

A Case Study on the Behavioral Intention of Intelligent Driving Assistance Systems

ChunWei Ho^{*1}, YouLin Cheng²

^{*1} Department of Computer Technology and Multimedia, WuFeng University, Chiayi Country, Taiwan

² Department of Computer Technology and Multimedia, WuFeng University, Chiayi Country, Taiwan

Corresponding Author: ChunWei Ho; justin820724@gmail.com

Abstract

Artificial intelligence (AI) has been widely utilized to assist drivers in operating vehicles safely. Intelligent Driving Assistance Systems (IDASs) leverage AI, sensors, cameras, and various automated technologies to detect nearby obstacles and driver errors, responding accordingly. These systems enhance vehicle and road safety by providing features such as collision avoidance, lane departure warnings, and adaptive speed control, thereby reducing the risk of accidents and promoting safer driving practices. As technology advances, IDASs are becoming increasingly integral in the journey toward smarter and safer transportation. This study takes a specific automobile dealership in Chiayi City, Taiwan as a case study to explore the perceptions and experiences of customers and related personnel of the automobile dealership on driving and road safety after using the IDAS. It also uses questionnaire statistics to gain an in-depth understanding of the actual experience and impact of IDAS on drivers, customers and other relevant personnel. Evaluate the experience of IDASs through questionnaires and comprehensive quantitative data, and provide suggestions to help improve IDASs. This research is expected to provide valuable information to the field of smart driving assistance to understand the driver's cognition, experience and behavioral intention of the IDAS during driving.

Keywords: Artificial Intelligence (AI), Intelligent Driving Assistance System (IDAS), User Attitude, User Satisfaction, Behavioral Intention.

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I. INTRODUCTION

According to the World Health Organization (WHO, 2024), approximately 1.3 million people die annually from road traffic accidents worldwide, with economic losses accounting for about 3% of many countries' GDP. To enhance traffic safety, governments and automakers have implemented measures such as engineering improvements, education, law enforcement, and advanced vehicle safety technologies. Due to advancements in artificial intelligence (AI) technology, systems such as Autopilot, Fully Self-Driving (FSD), and Advanced Driver Assistance Systems (ADAS) are increasingly adopted by drivers, providing key features that enhance safety and comfort. This study refers to these systems as Intelligent Driving Assistance Systems (IDASs), which include functionalities such as automatic cruise control (ACC) to maintain safe speed and distance, lane keeping assist (LKAS) to ensure that the vehicle remains in its lane, and parking assist for efficient and precise parking maneuvers. Additionally, IDASs encompass features like blind spot monitoring to reduce risks, forward collision warnings to prevent accidents, adaptive cruise control for adjusting speed and distance, and traffic sign recognition to increase situational awareness. By integrating advanced sensors, artificial intelligence, and automation, these systems create a safer and more comfortable driving experience while enhancing the safety of drivers, vehicles, and pedestrians. However, concerns have arisen over drivers over-relying on these driving assistance systems, potentially neglecting road conditions and increasing accident risks, as reflected in highway data showing a high proportion of new vehicles with these systems involved in crashes. Especially, these driving assistance system features have operational limits, and improper use may exacerbate traffic risks. This study uses an automobile manufacturer in Chiayi City, Taiwan as a case study to explore the application of IDAS and investigate its impact on drivers. This study examines drivers' experiences, attitudes, satisfaction, and behavioral intentions regarding these driving assistance systems to better understand their impact on driving safety and associated challenges.

II. LITERATURE REVIEW

With advancements in digital technology and artificial intelligence (AI), autonomous driving (such as Autopilot and FSD) systems have become increasingly prevalent in vehicles, spanning luxury imports to domestic brands. The key functions of the Autopilot system include: Adaptive Cruise Control (ACC):

