



Price, Performance, Influence, or Value? A Quantitative Analysis of the Intention to Buy Electric Vehicles (EVs) among Malaysian Gen Z

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ABSTRACT. Electric vehicles (EVs) offer a pathway towards sustainable mobility, but their adoption in Malaysia remains limited. This study examined the influence of perceived performance, price, and subjective norms on EV purchase intention among Generation Z consumers in Negeri Sembilan, Malaysia. It also assessed whether environmental value moderated these relationships. A cross-sectional questionnaire survey yielded 258 responses through geographical clustering and purposive sampling. Data were analysed using structural equation modelling (SEM) with AMOS. Performance, price, and subjective norms were positively and significantly associated with EV purchase intention. Environmental value significantly strengthened the relationships between performance and purchase intention and between subjective norms and purchase intention. However, it did not significantly moderate the relationship between price and purchase intention. These findings highlight the importance of perceived vehicle performance, affordability, social influence, and environmental values in understanding EV purchase intention among young consumers. Awareness programmes targeted green marketing, and financial incentives may help strengthen purchase intention and support the transition towards sustainable mobility.

Keywords: EV Purchase Intention, Gen Z, Performance, Price, Subjective Norms

1. INTRODUCTION

Extreme increases in global temperatures and unpredictable climate change have affected the quality of life and human health (Abbass et al., 2022). Climate change is a global concern. In 2023, extreme weather events included major wildfires in Canada, severe drought in parts of Africa and the Middle East, and heatwaves across Europe, the United States, and China, along with the hottest winter on record in Australia and South America (Kabir et al., 2023). Worse still, a study by the Geneva-based World Meteorological Organization (WMO) reported that between 2023 and 2027, there is a 66 percent chance that the Earth's temperature will increase by more than 1.5 degrees Celsius for at least one year (Citaristi, 2022). Various factors contribute to this situation, including the effects of uncontrolled human development and the increase in motor vehicles (Bolan et al., 2024).

Efforts to increase Malaysians' awareness of climate issues and global pollution must be made to prepare Malaysians to accept new technologies that can reduce the impact of global warming. One alternative to reducing carbon dioxide and carbon monoxide emissions is the introduction of electric vehicles (Ramachandaran et al., 2023). Electric vehicles, also known as EVs, are green products due to their environmentally friendly nature. EVs function using electrical energy stored in batteries. This electrical energy will be converted into mechanical energy to drive the motor (Wicki et al., 2022). These vehicles differ from conventional vehicles because they do not involve combustion.

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Therefore, the use of EVs will not release greenhouse gases that can contribute to global warming, such as carbon dioxide (Mutarraf et al., 2022).

From smooth performance to fuel cost savings, many are turning to EVs as an eco-friendly and economical option. Many EV owners are satisfied with the smooth and efficient driving experience. Features such as Intelligent Cruise Control (ICC) help reduce fatigue during long journeys. Many EV owners appreciate electric vehicles for being zero-emission, helping reduce air pollution, and contributing to a cleaner environment (Hensher et al., 2022). EV owners also benefit from government incentives, such as tax exemptions and discounts on charging installations, which make EVs more affordable to own (Komnos et al., 2022). Despite the growing number of charging stations, many EV owners feel the charging infrastructure remains inadequate, especially for long-distance trips (Ramachandaran et al., 2023). Many EV owners face range anxiety or the fear of running out of battery without a nearby charging station (Noordin & Zailani, 2025). Charging an EV usually takes longer than filling up with petrol. A regular charge takes several hours, though fast-charging stations can speed up charging times; they are still limited in some places (Hamzah et al., 2022). Some owners also complain about software issues in their vehicles, including poor connectivity and navigation systems, which can interfere with the driving experience (Vafaei-Zadeh et al., 2022). Despite challenges such as a lack of charging stations and range concerns, EVs remain an environmentally friendly and cost-effective option. As the EV market in Malaysia develops, user experience is expected to improve, contributing to more sustainable transportation (Alganad et al., 2023).

Therefore, the purpose of this study is to examine the determinants of EV purchase intention among Malaysian Gen Z. These determinants include performance, price, and subjective norm. Intention is a person's willingness to perform a certain behaviour. Intention is a determining factor in a person's decision to perform or not perform an action. In the case of EV adoption, intention helps measure willingness to use EVs. In this study, the first factor that could influence intention is performance. EVs often boast impressive performance, including powerful electric motors that deliver synchronous torque and quiet operation. EV batteries can be recharged at home, at public charging stations, or in increasingly popular public places (Karupiah & Ramayah, 2023). These charging options may make EV use more convenient (Xie et al., 2022). The second factor is price. EVs are still priced at a premium compared to regular cars. Despite the government's rebate and discount promotions for buyers, the base prices of EVs remain high. They may not be affordable for ordinary buyers who are still concerned with the practicality, purpose of use, and budget for purchasing a car (Sukma et al., 2023). Lithium-ion battery processing, battery packs that are too heavy, and high EV purchase prices are among the factors that need to be considered before EVs can compete effectively with conventional vehicles and help achieve a carbon-free country by 2050 (Ji & Gan, 2022).

