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The Effect of Performance Expectancy and Effort Expectancy on Purchase Intention in Wuling Electric Cars in the City of Bandung

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Abstract
Purpose: This study examines the effects of performance expectancy and effort expectancy on purchase intention toward Wuling electric cars in Bandung City. Methods: A quantitative explanatory survey used purposive sampling among 134 Bandung residents aged at least 17 years who were familiar with Wuling electric cars. Twelve indicators were measured on a five-point Likert scale and analyzed using multiple linear regression in SPSS. Results: Performance expectancy positively affected purchase intention (B = .448; β = .550; t(131) = 9.694; p < .001), as did effort expectancy (B = .391; β = .541; t(131) = 9.537; p < .001). Jointly, both predictors were significant, F(2, 131) = 89.886, p < .001, and explained 57.8% of purchase intention variance. Implications: Wuling should emphasize measurable performance benefits and reduce perceived complexity through demonstrations, charging guidance, and accessible after-sales support. The study extends UTAUT to brand-specific electric vehicle purchase intention in an Indonesian urban market.

INTRODUCTION

The transition to electric vehicles is part of the transformation of the automotive industry and sustainable mobility. In addition to offering emission reductions at the point of use, electric vehicles are perceived to be able to provide energy efficiency, lower operating costs, and a technology-based driving experience. Nonetheless, market acceptance is not only determined by the availability of the product. Consumers still evaluate the functional benefits, ease of operation, availability of charging, and suitability of technology to everyday mobility needs before forming a purchase intent.

This condition is relevant for the Wuling electric car market in the city of Bandung. Wuling has presented several electric vehicle models with price characteristics, dimensions, and features aimed at urban consumers. However, sales achievements in a period do not necessarily reflect strong and sustainable purchase intentions. Purchases can be influenced by promotions, trends, or momentary needs, while purchase intent is a psychological tendency formed through consumers' evaluation of product benefits, conveniences, risks, and value.

The Unified Theory of Acceptance and Use of Technology or UTAUT explains that the intention to accept technology is influenced by a number of key beliefs, including *performance expectancy* and *effort expectancy* (Venkatesh et al., 2003). Performance expectancy represents an individual's level of confidence that the use of technology will benefit or improve performance. Effort expectancy indicates the level of ease associated with the use of technology. In its development, UTAUT2 extends the application of the theory to the consumer context by including factors such as *hedonic motivation*, *price value*, and *habit* (Venkatesh et al., 2012). Although this study did not test all UTAUT2 constructs, the two core constructs were chosen because they directly describe the evaluation of the benefits and convenience of electric vehicles.

Previous research has shown that *performance expectancy* is an important predictor in the acceptance of transportation technology. Madigan et al. (2016) found that *performance expectancy* and *effort expectancy* can explain the intention to use an automated transportation system. In the context of electric vehicles, Abbasi et al. (2025) developed UTAUT with knowledge of electric vehicles and advertising and showed that consumer evaluation of technology plays a role in driving *purchase intent*. The findings confirm that the expected benefits and low effort of use can lower psychological barriers to accepting new transportation technologies.

However, the magnitude of the influence of the two constructs is contextual. Product characteristics, consumer experience levels, supporting infrastructure, and market conditions can result in different acceptance patterns. The available studies are more about electric vehicles at the general market level or conducted outside the Indonesian context, while empirical evidence that specifically tests Wuling electric cars on Bandung consumers is still limited. This contextual gap is important because the evaluation of Indonesia's urban consumers can be influenced by travel costs, ease of charging, product knowledge, and local mobility needs.

The novelty of this study lies in the direct testing *of performance expectancy* and *effort expectancy* on *purchase intention* in one electric car brand in the context of the Indonesian urban market. This study aims to analyze: (1) the effect of *performance expectancy* on *purchase intention*; (2) the effect of *effort expectancy* on *purchase intention*; and (3) the simultaneous effect of the two variables on the *purchase intention* of Wuling electric cars in the city of Bandung. Theoretically, this study provides a contextual test of the UTAUT core construct. Practically, the results are expected to help companies design benefit communication, user education, and support services that are more in line with consumer considerations.

Conceptual Framework and Hypotheses

Performance expectancy describes the belief that Wuling electric cars can provide real benefits, such as energy cost efficiency, good driving performance, environmental contribution, and the image of using modern technology. When consumers judge these benefits to be relevant to their mobility needs, product evaluations become more positive and buying tendencies increase. Based on UTAUT and the findings of Abbasi et al. (2025), the first hypothesis is formulated as follows.