Automatically adjusts vehicle speed and maintains a safe distance from the car ahead to ensure secure cruising. Lane Keeping Assist (LKA): Helps vehicles stay within their lanes to prevent unintended lane departure. Parking Aid System (PAS): Assists in parallel or vertical parking using sensors and related technologies, improving efficiency and accuracy. The key functions of Advanced Driver Assistance Systems (ADAS) include: Blind Spot Detection (BSD): Alerts drivers to potential risks in blind spots. Forward Collision Warning (FCW): Detects obstacles and provides warnings or interventions to avoid collisions. Adaptive Cruise Control (ACC): Combines cruise control and distance monitoring to adjust vehicle speed for maintaining safe distances. Traffic Sign Recognition: Identifies and displays road signs to assist drivers in better understanding the driving environment. According to the SAE International standard (2021), autonomous vehicles are defined as those capable of performing all driving tasks without human intervention. SAE classifies autonomous driving into six levels, from L0 (fully human-controlled) to L5 (fully automated in all conditions). These levels range from basic driver assistance (L1) to partial (L2), conditional (L3), high (L4), and full automation (L5). Recent studies have explored various aspects of autonomous driving systems. Rzacca et al. (2020) developed an Autopilot system for workload balancing in Google's autonomous vehicle project, optimizing resource allocation to enhance efficiency and reduce waste. Baldi et al. (2022) designed and tested an adaptive autonomous driving system based on the ArduPilot platform, demonstrating its stability and performance through software simulations. Similarly, Goel et al. (2021) examined a digital adaptive autonomous driving system, validating its feasibility and effectiveness in complex environments. These studies highlight significant innovations in adaptive systems, improving both the reliability and efficiency of autonomous driving technologies. These researches on autonomous driving continue to deepen, driving advancements in system reliability and efficiency while providing valuable insights for future developments in the field.

Unlike autonomous driving systems, Advanced Driver Assistance Systems (ADAS) are designed to enhance driving safety and comfort through advanced sensors, computer vision, and machine learning. These systems monitor the environment, predict potential hazards, and provide warnings or take necessary control actions to help drivers avoid accidents or mitigate harm. Recent studies have explored various aspects of ADAS. Nidamanuri et al. (2021) reviewed emerging technologies and solutions for ADAS, offering insights into their potential impacts and future developments. Butakov and Ioannou (2014) developed a personalized driver-vehicle lane-changing model, allowing ADAS to adapt to individual driving behaviors and improve safety and collaboration during lane changes. Nandavar et al. (2023) examined factors influencing consumer preferences for ADAS-equipped vehicles, such as cost, performance, and safety, and assessed how users adapt to and learn these systems to improve their design and usability. Wood et al. (2024) focused on the benefits of ADAS for older drivers, highlighting how such systems address age-related driving challenges and enhance safety and comfort. Both Autopilot and ADAS represent critical innovations in modern automotive technology, offering numerous functions to improve driving experiences.

III. RESEARCH METHODS

This study targets personnel related to a specific automobile dealership in Chiayi City, Taiwan to explore the application of intelligent driving assistance systems and investigate its impact on drivers. Due to functional differences among brands, this study broadly defines these technologies as IDASs without limiting specific features or brands. The study examines the research participants, including customers, employees, and related personnel of the dealership, using the following five evaluation indicators:

1. System Features and User Experience Evaluation: Evaluates participants' experiences with IDAS features such as collision warnings, parking assistance, and other intelligent driving functions.
2. System Control and User Attitude Evaluation: Explores whether the IDAS provides safer and more comfortable vehicle operation and the participants' attitudes toward its use.
3. User Experience and Acceptance Evaluation: Assesses whether the IDAS enhances driving quality, reduces error rates, and increases trust and acceptance among users.
4. Safety and Knowledge Cognition Evaluation: Examines participants' awareness of the IDAS's safety and their knowledge of its functions, and whether it fosters recognition of the system's value.
5. Satisfaction and Behavioral Intention Evaluation: Investigates overall satisfaction with the IDAS and whether it influences behavioral intentions such as continued use, repurchase, or referrals.

