and effort) in adopting an innovation (He et al., 2018). This study measures positive utility in three dimensions, including perceived monetary benefit, perceived environment, and perceived symbol. In comparison, negative utilities are measured with two dimensions: perceived risk and perceived fee. The perception-intention framework investigates consumers' perception factors influencing their intention to purchase electric vehicles. This will explain the past study pioneered by describing the factors that make consumers want to purchase electric vehicles.

2.1 Electric Car Purchase Intention, ECPI

According to a study by (Pamidimukkala et al., 2024), intention is a habit that motivates people to do things. The intention to buy is from the development of the term intention from behavioural science, which is the subjective potential that somehow a person will take a specific action. Assessing consumer behaviour involves studying the economic, social, and psychological factors that influence how, when, why, and where customers purchase products. Customers must go through a problematic decision-making phase because they want to buy a product that conveniently fills a specific demand.

According to Kim and Ko (2012), purchase intention is a mix of customer interest and the potential of making a purchase. Several elements influence whether someone will have purchase intention, including consumer perceptions, marketing materials or design, media advertising, and customer knowledge (Lee et al., 2020). This study revealed the impact of perceived factors such as environmental concerns, fees, monetary benefits, risks and symbols on consumers' electric vehicle purchase intention. Most studies are concerned with technological factors and consumer characteristics that are assumed to determine consumer EV purchase decisions (e.g. Wang et al., 20200. However, the widespread adoption of EVs depends heavily on consumer perceptions (Jaiswal et al., 2021) rather than technology attributes (Haustein et al., 2021).

Some have studied the sum of positive and negative perceptions with a rational behaviour framework, e.g., the rational choice theory. Others examine the effects of either positive or negative perceptions. This paper studies both from a behavioural decision perspective. It names them positive utility and negative utility. The positive utility contains perceived monetary benefit, perceived environment, and perceived symbol. The negative utility consists of perceived risk and perceived fee (Wang et al., 2020; She et al., 2017).

2.2 Perceived environment, PE

The perceived environment is defined as consumer perception of the positive outcomes of driving EVs for the environment. With environmental deterioration, consumers now pay more attention to the environmental attributes of products and consider the environmental effects of the behaviour. Therefore, the environmental attributes of sustainable innovations are essential to promoting adoption (Chen et al., 2016). As sustainable innovations, EVs can reduce CO2 emissions and fuel consumption, significantly impacting transportation's contribution to global warming. Jansson et al. (2010) suggested that consumers are more willing to purchase EVs because of the environmental benefits of the use of EVs.

Hypothesis 1: Perceived environment positively influences consumer EV purchase intention.

2.3 Perceived fee, PF

Monetary cost is the financial expense consumers spend on obtaining or using a product (Ruan & Lv, 2023). Consumers may compare the price of innovation with that of the alternatives when deciding to adopt such innovation, and they would perceive the innovation fee based on this comparison. Prior studies indicated that perceived fee is one of the major factors for consumers' resistance to innovations (Haustein et al., 2021). In this paper, the perceived fee is defined as consumer perception of the money consumers need to pay for adopting EVs, such as the actual price and the fee of the home charging pile. Previous research suggests that the high purchase price of EVs is a significant obstacle to EV mass adoption. Currently, EV consumers may have to install a home charging pile because of the sparse charging network, which increases consumers' fees to use EVs. It has been shown that perceived fees negatively affect the adoption of innovations.

Hypothesis 2: Perceived fee negatively influences consumers' EV purchase intention.

2.4 Perceived monetary benefit, PMB

Perceived monetary benefit refers to consumer's perception of money-saving from using EVs. As EVs are still in their infancy, the government must provide EV consumers incentives, such as subsidies and tax credits, for EV development. That is, consumers can save money through government monetary incentives when purchasing EVs. EV maintenance is also less expensive (Hull et al., 2016), and consumers may save money on gasoline because EVs have high fuel efficiency and may be powered by low-cost electricity. Research found that consumers usually purchase EVs in response to government

Hypothesis 3: Perceived monetary benefit positively influences consumer EV purchase intention.