The third factor is subjective norms. Subjective norms are a person's perception of the opinions or evaluations of others who are considered important, including family, relatives, neighbors, friends, co-workers, and others (Ajzen, 1991). In the adoption of new technologies such as EVs, consumer decisions are influenced positively by the social environment, or the people around them (Kottala et al., 2025; Van Tonder et al., 2023). Moreover, this study also aims to examine the moderating effect of environmental value on EV purchase intention. Values are a kind of

hypothetical mental product that exists in every individual. They contain elements of consciousness and feelings that are often expressed in the individual's attitudes and actions. Researchers of environmental value systems have sought to demonstrate that environmental values exist in every individual (Lee et al., 2023). Using EVs can reduce carbon dioxide (CO₂) emissions compared to conventional gasoline- or diesel-powered cars, which not only emit CO₂ but also other toxic gases. As the impact of global warming intensifies, new-age drivers play an important role in creating a better environment for future generations by reducing vehicle pollution (Kottala et al., 2025).

Although EV adoption is increasing in Malaysia, several gaps remain in the literature. First, previous studies have focused more on developed countries (Brinkmann & Bhatiasavi, 2023). Furthermore, most studies in Malaysia have focused on the Klang Valley and urban areas, and studies in Negeri Sembilan have been rare. This is important because the EV market has expanded in areas and states in Malaysia. The Negeri Sembilan government is committed to developing EV charging stations in the state, in line with the Federal government's target of achieving 10,000 EV charging stations nationwide by 2025 (Astro Awani, 2024). Furthermore, many previous studies have focused more on direct effects between the study variables, and the moderating role of environmental value has received little attention. Most studies focus on rational factors such as price, EV performance, and incentives (e.g., Brinkmann & Bhatiasavi, 2023; Sobiech-Grabka et al., 2022; Zamil et al., 2023), whereas psychological factors are rarely studied (Klabi & Binzafrah, 2023). Furthermore, this study focuses on young consumers, namely Gen Z. As a generation affected by eco-anxiety due to exposure to climate news and environmental damage, Gen Z must take concrete steps to address environmental concerns. The Deloitte 2025 survey shows that 65 percent of Gen Z are willing to pay more for environmentally friendly products or services (Conderacci, 2026).

2. LITERATURE REVIEW

2.1. Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB) postulates three conceptual determinants of intention. Specifically, intention is based on three variables: attitude towards behaviour, subjective norm, and perceived behavioural control (Ajzen, 2011). Attitude towards behaviour refers to the level of evaluation, or the positive or negative assessment, of individual performance. Attitudes are based on beliefs about prominent behaviour and on evaluations of results (Hassan et al., 2016). If an individual believes that purchasing EVs is a good idea, a wise decision, and will ultimately yield positive results, he or she will increase his or her confidence in purchasing EVs. On the other hand, subjective norms are social pressures that encourage or discourage a person from engaging in certain behaviors (Ajzen, 1991). Subjective norms, also referred to as normative beliefs, are the beliefs that actions are supported by the people closest to us (Ajzen, 2011). The people most likely to influence a person's behavior are family, co-workers, spouses, and friends (Hassan et al., 2016).

The greater the social pressure is, the greater the interest in doing something (Hassan et al., 2016). The more family, friends, and co-workers who give advice and encouragement to buy an EV, the more confident the individual may become about purchasing an EV. The perception of behavioural control is an individual's appraisal of the ease or complexity of performing certain behaviours, shaped by past experiences (Ajzen, 1991). This perception is

determined by the confidence individuals have in their ability to perform actions, supported by the resources available to them (Ajzen, 2011). Control confidence is measured by two factors, namely the power underlying the action and control access (Ajzen, 1991). Individuals with resources and incentives, such as tax exemptions, income tax rebates, and the development of charging infrastructure, will be more inclined to purchase EVs. Based on the TPB, consumers' opinions concerning EV performance, price considerations, and social influence are expected to directly influence purchase intention. Environmental value may strengthen or weaken these relationships by influencing the extent to which consumers translate these beliefs into purchase intentions.

2.2. Performance and Intention to Purchase EVs

EVs are known for their excellent performance, especially in terms of torque and acceleration (Zamil et al., 2023). Unlike internal combustion engines, which take time to reach maximum torque, electric motors can produce full torque instantly (Ramachandaran et al., 2023). This provides fast and responsive acceleration, making driving an electric car an exciting experience (Xie et al., 2022). In addition, EVs offer a smoother, quieter drive because there is no vibration or noise from an internal combustion engine (Komnos et al., 2022). EVs typically have a lower center of gravity due to the battery's position in the car (Noordin & Zailani, 2025). This naturally helps to increase stability and reduce the risk of the car rolling over in an accident (Komnos et al., 2022). In addition, most EVs have electronic stability control systems that can adjust power delivery to each tire individually, to increase traction and stability in various road conditions (Kottala et al., 2025). The electric car motor is much smaller than the internal combustion engine (ICE) used in gasoline cars. This allows the EV structure to be optimized for safety while providing room for unique designs (Purwanto & Irawan, 2024). Based on the above discussion, the following hypothesis is posited:

H1: Performance of EVs significantly influence the intention to purchase EV among Gen Z in Negeri Sembilan, Malaysia.