By synthesizing related studies and analyzing collected data, this research examines intelligent driving assistance systems through eight dimensions: (1) user experience, (2) driving control, (3) social influence, (4) safety cognition, (5) knowledge cognition, (6) user attitude, (7) satisfaction, and (8) behavioral intention. The study aims to explore the impact of these systems on driving behavior and user experience. This study references relevant literature from both domestic and international sources to formulate eight research dimensions regarding the effectiveness of intelligent driving assistance systems. These dimensions include user experience and cognitive overview (five dimensions) and usage effectiveness and subsequent behavioral outcomes (three dimensions). The five components of user experience and cognitive overview refer to the flow

experience published by Pearce et al. (2005), the social impact from DeLone & McLean (2003), the Technology Acceptance Model introduced by Davis (1989), and the relevant experiential factors related to Advanced Driver Assistance Systems (ADAS) published by Nandavar et al. (2023). Additionally, the three components of usage effectiveness and subsequent behavioral outcomes are based on related studies such as the user attitude from Taylor & Todd (1995), behavioral intention by Bedard et al. (2003), and user satisfaction from DeLone & McLean (2003). This study formulates relevant questionnaire items for the aforementioned eight research dimensions of intelligent driving assistance system effectiveness to evaluate the cognitive effects of customers, employees, and related personnel (drivers and passengers) of a car manufacturer in a specific region regarding their usage effectiveness across different aspects. The eight dimensions of the intelligent customer intelligent driving assistance system research framework are described as follows:

Part I: User Experience and Cognitive Overview: (1) User Experiences: The user experience and level of preference for the intelligent driving assistance system. (2) Driving Controls: The controllability and driving capabilities of the intelligent driving assistance system. (3) Social Influence: The influence of friends, family, and society on the intelligent driving assistance system. (4) Safety Cognition: Awareness of the safe usage of the intelligent driving assistance system. (5) Knowledge Cognition: Understanding and knowledge related to the usage of the intelligent driving assistance system.

Part II: Usage Effectiveness and Subsequent Behavioral Outcomes: (6) User Attitude: The willingness and attitude towards the usage of the intelligent driving assistance system. (7) User Satisfaction: The level of satisfaction regarding various aspects of the intelligent driving assistance system. (8) Behavior Intention: The intention to continue using or recommending the intelligent driving assistance system.

This study primarily investigates whether user experience and cognitive overview (five dimensions) influence usage effectiveness and subsequent behavioral outcomes (three dimensions). The research framework is formulated based on the TAM model (Davis, 1989), the ISSM model (DeLone & McLean, 1992) and the ADAS experience factors(Nandavar, 2023), as shown in Figure 1.

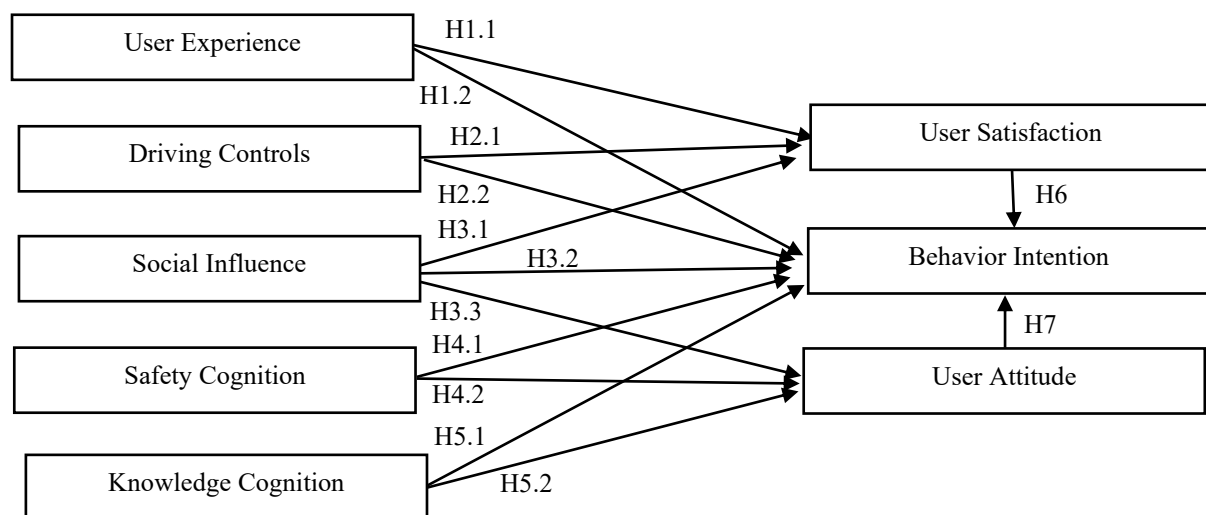


Fig. 1. Research framework.

