

축제 앱 사용자를 위한 축제 검색 요인분석

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요약

본 논문에서는 단조롭고 일률적으로 보여주는 축제 앱의 단점을 보완하기 위하여 문화관광축제 종합 평가 보고서의 만족도 평가항목과 국내·외 학자들의 축제 품질요인을 이용하여 요인분석을 실시하였다. 요인분석 결과 탐색적 요인분석에서 KMO 값은 0.821로서 나타났다. 요인적재치가 기준 이하인 항목은 제거를 하여 축제 검색요인은 접근성, 홍보안내, 행사내용, 축제상품, 먹을거리, 편의시설을 도출하였다. 신뢰도 분석에서는 Cronbach's α (Alpha)값이 0.816으로 나타났다. 확인적 요인분석에서는 카이스케어 검정결과 p값이 0.289로 나타났으며, CMIN/DF 값도 1.100로 나타났다. GFI, AGFI, CFI, NFI, IFI 모두 적합도 기준치인 0.9 이상으로 나타났고 RMSEA 역시 0.018로 나타났다.

키워드 : 탐색적 요인분석, 축제 앱, 축제 품질요인

Festival search factor analysis for festival application users

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Abstract

This paper was conducted to improve existing festival apps that present information in a one-dimensional and unengaging manner by analyzing the factors for festival quality factor from satisfaction evaluation items in culture and tourism festival evaluation reports as well as international and domestic studies. An exploratory factor analysis generated a KMO value of 0.821. After eliminating factors with factor loadings lower than the standard value, the factors of accessibility, promotion and information, contents of events, festival products, food, and amenities were extracted. Reliability was gauged using Cronbach's α (Alpha), which was calculated to be 0.816. In the confirmatory factor analysis, the p value in the chi-square test was 0.289 while CMIN/DF was 1.100. The fit indices of GFI, AGFI, CFI, NFI, and IFI were all higher than the 0.9 mark while RMSEA was 0.018.

Keywords : Exploratory Factor Analysis, Festival App, Festival Quality Factor

1. Introduction

Since the launch of the local autonomy system in 1995, local governments have implemented policies unique to each area to accelerate local development. Various local development programs have been developed, including the organization of local festivals to commercialize local specialties and merit designation as special zones.

In recognition of the importance of local festivals, the government has expanded support for such events over the years, with the aim of producing more successful festivals

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and promoting friendly competition across regions. Government funds were allocated for local festivals by the Ministry of Culture, Sports and Tourism as well as the Korea Tourism Organization. Article 4 of the Public Performance Act was deleted (as of January 26, 2002) to facilitate the organization of cultural arts festivals [1][2]. The number of festivals held in Korea amounts to more than 750 each year.

In the past, local festivals relied on the media or word of mouth to attract participants. Today, festivals are drawing more crowds than ever thanks to the widespread use of mobile applications[3]. However, one disadvantage of search results on mobile applications is that users are exposed to standardized information that does not reflect the unique characteristics of each festival.

To resolve the aforementioned issue and provide more user-friendly information, this study performed a factor analysis based on satisfaction ratings for items in the Comprehensive Evaluation Report on Cultural Tourism Festivals provided by the Ministry of Culture, Sports and Tourism and festival quality factors used in past research. Search factors were derived by conducting factor analysis in the forms of exploratory factor analysis, reliability analysis, and confirmatory factor analysis.

2. Research Design

Festival quality factors were organized based on visitor satisfaction in the Comprehensive Evaluation Report on Cultural Tourism Festivals and key variables used by scholars at home and abroad. For the factor analysis, a survey was conducted using the Suncheon Bay International Garden Expo 2013. Finally, a research model was developed.

2.1 Festival Quality Factors

Festival quality factors were organized based on visitor satisfaction in the Comprehensive Evaluation Report on Cultural Tourism Festivals and key variables used by scholars at home and abroad.

The Comprehensive Evaluation Report on Cultural Tourism Festivals comprises 18 standard items for the evaluation of visitor satisfaction towards all cultural tourism festivals held in Korea from 2002 to 2011. They were broadly categorized into accessibility, PR, event details, festival products, food, tourism, and convenience facilities.