2.3. Price and Intention to Purchase EVs

Price can also be a barrier for those looking to switch to EVs in Malaysia. In general, EVs have a higher purchase price than their petrol or diesel equivalents (Purwanto & Irawan, 2024; Sobiech-Grabka et al., 2022). For example, the BYD Dolphin hatchback model is priced at around RM79,800 for the base variant. This is significantly higher than petrol cars in the same category, such as Honda City, which costs around RM75,000. Luxury electric car models such as the Tesla Model S can cost over RM600,000, significantly more than petrol-powered luxury cars such as the Mercedes-Benz E-Class, which costs around RM300,000 to RM400,000 (WapCar, 2025). Government incentives, such as sales tax and import duty exemptions for EVs, have helped reduce the purchase price to some extent (Brinkmann & Bhatiasavi, 2023). However, the price of EVs in Malaysia remains higher than that of fossil fuel cars. This situation may change in the future as EV technology matures and production costs are reduced (Bhutto et al., 2022). According to Kenanga Research, the M40 group tends to choose EVs (The Edge Malaysia, 2025). This is because consumers want to reduce fuel costs following the government's implementation of fuel subsidies. While EV prices may be higher initially, long-term fuel cost savings can offset the price difference (Sukma et al., 2023). In addition, electricity prices tend to be more stable than those of fossil fuels, which can fluctuate with global market

conditions (Ji & Gan, 2022; Xie et al., 2022). Thus, the following hypothesis is posited:

H2: Price of EVs significantly influence the intention to purchase EV among Gen Z in Negeri Sembilan, Malaysia.

2.4. Subjective Norms and Intention to Purchase EVs

Norma comes from a Latin word meaning a rule or provision that has become a habit expected to be obeyed by every member of society. Norms are divided into two types. First, a social norm is a standard shared by a group of people with the same social status (Ajzen, 1991). Second is the personal norm, which is the individual's expectation of how he or she should act in accordance with prevailing social norms (Ajzen, 2011). Empirical studies have shown that this psychological aspect significantly influences people's behaviour in practising pro-environmental behaviour (Klabi & Binzafruh, 2023). The subjective norm stems from social pressure, such as family and friends, thereby influencing a person's behaviour towards the environment and the norms that shape social expectations for environmentally friendly behaviour (Van Tuan et al., 2022). When social pressure to address environmental issues is high, it can change consumer behaviour, leading them to plan to buy green products such as EVs (Handarujati, 2024). Communities play a vital role in protecting nature. They are experts in local and traditional knowledge and are often the first and last line of defense against environmental threats. In research on EVs, subjective norms are defined as consumers' confidence that people they value feel they should or should not buy EVs (Kottala et al., 2025; Van Tonder et al., 2023). With increasing public awareness and government support, EVs have a strong opportunity to become the primary mode of transportation (Karuppiah & Ramayah, 2023). Therefore, the following hypothesis is posited:

H3: Subjective norms significantly influence the intention to purchase EV among Gen Z in Negeri Sembilan, Malaysia.

2.5. Moderating Effect of Environmental Value

Environmental value is a form of consumer emotional connection to environmental problems and threats, leading customers to change their consumption habits (Noor et al., 2023; Sukma et al., 2023). Eco-friendly awareness encourages consumers to adopt alternative consumption practices that are better for the environment (Alganad et al., 2023; Mohd Noor & Nordin, 2023). Individuals with high environmental values emphasize the importance of the environment and how human actions can affect ecosystems. This involves awareness of the balance of nature and biodiversity, and the need to preserve the environment for the long-term good. This approach differs from an anthropocentric approach, which focuses solely on human interests (Klabi & Binzafruh, 2023). One of the main factors driving the popularity of EVs is the growing awareness of environmental issues (Karuppiah & Ramayah, 2023; Kottala et al., 2025; Rehman, 2025). EVs do not produce harmful gas emissions such as carbon dioxide (CO₂), nitrogen oxides, or sulfur dioxide (Lee et al., 2023). Furthermore, EVs also allow consumers to reduce their dependence on fossil fuels such as petrol and diesel, which are often subject to price increases (Hamzah et al., 2022). By using electricity generated from renewable sources such as solar or wind, EVs help strengthen long-term energy stability and reduce concerns about rising fuel prices (Alganad et al., 2023). EVs operate more quietly than traditional cars, contributing to reduced noise pollution in urban environments (Vafaei-Zadeh et al., 2022). In this study, researchers predict that environmental value could affect the strength or direction of the relationship between the

independent variables (i.e., performance, price, and subjective norms) and the dependent variable (the intention to purchase EV). In this context, independent variables are variables that are changed or manipulated by researchers, while dependent variables are variables that are studied or measured in the study. Consequently, the following hypotheses are posited:

H4: Environmental value moderates the relationship between performance and the intention to purchase EV among Gen Z in Negeri Sembilan, Malaysia.

