



## DIGITAL INNOVATION IN LOCAL REVITALIZATION: DEVELOPING A 'DINING MAP' APP TO STIMULATE RURAL ECONOMIC ACTIVATION

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### Abstract

In the face of global challenges, local revitalization emerges as a key strategy to invigorate rural economies and attract external visitors. This study, through the development of an appealing 'Dining Map' app, integrates digital technology with local culture, aiming to transform the curiosity of potential visitors into actual visits to rural areas. Utilizing focus group interviews and Kano regression analysis, the study reveals consumers' preferences for app quality attributes and their nonlinear impact on satisfaction. It was found that interactivity, service quality, and personalized experiences significantly influence satisfaction levels. The research offers strategic recommendations, highlighting the potential of digital innovation in promoting economic and cultural rejuvenation in rural areas. In response to the challenges of globalization, local creation becomes an essential strategy for revitalizing rural economies and culture. This study explores this process through digital innovation—specifically, the development of an attractive 'Dining Map' app. Combining qualitative focus group interviews with quantitative Kano regression analysis, it delves deeply into consumer preferences for app quality attributes and their nonlinear impact on satisfaction. The study discovers that interactivity, service quality, and personalized experiences are crucial in determining satisfaction. It suggests that digital technology can be used to convert the curiosity of those who have never visited into actual visits, thus stimulating economic activity in rural areas. Furthermore, it proposes

strategic recommendations to revitalize rural regions, highlighting the potential and importance of digital technology in local creation.

Key words: Dining Map APP, Local Revitalization, Kano Regression Analysis

## Introduction

With the advancement of technology and the ubiquity of mobile applications, food-related apps have become an integral part of modern life. Particularly, Dining Map Apps that integrate geographical information with user interaction not only drive the development of local culinary culture and economy but also enrich consumers' dining experiences. However, research on consumer preferences for quality attributes of such apps and how these attributes influence user satisfaction remains relatively scarce. This study aims to fill this gap by delving into consumer preferences for quality attributes of Dining Map Apps and analyzing how these attributes collectively shape the user experience.

Employing a research methodology that combines qualitative focus group interviews with quantitative factor analysis and Kano regression analysis, this study provides concrete guidance for the functional design and market strategies of Dining Map Apps, while also opening new possibilities for future technological innovation and cultural exchange. Through an in-depth analysis of consumer needs and preferences, this research aims to promote the digital transformation of the catering industry, offering new perspectives for enhancing user experience and co-creating cultural value.

## *Local Revitalization and Digital Empowerment*

In the current context of globalization, local revitalization has become especially important, particularly in revitalizing the economy and culture of rural areas. This strategy focuses not only on using digital technology to attract tourists and boost the local economy but also emphasizes the importance of integrating external populations with local characteristics. This study proposes the creation of an appealing Dining Map App, allowing those who have never visited to understand and experience local culture digitally. This approach aims to invigorate the rural economy through innovative digital solutions while preserving and promoting local culture, leading to sustainable economic and social development for the area. As Chen Jieting (2019) points out, local revitalization goes beyond mere spatial reuse; it involves comprehensive development at cultural, social, and economic levels. This process requires re-evaluating the value and unique characteristics of rural areas, as well as the pride and autonomy of local residents towards their communities. The integration of digital technology, particularly through innovative mobile applications, opens new possibilities for local creation, making it a crucial tool for driving economic vitality and cultural heritage. This study will explore these themes in depth, particularly the role of digital technology in promoting local revitalization and how consumer

behavior influences the strategies and effectiveness of local creation.

Shinzo Abe's local revitalization policy, proposed in 2015, particularly emphasizes local self-awareness and autonomy. It posits that only when locals are proud of their hometown will they choose to stay and start businesses, thereby attracting more external populations (Qiu Liyan, 2019). This underscores the importance of local revitalization strategies in promoting local economic and social vitality.