The 18 survey items were grouped into six categories: accessibility (accessibility of festival site), PR (promotion of festival details and schedule, information signs, festival pamphlet, guides), event details (enjoyment, diversity, experiential programs, enhanced understanding of local culture), festival products (diversity of souvenirs, product quality, affordability), food (diversity, affordability), tourism (likelihood of visiting nearby tourist attractions), and convenience facilities (parking, lounge, cleanliness of restrooms) [4].

Festival-related quality factors derived by local scholars are as follows.

For the Daegu Yangnyeongsi Festival held in Daegu, factor analysis was conducted to analyze the influence of festival service quality on visitor satisfaction and the effect of visitor satisfaction on future visits based on 17 measurement variables (souvenir, unique culture and tradition, transportation to festival site, originality of festival details, festival booklet, fun and excitement of festival content, educational content, guides, experiential activities, congestion of festival site, safety of festival site, new and interesting festival content, tourism information desks, food, convenience facilities, parking). Three factors

(festival details, festival site management, information/convenience facilities) were derived as a result [5].

For the Siheung Gaetgol Festival, factor analysis was conducted to analyze the effect of festival service quality on festival adequacy and local development. The following 27 service quality variables were considered: diversity of festival content, enjoyment, experiential satisfaction, local culture, theme, nearby tourist attraction, schedule adherence, information pamphlets, friendliness of guides, information facilities, problem-solving skills of guides, PR, satisfaction with guides, consistency of services, accessibility, price of specialty products, type of food and drinks, price of food and drinks, type of specialty products, parking facilities, lounges, facilities for the disabled, cleanliness of restrooms, admission fee, quality of souvenirs, type of souvenirs, and affordability. Five factors (festival program, information service, local products, convenience facilities, souvenirs) were derived as a result [6].

For the 2005 and 2006 Muju Firefly Festival held in Muju, factor analysis was conducted to analyze the effect of festival service quality factors on visitor satisfaction and local reputation based on 21 measurement variables (price of souvenirs, type of food, price of food, quality of souvenirs, price of specialty products, type of specialty products, family-centeredness of festival, educational content, eco-friendliness, importance of natural environment, fun content, diversity of content, satisfaction towards experiential programs, PR, guides, information facilities, information pamphlets, parking facilities, facilities for disabled/children/elderly, lounges). Five factors (festival products, festival adequacy, festival program, information service, convenience facilities) were derived as a result [7].

For the Jeonju International Film Festival, factor analysis was conducted to examine the

relationship between service quality and customer loyalty based on 27 service quality factors (waiting time, ticket issuance, lounges, information center, admission fees, information facilities, pamphlet, friendliness of volunteers, website, guides, design, schedule, connectivity, parking, traffic guide, shuttle bus, accessibility, diversity of movies, rare movies, luminaries, diversity of events, schedule management, quality of souvenirs, diversity of souvenirs, price of souvenirs). Five factors (convenience facilities, PR, accessibility, program, souvenirs) were derived as a result [8].

For the Yeong Dong Grapes Festival held in Yeongdong, a factor analysis was conducted to analyze the effect of service quality on visitor satisfaction and behavior based on 18 measurement variables (enjoyment, accessibility, specialty products, program diversity, safety, cost, educational content, service quality, additional facilities, attitude of local residents, festival information, food, natural scenery, accommodation/shopping, experiential programs, uniqueness, interaction with others). Four factors (festival program, convenience, distinct local characteristics, personal services) were derived as a result [9].

Festival-related quality factors derived by international scholars are as follows.

For the 49th Chautauqua Festival in Chautauqua, New York, factor analysis was conducted on 16 service quality factors (attractiveness of installations, friendliness of exhibitors, diversity of arts and crafts, usefulness, quality of craftwork, event components, quality of arts, quality of food, quality of performance, usefulness of information, price of craftwork, price of arts, price of food, density of visitors, quality of restrooms, parking facilities). Five factors (quality, craftwork, convenience, service, entertainment) were derived as a result [10].