H5: Environmental value moderates the relationship between price and the intention to purchase EV among Gen Z in Negeri Sembilan, Malaysia.

H6: Environmental value moderates the relationship between subjective norms and the intention to purchase EV among Gen Z in Negeri Sembilan, Malaysia.

Figure 1 shows the research model of the study.

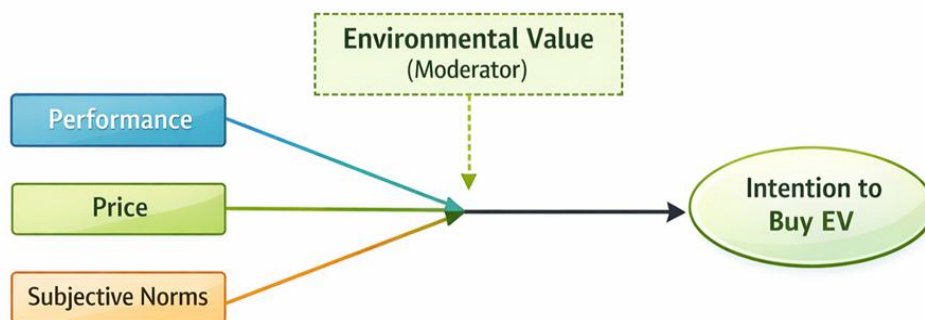


Figure 1. Research Model.

3. METHODOLOGY

This study uses a quantitative method through a cross-sectional survey design. The quantitative method was chosen because this study aims to test the relationship between the study constructs and measure the influence of predictor variables on EV purchase intentions among Generation Z. The study population comprised Generation Z in Negeri Sembilan, Malaysia. According to Dolot (2018), Generation Z refers to individuals born between 1996 and 2012. Because the Generation Z population in Negeri Sembilan is large and a comprehensive sampling frame was unavailable, the study combined geographical clustering with purposive respondent selection. In the first stage, cluster sampling technique was used by dividing the study area into six geographical clusters based on administrative districts, namely Seremban, Port Dickson, Tampin, Kuala Pilah, Jelebu and Rembau. This approach permitted data collection to be carried out systematically according to geographical location and reduced cost and time limitations (Noor & Fuzi, 2024). In the second stage, purposive sampling was used to ensure that only respondents who met the study criteria were selected. The respondent selection criteria were: (i) aged between 18 and 29 years, (ii) belonging to the Generation Z category, (iii) residing in Negeri Sembilan, and (iv) having experience or knowledge of EVs. The sample size was determined based on the requirements of Structural Equation Modelling (SEM) analysis. Since

this study uses the Maximum Likelihood Estimation (MLE) approach in AMOS, a sample size of 100 to 200 respondents is considered the minimum appropriate to obtain stable parameter estimates. In addition, Nunnally (1970) suggests a minimum ratio of 10 respondents for each measurement item. This study contains 19 measurement items, so the minimum sample size required is: 19 items $\times$ 10 respondents = 190 respondents. However, to increase statistical power and reduce the likelihood of incomplete data or extreme data problems, this study targets 300 respondents. This sample size also meets the recommendation of Wolf et al. (2013) that SEM requires an adequate sample depending on the complexity of the model and the number of constructs tested. A total of 258 completed questionnaires were obtained.

Primary data were collected using a designed online questionnaire through the Google Forms platform. Respondents completed the questionnaire themselves (self-administered questionnaire) with an estimated time of 10 minutes. The study instrument was developed based on a measurement scale that has been used and validated in previous studies. The use of items modified from previous studies aims to ensure content validity and construct reliability. The questionnaire consisted of two main parts, namely Part A: Respondent demographic information and Part B: Study construct measurement items using a five-point Likert scale, namely 1 = strongly disagree to 5 = strongly agree. The measurement items were adapted from previous studies including Ismail et al. (2020) (performance), Dodds et al. (1991) (price), Ajzen (1991) (subjective norms), Stern et al. (1995) (environmental values), and Zeithaml et al. (1996) (intention to purchase EVs). Before actual data gathering, the instrument went through an expert review process to assess language clarity, contextual relevance, and comprehensibility for the target respondents.

Before SEM analysis was conducted, a data screening process was completed to ensure data quality. Incomplete data and inconsistent answers were checked and removed from the analysis. Initial examination using IBM SPSS was directed to measure: 1) missing data in guaranteeing that there were no significant missing values, 2) outliers were assessed using Mahalanobis distance to recognize respondents with extreme response patterns, and 3) data normality was measured based on skewness and kurtosis values before using Maximum Likelihood Estimation. Only responses that met the data-screening criteria were retained for SEM analysis. SEM analysis using AMOS was directed through two main stages, namely measurement model to test convergent validity, discriminant validity, and construct reliability. After the measurement model reached an acceptable model fit, the structural model was evaluated to test the hypothesised relationships between the study constructs. The path coefficient value (β), Critical Ratio (CR) value, and significance value (p -value) were used to determine whether the hypotheses were supported.

