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Exploring the Value–Self-Efficacy–Well-Being Link in Smart Tourism: The Moderating Effect of Digital Literacy

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ABSTRACT

This study examines the value–self-efficacy–well-being pathway in smart tourism, emphasizing the moderating roles of digital literacy. Based on UTAUT2 and consumer value theory, the model investigates how performance expectancy, effort expectancy, habit and price value affect hedonic and utilitarian values, leading to enhanced self-efficacy and well-being. Survey data from 406 users were analyzed using SPSS 27.0 and AMOS 23.0. Results indicate that performance expectancy and price value significantly influence both utilitarian and hedonic values, while effort expectancy is not significant. Both value dimensions positively affect self-efficacy, which in turn enhances psychological well-being. Digital literacy negatively moderates the relationship between self-efficacy and hedonic value, implying that users with lower digital skills gain greater confidence through enjoyable experiences. These findings extend smart tourism research by connecting experiential value to psychological outcomes and emphasizing inclusive, user-centered design for varying digital literacy levels.

Keywords: Smart tourism, UTAUT2, Experience value, Self-efficacy, Psychological well-being, Digital literacy

1.INTRODUCTION

The digital transformation of tourism has reshaped how travel experiences are created and interpreted, as tourists increasingly act as co-creators of meaning through mobile platforms and immersive technologies such as AR and VR (Xiang et al., 2015). Within this digital context, tourism functions as a multidimensional consumption system that merges hedonic enjoyment and utilitarian efficiency (Babin et al., 1994), both conceptually linked to self-efficacy and psychological well-being (Bandura, 1997; McCabe & Johnson, 2013). Based on the UTAUT2 framework, previous research identifies effort expectancy, performance expectancy, price value, and habit as key factors shaping experiential value (Venkatesh et al., 2012), with evidence showing that usefulness, usability, and reasonable pricing enhance both pleasure and functional satisfaction (Akdim et al., 2022; Grewal et al., 1998). However, the mechanism through which these experiential appraisals promote tourism self-efficacy remains insufficiently understood. Consistent with Bandura's (1993) assertion that positive experiences reinforce perceived competence, recent findings indicate that enjoyment and fluency in travel activities strengthen confidence and emotional recovery (Chen et al., 2023; Park et al., 2022). Within this evolving landscape, digital literacy serves as a strategic capability connecting tourists' technological engagement with perceived control and well-being (Eshet-Alkalai, 2004; Xiong & Zhang, 2024). Tourists with higher digital competence more effectively convert digital interactions into self-assurance and happiness (Yoo et al., 2017). Accordingly, this study investigates how UTAUT2 constructs influence utilitarian and hedonic values, examines the mediating role of tourism self-efficacy in linking these values to psychological well-being, and explores the moderating function of digital literacy in the value–efficacy–well-being pathway within smart tourism contexts.

2.THEORETICAL FOUNDATION AND HYPOTHESES

21 UTAUT2

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The Theory of Reasoned Action (Fishbein & Ajzen, 1975) provided the conceptual foundation for Davis's (1989) Technology Acceptance Model (TAM), which explains how individuals come to adopt and use technology. TAM highlights two central beliefs—perceived usefulness and perceived ease of use—that shape a user's attitude and behavioral intention toward technology adoption. Subsequent extensions, such as TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008), broadened the model by incorporating social influence, cognitive processes, and experiential factors to enhance explanatory power. These developments later converged into the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al., 2003), which identifies performance expectancy, effort expectancy, social influence, and facilitating conditions as the four key determinants of technology acceptance. To better capture consumer behavior, Venkatesh, Xu, and Thong (2012) proposed UTAUT2, adding constructs including hedonic motivation, habit, and price value. Since its introduction, UTAUT2 has been widely applied across fields such as healthcare, mobile services, and tourism to explain both technology adoption and continuous usage behavior (Akdim et al., 2022; Nordhoff et al., 2020; Huang et al., 2024). Empirical study has indicated that performance expectancy enhances enjoyment and, effort expectancy, perceived usefulness reduces perceived complexity, and price value together with habit fosters continued engagement. Unlike earlier models centered solely on pleasure anticipation, the current research focuses on hedonic value—emotional satisfaction arising from actual user experiences (Babin, Darden, & Griffin, 1994)—as a predictor of post-consumption behavior in tourism. Accordingly, this study explores how the constructs of UTAUT2 influence hedonic and utilitarian value perceptions within tourism contexts, expanding the model's relevance to experience-based consumption.

2.2 SMART TOURISM TECHNOLOGIES

Smart Tourism Technologies encompass digital tools such as mobile applications, AR and VR, location-based services, and artificial intelligence that are embedded within the tourism experience. Beyond serving as information channels, they operate as experiential mediators that shape tourists' decisions, immersion, and emotions. STTs simultaneously generate hedonic and utilitarian value by enhancing enjoyment, usability, and efficiency (Nordhoff et al., 2020; Saravanos et al., 2022). For example, AI travel planners and mobile booking systems improve convenience, price value, and time efficiency while offering sensory pleasure, fostering satisfaction and loyalty. The post-pandemic shift toward digital and contactless travel has further underscored their importance in constructing modern tourism experiences. Moreover, tourists with advanced digital literacy derive stronger emotional and functional benefits from STTs and can translate these outcomes into greater self-efficacy. Accordingly, STTs constitute not only a determinant of tourism experience value but also a contextual factor that refines the application of the UTAUT2 framework within technology-driven tourism environments.

