AFFECTIVE DIFFERENCES IN DECISION PERFORMANCE BETWEEN EXPERIENCED AND INEXPERIENCED USERS IN FREE WALKING TOUR ONLINE BOOKING INTERFACES

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ABSTRACT

In the experience economy, evaluation standards have shifted from functional efficiency toward the capacity of services to evoke users' emotions and experiential value, thereby enhancing decision performance. However, despite tourism being a major experience-driven industry, most online booking interfaces continue to prioritize information density and operational efficiency, often overlooking differences in users' affective needs based on their familiarity with booking platforms.

Free Walking Tours (FWTs), a rapidly growing and unconventional tourism format, attract a substantial number of first-time participants. Inexperienced users frequently experience uncertainty and trust concerns, while experienced users focus on efficiently identifying tours that match their expectations. Function-oriented interfaces may therefore fail to support optimal decision performance for both groups.

This study applies Kansei Engineering, integrating morphological analysis and Quantification Theory Type I, to examine differences between experienced users (using booking platforms more than twice per year) and inexperienced users (less than once per year). The research aims to identify key interface design elements and affective attributes that enhance decision performance across user groups.

Findings indicate that inexperienced users prioritize friendliness and thoughtful consideration to reduce uncertainty, whereas experienced users emphasize security and reliability. Both groups value convenience and local authenticity. The results demonstrate that affectively aligned interface design improves decision quality, interaction fluency, and trust formation, providing strategic guidance for performance-oriented booking environments

Keywords: Kansei engineering , User Interface , Free Walking Tour , Tourist Experience , Affective Experience

1 INTRODUCTION

In the context of the experience economy, travelers increasingly seek tourism formats that offer deep engagement, authenticity, and local interaction. Free Walking Tours (FWTs), characterized by free pricing, multiple interpretive perspectives, and strong local connections,

have gradually emerged as one of the fastest-growing forms of urban tourism worldwide. Compared with standardized group tours, FWTs enable travelers to explore cities on foot and to understand local culture through guides' personal narratives and perspectives. Previous studies indicate that such walking tours can enhance tourists' learning, improve their appreciation of urban landscapes, and deepen overall travel experiences (Markwell, Stevenson, & Rowe, 2004).

1.1 The User Interface of Free Walking Tours

With the growth of youth independent travel and backpacker markets, the low cost, high flexibility, and strong social interaction of Free Walking Tours (FWTs) have made this format increasingly attractive. Urban walking tours have expanded rapidly over the past decade, as reflected in the growth of participation in cities such as Barcelona (Barcelona Tourism Bureau, 2014), indicating rising demand for FWTs as an innovative tourism product.

From an operational perspective, FWT services involve tour recruitment and tip-based compensation, with recruitment serving as the primary point of contact between travelers and the service. As tourism information seeking has become increasingly digitalized, FWT operators have shifted from street-based recruitment to online platforms, reviews, and social media. Accordingly, the FWT online interface has become a critical touchpoint for establishing trust, shaping first impressions, and influencing participation intentions.

1.2 Differences among Free Walking Tour Tourists

In the experience economy, emotional expectations increasingly influence users' decision performance in digital services. In the context of FWT online booking interfaces, user differences are primarily related to familiarity with travel reservation platforms rather than demographic factors.

In this study, Experienced users are defined as those who use travel booking websites more than twice per year, whereas Inexperienced users use them less than once per year. Differences in familiarity lead to distinct emotional needs that directly affect decision performance. Understanding how interface design evokes different emotional responses across these user groups is therefore essential for enhancing decision performance and participation intention.

Table 1. User Group Classification Criteria

Catergories	Frequency (a year)
Experienced users	>2
Inexperienced users	<1

1.3 Research Objectives

The objective of this study is to construct an emotionally aligned FWT online booking interface that enhances decision performance among users with different levels of platform familiarity. By clarifying the relationships among interface design elements, functional structures, and users' emotional preferences, this research aims to support the development of booking environments that respond to users' affective expectations rather than relying solely on functional efficiency.

Accordingly, this study addresses the following research questions:

- Q1: What interface functions and design categories are present in existing major FWT online booking platforms?
- Q2: Do experienced and inexperienced users exhibit differences in emotional perceptions toward FWT online booking interfaces?
- Q3: What key emotional attributes should FWT online booking platforms incorporate to enhance decision performance among experienced and inexperienced users?