4. RESULTS AND DISCUSSION

4.1. Demographic Profiles

Of the 258 respondents, 134 (51.9%) were male and 124 (48.1%) were female. The two largest age groups were 20–22 and 22–24 years, each comprising 71 respondents (27.5%), followed by 18–20 years ($n = 63$, 24.4%) and 25–30 years ($n = 53$, 20.5%). Regarding educational qualifications, 118 respondents (45.7%) held a bachelor's degree, 71 (27.5%) held a diploma, 23 (8.9%) held a master's degree, 11 (4.3%) had secondary-school qualifications, and 35

(13.6%) reported other qualifications. The largest household-income category was RM6,560–RM11,161 ($n = 114$, 44.2%), followed by up to RM5,351 ($n = 89$, 34.5%) and above RM11,819 ($n = 55$, 21.3%).

Table 1. Demographic profiles.

Profile		Frequency (n)	Percentage (%)
Gender	Male	134	51.9
	Female	124	48.1
Age Group	18-20	63	24.4
	21-24	71	27.5
	25-29	53	20.5
Highest Academic Qualifications	Secondary school	11	4.3
	Diploma	71	27.5
	Bachelor's degree	118	45.7
	Master's degree	23	8.9
	Others	35	13.6
Monthly Household Income	Up to RM5,351	89	34.5
	RM6,560 – RM11,161	114	44.2
	Above RM11,819	55	21.3

4.2. Confirmatory Factor Analysis (CFA)

To determine the level of model fit, required threshold values, such as Goodness-of-Fit Index (GFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Normed Chi-Square (CMIN/DF), and Root Mean Square Error of Approximation (RMSEA), were compared with the results of the overall model fit test (Hu & Bentler, 1999). The CFA model shows that the values of CMIN/DF (2.568), RMSEA (0.065), GFI (0.940), CFI (0.930), and TLI (0.950) meet the criteria. Thus, all indicators are deemed valid, and the model evaluation process can proceed.