2.3 RELATIONSHIP BETWEEN UTAUT2 CONSTRUCTS AND EXPERIENCE VALUE

2.3.1 PERFORMANCE EXPECTANCY AND EXPERIENCE VALUE

Performance expectancy refers to an individual's belief that technology use enhances task efficiency and effectiveness, a construct conceptually aligned with perceived usefulness in TAM (Venkatesh et al., 2003; Davis, 1989). When users perceive that a system improves goal achievement, their intention to adopt and continue using it strengthens. Beyond instrumental utility, performance expectancy also evokes emotional satisfaction by stimulating pleasure and engagement during use (Babin, Darden, & Griffin, 1994). Empirical studies across diverse domains—from online learning and social mobile platforms to healthcare and autonomous vehicles—consistently reveal that perceived usefulness or performance expectancy increases enjoyment and positive user experiences (van der Walt et al., 2024; Huang et al., 2024; Akdim et al., 2022). At the same time, higher performance expectancy enhances utilitarian value by reinforcing perceptions of efficiency, convenience, and problem-solving benefits (Voss et al., 2003; Overby & Lee, 2006). In line with Zeithaml's (1988) theory of value, expected performance gains heighten perceived benefits relative to costs, thereby strengthening functional satisfaction. Consequently, performance expectancy operates not only as a precursor of technology acceptance but also as a key determinant of both utilitarian enjoyment and hedonic value within technology-mediated experiences.

H1-1: Performance expectancy has a positive effect on hedonic value.
H2-1: Performance expectancy has a positive effect on utilitarian value.

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2.3.2 EFFORT EXPECTANCY AND EXPERIENCE VALUE

Effort expectancy refers to the perceived ease and intuitiveness of using a technology, reflecting the extent to which users believe that its operation requires minimal effort and cognitive demand. This construct parallels perceived ease of use and directly influences emotional responses such as enjoyment and satisfaction (Babin, Darden, & Griffin, 1994). When technology is perceived as simple and user-friendly, it enhances positive emotions and strengthens acceptance (2020; Saravanos et al., 2022; Nordhoff et al.). From cognitive load perspective, intuitive design allows users to conserve mental resources, increasing hedonic responses, whereas systems requiring extensive learning may induce fatigue and reduce pleasure. Empirical findings across contexts—including mobile applications, e-learning, and healthcare technologies—consistently confirm the positive link between effort expectancy and hedonic value (Akdim et al., 2022; Huang et al., 2024). Moreover, effort expectancy also fosters utilitarian value, which concerns functional benefits such as efficiency, convenience, and problem-solving (Voss et al., 2003). When technologies are perceived as effortless, users evaluate their interactions as more productive and efficient, reinforcing functional satisfaction (Childers et al., 2001; Overby & Lee, 2006). According to Zeithaml's (1988) value theory, reduced effort cost increases perceived benefits, thus elevating utilitarian value. Consequently, effort expectancy serves not only as a key driver of technology acceptance but also as a fundamental determinant that enhances both the hedonic and utilitarian dimensions of user experience value.

H1-2: Effort expectancy has a positive effect on hedonic value.
H2-2: Effort expectancy has a positive effect on utilitarian value.

2.3.3 PRICE VALUE AND EXPERIENCE VALUE

Price value refers to consumers' evaluation of the utility obtained relative to the monetary cost expended and represents a crucial determinant in technology and service adoption (Venkatesh, Xu, & Thong, 2012). When users perceive that the benefits of a product or service outweigh its cost, they experience not only rational satisfaction but also heightened emotional gratification, thereby strengthening hedonic value (Holbrook & Hirschman, 1982; Babin, Darden, & Griffin, 1994). Reasonable or advantageous pricing alleviates the "pain of paying," facilitating greater enjoyment and positive affect during use (Prelec & Loewenstein, 1998). Moreover, perceptions of price fairness and favorable reference comparisons enhance transaction value and emotional satisfaction (Grewal, Monroe, & Krishnan, 1998; Xia, Monroe, & Cox, 2004). Discounts or monetary promotions also justify indulgent consumption, reducing guilt and amplifying pleasure (Chandon, Wansink, & Laurent, 2000). Within this framework, the PERVAL scale (Sweeney & Soutar, 2001) conceptualizes price value as an antecedent of both emotional and functional outcomes, suggesting that favorable price perceptions foster feelings of both enjoyment and rational choice. In parallel, price value is intrinsically linked to utilitarian value, which reflects functional efficiency and problem-solving benefits (Voss et al., 2003; Babin et al., 1994). According to Zeithaml's (1988) value theory, consumers assess overall value through the trade-off between sacrifices and benefits; thus, perceived price fairness reduces the sense of sacrifice and enhances efficiency and cost-effectiveness, central components of utilitarian value. Empirical evidence from retail and service contexts supports that positive price cues and economic gains simultaneously increase hedonic and utilitarian satisfaction (Rintamäki, Kuusela, & Mitronen, 2007). Therefore, price value serves not only as a measure of economic rationality but also as a catalyst for both emotional pleasure and functional fulfillment in consumer experiences.

H1-3: Price value has a positive effect on hedonic value.
H2-3: Price value has a positive effect on utilitarian value.

2.3.4 HABIT AND EXPERIENCE VALUE

Habit refers to an automatic behavioral tendency formed through repeated actions that occur with minimal cognitive effort or conscious intention (Limayem, Hirt, & Cheung, 2007; Wood & Neal, 2007). In technology use, habitual behavior reduces mental load and enhances behavioral fluency, which fosters familiarity, satisfaction, and enjoyment (Reber, Schwarz, & Winkielman, 2004; Zajonc, 1965). When technology use becomes routine, users experience smoother interaction and lower resistance, thereby increasing hedonic value—the pleasure and emotional gratification derived from use (Holbrook & Hirschman, 1982; van der Heijden, 2004). Repetition reinforces positive attitudes and emotional attachment, leading to continued engagement and enjoyment. Within

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the UTAUT2 framework, habit functions as a core determinant of both technology adoption and sustained use (Venkatesh, Thong, & Xu, 2012). Moreover, habitual engagement enhances utilitarian value by improving efficiency, time savings, and perceived task accomplishment (Babin, Darden, & Griffin, 1994). As decision-making becomes automated through repetition, consumers achieve goals with greater ease and evaluate their experiences as more effective and rational (Verplanken & Orbell, 2003). Consequently, habit serves not only as a behavioral predictor of continued technology use but also as a psychological mechanism that simultaneously strengthens hedonic enjoyment and utilitarian satisfaction within consumer experiences.