H1: Performance Expectancy has a positive and significant effect on Purchase Intention.

Effort expectancy reflects the perception of the ease of learning, operating, charging, and maintaining an electric car. The high ease reduces the cognitive burden and uncertainty of consumers when faced with relatively new technologies. Therefore, a simple perception of usage is expected to reinforce the buying tendency.

H2: Effort Expectancy has a positive and significant effect on Purchase Intention.

Together, the benefits and convenience form a utilitarian evaluation of technology. Consumers not only consider the results obtained, but also the effort required to obtain those results. Therefore, the combination of *performance expectancy* and *effort expectancy* is estimated to explain *the purchase intention* simultaneously.

H3: Performance Expectancy and Effort Expectancy simultaneously have a significant effect on Purchase Intention.

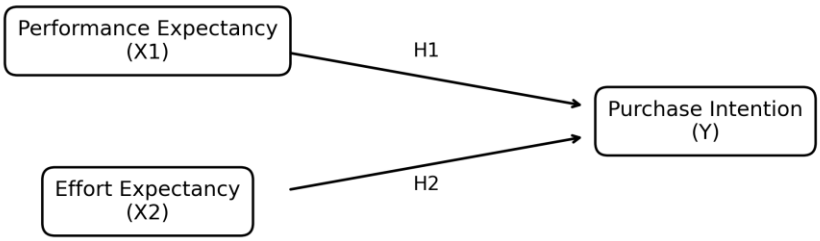

Figure 1. Conceptual Model

METHODS

This study uses a quantitative approach with explanatory design and *cross-sectional survey methods*. The research analysis unit is individuals who have the potential to become consumers of Wuling electric cars. The design was chosen because the research focused on testing the causal relationship between *performance expectancy*, *effort expectancy*, and *purchase intention* in a single data collection period. Quantitative approaches and survey design are used to systematically test the relationships between variables based on numerical data (Sugiyono, 2018; Sekaran & Bougie, 2016).

The target population includes the people of Bandung City who know Wuling electric cars. The sample was selected using *non-probability sampling* with *the purposive sampling* technique because not all members of the population have relevant knowledge or consideration regarding electric vehicles. The respondents' criteria were at least 17 years old, domiciled in Bandung, knew Wuling electric cars, and had seen information, tried, or considered electric vehicle products. Purposive sampling is appropriate when the research requires respondents with certain characteristics that are directly related to the phenomenon being analyzed (Etikan et al., 2016). A total of 134 questionnaires met the criteria and were used in the analysis. The number of 134 respondents also exceeded the practical guidelines of ten times the number of indicators used to assess the adequacy of samples in multivariate analyses (Hair et al., 2014).

Primary data was collected through an online questionnaire using a five-level Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Performance expectancy is measured through four statements regarding energy cost savings, driving performance, contribution to the environment, and image as a user of modern technology. Effort expectancy is measured through four statements regarding ease of operation, understanding of use, charging, and maintenance. Purchase intention is measured through four statements regarding future purchase intentions, preference for electric cars, the strength of Wuling's purchase intention, and the search for further information. The development of indicators refers to the concept of UTAUT (Venkatesh et al., 2003) and the context of purchasing electric vehicles (Abbasi et al., 2025).

The analysis was carried out using SPSS. The analysis stages include descriptive statistics, validity test with Pearson item-total correlation, reliability using *Cronbach's alpha*, Kolmogorov-Smirnov normality test, multicollinearity through *tolerance* and *variance inflation factor*, and heteroscedasticity through Glejser test. The hypothesis was tested by multiple linear regression. Statistical results use a significance level of 5%. The p value displayed by SPSS as .000 is reported as $p < .001$. In addition to the regression coefficient, the study reported *Cohen's f²* as a measure of the effect. The f^2 criteria of .02, .15, and .35 showed small, medium, and large effects respectively (Cohen, 1988). Instrument testing procedures, classical assumptions, and multiple linear regressions refer to the SPSS analysis guidelines put forward by Ghozali (2021).