This framework is hypothesized that the dimensions of "user experience," "driving controls," and "social influence" have a positive and significant impact on "user satisfaction" and "behavioral intention," leading to the establishment of research hypotheses H1, H2, H3, and H6. Additionally, it is hypothesized that the dimensions of "social influence," "safety cognition," and "knowledge cognition" have a positive and significant impact on "user attitude" and "behavioral intention," leading to the revision of research hypotheses H4, H5, and H7. Accordingly, this study formulates the following hypotheses for respondents in the Chiayi area:

H1.1: The "user experience" of the intelligent driving assistance system has a positive impact on "user satisfaction."

H1.2: The "user experience" of the intelligent driving assistance system has a positive impact on "behavioral intention."

H2.1: The "driving controls" of the intelligent driving assistance system have a positive impact on "user satisfaction."

H2.2: The "driving controls" of the intelligent driving assistance system have a positive impact on "behavioral intention."

H3.1: The "social influence" of the intelligent driving assistance system has a positive impact on "user satisfaction."

H3.2: The "social influence" of the intelligent driving assistance system has a positive impact on "behavioral intention."

H3.3: The "social influence" of the intelligent driving assistance system has a positive impact on "user attitude."

H4.1: The "safety cognition" associated with the intelligent driving assistance system has a positive impact on "behavioral intention."

H4.2: The "safety cognition" associated with the intelligent driving assistance system has a positive impact on "user attitude."

H5.1: The "knowledge cognition" associated with the intelligent driving assistance system has a positive impact on "behavioral intention."

H5.2: The "knowledge cognition" associated with the intelligent driving assistance system has a positive impact on "user attitude."

H6: The "user satisfaction" related to the intelligent driving assistance system has a positive impact on "behavioral intention."

H7: The "user attitude" regarding the intelligent driving assistance system has a positive impact on "behavioral intention."

IV. RESULT AND DISCUSSION

This study takes a specific automobile dealership in Chiayi City, Taiwan, as a study case. The research subjects primarily consist of test-driving customers and users who have purchased intelligent driving assistance systems from various brands. The research population includes customers, technicians, employees, and other relevant personnel. The questionnaire employs the Likert scale as an assessment tool. The survey scale consists of eight research dimensions and a total of 24 questions, evaluating user experiences and cognitive effects of using or interacting with intelligent driving assistance systems from various angles. An electronic questionnaire was designed and distributed to relevant participants via LINE or SMS. The survey and data collection period spans from November 1, 2023, to March 31, 2024. The total number of valid questionnaires collected during the period was 217, while the number of invalid questionnaires due to being blank or incomplete was 14. The effective sample recovery rate was 93.9%. This study uses Cronbach's α coefficient as the reliability indicator. The Cronbach's α for examining various dimension variables indicates that the questionnaire in this study demonstrates consistency and stability in reliability ($\alpha > 0.7$), both in individual dimensions and in the overall questionnaire, as shown in Table 1.

Table 1. The reliability analysis results for each research dimension

Question items	Dimension	Average	Standard deviation	Cronbach's α
I have experience or an experience of using IDASs or related driving assistance functions.	User experience	4.07	.776	0.870
I enjoy the user experience of IDASs or related driving assistance functions.		4.06	.780	
Using IDASs or related driving assistance functions is helpful for driving a vehicle.		3.96	.784	
Using IDASs or related driving assistance functions makes it more convenient for me to drive a vehicle.	Driving Controls	4.05	.798	0.833
Using IDASs or related driving assistance functions is beneficial for controlling the vehicle.		3.99	.816	
Using IDASs or related driving assistance functions can assist in driving and help me focus on control.		3.95	.786	
Using IDASs or related driving assistance functions, my friends and family are also using them.	Social Influence	3.95	.692	0.821
Using IDASs or related driving assistance functions, my friends and family all recommend using them.		4.03	.720	
Using IDASs or related driving assistance functions, the general public widely considers them easy to use.		4.05	.728	
Using IDASs or related driving assistance functions, my friends and family are also using them.	Safety Cognition	4.15	.724	0.801
Using IDASs or related driving assistance functions, my friends and family all recommend using them.		3.96	.795	
Using IDASs or related driving assistance functions, the general public widely considers them easy to use.		4.13	.736	
Using IDASs or related driving assistance functions, I am familiar with the related functions and their uses.	Knowledge Cognition	4.13	.717	0.819
Using IDASs or related driving assistance functions, I understand the usage methods and control processes.		4.02	.802	
Using IDASs or related driving assistance functions, I know the control mechanisms.		4.06	.764	