H1-4: Habit has a positive effect on hedonic value.
H2-4: Habit has a positive effect on utilitarian value.

2.4 THE RELATIONSHIP BETWEEN TOURISM EXPERIENCE VALUE AND TOURISM SELF-EFFICACY

Hedonic value refers to the pleasure, enjoyment and emotional satisfaction individuals gain from tourism experiences and has been recognized as a key component of experiential value in tourism and consumer research (Miao, Lehto, & Wei, 2014). Positive emotions such as interest and immersion during travel can strengthen self-beliefs and motivational states (Park, Lee, & Lee, 2022). According to Bandura's (1977) social cognitive theory, self-efficacy—belief in one's ability to perform tasks successfully—is reinforced through positive affect and successful performance. Enjoyable tourism experiences, therefore, enhance confidence and strengthen efficacy beliefs (Rohde, Scheel, & Stollberg, 2023). Empirical findings show that participation in tourism and outdoor activities increases perceived self-efficacy (Tyne et al., 2024; Puhakka et al., 2024), confirming the link between enjoyment and confidence. In smart tourism, hedonic value functions as an antecedent of self-efficacy, fostering travelers' positive attitudes and behaviors (Kim, Lee, & Chung, 2017). In contrast, utilitarian value concerns the perception of functional efficiency, usefulness, and economic benefit gained from tourism (Babin, Darden, & Griffin, 1994). Efficient services, cost savings, and convenience provide mastery experiences that build efficacy beliefs (Bandura, 1993). When tourists perceive their travel as effective and manageable, they develop stronger control and confidence, consistent with the concept of perceived behavioral control in Ajzen's (1991) Theory of Planned Behavior. Prior research also highlights utilitarian value as a determinant of satisfaction and favorable attitudes (Rintamäki et al., 2006). Thus, both hedonic and utilitarian values enhance tourism self-efficacy—hedonic through emotional enjoyment and utilitarian through efficient mastery—collectively promoting positive tourism behaviors and psychological growth.

H3-1: Hedonic value has a positive effect on tourism self-efficacy.
H3-2: Utilitarian value has a positive effect on tourism self-efficacy.

2.5 THE RELATIONSHIP BETWEEN TOURISM SELF-EFFICACY AND PSYCHOLOGICAL WELL-BEING IN TOURISM

Tourism self-efficacy refers to tourists' confidence in their ability to perform tourism-related activities successfully, adapting Bandura's (1977, 1997) concept of self-efficacy to the tourism domain. As a psychological resource, self-efficacy fosters proactive behavior and emotional stability, enabling individuals to manage challenges and maintain positive affect. Psychological well-being in tourism encompasses emotional balance, happiness, and vitality restoration gained through travel experiences (McCabe & Johnson, 2013). Touristic activities, by providing novelty and engagement beyond daily routines, serve as a catalyst for psychological recovery and satisfaction. According to Bandura (1997), individuals with high self-efficacy regulate emotions more effectively and remain resilient under stress, leading to enhanced well-being. In tourism contexts, confidence in one's ability to navigate and enjoy travel reduces anxiety and heightens feelings of accomplishment. Empirical evidence consistently supports this relationship: self-efficacy has been shown to improve motivation, resilience, and emotional well-being (Schunk & DiBenedetto, 2020; Chen, Li, & Gao, 2023). Tourism research likewise confirms that positive experiences and destination satisfaction reinforce happiness and subjective well-being (Kim, 2014; Prayag et al., 2017). Synthesizing these insights, tourists with higher self-efficacy are more likely to experience positive emotions and psychological stability, suggesting that tourism self-efficacy functions as a psychological mechanism linking smart tourism experiences to well-being outcomes. Accordingly, the following hypothesis is proposed.

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H4: Tourism self-efficacy has a positive effect on psychological well-being in tourism.

2.6 THE MODERATING ROLE OF DIGITAL LITERACY IN THE RELATIONSHIP BETWEEN TOURISM EXPERIENCE VALUE AND TOURISM SELF-EFFICACY

Hedonic value represents the enjoyment and emotional satisfaction tourists gain from their experiences, serving as a psychological source that enhances self-efficacy (Bandura, 1977; Fredrickson, 2001). In tourism, pleasurable and immersive experiences extend beyond temporary emotion, fostering confidence in managing unfamiliar situations and thus strengthening tourism self-efficacy (Miao, Lehto, & Wei, 2014). However, the intensity of this relationship can vary with tourists' individual capabilities—particularly their digital literacy. As tourism experiences increasingly depend on technologies such as mobile applications, AR, and VR, tourists with higher digital literacy are better able to translate enjoyment into mastery and control. Digital competence allows users to amplify pleasurable experiences while effectively navigating and resolving problems (Eshet-Alkalai, 2004; Ng, 2012). Prior studies show that user competence enhances the link between smart technologies and experiential outcomes (Torabi et al., 2023) and promotes satisfaction and loyalty in digital tourism (Xiong & Zhang, 2024). Similarly, self-efficacy moderates the relationship between technological attributes and user satisfaction, confirming that capability-related factors shape psychological outcomes (Yoo et al., 2017). Therefore, even under similar levels of enjoyment, tourists with greater digital literacy can more effectively convert hedonic experiences into stronger self-efficacy. Accordingly, digital literacy is expected to moderate the positive relationship between hedonic value and tourism self-efficacy. Based on this rationale, the following hypotheses are proposed.

H5-1: The positive effect of utilitarian value on tourism self-efficacy varies depending on the level of digital literacy.
H5-2: The positive effect of hedonic value on tourism self-efficacy varies depending on the level of digital literacy.

Accordingly, the study seeks to determine how digital literacy moderates the relationships between utilitarian and hedonic values and tourism self-efficacy, thereby extending theoretical insight into the mechanism through which experiential value contributes to psychological well-being in technology-mediated tourism environments.