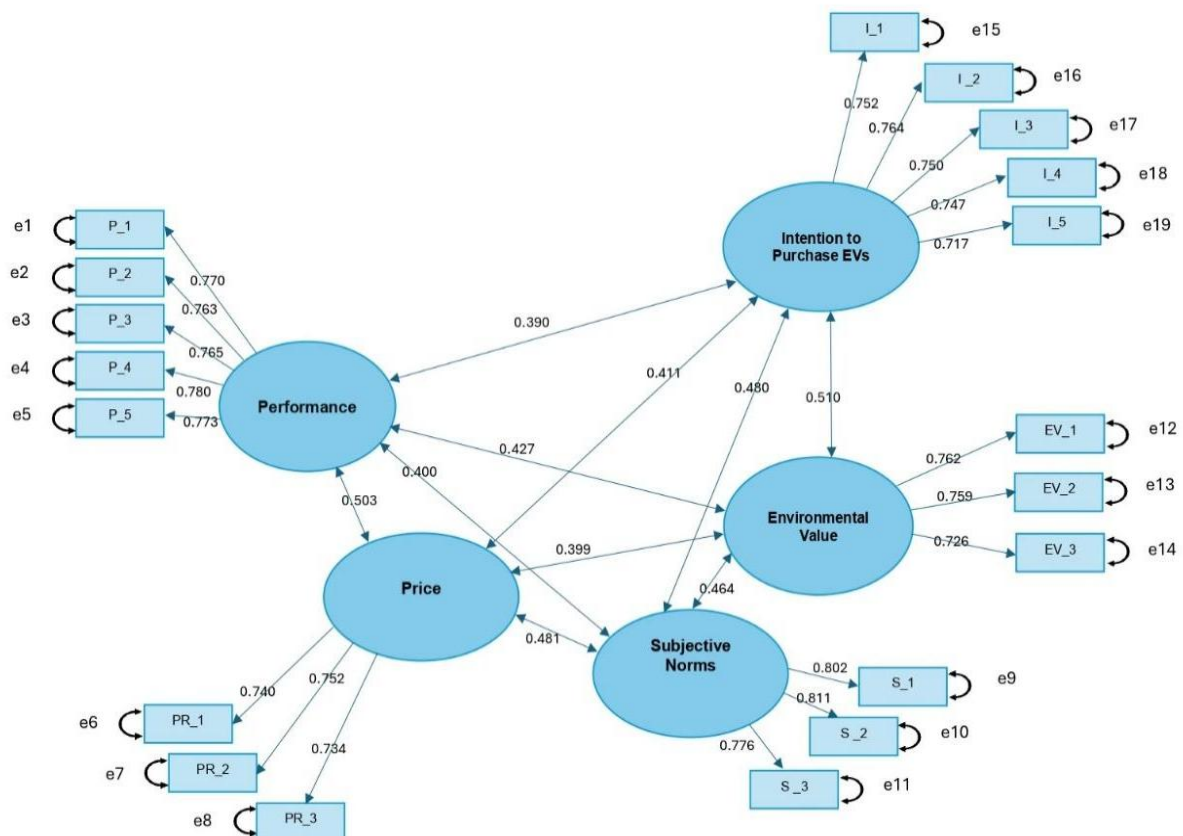


Figure 2. CFA Model

4.3. Reliability and Validity Assessment

Validity tests are conducted to determine the research instrument's ability to measure what it is intended to measure (Noor & Fuzi, 2025). In this research, the validity tests used are convergent and discriminant validity. The validity criteria of a construct can be assessed through the Average Variance Extracted (AVE) value of each construct or variable. A construct is said to have high validity if its value is above 0.50 (Fornell & Larcker, 1981). Once the level of data validity is known, the next step is to know the level of data reliability of each construct. This assessment is based on the composite reliability value. The value of a construct is said to be reliable if it gives a composite reliability value >0.70 (Hair et al., 2014). Based on Table 2, the AVE and CR values for all constructs exceed 0.50 and 0.70, respectively, namely performance (AVE=0.593, CR=0.879), price (AVE=0.551, CR=0.786), subjective norms (AVE=0.634, CR=0.839), environmental value (AVE=0.561, CR=0.793), and intention to purchase EV (AVE=0.557, CR=0.863).

Table 2. Item loadings, average variance extracted (AVE), and composite reliability (CR).

Variable	Items	Item Loadings	AVE	CR
Performance	P1-EVs deliver reliable performance under different driving conditions.	0.770	0.593	0.879
	P2-The acceleration and handling of EVs meet my expectations.	0.763		
	P3-EVs can perform as well as conventional vehicles.	0.765		
	P4-EVs are efficient and perform consistently over time.	0.780		
	P5-The overall driving experience of an EV is satisfactory.	0.773		
Price	PR1-The price of EVs is reasonable.	0.740	0.551	0.786
	PR2-EVs are affordable for people like me.	0.752		
	PR3-I perceive the price of EVs as good value for money.	0.734		
Subjective Norms	S1-My family would support me if I bought an EV.	0.802	0.634	0.839
	S2-My friends believe purchasing an EV is a good idea.	0.811		
	S3-Most people who are important to me expect me to consider an EV.	0.776		
Environmental Value	EV1-I prefer environmentally friendly products.	0.762	0.561	0.793
	EV2-Reducing air pollution is a personal priority for me.	0.759		
	EV3-I consider the environmental impact when choosing a vehicle.	0.726		
Intention to Purchase EVs	I1-I intend to purchase an EV within the next 12 months.	0.752	0.557	0.863
	I2-I am likely to choose an EV for my next car.	0.764		
	I3-I will consider buying an EV soon.	0.750		
	I4-I will learn more about EVs before purchasing one.	0.747		
	I5-I am willing to replace my current vehicle with an EV.	0.717		

4.4. Discriminant Validity Assessment

The Fornell-Larcker (1981) criterion has been widely used to assess the amount of variance shared between the latent variables of a model. According to Fornell and Larcker (1981), this method measures the degree of difference for two similar concepts in a model. This indicates that the square root of the AVE along the diagonal should be higher than the correlation of the off-diagonal variables. The results in Table 3 indicate sufficient discriminant validity, where the square root of the AVE (diagonal) is higher than the correlation (off diagonal) for all reflective constructs.

Table 3. Discriminant Validity Results.

No.	Variable	1	2	3	4	5
1	Performance	0.770				
2	Price	0.503	0.742			
3	Subjective Norms	0.400	0.481	0.796		
4	Environmental Value	0.427	0.399	0.464	0.749	
5	Intention to Purchase EVs	0.390	0.411	0.480	0.510	0.746

Note: Diagonal values represent the square roots of AVE

4.5. Moderation Analyses

From Table 4, there are relationships between performance ($\beta = 0.407$, $t = 5.75$, $p < 0.001$), price ($\beta = 0.410$, $t = 5.46$, $p < 0.001$), subjective norms ($\beta = 0.396$, $t = 5.38$, $p < 0.001$), and intention to purchase EV. Thus, hypotheses 1, 2, and 3 are accepted. A moderator changes the strength or direction of the relationship between an independent variable and a dependent variable. Such an effect is called a moderation effect. From Table 4, environmental value has a significant indirect influence on the relationship between performance and intention to purchase EV ($\beta = 0.158$, $t = 2.43$, $p < 0.05$) and on the relationship between subjective norms and intention to purchase EV ($\beta = 0.240$, $t = 3.29$, $p < 0.01$). Therefore, hypotheses 4 and 6 are accepted. However, the results indicate there is no relationship between price and intention to purchase EV ($\beta = 0.017$, $t = 0.280$, $p > 0.05$). Therefore, hypothesis 5 is rejected. The direct effect of the relationship between performance, subjective norms, and intention to purchase EV, moderated by environmental value, is supported by LLCI and ULCI values that do not exceed 0 and are both positive; thus, the moderation effects are significant.