assistance effects, and risks involved.				
Using IDASs or related driving assistance functions is a great idea.	User Attitude	4.05	.765	0.818
Using IDASs or related driving assistance functions is a wise choice.		4.10	.677	
Using IDASs or related driving assistance functions is a positive experience.		3.99	.720	
Using IDASs or related driving assistance functions, I will continue to use them.	Behavior Intention	4.05	.777	0.828
Using IDASs or related driving assistance functions, I will recommend them.		4.11	.750	
Using IDASs or related driving assistance functions, I will try to use them.		4.01	.842	
Using IDASs or related driving assistance functions, I will continue to use them.	User Satisfaction	3.93	.824	0.819
Using IDASs or related driving assistance functions, I will recommend them.		4.00	.793	
Using IDASs or related driving assistance functions, I will try to use them.		4.04	.757	

The validity analysis of each dimension can be assessed through the KMO value (Kaiser-Meyer-Olkin Measure) and Bartlett's test of sphericity, which examine whether the items in the scales are suitable for factor analysis. According to the analysis results, the KMO values for the eight dimensions in the scale are 0.711, 0.703, 0.711, 0.708, 0.717, and 0.719 (>0.7), and the significance of the chi-square value from Bartlett's test of sphericity is 0.000 (<0.05), reaching significant levels. This indicates that the data for the eight dimensions in the scale of this study are suitable for factor analysis. The design of the questionnaire in this study is based on a review of relevant literature from both domestic and international sources, as well as scales developed by scholars from various countries. However, to summarize the valid dimensions based on the actual responses to the questionnaire and to verify the research hypotheses, this study employs Exploratory Factor Analysis (EFA) to assess the validity of each dimension. The study utilizes the Principal Component Analysis (PCA) and the Maximum Variance Method (MVM) for orthogonal rotation, extracting factors with eigenvalues greater than 1, while eliminating items with factor loadings less than 0.4. Based on the results of the factor analysis conducted after applying the PCA and the MVM for orthogonal rotation, this study identifies five factors extracted from the user experience and cognitive profile (five dimensions). Therefore, the experience and cognitive profile (five dimensions) can be respectively named as 'User Experience,' 'Driving Control,' 'Safety Cognition,' 'Knowledge Cognition,' and 'Social Influence,' with the factor analysis passing the verification, as results shown in Table 2. . Moreover, for the effectiveness of usage effectiveness and subsequent behavioral outcomes (three dimensions) 'User Attitude,' 'User Satisfaction,' and 'Behavioral Intention,' each comprising three items exploratory factor analysis was conducted, as results shown in Table 3.

Table 2. Component matrix after rotation of user experience and cognitive profile

User Experience and Cognitive Profile	Component				
	1	2	3	4	5
User Experience Q1		.749			
User Experience Q 2		.768			
User Experience Q 3		.752			
Driving Control Q1			.723		
Driving Control Q 2			.762		
Driving Control Q 3			.805		
Social Influence Q1					.723
Social Influence Q 2					.829
Social Influence Q 3					.738
Safety Cognition Q 1				.829	
Safety Cognition Q 2				.715	
Safety Cognition Q 3				.781	
Knowledge Cognition Q1	.753				
Knowledge Cognition Q 2	.811				
Knowledge Cognition Q 3	.774				

Table 3. Component matrix after rotation of usage effectiveness and subsequent behavioral outcomes

usage effectiveness and subsequent behavioral outcomes	Component		
	1	2	3
User Attitude Q1			.746
User Attitude Q 2			.828
User Attitude Q 3			.755
Behavioral Intention Q1	.804		
Behavioral Intention Q 2	.746		
Behavioral Intention Q 3	.814		
User Satisfaction Q1		.774	
User Satisfaction Q 2		.809	
User Satisfaction Q 3		.781	

Through the Pearson Correlation Coefficient, the degree of mutual influence between different dimensions can be assessed. By using the Correlation Matrix, the correlations between different variables can be

examined. When the correlation coefficient is close to ± 1 , it indicates a stronger linear relationship between the two; conversely, when the correlation coefficient is close to 0, it signifies a weaker linear relationship. Generally, a correlation coefficient greater than 0.8 indicates a high degree of multicollinearity. The Pearson correlation coefficients between various dimensions and sub-dimensions in this study are shown in Table 4. The test results indicate that the highest correlation coefficient among the various research dimensions is 0.612**, all of which are less than 0.8. Therefore, there is no significant multicollinearity among the research dimensions in this study, making it appropriate to conduct regression path analysis.