RESULTS AND DISCUSSION

Descriptive Results

Table 1. Descriptive Statistics of Research Indicators

Variable	Indicator	Minimum	Maximum	Red	SD
Performance Expectancy	X1.1	2	5	4.05	.708
Performance Expectancy	X1.2	2	5	3.94	.792
Performance Expectancy	X1.3	3	5	4.07	.674
Performance Expectancy	X1.4	3	5	4.05	.729
Effort Expectancy	X2.1	2	5	3.99	.766
Effort Expectancy	X2.2	2	5	3.96	.817
Effort Expectancy	X2.3	2	5	3.97	.704
Effort Expectancy	X2.4	2	5	3.93	.768
Purchase Intention	Y1.1	3	5	4.47	.584
Purchase Intention	Y1.2	3	5	4.01	.588
Purchase Intention	Y1.3	3	5	4.28	.554
Purchase Intention	Y1.4	2	5	3.84	.603

The average overall *performance expectancy* is 4.03, *effort expectancy* is 3.96, and *purchase intention* is 4.15. All three values are in the high category based on the scale interval of 3.41–4.20, while some *indicators of purchase intention* are in the very high category. The highest *performance expectancy* indicator was X1.3 (M = 4.07), which shows the strength of respondents' assessment of the contribution of electric vehicles to the environment. The *highest effort expectancy* indicator is X2.1 (M = 3.99), while the lowest indicator is X2.4 (M = 3.93), so the maintenance aspect is still an area that needs relatively more clarity. On *purchase intention*, Y1.1 obtained the highest value (M = 4.47), while Y1.4 became the lowest (M = 3.84). The entire standard deviation was below 1, which indicates respondents' responses were relatively concentrated around the mean value.

Instrument Quality and Classical Assumption Tests

Table 2. Validity and Reliability Results

Variable	Item-total correlation range	Cronbach's α	Decision
Performance Expectancy	.730–.805	.777	Valid and reliable
Effort Expectancy	.810–.849	.849	Valid and reliable
Purchase Intention	.776–.797	.794	Valid and reliable

With n = 134, the r-value of the table at the bidirectional 5% level is about .169. The entire item-total correlation is in the range of .730–.849 and has a $p < .001$, so all indicators are valid. *Cronbach's alpha* values are between .777 and .849, exceeding the .70 limit. The results show that the instrument has sufficient internal consistency for use in model testing.

Table 3. Classical Assumption Test Results

Test	Results	Criterion	Decision
Normality	K-S = .066; p = .200	p > .05	Normal Residuals
Multicollinearity (X1)	Tolerance = .999; LIFE = 1.001	Tolerance >.10; VIVID < 10	No multicollinearity
Multicollinearity (X2)	Tolerance = .999; LIFE = 1.001	Tolerance >.10; VIVID < 10	No multicollinearity
Glejser (X1)	p = .303	p > .05	And heteroskedasticity
Glejser (X2)	p = .809	p > .05	And heteroskedasticity

The Kolmogorov-Smirnov test yielded p = .200, so the residual was normally distributed. The *tolerance* values of .999 and VIF 1.001 in both predictors indicate that there is no multicollinearity. The Glejser test yielded p = .303 for *performance expectancy* and p = .809 for *effort expectancy*. Since both values are greater than .05, the model does not experience heteroscedasticity. Thus, the main assumption of multiple linear regression is met.

Multiple Regression and Hypothesis Testing

Table 4. Multiple Linear Regression Results

Predictor	B	OR	β	t	p	f^2
Constant	3.191	1.007	—	3.170	.002	—
Performance Expectancy	.448	.046	.550	9.694	<.001	.717
Effort Expectancy	.391	.041	.541	9.537	<.001	.694

Purchase Intention = 3.191 + .448(Performance Expectancy) + .391(Effort Expectancy)

The performance expectancy *coefficient* of .448 indicates that an increase in performance *expectancy by one unit* increases *purchase intention* by .448 units when *effort expectancy* is controlled. The *effort expectancy* coefficient of .391 indicates that an increase of one unit *of effort expectancy* increases *purchase intention* by .391 units when *performance expectancy* is controlled. The β value showed that *performance expectancy* had a relatively slightly stronger effect (β = .550) than *effort expectancy* (β = .541), but the difference between the two was very small.

Table 5. Model Summary and Hypothesis Decisions

Hypothesis / Model	Statistic	p	Effect size	Decision
H1: OR → PI	t(131) = 9.694	<.001	f^2 = .717 (wide)	Supported
H2: EE → PI	t(131) = 9.537	<.001	f^2 = .694 (wide)	Supported
H3: PE and EE → PI	F(2, 131) = 89.886	<.001	R^2 = .578; f^2 = 1.370	Supported

The regression model was simultaneously significant, F(2, 131) = 89.886, p <.001. A value of R = .761 indicates a strong relationship between the two predictors and *purchase intention*. The value of R^2 = .578 means that 57.8% of the *variation in purchase intention* can be explained by *performance expectancy* and *effort expectancy*, while the remaining 42.2% is related to other factors outside the

model. An adjusted R^2 of .572 indicates that the clear power of the model remains stable after considering the number of predictors. The overall effect size $f^2 = 1.370$ is well above the large effect criterion. Therefore, H1, H2, and H3 are supported by data.