3.METHODOLOGY

3.1 RESEARCH MODEL

Based on the proposed hypotheses, the research model of this study is illustrated in [Figure 1]. The model integrates key constructs from UTAUT2 and consumer value theory while incorporating digital literacy as a moderating variable to examine its role in influencing the relationship between tourism experience value and tourism self-efficacy.

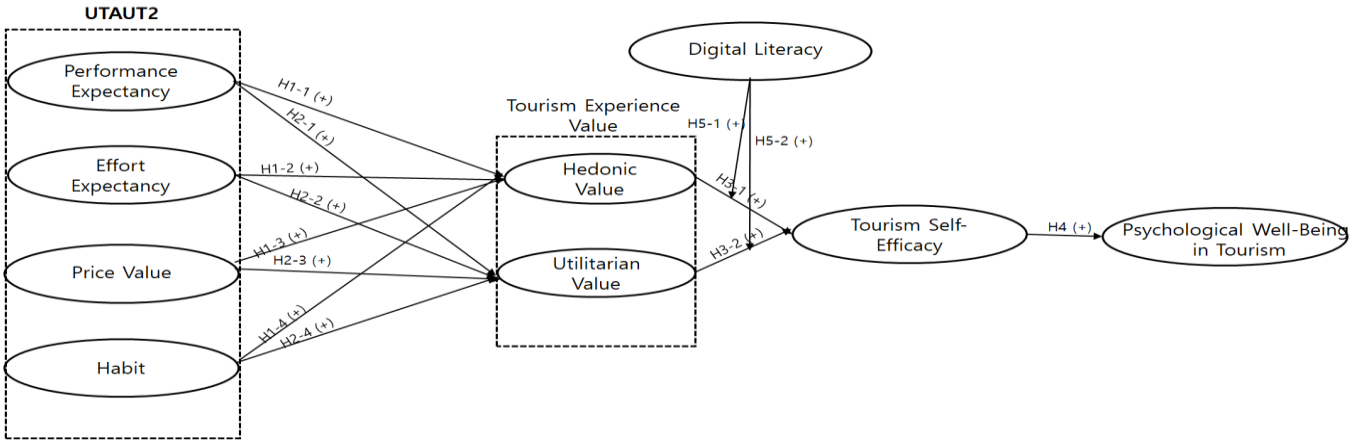

Figure 1. Conceptual framework of the study

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3.2 OPERATIONAL DEFINITIONS AND MEASUREMENT ITEMS

All measurement items employed in this research were derived and modified from established instruments validated in previous studies. The reliability and validity of these measures have been confirmed by prior empirical evidence.To suit the objectives and context of the current investigation, several items were adjusted accordingly, as detailed in [Table 1].Each construct was evaluated using a five-point Likert-type scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree").

Table 1. Operational Definitions and Measurement Items of Constructs

Construct	Operational Definition	Measurement Items	Source
Performance Expectancy	The degree to which using smart tourism technologies enhances travel efficiency and effectiveness.	PE1. This app improves the efficiency of my travel planning PE2. This app reduces the time required for trip preparation. PE3. This app enhances the quality of my travel experience. PE4. This app helps me achieve my travel goals.	Venkatesh et al. (2012)

Table 1. Operational Definitions and Measurement Items of Constructs

Effort Expectancy	The degree to which smart tourism technologies are perceived as easy to use and learn.	EE1. This app is easy to learn. EE2. This app is simple to use. EE3. The process of using this app is convenient. EE4. I can easily become skillful at using this app.	Venkatesh et al. (2012)
Hedonic Motivation	The extent of enjoyment and fun experienced while using tourism applications.	HM1. I enjoy using this app. HM2. I find this app interesting to use. HM3. The features of this app are fun and refreshing. HM4. I experience positive feelings when using this app.	Venkatesh et al. (2012)
Price Value	The perceived trade-off between the benefits received and the cost paid.	PV1. This app provides sufficient benefits for its cost. PV2. The price of this app is reasonable. PV3. Given the functions and quality provided, the price is appropriate. PV4. I am satisfied with the price of this app.	Venkatesh et al. (2012)

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Habit	The extent to which app usage behavior becomes automatic through repeated use.	HB1. I frequently use this app. HB2. I use this app out of habit. HB3. Using this app while traveling feels natural to me. HB4. I tend to use this app before others.	Venkatesh et al. (2012)
Utilitarian Value	The degree of functional usefulness, efficiency, and goal achievement experienced through app use.	UV1. This app saves me time in planning my trip. UV2. This app helps me prepare for and carry out my trip efficiently. UV3. This app provides necessary information accurately and promptly. UV4. This app practically helps me achieve my travel goals.	Babin et al. (1994)
Hedonic Value	The emotional satisfaction and pleasure derived from using the app.	HV1. This app makes the process of trip preparation more enjoyable. HV2. This app makes the trip more interesting. HV3. This app makes my travel experience more fun overall. HV4. Using this app increases my satisfaction with the trip.	Babin et al. (1994)

Table 1. Operational Definitions and Measurement Items of Constructs

Tourism Self-Efficacy	The belief in one's ability to successfully carry out tourism-related activities.	TSE1. I can handle unexpected situations during travel. TSE2. I can adapt well to new environments. TSE3. I can effectively plan my own trip. TSE4. I can confidently make travel-related decisions.	Bandura (1997)
Tourism Psychological Well-Being	The psychological benefits (e.g., happiness, emotional stability) obtained from tourism experiences.	TPW1. Traveling gives me psychological stability. PW2. Traveling increases my sense of happiness. TPW3. Traveling provides me with life satisfaction. TPW4. Traveling enhances my positive emotions.	Uysal et al. (2016)