2 LITERATURE REVIEW

2.1 The Three Levels of Design and Interface Design

Don Norman's Three Levels of Design provide a framework for understanding emotional responses in user–interface interaction, distinguishing among the visceral, behavioral, and reflective levels (Norman, 2004). In this study, results of morphological analysis are mapped onto these three levels to explain how interface characteristics influence tourists' emotional perceptions.

Specifically, visual elements and content presentation correspond to the visceral level, interaction behaviors such as page functions and navigation flows to the behavioral level, and emotional evaluations captured through Kansei words (e.g., convenience, friendliness, and immersion) to the reflective level. This alignment establishes the theoretical basis for applying Kansei Engineering and Quantification Theory Type I to link interface design features with tourists' emotional perceptions.

Table 2. Don Norman's Three Levels of Design

visceral level	behavioral level	reflective level
visuals, content, etc.	Interfaces usage flow	Affective responses
Influences users' first impressions and immediate intuitive responses to the interface.	Influences whether users can achieve their intended usage goals.	Influences whether users can achieve their intended usage goals.

2.2 Kansei Engineering Research Techniques

Kansei Engineering is a design methodology defined as "a technology for translating consumers' emotional needs and impressions into concrete design elements" (Mitsuo Nagamachi, 1995). This approach not only facilitates the systematic identification of human

emotional preferences but also supports their effective application in practical design contexts. The core concept of Kansei Engineering lies in collecting users' Kansei words and analyzing the relationships between these subjective emotional expressions and specific design features, thereby informing design decision-making.

Quantification Theory Type I is one of the most commonly used analytical methods within Kansei Engineering research. It is primarily employed to examine relationships between categorical independent variables and continuous dependent variables. Through this method, interface design morphological factors can be treated as categorical variables, allowing their relative influences on users' emotional perceptions to be quantitatively evaluated.

In the present study, Kansei Engineering combined with Quantification Theory Type I serves as a key methodological framework for linking tourists' subjective emotions with design elements of FWT online interfaces. This integrated approach enables a systematic analysis of emotional perception differences among diverse tourist groups and facilitates the translation of analytical results into concrete and actionable interface design strategies.

3 RESEARCH METHOD

This study integrates Kansei Engineering with morphological analysis to address the proposed research questions. The research procedure consists of four main stages: Case study & Sample Selection, Expert Interviews, Data collection, and Data analysis.

3.1 Case study & Sample Selection

Six representative Free Walking Tour (FWT) official websites and platform pages were selected as case studies from both domestic and international contexts. Selection was based on five criteria: High User Volume (HUV), High Brand Visibility (HBV), Multi-country Coverage (MCC), Interface Diversity (IDV), and Sustained Operation (SOP), ensuring representativeness and analytical relevance. Among the selected cases, Like It Formosa, the most representative FWT platform in Taiwan, was included to reflect the local context and enable cross-regional comparison.

Each platform was evaluated against the selection criteria using binary coding (0/1), where *1* indicates that the criterion is met and *0* indicates that it is not.

Table 3. Case Selection Results

	HUV	HBV	MCC	IDV	SOP
GuruWalk	1	1	1	1	1
SANDEMANs Tours	1	1	1	1	1
FREETOUR.com	1	1	1	1	1
Free Walking Tour	1	1	1	1	1
Like it formosa	1	1	1	1	1

3.2 Expert Interviews

Expert interviews were conducted with two Free Walking Tour (FWT) specialists and one user interface (UI) design expert. The interviews aimed to collaboratively identify key morphological

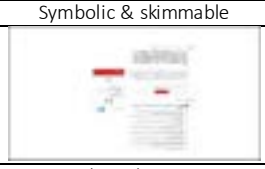
factors of FWT online marketing interfaces and to refine the selection of Kansei words used in the subsequent analysis. These interviews provided domain knowledge and design perspectives to ensure the relevance and validity of the analytical framework.