Table 4. Moderation Analyses.

Direct Effect	β	S.E	t	p -value	LLCI	ULCI
Performance → DV	0.407***	0.071	5.75	0.000	0.256	0.540
Price → DV	0.410***	0.070	5.46	0.000	0.263	0.537
Subjective Norms → DV	0.396***	0.073	5.38	0.000	0.240	0.550
Interaction Effect	β	S.E	t	p -value	LLCI	ULCI
Performance* Environmental Value → DV	0.158*	0.064	2.43	0.012	0.021	0.275
Price*Environmental Value→ DV	0.017	0.060	0.28	0.750	-0.107	0.127
Subjective Norms*Environmental Value→ DV	0.240**	0.072	3.29	0.001	0.087	0.343

*Note: Significance level: *** $p < 0.001$; ** $p < 0.01$.*

DV = Intention to Purchase EVs

As shown in Figure 3, as environmental value increases, the positive effect of performance on the intention to purchase becomes stronger, and the positive effect of subjective norms on the intention to purchase EV also increases substantially.

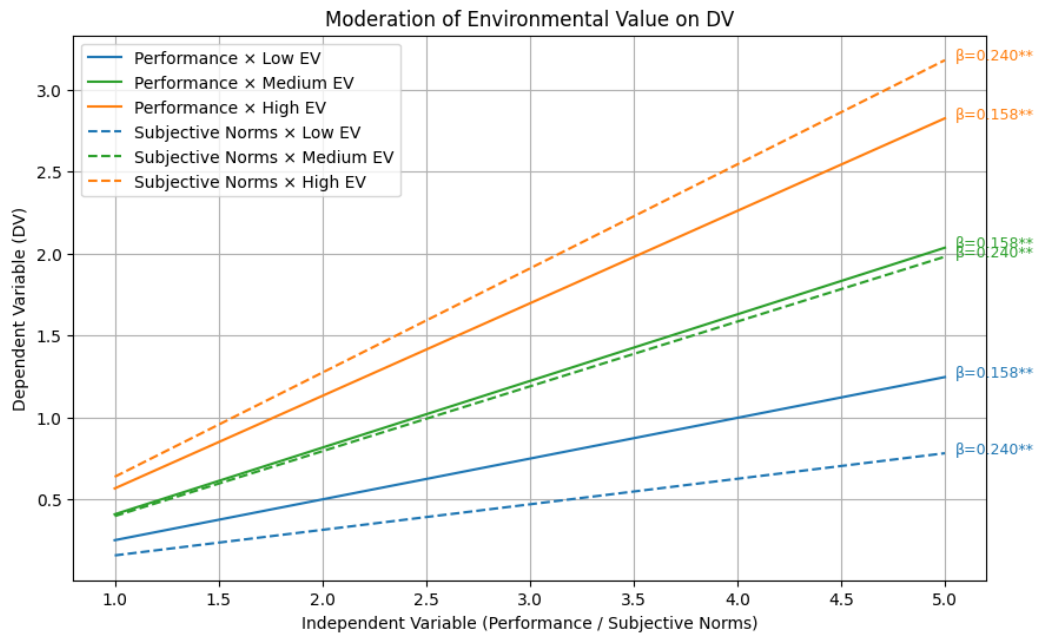


Figure 3. Moderation Slope Graph

In recent years, EVs have become increasingly popular among Malaysian drivers for a variety of reasons. A key factor is the reduced environmental impact of EVs, which helps reduce air pollution and greenhouse gas emissions (Komnos et al., 2022). In addition, the Malaysian government has also encouraged the use of EVs through tax exemptions and incentives, in line with its environmental commitments. It has stimulated investment in EV manufacturing and infrastructure development while fostering a sustainable transportation transition. Despite heated debate over electric vehicles, petrol vehicles remain the dominant choice, with a well-established network of petrol stations across the country (Brinkmann & Bhatiasavi, 2023). People are generally more accustomed to operating and maintaining petrol vehicles and feel more comfortable with them (Sobiech-Grabka et al., 2022).

The results of this research show that performance, price, subjective norms, and environmental value have a positive and significant effect on EV purchase intention. The electric motor provides instant and responsive acceleration. EVs usually provide faster acceleration than gasoline-fueled cars with the same engine capacity (Purwanto & Irawan, 2024; Sobiech-Grabka et al., 2022). EVs are generally quieter than conventional cars. The absence of engine noise results in a more comfortable, quieter driving experience, especially in the cabin. Moreover, the price of EVs has been falling due to government incentives and technological improvements. While EVs often have higher initial costs than equivalent gas-powered vehicles, they typically have lower operating costs over time (Brinkmann & Bhatiasavi, 2023). The break-even point is when the total cost of ownership of an EV becomes lower than that of an equivalent gas-powered vehicle (Bhutto et al., 2022). This usually occurs after a few years of ownership, as EVs' lower operating

costs offset their higher purchase price. This explains the significant positive relationship between price and intention to purchase EV.