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Psychological Resilience	The ability to recover from stress and adapt positively.	PR1. I maintain a positive attitude even in the face of difficulties. PR2. I do not give up easily in stressful situations. PR3. I see challenges as opportunities for growth. PR4. I quickly adapt to change.	Connor & Davidson (2003)
Digital Literacy	The comprehensive capacity to search, analyze, evaluate, and creatively use digital information.	DL1. I can use smartphone apps proficiently. DL2. I can easily find necessary information online. DL3. I can solve problems using digital technologies. DL4. I can quickly learn to use new digital services.	Ng (2012)

3.3 PARTICIPANTS

This study targeted individuals who had used smart tourism technologies—such as travel-related mobile applications including VisitKorea, MyRealTrip, Trip.com, and Agoda—within the previous six months. Data were collected through an online survey administered over a seven-day period from August 25 to 31, 2025. After excluding incomplete or invalid responses, 406 questionnaires were retained for the final analysis. Descriptive statistics were employed to examine the demographic characteristics of the respondents (see [Table 2]). The sample comprised 49.3% male and 50.7% female participants, reflecting a balanced gender distribution. Respondents in their thirties represented the largest age group (41.1%). Most participants held a four-year university degree (59.1%), and over half reported a monthly household income exceeding 8 million KRW (57.9%). In terms of travel frequency, 37.9% indicated traveling two to three times annually, making this the most common category.

Table 2. General Characteristics of Respondents (N=406)

Variable	Category	n	%
Gender	Male	200	49.3
	Female	206	50.7
Age	20s or younger	111	27.3
	30s	167	41.1
	40s	85	20.9
	50s or older	43	10.6
Education Level	High school or below	36	8.9
	Associate degree	105	25.9
	Bachelor's degree	240	59.1
	Graduate degree	25	6.2
Monthly Household Income	Less than 3 million KRW	43	10.6
	3–6 million KRW	72	17.7
	6–8 million KRW	56	13.8
	Over 8 million KRW	235	57.9
Travel Frequency (per year)	Once or less	101	24.9
	2–3 times	154	37.9
	4–5 times	97	23.9
	6 times or more	54	13.3

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3.4 VALIDITY AND RELIABILITY OF THE MEASUREMENT INSTRUMENT

To confirm the construct validity of the measurement tool, an exploratory factor analysis (EFA) was performed based on Principal Component Analysis (PCA) with Varimax rotation. Items with factor loadings lower than .50 were excluded, as they were considered inadequate to represent their corresponding constructs (Hair, Anderson, Tatham, & Black, 1998). Reliability was examined through Cronbach's alpha coefficients, and values exceeding .70 were regarded as acceptable (Nunnally, 1978). The results of the EFA and reliability analysis are summarized in [Table 3]. The Kaiser–Meyer–Olkin (KMO) statistic was .934, which is well above the recommended threshold of .60, indicating excellent sampling adequacy. Bartlett's test of sphericity was significant at the 0.05 level, verifying that the dataset was appropriate for factor analysis. Nine factors with eigenvalues greater than 1.0 were extracted, and all measurement items showed factor loadings above .50. Cronbach's alpha values ranged from .85 to .93, confirming strong internal consistency and supporting the validity and reliability of the overall measurement model.

Table 3. Validity and Reliability of Measurement Instruments

Factor	Item	Factor Loading	Eigenvalue	Variance (%)	Cronbach's α
Digital Literacy	DL3	.819	3.42	10.06	.92
	DL4	.800			
	DL1	.737			
	DL2	.726			

Table 3. Validity and Reliability of Measurement Instruments

Effort Expectancy	EE3	.822	3.31	9.73	.90
	EE1	.820			
	EE2	.818			
	EE4	.814			
Tourism Self-Efficacy	TSE4	.864	3.26	9.60	.90
	TSE2	.822			
	TSE3	.773			
	TSE1	.730			
Habit	HB1	.783	3.17	9.60	.91
	HB2	.774			
	HB3	.774			
	HB4	.757			
Psychological Well-being	PW2	.789	3.26	9.43	.93
	PW4	.764			
	PW1	.749			
	PW3	.736			
Performance Expectancy	PE4	.790	3.21	9.35	.91
	PE3	.777			

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	PE1	.776			
	PE2	.718			
Price Value	PV3	.793	3.18	8.61	.85
	PV1	.732			
	PV2	.709			
	PV4	.650			
Hedonic Value	HV1	.791	2.93	7.21	.90
	HV3	.772			
	HV2	.771			
Utilitarian Value	UV2	.720	2.45	6.11	.91
	UV3	.710			
	UV1	.693			
Total Variance Explained	79.69%				
KMO	.934				
Bartlett's Test	$\chi^2(561) = 11{,}484.10$, $p < .001$				

3.5 DATA ANALYSIS METHOD

Data analysis was conducted using SPSS 27.0 and AMOS 23.0. An exploratory factor analysis (EFA) was first employed to examine the construct validity of the measurement instrument, and Cronbach's alpha coefficients were computed to assess internal consistency. The normality of the major variables was tested through skewness and kurtosis statistics, and Pearson's correlation analysis was applied to identify inter-variable relationships. To further verify convergent and discriminant validity, a confirmatory factor analysis (CFA) was performed, followed by path analysis to estimate the structural coefficients of the proposed research model. Model fit was evaluated using the Incremental Fit Index (IFI), Normed Fit Index (NFI), Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI). According to Bentler (1990), NFI, IFI, and CFI values greater than .90 indicate acceptable fit, whereas RMSEA values below .05 represent good fit, below .08 reasonable fit, below .10 mediocre fit, and above .10 poor fit (Browne & Cudeck, 1992).

4. RESULTS

4.1 DESCRIPTIVE STATISTICS AND CORRELATION ANALYSIS OF MAJOR VARIABLES

Descriptive statistical analysis was conducted to examine the central tendencies and normality of the major variables, including the UTAUT2 constructs, tourism experience value, digital literacy, tourism self-efficacy, and psychological well-being. As presented in [Table 4], skewness values ranged from −0.90 to −0.11, while kurtosis values ranged from −1.20 to −0.54. According to Kline (2005), absolute skewness values below 3 and kurtosis values below 7 indicate acceptable normality. Therefore, all variables in this study were determined to follow a normal distribution.