Table 4. Pearson correlation coefficients for various research dimensions.

Dimensions	User Experience	Driving Control	Social Influence	Safety Cognition	Knowledge Cognition	User Attitude	Behavioral Intention	User Satisfaction
User Experience	1	.663**	.597**	.509**	.544**	.560**	.447**	.606**
Driving Control	.663**	1	.516**	.449**	.468**	.478**	.396**	.547**
Social Influence	.597**	.516**	1	.482**	.535**	.668**	.475**	.513**
Safety Cognition	.509**	.449**	.482**	1	.510**	.541**	.437**	.494**
Knowledge Cognition	.544**	.468**	.535**	.510**	1	.560**	.457**	.553**
User Attitude	.560**	.478**	.668**	.541**	.560**	1	.612**	.600**
Behavioral Intention	.447**	.396**	.475**	.437**	.457**	.612**	1	.569**
User Satisfaction	.606**	.547**	.513**	.494**	.553**	.600**	.569**	1

** Correlation is significant at the 0.01 level (two-tailed)

This study employs the Structural Regression Path Analysis (SRPA) to explore the relationships and influences among various dimensions within the research framework. By analyzing the significance of the structural model and path analysis (two-tailed), this research determines the relationships and impact levels among the dimensions. Without considering the background attributes of the respondents, the influence relationships between the dimensions are examined, with coefficients (***) representing significance at the two-tailed level of 0.001. The unstandardized regression path coefficients and significance analysis results of this study are illustrated in Figure 2.

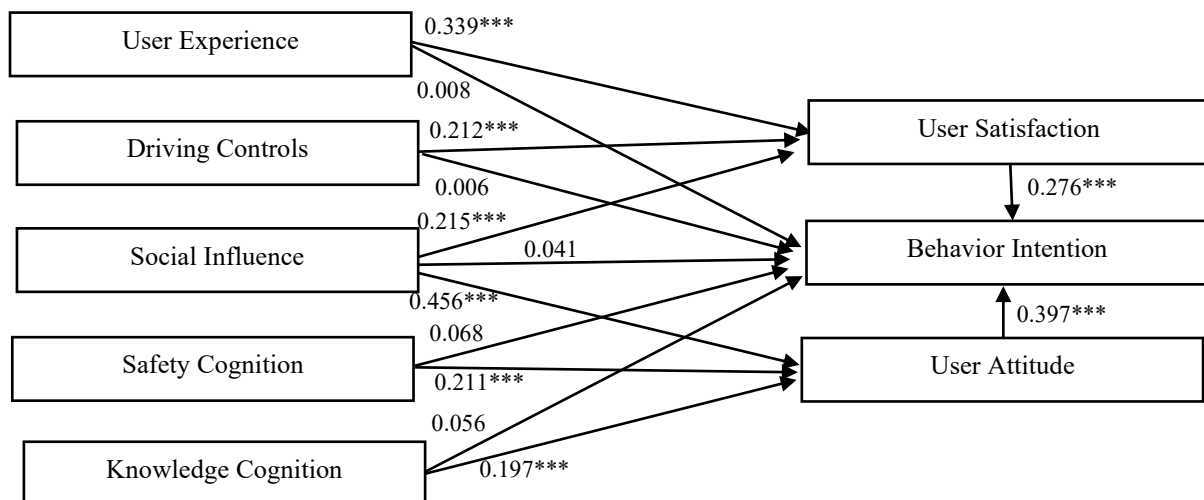


Fig. 2. The unstandardized regression path coefficients and significance analysis results.