Moreover, subjective norms could also foster Gen Z's intention to purchase EVs. Active involvement, good relations, and communication with family, friends, and neighbours in sustainable development initiatives are efforts to maintain the well-being of the physical environment and environmental balance (Kottala et al., 2025; Van Tonder et al., 2023). Quality of life in society and social systems begins with everyone's awareness of sustainability issues and their striving to contribute to a sustainable community (Karuppiah & Ramayah, 2023). Next, the second finding showed that environmental value significantly moderates the relationships between performance and intention and between subjective norms and intention. These are supported by Alganad et al. (2023), Klabi and Binzafrah (2023), and Rehman (2025). These studies emphasised the role of environmental values in encouraging collective action and environmentally responsible behaviour. The release of CO₂ and CFCs causes environmental pollution. Among the factors that produce this pollution are vehicle emissions. However, for those with a higher environmental value, EVs are environmentally friendly vehicles that help reduce air pollution and the impact of climate change (Xie et al., 2022; Zamil et al., 2023).

Interestingly, the findings indicated that environmental value does not moderate the relationship between price and intention to purchase EV. This could be explained by efforts to reduce the upfront cost of EVs through tax incentives and subsidies that make them more accessible to a wider audience (Bhutto et al., 2022). With technological advancements and increasing economies of scale, EV prices are expected to become more competitive with petrol cars (Ji & Gan, 2022). Moreover, educational campaigns that emphasize cost savings, environmental benefits, and advances in EV technology can influence consumer preferences and drive demand (Sukma et al., 2023). Various factors, including energy prices, government incentives, maintenance costs, and consumer preferences, influence the economics of EVs compared to petrol cars in Malaysia (Ramachandaran et al., 2023).

To increase EV adoption, it is recommended to run a broader, more effective information campaign on the benefits and government incentives for EV purchase (Komnos et al., 2022). In addition, collaboration between the government and the private sector needs to be strengthened to increase the availability of charging infrastructure that is easily accessible to the public. These measures are expected to increase consumer awareness and interest in EVs, as well as create a cleaner environment. In addition, to strengthen EV adoption, further research is needed on consumer preferences for environmentally friendly vehicles. This can involve surveys and more in-depth interviews with potential consumers to understand other factors that influence purchase decisions (Brinkmann & Bhatiasevi, 2023). Governments can also consider additional incentives, such as tax reductions or EV purchase subsidies, to encourage wider adoption (Wicki et al., 2022).

Thus, collaborative efforts between the government, the private sector, and academia are expected to produce a more conducive environment for the growth of the EV market in Malaysia. Malaysia needs to ensure that EV adoption is supported by renewable energy, sustainable disposal, and inclusive infrastructure. Otherwise, we are simply changing

the form of pollution, not reducing it. EVs are not a definitive solution to the climate crisis, but they are one important component in the transition to low-carbon mobility. Their effectiveness depends on the extent to which policies, infrastructure, and societal acceptance are developed sustainably and inclusively. As a country that wants to champion sustainability, Malaysia needs to ensure that the transition to EVs contributes to long-term environmental sustainability.

4. CONCLUSION

EVs are gaining traction in Malaysia, especially with government efforts to promote their use. However, many Malaysians are still hesitant to switch to EVs due to several key challenges. While challenges remain, measures such as removing diesel subsidies, offering tax incentives, and investing in charging infrastructure are accelerating the shift towards EVs. With government support and growing consumer awareness, EVs are expected to play a significant role in Malaysia's automotive landscape in the coming decades. This research has several limitations that should be noted. First, the research focus is limited to Negeri Sembilan, hindering the generalizability of the results to other states. In addition, the limited number of samples and the data-collection method can affect the representativeness of the population being studied, while limitations in the references can affect the conclusions. Thus, future studies are encouraged to expand the sample context to other states, increase the sample size, and use mixed or multiple methods to gain deeper insight into the research problem. By combining the two methods, the research results become richer and more valid through data triangulation.

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AUTHOR CONTRIBUTIONS

Ahmad Zafran Irfan Zainal Abidin: Conceptualization, methodology development, questionnaire design, data collection, data curation, formal analysis, interpretation of findings, and writing. Nurul Hidayana Mohd Noor: Conceptualization, research supervision, validation of research framework, methodology refinement, critical review and editing of the manuscript, interpretation of results, and project administration. All authors have read and agreed to the published version of the manuscript.

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DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

The authors declare that an AI-based language checker was used solely for grammar, spelling, and clarity improvements. All content has been reviewed and verified by the authors, who take full responsibility for the final manuscript.

DATA AVAILABILITY

All data supporting the findings of this study are included in the article.

COMPETING INTEREST

The authors declare that there are no competing interests.

COMPLIANCE OF ETHICAL STANDARDS

This research was conducted in accordance with established ethical standards for research involving human participants. Ethical approval for this study was obtained from Universiti Teknologi MARA prior to data collection.

SUPPLEMENTARY MATERIAL

No supplementary material is associated with this article.

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