Table 4. Descriptive Statistics of Main Variables (N = 406)

Variable	M	SD	Skewness	Kurtosis
Performance Expectancy	3.56	1.17	−0.64	−1.05
Effort Expectancy	3.16	1.16	−0.11	−1.44

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Price Value	3.49	1.07	−0.50	−1.05
Habit	3.42	1.18	−0.54	−1.17
Hedonic Value	3.43	1.23	−0.49	−1.12
Utilitarian Value	3.77	1.17	−0.90	−0.54
Digital Literacy	3.61	1.13	−0.71	−0.77
Tourism Self-Efficacy	3.63	1.13	−0.58	−1.06
Psychological Well-Being	3.56	1.19	−0.48	−1.20

A Pearson correlation analysis was subsequently performed to examine the interrelationships among the study variables. As presented in [Table 5], all constructs exhibited statistically significant positive correlations with one another (*p < .001).

Table 5. Correlations Among Major Variables (N=406)

Variable	1	2	3	4	5	6	7	8	9
1. Performance Expectancy	1								
2. Effort Expectancy	.48***	1							

Table 5. Correlations Among Major Variables (N=406)

3. Price Value	.43***	.31***	1						
4. Habit	.57***	.51***	.48***	1					
5. Hedonic Value	.52***	.26***	.63***	.40***	1				
6. Utilitarian Value	.51***	.38***	.58***	.54***	.54***	1			
7. Digital Literacy	.54***	.31***	.47***	.49***	.49***	.69***	1		
8. Tourism Self-Efficacy	.48***	.44***	.47***	.42***	.49***	.48***	.40***	1	
9. Psychological Well-Being	.52***	.37***	.57***	.55***	.50***	.65***	.67***	.41***	1

4.2 MEASUREMENT MODEL VALIDATION

The measurement model demonstrated an acceptable level of fit: $\chi^2(491) = 1147.48$, $p < .001$, NFI = .903, IFI = .942, CFI = .942, and RMSEA = .057, indicating that the model adequately represented the observed data. Convergent validity was assessed through standardized factor loadings, Average Variance Extracted (AVE), and Construct Reliability (CR), as reported in [Table 6]. Following Anderson and Gerbing (1988), convergent validity is considered satisfactory when factor loadings exceed .50, AVE is greater than .50, and CR exceeds .70. In this study, standardized loadings ranged from .60 to .92, AVE values from .61 to .76, and CR coefficients from .86 to .93, confirming that the measurement model achieved adequate convergent validity.

Table 6. Standardized Factor Loadings, AVE, and CR of the Measurement Model

Latent Variable	Measurement Item	Standardized Loading (β)	AVE	CR

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Performance Expectancy	Performance Expectancy 1	.82	.72	.91
	Performance Expectancy 2	.87		
	Performance Expectancy 3	.84		
	Performance Expectancy 4	.86		
Effort Expectancy	Effort Expectancy 1	.85	.70	.90
	Effort Expectancy 2	.86		
	Effort Expectancy 3	.83		
	Effort Expectancy 4	.81		

Table 6. Standardized Factor Loadings, AVE, and CR of the Measurement Model

Habit	Habit 1	.84	.71	.91
	Habit 2	.86		
	Habit 3	.84		
	Habit 4	.83		
Hedonic Value	Hedonic Value 1	.82	.74	.90
	Hedonic Value 2	.90		
	Hedonic Value 3	.86		
Utilitarian Value	Utilitarian Value 1	.82	.76	.91
	Utilitarian Value 2	.92		
	Utilitarian Value 3	.88		
Digital Literacy	Digital Literacy 1	.82	.75	.92
	Digital Literacy 2	.84		
	Digital Literacy 3	.91		
	Digital Literacy 4	.88		
Tourism Self-Efficacy	Tourism Self-Efficacy 1	.83	.70	.90
	Tourism Self-Efficacy 2	.83		
	Tourism Self-Efficacy 3	.85		
	Tourism Self-Efficacy 4	.83		
Tourism Psychological Well-being	Psychological Well-being 1	.81	.76	.93

Discriminant validity was further evaluated following the criterion proposed by Fornell and Larcker (1981), which specifies that the square root of the AVE for each construct should exceed its correlations with other constructs. As presented in [Table 7], the square roots of AVE (values in parentheses along the diagonal) were consistently higher than the corresponding inter-construct correlation coefficients, thereby confirming that the measurement model satisfied the discriminant validity requirement.

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Table 7. Correlations and Square Roots of AVE among Latent Variables

	1	2	3	4	5	6	7	8	9
1. Performance Exp.	(.85)								
2. Effort Exp.	.53	(.84)							
3. Price Value	.49	.34	(.78)						
4. Habit	.63	.56	.55	(.84)					
5. Hedonic Value	.58	.29	.70	.43	(.86)				
6. Utilitarian Val.	.56	.42	.63	.59	.59	(.87)			
7. Digital Literacy	.58	.34	.49	.53	.52	.74	(.87)		
8. Tourism SE	.52	.49	.52	.46	.54	.52	.45	(.84)	
9. Psych. Well-being	.52	.42	.63	.61	.56	.71	.71	.45	(.87)