According to the analysis results, the research dimensions related to hypotheses H1, H2, H3, and H6, such as the user experience, driving control, and social Influence have a positive and significant impact on the user satisfaction and its behavioral intention. Additionally, the research dimensions related to hypotheses H4, H5, and H7, such as the safety cognition and knowledge cognition also exhibit a positive and significant impact on the user attitude and its behavioral intention. Consequently, this study summarizes the path analysis coefficients and the test results of the research hypotheses, as shown in Table 5.

Table 5. Path Analysis Coefficients and Research Hypothesis Testing Results.

Research Hypothesis	Unstandardized Coefficient	Significance	Standardized Coefficient	Testing Result
H1.1: The "user experience" of the intelligent driving assistance system has a positive impact on "user satisfaction."	0.339	***	0.393	Established
H1.2: The "user experience" of the intelligent driving assistance system has a positive impact on "behavioral intention."	0.008	0.884	0.009	Not Established

H2.1: The "driving controls" of the intelligent driving assistance system have a positive impact on "user satisfaction."	0.212	***	0.245	Established
H2.2: The "driving controls" of the intelligent driving assistance system have a positive impact on "behavioral intention."	0.006	0.904	0.007	Not Established
H3.1: The "social influence" of the intelligent driving assistance system has a positive impact on "user satisfaction."	0.215	***	0.220	Established
H3.2: The "social influence" of the intelligent driving assistance system has a positive impact on "behavioral intention."	0.041	0.550	0.042	Not Established
H3.3: The "social influence" of the intelligent driving assistance system has a positive impact on "user attitude."	0.456	***	0.519	Established
H4.1: The "safety cognition" associated with the intelligent driving assistance system has a positive impact on "behavioral intention."	0.068	0.234	0.072	Not Established
H4.2: The "safety cognition" associated with the intelligent driving assistance system has a positive impact on "user attitude."	0.211	***	0.250	Established
H5.1: The "knowledge cognition" associated with the intelligent driving assistance system has a positive impact on "behavioral intention."	0.056	0.314	0.061	Not Established
H5.2: The "knowledge cognition" associated with the intelligent driving assistance system has a positive impact on "user attitude."	0.197	***	0.239	Established
H6: The "user satisfaction" related to the intelligent driving assistance system has a positive impact on "behavioral intention."	0.276	***	0.275	Established
H7: The "user attitude" regarding the intelligent driving assistance system has a positive impact on "behavioral intention."	0.397	***	0.357	Established

Based on the testing results of the unstandardized regression path analysis, eight hypotheses in this study were found to be established. Through the path coefficients, it was concluded that the aforementioned hypotheses that presented significant relationships all demonstrated a positive relationship among the significant associated dimensions. This study conducted a standardized regression path analysis to evaluate the degree of influence and statistical explanatory power among the various dimensions, with the results shown in Figure 3.

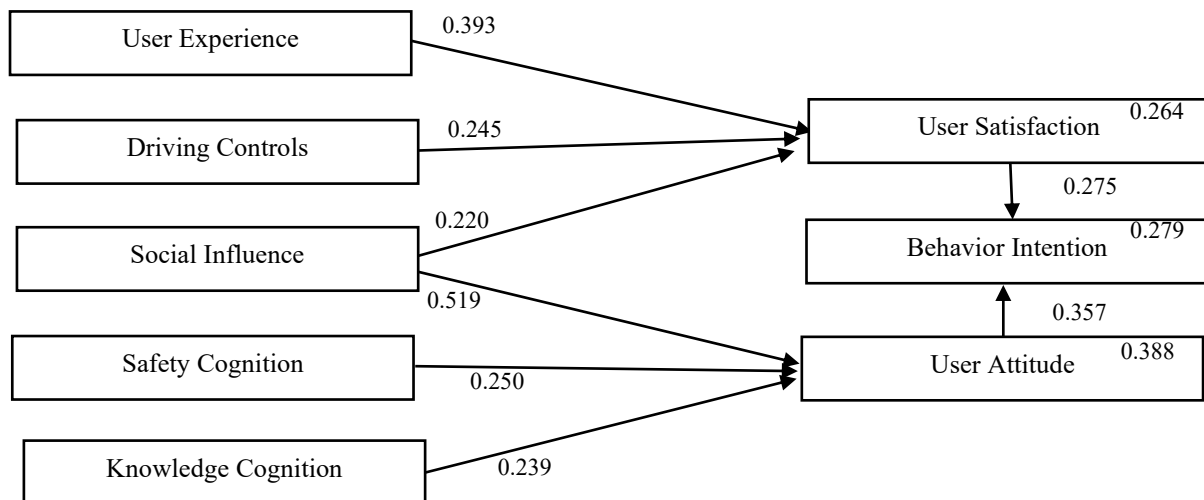


Fig. 3. The standardized regression path coefficients and testing results.