Discussion

The positive influence *of performance expectancy* on *purchase intention* shows that benefit evaluation is the main basis for forming Wuling's electric car purchase intention. Respondents are more motivated to buy when electric vehicles are seen as able to save energy costs, offer driving performance, support a cleaner environment, and strengthen their image as users of modern technology. These findings are consistent with UTAUT which places *performance expectancy* as the main predictor of *behavioral intention* (Venkatesh et al., 2003). These results are also in line with Abbasi et al. (2025), which affirm the role of evaluating the benefits of technology in driving the purchase of electric vehicles.

The large standardized coefficient of *performance expectancy* indicates that Wuling's marketing communication should not only highlight the character of the vehicle as an environmentally friendly product. Consumers need concrete and easy evidence of benefits compared to conventional vehicles, such as energy costs per kilometer, estimated maintenance savings, battery capacity, mileage, acceleration performance, and vehicle suitability for urban travel. The measurable and visualizable benefits will help consumers transform general knowledge about electric vehicles into stronger purchase evaluations.

Effort expectancy has also been proven to have a positive and significant effect on *purchase intention*. The results show that purchase intent increases when consumers rate electric cars as easy to learn, operate, charge, and maintain. These findings support the idea that new technologies will be more receptive when consumers do not perceive a high burden of use. In an auto-transportation study, Madigan et al. (2016) also found that *effort expectancy* contributes to intention to use. In the context of electric cars, convenience is not only related to the vehicle's interface, but also to the entire ecosystem of use, including charging information, facility locations, maintenance procedures, and access to after-sales service.

The average value of the maintenance indicator is lower than that of other convenience indicators. This pattern provides a practical signal that some consumers still need certainty regarding battery maintenance, component life, workshop availability, service costs, and warranty. Therefore, reducing *effort expectancy* is not enough to be done through product design. Companies also need to build a simple buying experience through test *drive sessions*, charging demonstrations, application usage simulations, ownership guides, and easy-to-understand after-sales service communication.

Simultaneously, *performance expectancy* and *effort expectancy* account for 57.8% of purchase intention variations. This clear power shows that the evaluation of benefits and convenience is a strong combination in consumer decisions towards electric vehicle technology. Consumers tend to compare the results obtained with the effort that must be spent. Products that are useful but considered complicated can face barriers to adoption, while products that are easy to use but do not provide clear benefits are also difficult to form purchase intent. As such, the market strategy must integrate value propositions and simplification of the consumer experience.

Although *performance expectancy* has a slightly higher beta, the difference with *effort expectancy* is not large. This indicates that both variables need to be managed simultaneously. For Wuling, the emphasis on cost efficiency and environmental benefits needs to be accompanied by education about operation, charging, and maintenance. For local governments and infrastructure managers, these results indicate the importance of public information and easily accessible charging facilities so that the benefits of electric vehicles are not hampered by the perception of complexity of use.

CONCLUSION

This study concludes that *performance expectancy* has a positive and significant effect on the *purchase intention of* Wuling electric cars in the city of Bandung. Effort expectancy also has a positive and significant effect on *purchase intention*. Simultaneously, both variables explain the 57.8% variation in

purchase intent and produce large effect sizes. Performance expectancy has a relatively slightly stronger influence, but the difference with *effort expectancy* is very small. Thus, the expected benefits and ease of use are two considerations that complement each other in forming the intention to purchase an electric vehicle.

The managerial implication of this study is the need for Wuling to communicate functional benefits in a measurable manner and at the same time reduce the perception of complexity. Relevant strategies include cost-saving simulations, mileage and performance explanations, *test drives*, charging demonstrations, maintenance cost transparency, battery warranty information, and expanded after-sales service. The information needs to be conveyed in simple language through dealers, digital media, and user communities.

This research has several limitations. The sample was selected purposively and only included respondents in Bandung, so generalizations must be made carefully. *Cross-sectional* design cannot depict changes in intent over time. The model also only tested two constructs, while 42.2% of purchase *intention* variations were explained by other factors. The next study is recommended to use a wider area coverage, longitudinal design, and include variables such as *price value*, *social influence*, *facilitating conditions*, *perceived risk*, trust, *environmental concern*, and *electric vehicle knowledge*.

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