Secondly, digital technology, especially mobile applications, plays a significant role in revitalizing rural economies and promoting cultural heritage. This study proposes the creation of an appealing Dining Map App, using digital means to attract tourists and enhance local economic activity, thereby driving the local economy (Zhang Caixi, Lu Pin'an, Wang Xiaomeng, 2023).

This study considers the impact of consumer behavior on local creation, exploring how the Dining Map App can satisfy consumer interest in local characteristics and culinary culture (Qiu Liyan, 2020). This exploration helps to understand the importance of consumer preferences in driving local revitalization.

In summary, the literature review of this study reveals that local revitalization involves not only the reuse of physical space but also encompasses comprehensive development at cultural, social, and economic levels. Digital technology, particularly mobile applications, plays a key role, not only in revitalizing rural economies but also in promoting cultural

heritage. Through innovative methods such as the Dining Map App, consumer interest in local features and culinary culture can be satisfied, further promoting local revitalization. This indicates that digital solutions tailored to local characteristics, combined with a deep understanding of consumer behavior, are significant in promoting local economic and social vitality.

### Research Methodology

To gain a deeper understanding of consumer preferences for the use of Dining Map Apps, this study adopts a three-stage methodological framework. Preliminary data is collected through focus group interviews, followed by the identification of key factors from quantitative data using factor analysis. Finally, Kano regression analysis is applied to further reveal how these factors influence user satisfaction. This tripartite research design not only enriches the depth of the study but also ensures the comprehensiveness and reliability of the results. The following details the implementation and critical roles of these three stages in the research.

During the focus group interview phase of this study, participants from diverse professional backgrounds were invited, including four males and three females, covering food critics, app developers, restaurant owners, and active users of Dining Map Apps. The purpose of these interviews was to explore consumer needs and preferences for Dining Map Apps from multiple perspectives. Discussions focused on aspects such as app functionality, user experience, and content diversity, aiming to comprehen-

sively capture the real needs of the target user group. Through in-depth interactions among group members, 14 quality attributes reflecting consumer expectations were identified, laying the foundation for subsequent questionnaire design and factor analysis.

In the factor analysis stage, the study analyzed data from 233 returned questionnaires. This data was carefully processed and evaluated to identify key factors influencing consumer preferences for the use of Dining Map Apps. Statistical methods like principal component analysis and varimax rotation were used to extract representative factors.

In the Kano regression analysis stage, the study processed the same 233 questionnaire responses, using the satisfaction level of Dining Map App users as the dependent variable. This study applied Kano regression analysis instead of traditional Kano bidirectional questionnaires or general regression analysis. The main advantage lies in its ability to more accurately quantify the impact of different quality attributes on consumer satisfaction. Kano regression analysis, by considering both positive ( $\beta_2$ ) and negative ( $\beta_1$ ) regression coefficients for each attribute, provides a more nuanced and dynamic analysis approach. This allows for a deeper understanding of how each quality attribute independently and in interaction with other attributes influences consumer satisfaction. Kano regression analysis not only increases the accuracy of the analysis but also provides more targeted guidance for the optimization and improvement of Dining Map Apps.

## Research Findings

### *The quality of the Dining Map App*

As consumers increasingly turn to digital resources for culinary exploration, a Dining Map App that integrates geographical information with user interaction shows unique potential in promoting local food culture and economic development. This study, through focus group interviews, investigates consumer preferences for the co-creation value of the Longqi District's culinary map, thereby identifying key qualities of the app.

In deepening the discussion on the attributes of the Dining Map App, the focus group interviews revealed a profound consumer concern for details. Precise geographic location marking not only provides convenient navigation but also enhances consumers' sense of community space identification. It represents a sensitivity and connection to the local characteristics, enabling consumers to explore and cherish the local culinary culture. A diverse cuisine and user review system offers an interactive platform, making consumer voices an important reference in dining choices. The diversity of cuisine reflects the consumers' desire for fresh experiences and their expectations for an in-depth exploration of the local food culture. Therefore, the diversity of cuisine not only satisfies the pursuit of novelty but also represents a deep understanding and respect for local culinary traditions. The user review system transcends general feedback mechanisms, shaping a community based on trust and sharing, where everyone's opinion contributes to shaping the overall community's dining envi-

ronment. These attributes reflect that consumers are not just seeking information but a comprehensive experience connected with food, place, and community.