4.3 STRUCTURAL MODEL ASSESSMENT

Path analysis was performed to estimate the structural coefficients of the proposed research model. As shown in [Table 8] and [Figure 2], the model fit indices were $\chi^2(11) = 216.85$ ($p < .001$), NFI = .901, IFI = .905, CFI = .903, and RMSEA = .215. Although the RMSEA value exceeded the conventional threshold, it is noteworthy that RMSEA tends to be inflated in models with few degrees of freedom, even when other indices indicate acceptable fit (Huberty & Petoskey, 2000). Given that NFI, IFI, and CFI all surpassed the .90 criterion, the overall model fit was considered satisfactory. The results of the path analysis revealed that Performance Expectancy had significant positive effects on both Hedonic Value ($\beta = .35$, $p < .001$) and Utilitarian Value ($\beta = .14$, $p < .01$). Price Value also significantly influenced Hedonic Value ($\beta = .47$, $p < .001$) and Utilitarian Value ($\beta = .41$, $p < .001$). Habit showed a significant positive effect on Utilitarian Value ($\beta = .13$, $p < .05$), but its influence on Hedonic Value was not significant ($\beta = .02$, n.s.). Effort Expectancy did not significantly affect either Hedonic Value ($\beta = -.05$, n.s.) or Utilitarian Value ($\beta = .06$, n.s.). Both Hedonic Value ($\beta = .64$, $p < .001$) and Utilitarian Value ($\beta = .16$, $p < .05$) exerted significant positive effects on Tourism Self-Efficacy. The interaction term between Hedonic Value and Digital Literacy had a significant negative effect on Tourism Self-Efficacy ($\beta = -.13$, $p < .05$), whereas Digital Literacy itself ($\beta = .00$, n.s.) and the interaction between Utilitarian Value and Digital Literacy ($\beta = .08$, n.s.) were not statistically significant. Finally, Tourism Self-Efficacy had a significant positive effect on Tourism Psychological Well-being ($\beta = .21$, $p < .001$). Taken together, these findings provide empirical support for hypotheses H1-1, H1-3, H2-1, H2-3, H2-4, H3-1, H3-2, H4, and H5-2, while hypotheses H1-2, H1-4, H2-2, and H5-1 were not supported.

Table 8. Path Coefficients of the Research Model

Path	B	SE	β	t
Performance Expectancy → Hedonic Value	.29	.04	.35	7.69***
Effort Expectancy → Hedonic Value	−.05	.04	−.05	−1.20
Price Value → Hedonic Value	.45	.04	.47	12.17***
Habit → Hedonic Value	.02	.04	.02	0.46
Performance Expectancy → Utilitarian Value	.11	.04	.14	2.90**
Effort Expectancy → Utilitarian Value	.05	.04	.06	1.23
Price Value → Utilitarian Value	.38	.04	.41	9.36***
Habit → Utilitarian Value	.10	.04	.13	2.50*
Hedonic Value → Tourism Self-Efficacy	.73	.09	.64	7.72***
Utilitarian Value → Tourism Self-Efficacy	.19	.07	.16	2.59*
Digital Literacy → Tourism Self-Efficacy	.00	.07	.00	0.01
Hedonic Value × Digital Literacy → Tourism Self-Efficacy	−.14	.06	−.13	−2.49*
Utilitarian Value × Digital Literacy → Tourism Self-Efficacy	.09	.06	.08	1.44
Tourism Self-Efficacy → Psychological Well-being	.23	.05	.21	5.04***

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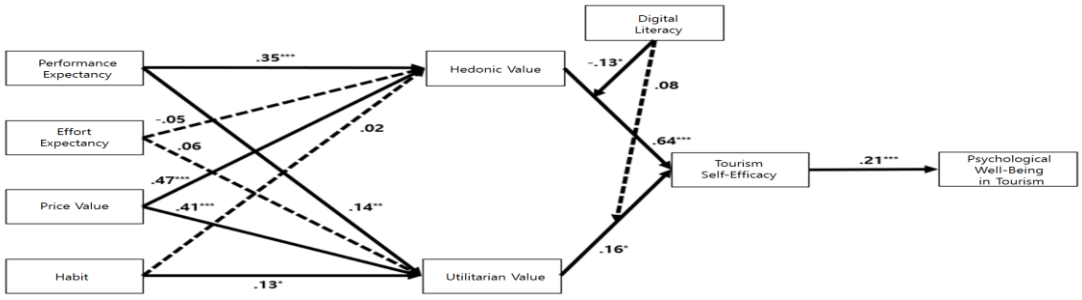

Figure 2. illustrates the standardized path coefficients of the final research model.

Furthermore, because the moderating effect of digital literacy on the relationship between hedonic value and tourism self-efficacy was statistically significant, a simple slope analysis was performed to explore the nature of this moderation. As illustrated in [Figure 3], when digital literacy was low (–1 SD), the slope of the relationship was steeper, indicating a stronger positive effect of hedonic value on tourism self-efficacy. Conversely, when digital literacy was high (+1 SD), the slope became flatter, suggesting a weaker association. These results indicate that the positive influence of hedonic value on tourism self-efficacy is more pronounced among individuals with lower digital literacy levels, contrary to the initial hypothesis.