2.5 Perceived risk, PR

Perceived risk is defined as consumer perception of the uncertainties they may face when driving an EV, which is still in the initial stage; EV technology is immature, especially battery technology. The limited battery range may not meet consumer expectations, and thus, charging infrastructure for EVs is necessary. However, the charging infrastructure needs to be improved; thus, consumers may exhaust the power of the EV before reaching their destination. Moreover, the limited battery technology of EVs may lead to higher traffic risk (e.g. battery-fire incidents) for consumers compared with gasoline cars. A higher level of perceived risk would lead to a lower purchase intention (Cheng et al., 2019). Previous studies found that perceived risk negatively affects consumer willingness to adopt innovations (Featherman et al, 2021).

Hypothesis 4: Perceived risk negatively influences consumer EV purchase intention.

2.6 Perceived symbol, PS

Consumption is used to express individual identity, membership, and image. Consumers are motivated to be seen in a positive image and may shape a positive image by purchasing products (Fennis & Pruyn, 2007). For instance, cars have symbolic meanings for individuals' self-expression in addition to mobility. Consumers purchase a car based on instrumental attributes and symbolic value. Self-image congruency theory posits that consumers who perceive product image to be consistent with their self-image are likely to have a positive attitude toward a product and, subsequently, are more likely to purchase the said product. In this study, perceived symbol refers to consumer perception of the improvement of their image and status when adopting EVs.

Hypothesis 5. Perceived symbol positively influences consumer EV purchase intention.

Based on the literature on EV adoption, we developed a perception-intention framework to study the determinants of consumer intention to purchase EVs. Fig. 1 presents the research model. We propose that positive utility contains perceived monetary benefits, the perceived environment, and the perceived symbol. The negative utility consists of perceived risk and perceived fee. We divided consumer perceptions into positive and negative utility based on the valence framework. Several demographic variables, such as gender, age, income, and education, are regarded as control variables.

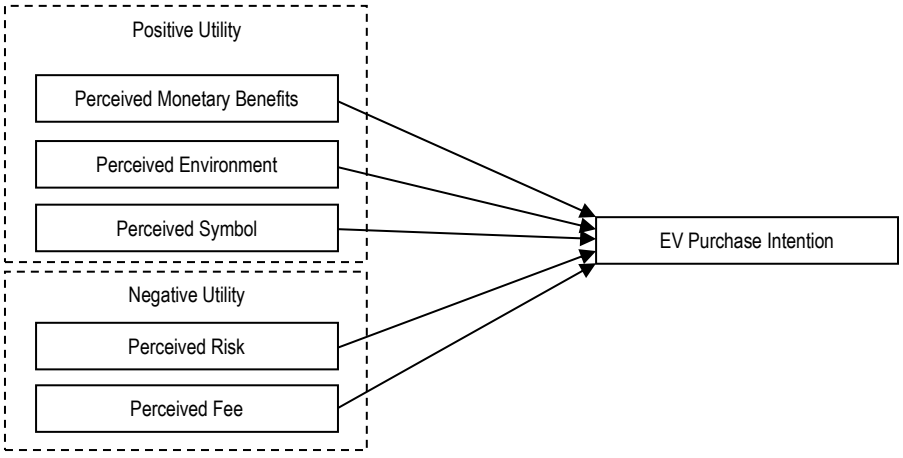

Fig. 1: Theoretical Model Framework

3.0 Methodology

This is a cross-sectional study based on quantitative data. A convenience sampling method was applied to collect data through a self-administered survey in Klang Valley, Malaysia. A total of 582 complete responses were collected. The minimum sample size required for five predictors, 138, was calculated using the GPower statistical power analysis tool (Faul et al., 2007) version 3.1.9.4 with a power of 0.95 and an effect size of 0.15 (Cohen, 1992). The demographic characteristics analysis of the respondents is shown in Table 1.

Table 1. Demographic characteristics (N=582)

Variable	Frequency	Per cent
Gender		
Male	197	34%
Female	385	66%
Age		
Below 20 years old	42	7.22%
20 – 29 years old	358	61.51%
30 – 39 years old	74	12.71%
40 – 49 years old	70	12.03%
50 – 59 years old	35	6.01%
60 years old and above	3	0.52%
Household Monthly Income		
Less than RM3000	313	53.78%
RM3001 – RM5000	109	18.73%
RM5001 – RM10000	102	17.53%
More than RM10000	58	9.97%
Education level		
Primary Education	12	2.06%
Secondary education	54	9.28%
Tertiary education	367	63.06%
Postgraduate education	149	25.60%

The questionnaire was designed by adopting question items from past studies. Measurement items used to measure perceived monetary benefit (3 items), perceived environment (5 items), perceived symbol (3 items), perceived risk (5 items), perceived fee (2 items), and electric vehicle purchase intention (3 items) were adopted from He et al. (2018). A 5-point Likert scale ranging from 1=Strongly disagree to agree 5=Strongly is used to measure the question items for measuring perceived environment, perceived symbol, perceived risk, perceived fee, and perceived monetary benefits. In contrast, questions about electric vehicle purchase intention were measured using a 7-point Likert scale ranging from 1=Strongly disagree to agree in the questionnaire 7=Strongly.