Moreover, the study finds that consumers prefer more personalized recommendation systems and express high interest in restaurants' community involvement and sustainable practices. The interview results not only guide the future design of Dining Map Apps but also provide a basis for formulating related culinary promotion strategies, especially how to maintain sustainability while

emphasizing local culture and supporting community development.

In summary, Table 1 highlights the multidimensionality of consumer preferences and lays a solid foundation for further research and development of the Longqi District's culinary map, demonstrating the bridging role between academic research and practical application. These insights will guide the design of future questionnaires, ensuring the capture of aspects truly valued by consumers in the Dining Map, thereby promoting the comprehensive development of the region's economy and culture.

Table 1. Quality of Dining Map App Design Creation

Design Quality	Attribute Description
1. Price Range	Evaluating how consumers choose restaurants based on price and their expectations of economic affordability.
2. Geographic Location	Exploring how the accuracy of location influences consumer choices and the process of discovering restaurants.
3. Introduction to Specialty Dishes	Analyze consumer preferences for unique dietary choices and their cultural significance.
4. User review system	Explore the influence of others' evaluations on consumer decision-making.
5. Frequency of information updates	Measure the importance of the latest information on consumer trust.
6. Cultural distinctiveness	Evaluate consumer demand for exploring the depth of food culture.
7. Community involvement	Understand how consumers perceive the value of restaurant interactions with the local community.
8. Personalized recommendation	Explore consumer expectations for personalized dining experiences.
9. Multilingual	Reflect consumer demand for cross-cultural and multilingual support.
10. Artistic interface	Explore the impact of aesthetically pleasing application interfaces on user experience.
11. Community connectivity	Understand how consumers use social features to enhance their dining experience.
12. Interactive guide	Evaluate the potential of guide features to enhance consumer interaction and exploration
13. Promotion activities	Examine the utility of local food events in enhancing consumer engagement.
14. tableside storytelling	Understanding the contribution of the stories behind food to enriching the dining experience.

### Factor Analysis

Factor analysis primarily focuses on exploring whether there is a correlation and commonality among multiple variables, enabling the identification of shared characteristics that may be summarized under the same construct. It simplifies the element structure by utilizing the common variance relationships among several independent variables. This study aims to understand the factors influencing consumers' preferences in using a dining map app. Based on the focus group analysis method and using 14 quality attributes as measurement dimensions, a survey was designed to clarify the factors affecting 'Consumer Preferences in Using Dining Map Apps.'

According to the data in Table 2, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.920, indicating a very high correlation between variables and suitability for factor analysis. A KMO value close to 1 suggests that the skewness and kurtosis among the variables are optimal, making the results of the factor analysis reliable. Additionally, the result of Bartlett's test of sphericity shows an approximate Chi-square distribution of 1728.648, with 91 degrees of freedom (df) and a significance level of 0.000. This indicates that the correlations among the variables are statistically significant, demonstrating the appropriateness of the survey results for further factor analysis.

Table 2. KMO and Bartlett test

Kaiser-Meyer-Olkin	Measure of Sampling Adequacy	.920
Bartlett's Test of Sphericity	Approximate Chi-Square Distribution	1728.648
	df	91
	Significance	.000

Through the consistency test of factor analysis dimensions, three factors were established (as shown in Table 3), with their respective Cronbach's Alpha values being .887, .863, and .683. These values indicate a high level of internal consistency within the items of each di-

mension. Although the consistency of Factor 3 is relatively lower, it still falls within an acceptable range. This factor is pertinent in assessing the appropriateness of personalized services and culturally related experiences.

