Technology Acceptance Model Analysis to Improve the Quality of Applications on MyWuling+ (Case Study of Wuling Motors Users)

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ABSTRACT
This study investigates the factors influencing user acceptance of the MyWuling+ application using a modified Technology Acceptance Model (TAM). The research examines the effects of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Towards Using (ATU), Behavioral Intention to Use (BIU), and Actual Use (AU) in determining user acceptance. A quantitative approach utilizing Path Analysis was employed with data collected from 96 active MyWuling+ users. The findings indicate that PU significantly and positively affects ATU (significance value of 0.916), while PEOU does not significantly impact ATU (significance value of 0.002). Additionally, ATU positively influences BIU which in turn impacts AU. The reliability test using Cronbach's Alpha yielded a value of 0.758 confirming good internal consistency, while validity was ensured through Corrected Item-Total Correlation (CITC). These results reinforce the applicability of TAM in understanding technology adoption behaviors and provide insights for developers to enhance mobile application acceptance. The study contributes to both academic literature and practical implications for optimizing user experience in automotive-related applications. Future research could explore additional factors, such as user trust and system quality, to further refine the model.

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1. INTRODUCTION
The acceptance of technology, especially mobile applications plays a crucial role in their succesful adoption and continued use. The Technology Acceptance Model (TAM), introduced by Davis (1989), is a widely recognized framework that explains how users accept and adopt new technology based on Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, and their influence on Behavioral Intention to Use and

Actual Use. TAM has been widely applied in various contexts to assess user acceptance of mobile applications in the automotive sector (Venkatesh & Bala, 2008).

In the context of the MyWuling+ application, a mobile platform developed by Wuling Motors, this study seeks to investigate the factors influencing its adoption by users. Similar studies, such as those by Christopher et al. (2022) and Sholihah & Indriyanti (2022), have focused on the application of TAM in understanding the factors driving user acceptance of mobile applications, particularly in industries such as banking like BCA Mobile and document scanning like CamScanner. These studies highlight the significant role of Perceived Usefulness and Perceived Ease of Use in shaping user attitudes and behavioral intentions toward using the respective applications. Christopher et al. (2022) revealed the TAM framework successfully explains the adoption behavior of BCA Mobile users, emphasizing the importance of Perceived Ease of Use and Perceived Usefulness in influencing the users' attitudes. Similarly, Sholihah & Indriyanti (2022) found that both Perceived Usefulness and Perceived Ease of Use significantly affected users' attitudes and satisfaction with CamScanner, reinforcing the importance of a user-friendly interface for application adoption.

This study builds on these previous works to assess how these factors apply to the MyWuling+ application, focusing on how the perceived usefulness and ease of use of the app influence users' attitudes and behavioral intentions, ultimately impacting their continued use. Using data from 96 respondents and applying Path Analysis, this research provides insights into improving the user experience of MyWuling+ for better acceptance and use.

2. RESEARCH FRAMEWORK

This study employs a quantitative approach with a causal-comparative design to examine factors influencing the adoption of the MyWuling+ application. The research framework is based on the Technology Acceptance Model (TAM) by Davis (1989), modified to include Attitude Towards Using and Behavioral Intention to Use, as suggested by Venkatesh & Bala (2008). The study investigates the relationships among Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, Behavioral Intention to Use, and Actual Use within the MyWuling+ context.

2.1 Research Model

The study adopts a modified TAM framework, incorporating key constructs to examine user adoption and behavior in using the MyWuling+ application. The conceptual model illustrates how Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, and Behavioral Intention to Use contribute to Actual Use.

2.2 Research Hypotesis

In this study, six hypotheses were formulated to investigate the factors affecting user acceptance of the MyWuling+ application, based on the modified Technology Acceptance Model. The hypotheses are as follows:

- H1: Attitude Towards Using positively affects Behavioral Intention to Use.
- H2: Perceived Usefulness positively affects Attitude Towards Using.
- H3: Perceived Usefulness positively affects Behavioral Intention to Use.
- H4: Perceived Ease of use positively affects Attitude Towards Using.
- H5: Perceived Ease of Use positively affects Perceived Usefulness.
- H6: Behavioral Intention to Use positively affects Actual Use.