This study assessed the multivariate normality of the data using the WebPower online statistical tool. The p-value of Mardia's multivariate skewness and kurtosis coefficients were less than 0.05, verifying multivariate non-normality. This study used the Partial Least Square Structural Equation Modelling (PLS-SEM) technique to evaluate the model as it fulfils the assumption of non-normality (Hair et al., 2021). PLS-SEM data analysis was applied using SmartPLS software version 4 (Ringle et al., 2024). PLS-SEM analysis comprises a measurement model and a structural model. The measurement model tests the convergent validity and discriminant validity of the model, and the structural model assesses the hypothesis testing.

As recommended by Podaskoff et al. (2003), the partial correlation approach was used to evaluate the issue of standard method bias using unrelated marker variables. The model was regressed using this approach, both with and without a marker variable. The five marker variable items of the social desirability scale used in this study were adopted from Ballard (1992). There will not be a bias issue from the single data source if the difference in the R2 value is less than 10%. Table 2 displays the difference in R2 values between the endogenous constructs before and after the marker variable was primarily removed from the model. The difference in R2 values is less than 10%, suggesting that the study's standard method bias is insignificant.

Table 2. Partial correlation method: Compare R^2

Construct	Without Marker Variable	With Marker Variable
Electric car purchase intention	0.347	0.399

4.0 Results & Discussion

The measurement model of PLS-SEM analysis assesses the reliability and convergent validity of the outer model through factor loadings, composite reliability (CR), and average variance extracted (AVE) (Hair et al., 2017). The measurement model results in Table 3 showed that the item factor loadings were more than 0.708, the CR values were more significant than 0.7, and the AVE value exceeded 0.5, supporting the convergent validity of the constructs in the model.

Table 3. Convergent Validity

Construct	Item	Loadings	Composite reliability (CR)	Average variance extracted (AVE)
Perceived Environment	PE1	0.784	0.875	0.584
	PE2	0.761		
	PE3	0.723		
	PE4	0.762		
	PE5	0.788		
Perceived Fee	PF1	0.876	0.869	0.769
	PF2	0.878		
Perceived Monetary Benefit	PMB2	0.874	0.822	0.698
	PMB3	0.795		
Perceived Risk	PR2	0.750	0.871	0.632
	PR3	0.851		
	PR4	0.910		
	PR5	0.645		
Perceived Symbol	PS2	0.928	0.897	0.813
	PS3	0.875		
Electric Car Purchase Intention	ECPI1	0.826	0.924	0.803
	ECPI2	0.934		
	ECPI3	0.924		

Note: Three items (PMB1, PR1, and PS1) were deleted due to low factor loadings.

The discriminant validity was assessed using the Heterotrait-Monotrait ratio of correlations (HTMT), as recommended by Henseler et al. (2015). The values of HTMT lower than 0.90 (Gold et al., 2001), as shown in Table 4, support the discriminant validity of the constructs.

Table 4. Discriminant Validity (HTMT)

	1	2	3	4	5
1. Perceived Environment					
2. Perceived Fee	0.235				
3. Perceived Monetary Benefit	0.600	0.083			
4. Perceived Risk	0.177	0.694	0.070		
5. Perceived Symbol	0.578	0.197	0.640	0.108	
6. Electric Car Purchase Intention	0.388	0.094	0.568	0.135	0.622

The hypotheses relationship developed in the study was tested through a structural model of PLS-SEM analysis with a bootstrapping procedure of 10000 resamples (Hair et al., 2021). The results of path coefficients are shown in Table 5. The analysis results showed that perceived environment ($\beta = 0.092$, $p < 0.05$), perceived monetary benefits ($\beta = 0.204$, $p < 0.01$), and perceived symbol ($\beta = 0.406$, $p < 0.01$) have a significant positive impact on consumers' intention in purchasing an electric car. Perceived risk ($\beta = –0.135$, $p < 0.01$) was found to be negatively related to electric car purchase intention. Meanwhile, the perceived fee ($\beta =- 0.077$, $p > 0.05$) was insignificant in influencing the intention to purchase an electric car. Hence, H1, H3, H4, and H5 were supported and H2 was not supported.