Table 3. Consistency Analysis of Dimensions for the Study on Consumer Preferences in Using Dining Map App

factor	Cronbach's Alpha value.	Item number
Interactive Benefit	.887	14, 13, 12, 15, 7, 10
Service Value Provision	.863	11, 2, 1, 3, 5, 4
Customized Experience	.683	8, 6



Based on Table 4, this study has re-defined Factor 1 as 'Interactive Benefit,' highlighting the role of the dining map app as a platform for cultural exchange and social connection. Through event promotions, the app engages users in various culinary cultural activities, thereby deepening their experience and understanding of local food traditions. Interactive navigation and community connectivity features allow users to discover gastronomic delights while building social networks, sharing reviews, and dining experiences. The combination of storytelling in dining and community participation further strengthens the connection between cuisine and local society, transforming users from mere consumers to active participants and disseminators of culture. Multilingual support ensures the inclusivity of cultural and social experiences, allowing users from diverse linguistic backgrounds to enjoy and contribute to the dining map app platform. Factor 1 is significant in promoting cultural understanding and diversity in a globalized context.

Factor 2 has been renamed 'Service Value Provision,' emphasizing consumer expectations of the dining map app in terms of utility and informational value. The accuracy of geographic locations is

crucial for navigating to specific restaurants, while clear pricing information allows consumers to make informed choices based on their budget. Detailed introductions to signature dishes enrich the user's dining options, while the frequency of information updates directly affects the timeliness of the app's content. An effective user review system fosters transparency and trust, providing crucial decision-making support. The 'Service Value Provision' dimension highlights the multidimensional nature of quality service and points out key pathways to enhancing user satisfaction and loyalty.

Factor 3 has been renamed 'Customized Experience,' underscoring the dining map app's capability to meet consumer demands for personalized services. Personalized recommendations are generated through algorithmic analyses of users' past choices and preferences, offering tailored dining options and thereby enhancing the personalization of the user experience. The aspect of cultural uniqueness strengthens the connection between cuisine and local culture, introducing users to the history and stories behind local delicacies, allowing them to not only savor the food but also experience and learn about the related cultural background.

Table 4. Rotated Factor Matrix for the Study on Consumer Preferences in Using Dining Map App

project	factor 1	factor 2	factor 3
13. Promotion activities	.850	.162	.093
12. Interactive guide	.799	.272	.128
11. Community connectivity	.755	.266	.145
14. tableside storytelling	.711	.183	.331

7. Community involvement	.578	.268	.506
9. Multilingual	.551	.282	.392
10. Artistic interface	.475	.335	.424
2. Geographic Location	.258	.860	.077
1. Price Range	.206	.857	.063
3. Introduction to Specialty Dishes	.127	.675	.295
5. Frequency of information updates	.344	.614	.386
4. User review system	.392	.601	.279
8. Personalized recommendation	.198	.099	.765
6. Cultural distinctiveness	.076	.186	.714
Eigenvalues	6.787	1.370	1.071
Explained Variance (%)	48.48	9.79	7.65
Cumulative Explained Variance (%)	48.48	58.57	65.92

In summary, the results of the factor analysis not only reflect consumer concerns for interactivity, service quality, and personalized needs but also highlight the key role of the dining map app in cultural exchange, service provision, and the creation of customized experiences. This study posits that, against the backdrop of globalization and information technology, consumers' diverse demands in seeking culinary experiences provide clear direction for the design and functional improvement of the dining map app. This is to better satisfy these needs and enhance user satisfaction and engagement.

#### *Kano Regression Analysis*

This study employs the Kano model in conjunction with regression analysis to explore the potential nonlinear relationship between the functional characteristics of the dining map app and consumer satisfaction. The impact of the app's quality attributes on satisfaction is assessed through the positive ( $\beta_2$ ) and

negative ( $\beta_1$ ) regression coefficients for each quality characteristic.