Table 4. Profiles of Interviewed Experts

	Field Expert	Years of Professional Experience
Mr. Cheng	Free Walking tourguide	5
Ms. Cheng	Free Walking tourguide	3
Ms. Zheng	UI Deisgner	4

3.2.1 Morphological Factor Analysis

Table 5. Morphological Factor Analysis

Interface usage flow	factor	level1	level2	Level3
CONTECT STAGE	TOUR SEARCH	Self-initiated search	Option-based browsing	Contextual inspiration
				
	CITY LIST	Visual-only	Single quantitative cue	Multiple quantitative cues
				
SELECT STAGE	TOUR LIST	Visual-only	Single quantitative cue	Multiple quantitative cues
				
INFORMATION SECTION	TOUR INFO	Textual narrative	Symbolic & skimmable	Structured overview
				
	TOUR MAP	Point-based reference	Stop-based structure	Area-based overview
				
	TOUR PHOTO	Supplementary	Visually driven	Parallel support
				
	TOUR REVIEWS	Low structured	Moderately structured	Highly structured
				

The FWT online marketing interface was analyzed using morphological factor analysis, distinguishing between interface forms and design factors. Interface forms represent shared functional sections and reflect the interface usage flow, while design factors correspond to UI design attributes within each section.

3.2.2 Kansei Word Collection

An initial set of eight Kansei words was generated to capture users' emotional perceptions of FWT online interfaces. Through KJ method clustering and expert discussions, these words were refined into a final set of six representative Kansei words for subsequent analysis.

3.2.3 Three-Level Correspondence Table

A Three-Level Correspondence Table was developed through expert discussions to map relationships between Kansei words and morphological factors based on Don Norman's three levels of design. This table provides a structured foundation for the subsequent Kansei Engineering analysis.

4 RESULT

The main thing to remember is: figures have the caption at the bottom, tables have the caption at the top.

4.1 Sample Characteristics and Kansei Evaluation

A total of 59 valid responses were collected. The sample is predominantly young, with most participants aged between 18–24, which aligns with typical Free Walking Tour users.

In terms of experience lvel, the sample consists of 40 experienced users (67.8%) and 19 first-time users (32.2%), enabling comparative analysis between user groups.

The Kansei evaluation results indicate generally positive perceptions across all dimensions. Among them, convenience (M = 4.21) received the highest score, while friendliness (M = 3.81) was the lowest.

This suggests that current FWT interfaces perform well in functional usability but are relatively weaker in emotional aspects, particularly in conveying friendliness and approachability.

Table 6. Demographic Characteristics of the Survey Sample

Category	Female	Male	18–24	25–34	35–44	45+	Experienced	First-time	Total
N	22	11	15	10	6	2	40	19	59
%	37.3	18.6	25.4	16.9	10.2	3.4	67.8	32.2	100

4.2 Quantification Theory Type I Analysis across User Segments

Quantification Theory Type I (QT1) was applied to examine the relationship between interface design factors and Kansei evaluations for both user groups.

For experienced users, the explanatory power is moderate (e.g., Safety $R^2 = 0.628$, Authenticity $R^2 = 0.539$), with results indicating that structure-related factors (e.g., x1, x2) have relatively stronger influence. This suggests that experienced users are primarily affected by efficiency and information organization.

In contrast, first-time users show consistently higher explanatory power across all Kansei dimensions ($R^2 = 0.618$–0.769), indicating that interface design plays a more significant role in shaping their perceptions. Multiple factors (x1–x4) exhibit strong effects, suggesting sensitivity to both structural and visual elements.

4.3 Comparison between User Groups

Comparative analysis of QT1 results reveals clear differences in how interface design factors influence emotional perception between experienced and first-time users.

For experienced users, the influence of interface factors is relatively moderate and concentrated on structural efficiency. Factors such as x1 (tour search) and x2 (tour list) show consistent but stable effects across Kansei dimensions. For example, structured browsing (x1–L2) enhances immersion, while clear list presentation (x2–L1) improves friendliness and safety. This indicates that experienced users rely on information organization and efficient navigation, and are less sensitive to variations in interface presentation.

In contrast, first-time users exhibit significantly stronger and more varied responses to interface design. Multiple factors (x1–x4) show large category scores across Kansei dimensions, indicating high sensitivity to specific design configurations. For example, option-based browsing (x1–L2) strongly increases friendliness but significantly reduces convenience, while contextual inspiration (x1–L3) enhances immersion and authenticity. Similarly, structured tour information (x4–L1) greatly improves thoughtfulness, whereas inappropriate configurations can lead to strong negative perceptions.