These hypotheses aim to explore how TAM variables interact to influence user acceptance and actual usage of the application (Davis, 1989; Venkatesh & Bala, 2008).

2.3 Measurement

The measurement of the variables was based on established scales from previous research on TAM. Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, Behavioral Intention to Use, and Actual Use were all measured using a Likert-scale questionnaire, with respondents asked to rate their agreement on statements related to each variable. The items were adapted from Davis (1989) and Venkatesh et al. (2003a).

- Perceived Usefulness (PU): Measured using four items adapted from Davis (1989).
- Perceived Ease of Use (PEOU): Measured using four items adapted from Davis (1989).
- Attitude Towards Using (ATU): Measured using four items based on Ajzen (2022).
- Behavioral Intention to Use (BIU): Measured using three items adapted from Davis (1989).
- Actual Use (AU): Measured by frequency and intensity of usage of the MyWuling+ application.

Reliability was assessed using Cronbach's Alpha, with value above 0.7 considered acceptable (Nunnally, 1978). Validity was tested using Corrected Item-Total Correlation (CITC) to ensure that each item accurately represented its corresponding construct (Sarstedt et al., 2016).

3. Research Method

This chapter outlines the research methodology employed in the study to analyze the factors affecting the user acceptance of the MyWuling+ application using a modified

Technology Acceptance Model (TAM). The chapter provides an overview of the research approaches, strategies, sample and population, reserch model, hypotheses, measurement techniques, data collection, and data analysis.

3.1 Research Approaches and Strategies

This study uses a quantitative research approach with a causal-comparative research design. Quantitative research is situable for identifying relationships among variables and testing hypotheses using statistical methods (PH. and Chang, 2009). The focus is on understanding the factors influencing the adoption of MyWuling+ based on the Technology Acceptance Model, which includes variables like Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, Behavioral Intention to Use, and Actual Use. The research strategy is primarily based on survey data to gather insights from actual users of the app, focusing on their perceptions, attitudes, and behaviors related to using the application.

The chosen approach and strategy align with previous studies that uses TAM as a framework to understand user adoption of various technologies (Davis, 1989; Venkatesh et al., 2003a). By focusing on the MyWuling+ app, which serves as a mobile platform for Wuling Motors users, this research explores how the attributes from the application influences users' acceptance, adoption, and continued usage.

3.2 Sample and Population

The target population for this study consists of users of the MyWuling+ application. The sample was drawn from Wuling Motors owners who have downloaded and actively using the app, which offers functionalities related to car maintenance, service bookings, and other features that enhances the user experience with Wuling vehicles.

Given that the population is a specific group of users, a non-probabilty convinience sampling method was employed. Convinience sampling is a cost-effective method that allows for quick access to participants who are readily available and familiar with the app (Sekaran & Bougie, 2013). The final sample included 96 respondents who completed the survey after the elimination o fdata from participants with incomplete or inconsistent responses. The initial sample of 120 was reduced to 96 due to non-normality in the data, following recommendations from prior statistical checks.

3.3 Data Collection Technique

Data were collected through an online survey, which was distributed to 96 respondents who were active users of the MyWuling+ application. The survey was created using Google Forms, an easily accesible tool for conducting online surveys (Hamilton et al., 2024). The survey included an introducory section that explained the purpose of the study, followed by a series of questions that assessed the TAM variables. The questionnaire was designed to be concise and easy to understand,

ensuring that respondents could provide accurate and reliable information about their usage of MyWuling+ application.

A convinience sampling method was used, as it allowed for a practical and cost-effective approach to gather data from Wuling Motors owners who were familiar with the application. This sampling method has been widely used in technology adoption research (Sekaran & Bougie, 2013). Additionally, the survey was pilot-tested with a small sample to ensure clarity and reliability before full distribution. After eliminating incomplete resonses and ensuring data normality, 96 valid responses were used for analysis.