As indicated in Table 5, the  $\beta_1$  and  $\beta_2$  values demonstrate their effects on satisfaction. For instance, the  $\beta_1$  value of 'Community Participation' is -0.218, indicating a significant negative impact on satisfaction when it is absent, thus emphasizing its status as a 'Must-be' quality. Conversely, the  $\beta_2$  value for 'Personalized Recommendations' is -0.072, an uncommon negative value, suggesting that excessive personalization may adversely affect some users.

According to the results in Table 5, from the consumer perspective, the impact of various quality attributes of the dining map app on satisfaction is not simply linear. For example, 'Attractive' qualities like 'User Review System' can exceed expectations and enhance satisfaction, yet their absence does not significantly cause dissatisfaction. This implies that in designing the dining map app, focus should be on innovation and adding elements that can pleasantly surprise users.



On the other hand, 'One-dimensional' and 'Must-be' qualities, such as 'Information Update Frequency' and 'Community Participation,' directly affect basic user satisfaction. The absence of these features can lead to user dissatisfaction, underscoring the importance of ensuring the stability and effectiveness of these fundamental functions in app development.

Therefore, future design strategies should balance innovation with stability, aiming not only to provide features that exceed expectations but also not neglecting those essential characteristics that maintain basic user satisfaction. Through such a balance, the dining map app can more effectively meet the wide and diverse needs of its users.

Table 5. Kano Regression Analysis: Quality and Satisfaction of Dining Map App

Quality attributes	$\beta 1$	sig.	$\beta 2$	sig.	R2	Quality Classification
1. Price Range	-.104	.207	.102	.214	.034	Attractive
2. Geographic Location	-.102	.272	.063	.499	.023	Attractive
3. Introduction to Specialty Dishes	-.144	.187	.004	.968	.022	Attractive
4. User review system	-.142	.076	.099	.216	.047	Attractive
5. Frequency of information updates	-.183	.029	.048	.566	.047	One-dimensional
6. Cultural distinctiveness	-.146	.166	-.027	.795	.016	Attractive
7. Community involvement	-.218	.006	.124	.117	.095	Must-be
8. Personalized recommendation	-.246	.013	-.072	.468	.039	One-dimensional
9. Multilingual	-.096	.239	.127	.121	.040	Attractive
10. Artistic interface	-.213	.009	.036	.658	.056	Must-be
11. Community connectivity	-.199	.015	.057	.482	.057	Must-be
12. Interactive guide	-.181	.015	.118	.109	.068	Must-be
13. Promotion activities	-.153	.036	.136	.062	.062	Must-be
14. tableside storytelling	-.136	.073	.130	.087	.054	Indifference

### Conclusion and Recommendations

This study employs a combination of qualitative focus group interviews and quantitative methods, including factor analysis and Kano regression analysis, to delve into consumer preferences regarding the quality attributes of the dining map app. The findings identify interactive benefit, service value provision, and customized experience as key factors influencing user satisfaction. The results not only emphasize the importance of considering the multidimensionality of user experience in app development but also reveal the nonlinear relationship

between satisfaction and these quality attributes.

The application of Kano regression analysis unveils consumer preferences for 'Attractive Qualities' in a culinary app. These qualities, such as user review systems and geographic location information, when exceeding user expectations, can significantly enhance user satisfaction, yet their absence does not lead to marked dissatisfaction. This finding suggests that developers should focus on innovation and features that surpass user expectations to add extra appeal and satisfaction. This nonlinear satisfaction re-

relationship highlights the complexity of consumer preferences, underscoring the importance of considering psychological and behavioral patterns in product development and marketing strategies.

In light of these findings, it is recommended that developers of the dining map app optimize user interaction and participation features, enhance the quality of app services, and pay attention to the development of customized recommendation systems. Future research should also focus on the impact of cultural and regional differences on user preferences and explore the potential of emerging technologies, such as artificial intelligence, in enhancing user experience. These recommendations aim to assist developers in more comprehensively meeting user needs in a competitive market while providing direction for the application of technological innovations.

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