Table 5. Hypothesis Testing

Hypotheses relationship	Std beta	Std error	t-value	p-value	BCI LL	BCI UL	f^2
H1: Perceived Environment -> Electric car Purchase Intention	0.092	0.042	2.179	0.015	0.02	0.158	0.009
H2: Perceived Fee -> Electric car Purchase Intention	-0.077	0.05	1.532	0.063	-0.148	0.024	0.006
H3: Perceived Monetary Benefits -> Electric car Purchase Intention	0.204	0.044	4.597	0.000	0.131	0.275	0.048
H4: Perceived Risk -> Electric car Purchase Intention	-0.135	0.047	2.861	0.002	-0.194	-0.05	0.020
H5: Perceived Symbol -> Electric Car Purchase Intention	0.406	0.04	10.032	0.000	0.34	0.474	0.178

The R^2 of 0.347 indicates that 34.7% of the variation in the electric car purchase intention is explained by the explanatory variables in the model. Cohen's f^2 is to measure the effect size of the explanatory variable; f^2 values of 0.35, 0.15 and 0.02 indicate large, medium, and small effects, respectively (Cohen, 1992). As shown in Table 5, the perceived environment does not affect electric car purchase intention, and perceived risk has a negligible effect on electric car purchase intention. The perceived monetary benefits moderate electric vehicle purchase intention, while the effect of a perceived symbol on electric car purchase intention was high. The blindfolding procedure assessed the predictive validity (Stone, 1974). The Q^2 value of 0.269 > 0 indicates the appropriate predictive power of the model.

The Valence Framework explored how consumer perception influenced their intention to purchase EVs. The positive utilities encompass perceived monetary benefit, perceived environment, and perceived symbol. On the other hand, the negative utilities are made up of perceived risk and perceived fee. The results showed that all the hypotheses for the positive utilities which is perceived monetary benefit, perceived environment, and perceived symbol were supported and congruent with past studies, positively influencing consumer EV purchase intention. With all the positive impressions significantly impacting EV purchase intention, the government must take a drastic step to provide monetary incentives in terms of subsidy and tax exemption (perceived monetary benefits). At the same time, campaigns and social media advertising can play a prominent role in allowing consumers to understand EVs' environmental benefits and link them to a status symbol (i.e., green consumerism).

For the negative utilities of perceived risk and perceived fee revealed only the hypothesis for perceived risk was supported to influence consumers' purchase intention negatively. While the perceived fee was not supported. The hypothesis may not be supported due to the limited awareness of electric vehicles (EVs) in Malaysia. Consumers in Malaysia continue to show a strong preference for traditional fuel cars over EVs, as they are not actively seeking information about EVs or comparing their costs. To address this issue and reduce perceived risks associated with EVs, the government needs to invest in EV infrastructure, including charging stations and battery technology. Additionally, sharing success stories of how EVs have benefited buyers can help increase confidence among potential buyers. To further build trust, EV sellers should offer more opportunities for test drives, robust warranties, and comprehensive customer support services.

5.0 Conclusion

The Valence Framework was used to investigate consumer intention to purchase EVs. The positive and negative utilities of consumer perceptions on purchase behaviour were examined. Positive utilities, namely, perceived monetary benefit, perceived environment, and perceived symbol, were found to positively influence the consumer's EV purchase intention. For the negative impressions, perceived risk and perceived fee, only perceived risk was found to influence purchase intention negatively. Providing awareness, monetary incentives, and creating positive impressions of EVs can increase their adoption.The study may suffer from limitations since the data is reliant on self-reported data, which might have led to response bias and limited depth. Future research should explore the long-run effect of new technologies, policies, and pro-environmental attitudes on consumers' purchase intentions toward electric vehicles across different countries and customer segments.

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Paper Contribution to Related Field of Study

This research advances the field of consumer behaviour by uncovering how environmental perception, monetary benefits, risk, and symbolism shape purchase intentions for EVs. It deepens understanding of decision-making processes related to sustainable product adoption in emerging markets.