These results suggest that first-time users are influenced not only by structure, but also by how information is presented, contextualized, and guided. The presence of extreme positive and negative category scores further indicates that their experience is highly dependent on interface design quality.

Overall, the differences between the two groups highlight that experienced users prioritize efficiency and stability, whereas first-time users require both cognitive clarity and emotional support. This reinforces that the gap between user groups lies not only in usability, but in design sensitivity and emotional accessibility.

Table 7. Category Scores for Experienced and First-time Users

EXPEREINCED USER (n=40)							
Factor	Level	Friendliness	Convenience	Thoughtfulness	Immersion	Authenticity	Safety
x1	L1	0.188	0.013	-0.161	-0.099	0.279	-0.316
	L2	-0.203	0.004	0.093	0.505	-0.140	-0.082
	L3	0.028	-0.026	0.114	0.057	-0.131	0.277
x2	L1	0.688	0.378	-0.019	0.013	-0.153	0.395
	L2	-0.121	-0.142	0.000	0.157	0.071	0.128
	L3	0.081	0.215	0.007	-0.199	0.254	-0.342
x3	L1	—	-0.353	0.038	0.027	-0.198	-0.335
	L2	—	-0.314	0.031	-0.156	0.193	0.054
	L3	—	0.163	-0.036	0.211	0.111	0.133
x4	L1	—	—	0.238	-0.118	0.049	-0.043
	L2	—	—	-0.105	-0.086	0.015	0.122
	L3	—	—	-0.006	0.270	-0.029	-0.074
x5	L1	—	—	—	—	-0.080	0.082
	L2	—	—	—	—	-0.005	0.138
	L3	—	—	—	—	0.085	-0.257
x6	L1	—	—	—	—	—	-0.705
	L2	—	—	—	—	—	0.256
	L3	—	—	—	—	—	-0.100
x7	L1	—	—	—	—	—	-0.068
	L2	—	—	—	—	—	0.053
	L3	—	—	—	—	—	0.016
First-time Users (n = 19)							
Factor	Level	Friendliness	Convenience	Thoughtfulness	Immersion	Authenticity	Safety
x1	L1	0.035	0.204	0.479	-0.104	-0.402	—
	L2	0.624	-1.349	-0.793	—	-0.563	—
	L3	-0.733	-0.026	0.023	0.555	0.500	—
x2	L1	-2.255	-0.541	0.498	0.160	0.593	—
	L2	-0.043	0.066	-0.178	0.506	0.596	—
	L3	0.462	-0.015	0.160	-0.408	-1.018	—
x3	L1	—	-0.572	0.783	-0.429	0.612	—
	L2	—	0.520	-0.004	0.369	-0.271	—
	L3	—	0.126	-0.063	-0.123	-0.002	—
x4	L1	—	—	1.300	0.186	-0.661	—
	L2	—	—	-0.171	-0.181	0.368	—
	L3	—	—	-0.149	0.020	-0.066	—
x5	L1	—	—	—	—	-0.006	—
	L2	—	—	—	—	-1.059	—
	L3	—	—	—	—	0.442	—

Table 8. Comparison of Multiple Correlation Coefficients Between Experienced and First-time Users

Kansei Dimension	Experienced	First-time	Difference (New – Exp)
Friendliness	0.341	0.723	+0.382
Convenience	0.472	0.769	+0.297
Thoughtfulness	0.287	0.756	+0.469
Immersion	0.441	0.618	+0.177
Authenticity	0.539	0.620	+0.081
Safety	0.628	—	—

4.4 Summary

The results indicate that while current FWT interfaces perform well in terms of functional usability, their effectiveness varies significantly across user groups.

Interface design factors show stronger influence on first-time users, whose emotional perceptions are highly dependent on information clarity, presentation, and guidance. In contrast, experienced users are less sensitive to design variations and rely more on efficiency and structured navigation.

These findings suggest that the primary challenge of FWT interface design lies not in improving functionality, but in enhancing emotional accessibility, particularly for first-time users.

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