According to the results of the standardized regression path analysis in Figure 3, the findings indicate the following:

1. The "user experience," "driving control," and "social influence" of the intelligent driving assistance system have significant positive correlations with "user satisfaction," explaining 26.4% of the variance in "user satisfaction."
2. The "safety cognition" and "knowledge cognition" of the intelligent driving assistance system have significant positive correlations with "user attitude," explaining 38.8% of the variance in "user satisfaction."
3. The "user satisfaction" and "user attitude" of the intelligent driving assistance system have significant positive correlations with users' "behavioral intention," explaining 27.9% of the variance in "behavioral intention."

V. CONCLUSION

This study examines the hypotheses H1, H2, H3, and H6 concerning the dimensions of "user experience," "driving control," and "social influence" in relation to "user satisfaction" and "behavioral intention," all of which show a positive and significant impact. Additionally, the hypotheses H4, H5, and H7

concerning the dimensions of "safety cognition" and "knowledge cognition" also indicate a positive and significant relationship with "user attitude" and "behavioral intention." Based on the results of the standardized regression path analysis, the following can be observed:

1. User experience, driving control, and social influence: These three dimensions reflect the users' feelings when using the intelligent driving assistance system and have a positive and significant impact on user satisfaction. For instance, a good user experience may stem from the system's intuitive interface and smooth performance; driving control involves the convenience and accuracy of the system's controls from the user's perspective, while social influence may relate to the opinions of the surrounding crowd regarding the system. The positive correlation among these three dimensions indicates that enhancing these aspects can effectively increase user satisfaction, which also underscores the importance of future product design and improvements.

2. Safety cognition and knowledge cognition: These two dimensions reflect the users' understanding of the intelligent driving assistance system. Safety cognition involves the users' trust in the system's ability to ensure driving safety, while knowledge cognition refers to the users' comprehension of the system's functions. Both factors significantly enhance users' positive attitudes, indicating that strengthening users' education on system safety and operational knowledge can further improve their attitudes and thus promote greater willingness to use the system.

3. User satisfaction and user attitude: These two dimensions have a positive and significant impact on the subsequent usage behavior and intentions regarding the intelligent driving assistance system. The influence of user satisfaction and user attitude on behavioral intention shows that positive experiences after using the system affect users' future usage plans. The higher the user satisfaction, the greater the likelihood of sales or renewals. Additionally, enhancing users' positive attitudes can encourage them to recommend the system to others, thereby driving further market expansion.

On the other hand, this study only focuses on a specific automobile dealership in Chiayi City, Taiwan as the research population. Due to limitations in the study subjects and the scope of the research topic, there are several shortcomings. These research limitations can be considered for improvement in future related studies:

1. User Groups of Intelligent Driving Assistance Systems: This research only considers wired respondents and case studies, specifically clients and related personnel from an automotive maintenance factory in Chiayi City. To understand the general opinions of the public, the sampling scope and sample population should be expanded.

2. Effects on Driving and Road Safety: The study will evaluate the cognitive effects of intelligent driving assistance systems on driving and road safety. These findings may vary due to individual perceptions, knowledge, and environmental factors among respondents, potentially leading to different cognitive outcomes.

3. Subjectivity of Survey Responses: Using questionnaires as the research method may result in outcomes influenced by the subjective views of respondents, lacking objectivity.

4. Time Limitations of the Study: The research is conducted within a specific timeframe, while the technology and user experience of intelligent driving assistance systems may evolve over time. Therefore, the findings may need reevaluation at future points in time.

5. Resource Constraints: Due to limited resources, the research may only utilize the questionnaire method and may not be able to conduct more in-depth interviews or field observations, potentially impacting the comprehensive understanding of the research issues.

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