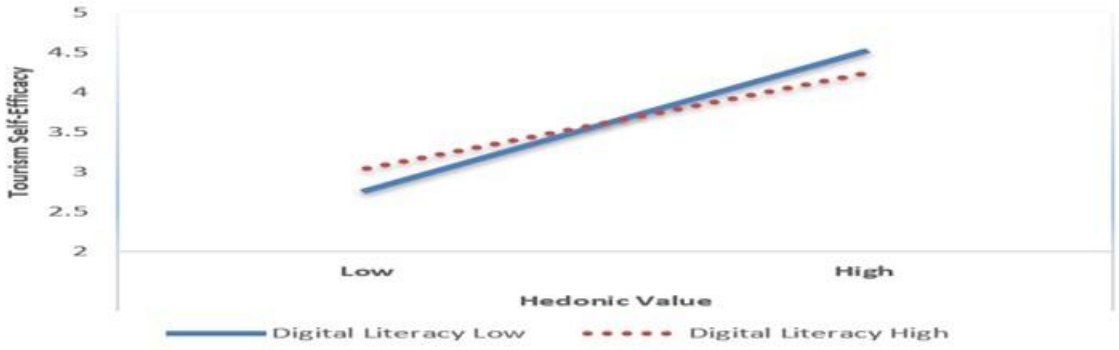

Figure 3. Moderating Effect of Digital Literacy

5. CONCLUSION

5.1 RESEARCH FINDINGS

This study empirically examined how smart tourism technologies, grounded in UTAUT2, influence tourism experience value, self-efficacy, and psychological well-being. Results showed that performance expectancy and price value significantly enhanced both hedonic and utilitarian values, indicating that tourists' perceptions of usefulness and reasonable pricing increase enjoyment and efficiency during travel. Habitual engagement also reduced cognitive burden, reinforcing emotional and functional value in using tourism applications. Furthermore, tourism experience value positively affected tourism self-efficacy, as enjoyment and satisfaction strengthened travelers' confidence in managing challenges. Tourism self-efficacy, in turn, significantly improved psychological well-being, confirming its mediating role in linking travel experiences to happiness and emotional stability. Finally, digital literacy moderated the relationship between hedonic value and self-efficacy, suggesting that tourists' digital competence shapes how emotional experiences translate into confidence. Overall, these findings highlight that both functionality and emotional enjoyment derived from technology use contribute meaningfully to psychological well-being in smart tourism environments.

2. IMPLICATIONS AND LIMITATIONS

This study holds significant academic value in that it broadens the scope of discussion surrounding smart tourism technologies. While many previous studies have focused on usage intention or satisfaction based on models such as the Technology Acceptance Model (TAM) or UTAUT, the context of tourism goes beyond simple technology adoption.

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What truly matters in tourism is what travelers feel through their experiences and what kinds of psychological outcomes they gain. This study focuses on that crucial aspect by empirically verifying the transfer pathway from technology acceptance factors to psychological well-being through experience value and self-efficacy. This represents a theoretical shift in technology acceptance research—from a focus on "behavior and intention" to one on "experience and well-being."

First, with regard to the theoretical background, the finding that performance expectancy and price value significantly influenced both hedonic and utilitarian value is meaningful. It indicates that smart tourism technologies influence the overall tourist experience not merely through novelty or entertainment, but through practical elements such as efficiency and cost-effectiveness. In other words, value creation through technology is most powerful when both emotional enjoyment and functional utility are in balance. This result integrates consumer value theory in tourism (e.g., Holbrook, 1999) with technology acceptance research, presenting a new, theoretically robust framework. Second, the unexpected moderating effect of digital literacy offers important insights for future research and practice. While it was generally assumed that higher digital literacy would lead to stronger self-efficacy, the study found that the effect of hedonic value on self-efficacy was actually stronger among those with lower digital literacy. This suggests that technology does not always work more effectively for the more tech-savvy group. Rather, feelings of novelty and emotional enjoyment in unfamiliar environments may play a more significant role in enhancing self-efficacy. In short, the quality of a technology experience may be strengthened more by emotional immersion and fun than by technical proficiency. This finding calls for a reinterpretation of digital competency and encourages future studies to explore interactions with cultural factors, personality traits, and psychological resources. Third, the study empirically demonstrated that technology acceptance factors do not stop at influencing usage intention, but contribute to a transfer process from experience value → self-efficacy → psychological well-being. This expands the traditional view of technology adoption in tourism beyond convenience and satisfaction, to include tourists' psychological outcomes and well-being. Thus, this study contributes a new framework that re-centers the discussion of smart tourism around well-being.

Next, in terms of practical implications, developers and platforms of smart tourism technologies should consider not only technological advancement but also structural designs that enable tourists to clearly perceive value for money. This includes both functional aspects—such as accurate information, ease of booking/payment, and time-saving features—and emotional elements that enhance enjoyment and satisfaction during travel. Second, given the strong influence of hedonic value on self-efficacy, tourism applications and platforms should go beyond simply providing information. They should actively adopt features such as gamification, immersive content, and personalized recommendations to make the travel process more enjoyable and confidence-building. Third, the stronger influence of hedonic value on self-efficacy among low digital literacy users suggests that intuitive and enjoyable experiences can be more impactful for those unfamiliar with technology. This has critical implications for designing services for the elderly, digitally vulnerable populations, or beginners unfamiliar with new technologies. For these groups, simple and intuitive UI/UX, sensory elements that spark enjoyment, and content that fosters positive emotions may be more effective than complex functionality. These insights are not only applicable to the tourism industry but also to other digital service domains. In sum, the implications of this study go beyond traditional technology adoption research, emphasizing the role of smart tourism technologies in enhancing tourists' quality of life and happiness. Technology is not merely a tool for improving efficiency—it is a catalyst that enhances autonomy, confidence, and ultimately, the foundation for a better life through meaningful experiences.

Despite its contributions, this study has several limitations. First, from a methodological perspective, the study relied on self-reported survey data, which may have been subject to recall bias or social desirability bias as respondents reflected on their own experiences and emotions. Future research should incorporate more objective measures such as usage logs, behavioral tracking through big data, or experimental designs to conduct more precise analyses. Second, the study employed cross-sectional data, which limits the ability to infer causality. Since the data were collected at a single point in time, it is not possible to examine how the relationships between variables change over time. Future studies should consider longitudinal designs or panel data analysis to investigate the cumulative effects of tourism experiences and the persistence of well-being over time. In conclusion, this study integratively examined not only technology acceptance factors such as performance expectancy, price value, and habit, but also

the personal capacity variables of tourism experience value (hedonic and utilitarian), self-efficacy, and digital literacy. It empirically demonstrated how these factors contribute to the formation of value during the use of smart tourism technologies, how such value enhances self-efficacy, and ultimately how it leads to psychological well-being. Moreover, this research proposed a theoretical framework that explains the comprehensive mechanisms by which smart tourism technology influences individual capabilities, emotions, and quality of life—moving beyond fragmented discussions of adoption or satisfaction. This integrated approach serves as a valuable foundation for extending well-being-centered technology research not only in tourism studies, but also across disciplines such as information systems and consumer behavior research.

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