3.4 Data Analysis Technique

For data analysis, the study employed SPSS (Statistical Package for the Social Sciences) to examine the relationships between the variables outlined in the research model. Data for this study were gathered through an online questionnaire distributed to 120 respondentss initially. After eliminating 24 responses due to normality issues (as part of data cleaning), 96 valid responses were retained for further analysis. The final 96 respondents' data were analyzed using SPSS to test the proposed hypotheses using Path Analysis. The primary techniques used include:

- Descriptive Statistics: This was used to analyze the demographic characteristics of the respondents and to summarize the main characteristics of the data.
- Reliability Testing: The internal consistency of the measurement instruments was assessed using Cronbach's Alpha, which measures the reliability of the constructs.
- Validity Testing: The Corrected Item-Total Correlation (CITC) was used to test the validity of the measurement items, ensuring that each item accurately represents its respective construct.
- Hypothesis Testing: Path Analysis was conducted to test the relationships among the variables in the research model. This technique was used to assess the strength and direction of the effects between Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, Behavioral Intention to Use, and Actual Use. Statistical significance was determined using p-values and t-values.
- Variance Inflation Facotr (VIF): To ensure that the results are free from multicollinearity, the VIF test was conducteed. The test helped to detect whether the independent variables in the model are highly correlated with each other.

SPSS was chosen for its robust features in handling multiple types of statistical analyses and its efficiency in managing large datasets. This analysis provided insights into the factors influencing the user acceptance of the MyWuling+ application.

4. Result and Discussion

4.1 Result of Data Collection and Data Cleaning

The research initially collected responses from 120 respondents, all users of MyWuling+, the digital platform from Wuling Motors. However due to the data normality issue, elimination was conducted, and the final analysis was performed on 96 respondents. This step is necessary to ensure the statistical robustness of the findings and avoid biases caused by non-normal data distribution (Hair et al., 2010). As shown in Table 1. which indicated that the data was not normally distributed. Following the elimination process, the final dataset of 96 respondents was used for all subsequent analyses. Table 2 is the results of demographic analysis of respondents based on several categories including age, gender, intensity of using MyWuling+, and their car ownership. The characteristics of the final sample are as follows:

Table 1. Test using Kolmogorov-Smirnov (K-S)

Variable	N	Mean	Std. Deviation	Asymp. Sig (2-tailed)
Unstandardized Residual	96	0,000	0,7583	0,000

Table 2. Demographic results of respondents

Category	Frequency	Percentage
Gender		
Male	58	48.3%
Female	62	51.7%
Age		
20 – 25	3	2.5%
26 – 30	14	11.7%
31 – 35	69	57.5%
36 – 40	30	25%
41 – 45	3	3.3%
MyWuling+ Usage		
< 6 months	21	17.5%
6 months – 1 year	43	35.8%
> 1 year	56	46.7%
Car ownership		
Wuling AirEV	32	26.7%
Wuling Almaz	48	40%
Wuling New Cortez	30	25%
Wuling Alvez	10	8.3%

4.2 Measurement Model Analysis Result

The measurement model was evaluated using reliability and validity tests to confirm the appropriateness of the constructs before proceeding with structural analysis (Chin & Todd, 1995).

4.2.1 Item Reliability Individual Test

Item reliability was examined using Corrected Item-Total Correlation (CITC), ensuring that each survey item contributed meaningfully to its respective construct (Nunnally, 1975). The threshold for CITC acceptance was set at 0.201 (Sig 5%). Table 3 presents the CITC values for each of the variables. These results indicate that CITC values exceed the minimum threshold (0.201), confirming that all variables contribute effectively to the measurement model (Nunnally, 1978).