References

Asadi, S., Nilashi, M., Samad, S., Abdullah, R., Mahmoud, M., Alkinani, M. H., & Yadegaridehkordi, E. (2021). Factors impacting consumers' intention toward adoption of electric vehicles in Malaysia. *Journal of Cleaner Production*, *282*, 124474.

Ballard, R. (1992). Short forms of the Marlowe-Crowne social desirability scale. *Psychological Reports*, *71*(3_suppl), 1155-1160.

Chen, C.-f., Xu, X., & Frey, S. (2016). Who wants solar water heaters and alternative fuel vehicles? Assessing social–psychological predictors of adoption intention and policy support in China. *Energy Research & Social Science*, *15*, 1-11.

Cheng, P., OuYang, Z., & Liu, Y. (2019). Understanding bike sharing use over time by employing extended technology continuance theory. *Transportation research part A: policy and practice*, *124*, 433-443.

Cohen, J. (1992). Statistical power analysis. *Current directions in psychological science*, *1*(3), 98-101.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191.

Featherman, M., Jia, S. J., Califf, C. B., & Hajli, N. (2021). The impact of new technologies on consumers beliefs: Reducing the perceived risks of electric vehicle adoption. *Technological Forecasting and Social Change*, *169*, 120847.

Fennis, B. M., & Pruyn, A. T. H. (2007). You are what you wear: Brand personality influences on consumer impression formation. *Journal of Business Research*, *60*(6), 634-639.

Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of management information systems*, *18*(1), 185-214.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (Vol. 2nd Edition). Sage Publications Inc.

Haustein, S., Jensen, A. F., & Cherchi, E. (2021). Battery electric vehicle adoption in Denmark and Sweden: Recent changes, related factors and policy implications. *Energy Policy*, *149*, 112096

He, X., Zhan, W., & Hu, Y. (2018). Consumer purchase intention of electric vehicles in China: The roles of perception and personality. *Journal of Cleaner Production*, *204*, 1060-1069.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*(1), 115-135.

Hull, C., Giliomee, J. H., Visser, M., & Booysen, M. J. (2024). Electric vehicle adoption intention among paratransit owners and drivers in South Africa. *Transport Policy*, *146*, 137-149.

Jaiswal, D., Kaushal, V., Kant, R., & Singh, P. K. (2021). Consumer adoption intention for electric vehicles: Insights and evidence from Indian sustainable transportation. *Technological Forecasting and Social Change*, *173*, 121089.

Jansson, J., Marell, A., & Nordlund, A. (2010). Green consumer behavior: determinants of curtailment and eco-innovation adoption. *Journal of consumer marketing*, *27*(4), 358-370.

Jordan, S. (2023). Carrot or Stick? How Policy Type Influences Consumer Intention to Purchase Electric Vehicles. *Transportation Research Procedia*, *70*, 13-19.

Kim, A. J., & Ko, E. (2010). Impacts of luxury fashion brand's social media marketing on customer relationship and purchase intention. *Journal of Global fashion marketing*, *1*(3), 164-171.

Lee, H.-L., Lin, Y.-C., Peng, W.-D., Hu, C.-Y., Lee, C.-H., Hsu, Y.-J., . . . Huang, H.-L. (2020). Effectiveness of a theory of planned behavior-based intervention for promoting periodontal preventive behaviors among medical students in Taiwan. *Journal of American College Health*, *68*(8), 883-890.

Pamidimukkala, A., Kermanshachi, S., Rosenberger, J. M., & Hladik, G. (2024). Adoption of electric vehicles: An empirical study of consumers' intentions. *Transport Economics and Management*, *2*, 359-366.

Peter, J. P., & Tarpey Sr, L. X. (1975). A comparative analysis of three consumer decision strategies. *Journal of consumer research*, *2*(1), 29-37.

Ruan, T., & Lv, Q. (2023). Public perception of electric vehicles on Reddit and Twitter: A cross-platform analysis. *Transportation research interdisciplinary perspectives*, *21*, 100872.

She, Z.-Y., Sun, Q., Ma, J.-J., & Xie, B.-C. (2017). What are the barriers to widespread adoption of battery electric vehicles? A survey of public perception in Tianjin, China. *Transport Policy*, *56*, 29-40.

Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the royal statistical society: Series B (Methodological)*, *36*(2), 111-133.

Wang, Y., Wang, S., Wang, J., Wei, J., & Wang, C. (2020). An empirical study of consumers' intention to use ride-sharing services: using an extended technology acceptance model. *Transportation*, *47*, 397-415.