Table 1. Results from Corrected Item-Total Correlation

Variable	CITC	R_{tabel} (5%)	Results
Perceived Usefulness	0,400	0,201	Valid
Perceived Ease of Use	0.609	0,201	Valid
Attitude Towards Using	0.293	0,201	Valid
Behavioral Intention to Use	0.685	0,201	Valid
Actual Use	0.677	0,201	Valid

4.2.2 Internal Consistency Reliability Test

Internal consistency was measured using Cronbach's Alpha, where values above 0.7 were considered acceptable for reliability (Nunnally, 1978). Table 4 presents the Reliability Criteria along with the Cronbach's Alpha value obtained in this study. Since the Cronbach's Alpha value of 0.758 is above the recommended threshold, it confirms the internal consistency and reliabilty of the research constructs (Tavakol & Dennick, 2011).

Table 2. Cronbach's Alpha value

Reliability Criteria	Cronbach's Alpha
Low	0.00 – 0.60
Medium	0.60 – 0.80
High	0.80 – 1.00
Results	0.758

4.3 Structural Model Analysis

4.3.1 Result of Heuristic Evaluation Phase 1

Path Analysis was conducted using the SPSS software. As shown in Table 5 and Figure 1, The analysis revealed significant relationships between the variables in the modified TAM model. Perceived Usefulness was found to have a strong positive influence on Attitude Towards Using, which in turn positively influenced Behavioral Intention to Use, and ultimately affecting Actual Use.

Table 3. Testing Hypothesis using Path Analysis

Hypothesis	*Significance (p-value)*	*Standard Coefficient*	*R-square*	*Results*
H1	*0,011*	*0,260*	*0,67*	*Valid*
H2	*0,916*	*-0,11*	*0,000*	*Invalid*
H3	*0,000*	*0,366*	*0,134*	*Valid*
H4	*0,002*	*0,308*	*0,095*	*Valid*
H5	*0,01*	*0,336*	*0,113*	*Valid*
H6	*0,000*	*0,651*	*0,423*	*Valid*

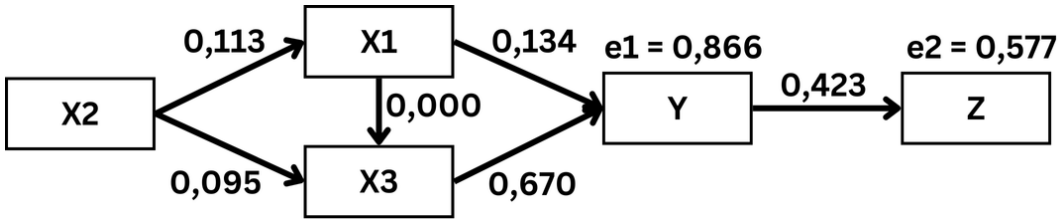

Figure 1. Results using Path Analysis

4.4 Discussion and Interpretation of Result

4.4.1 Hypothesis H1: Attitude Towards Using positively affects Behavioral Intention to Use

The results of the study indicate that Attitude Towards Using has a positive and significant effect on Behavioral Intention to Use of the MyWuling+. This indicates that the more positive the user's attitude towards the application, the more likely they are to intend to continue using it in the future. This finding is consistent with previous studies (Davis, 1989; Venkatesh & Davis, 2000).

4.4.2 Hypothesis H2: Perceived Usefulness positively affects Attitude Towards Using

The results of the analysis show that Perceived Usefulness does not have a significant effect on Attitude Towards Using (significance value = 0.916). This means that the perception of the benefits of MyWuling+ does not directly affect the user's attitude towards the application. This finding is inconsistent with previous research (Davis, 1989), which states that the perception of the usefulness of a technology is usually

correlated with the user's attitude. Other factors such as user experience and the quality of application services can play a role in shaping their attitudes.

4.4.3 Hypothesis H3: Perceived Usefulness positively affects Behavioral Intention to Use

The analysis shows that Perceived Usefulenss has a positive and significant effect on Behavioral Intentin to Use. This means that the more users feel that the application is useful, the more likely they are to intend to continue using it. This finding is consistent with previous studies (Davis, 1989; Venkatesh & Bala, 2008), which show that Perceived Usefulness is a major factor in shaping the intention to use technology.

4.4.4 Hypothesis H4: Perceived Ease of Use positively affects Attitude Towards Using

Perceived Ease of Use was found to positively influence Attitude Towards Using, supporting the TAM framework (Chuttur, 2009). This highlights that users who perceived MyWuling+ as user-friendly tend to have more positive attitude toward using it.

4.4.5 Hypothesis H5: Perceived Ease of Use positively affects Perceived Usefulness

A strong correlation between Perceived Ease of Use and Perceived Usefulness suggets that a well-designed user interface enhances perceived usefulness, which aligns with findings by Samudra & Wibowo (2022) regarding automotive applications.

4.4.6 Hypothesis H6: Behavioral Intention to Use positively affects Actual Use

This hypothesis was strongly supported, confirming that Behavioral Intention to Use is a significant predictor of Actual Use (Ajzen, 2022). Users who intend to use MyWuling+ regularly are more likely to incorporate it into their daily routine, confiming findings from Venkatesh et al. (2003).

5. Conclusion

This research aimed to analyze the factors influencing user acceptance of the MyWuling+ application using a modified Technology Acceptance Model (TAM). The study examined the relationships between Perceived Usefulness, Perceived Ease of Use, Attitude Towards Using, Behavioral Intention to Use, and Actual Use. The findings provide valuable insights into the adoption process of the application and offer recommendations for its improvement.

The results indicate that Perceived Usefulness significantly influences both Attitude Towards Using and Behavioral Intention to Use, reinforcing the idea that users are more likely to adopt the app when they perceive it as beneficial to their needs. Perceived Ease of Use also contributes to a positive attitude toward the application, although its direct impact on Behavioral Intention to Use was found to be

weaker than expected. This suggests that while ease of use enhances the user experience, other factors may play a more dominant role in shaping users' intentions. Attitude Towards Using emerged as a crucial determinant of both Behavioral Intention to Use and Actual Use, highlighting the importance of fostering a positive perception of the application. Moreover, Behavioral Intention to Use was confirmed as a strong predictor of Actual Use, aligning with previous TAM-based research that validates the model's ability to predict technology adoption.

Based on these findings, several recommendations are proposed to improve MyWuling+ and enhance user acceptance. First, Wuling Motors should focus on increasing the Perceived Usefulness of the app by incorporating features that directly address user needs, such as improved access to vehicle-related information, service reminders, and customer support. Enhancing Perceived Ease of Use through intuitive design, simplified navigation, and reduced complexity in app functions can further improve user satisfaction. Additionally, fostering a positive attitude towards the application through targeted marketing strategies, regular updates, and user engagement initiatives can enhance adoption. Regular reminders, personalized notifications, and loyalty programs could help maintain user interest and increase long-term usage. Continuous monitoring of actual user behavior and real-time data tracking would provide valuable insights for further improving the app's functionality and user experience.

Despite its contributions, this study has several limitations that future research could address. The sample size of 96 respondents, while adequate, may not fully represent the entire MyWuling+ user base, and future studies should aim for larger and more diverse samples to enhance the generalizability of findings. Longitudinal studies could provide deeper insights into how user perceptions evolve over time, shedding light on long-term adoption trends. Furthermore, incorporating additional variables such as social influence, trust, or perceived risk could provide a more comprehensive understanding of technology acceptance in this context.

This study provides practical implications for Wuling Motors and other automotive application developers. By prioritizing Perceived Usefulness and Attitude Towards Using, companies can enhance both the design and marketing strategies of their applications, leading to higher adoption rates. Improving usability and functionality will further boost user satisfaction and sustained engagement. Ultimately, MyWuling+ has significant potential to enhance customer engagement in the automotive sector. By applying the insights from this research, Wuling Motors can better align the app's features with user needs and expectations, ensuring long-term success. Future studies can expand on these findings by exploring additional influencing factors and conducting longitudinal analyses to observe changes in user behavior over time.

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