For the annual Dickens on the Strand held in Galveston, Texas, factor analysis was conducted to measure factors prioritized by

visitors before and after the event. The 22 service quality factors were exterior of historical zone, banquet hall, tourism information desk, central Christmas tree, safety of event site, cleanliness of restrooms, lounge, program booklet, costume parade, cleanliness of event site, quality of food and drinks, festival content, number of participants in Victorian costumes, accessibility to restrooms, decorations, Victorian food, map, friendliness of personnel, indoor performance, characters, type of souvenirs, and horse riding. Five factors (environment of event site, information services, convenience facilities, parking facilities, interaction with staff of participating companies) were derived as a result [11].

For the World Festival for Island Cultures held in Jeju, factor analysis was conducted on 20 service quality factors (culture formation, opportunity to gain diverse experience, program understanding, knowledge provision, memories, convenience facilities, uniqueness, friendliness of staff, atmosphere, souvenirs, interaction between participants, sense of unity, communication, comfort, traffic accessibility, festival duration, festival venue, affordability, participating fees). Four factors (program services, opportunity to gain experience, accessibility, convenience of stay) were derived as a result [12]. The festival quality factors derived by local and international scholars are presented in <Table 1>.

<Table 1> Cultural Tourism Festival and the Festival of domestic and foreign scholars, the quality factor

Author	Festival Name	Festival service quality	Quality Factors Festival
Cultural Tourism Festival comprehensive evaluation report	Ministry of Culture Sports and Tourism National Excellent	Easy access, advance publicity, guidance, facilities, brochures, friendly staff, fun events, a variety of events, experienced professional	Accessibility, public relations assistance, information events, festivals products
Janggyeongsu	Daejeon Yangnyeongsi Festival	Souvenirs, unique culture and traditions, transport to venues, festivals uniqueness of the content, brochures	Festival content, Event location management
Kim Chang-soo, No Gyeong-Hui	Shiheunggaetgol Festival	For a variety of festivals, fun, experience satisfaction, community change, subject gender, associated tourist area	Festival program, Festival guide service
Kim Chang-soo, Jeon Dae-Hui	2005,2006 Muju Firefly Festival	Souvenir price, food type, food prices, quality souvenirs, Muju Specialties Price, Muju kinds of specialties	Festival merchandise, festival compliance
Kim Yeon-Hyeong	The Jeonju International Film Festival	Latency, ticketing system, shelter, Information Center, admission, guidance, facilities, brochures, volunteer friendly, website	Convenience facilities, public relations assistance, accessibility
Jeong Mi-Ran	Youngdong Grape Festival	Fun, accessibility, and local products, programs, diversity, safety, prices, cost, training, gender, quality of service	Festival program Convenience
Wicks, David T	Arts Festival held at Chautauqua	Installations charm, friendliness of exhibitors, a variety of crafts and art, benefit, crafts, quality, extent of the event configuration	Quality-oriented, crafts, preferably seeking benefits
Crompton & Love	Victorian Christmas Festival	The appearance of the historical area, banquet excellence, tourist information center, the heart of Christmas, venue stability	Event location environment, providing information in venues, amenities
Boo & James	World Island Cultural Festival	Cultural formation, a variety of opportunities for experience, program comprehension, providing knowledge, memories, offering convenient facilities, unique content	Program services, accessibility

2.2 Research Methodology

Survey questions were prepared based on the Comprehensive Evaluation Report on Cultural Tourism Festivals and festival quality factors derived by scholars at home and

abroad. The survey was answered by visitors to the Suncheon Bay International Garden Expo 2013, held for six months from April 20 to October 20, 2013 in Suncheon Bay (1,112,000 m²) and located in Pungdeok-dong and Ocheon-dong, Suncheon, South Jeolla Province. The number of respondents was 250 visitors. Among the 250 questionnaires, 240 valid samples (recovery rate of 96%) were obtained. Random sampling of visitors to the Suncheon Bay International Garden Expo 2013 was combined with quota sampling for age and gender. The questionnaires were distributed at the Expo to ensure the validity of the samples.

The investigators received prior training on the objective of the survey and carried it out in the form of a standardized interview survey. They explained the objective of the survey to visitors, who then filled out the questionnaire on their own. The researcher was present at the site to supervise the survey. The questionnaires were retrieved and reviewed on the day of the survey to minimize error and confusion.

The questionnaire, prepared based on the Comprehensive Evaluation Report on Cultural Tourism Festivals and festival quality factors derived by scholars at home and abroad, was reorganized to be applied to general festivals.

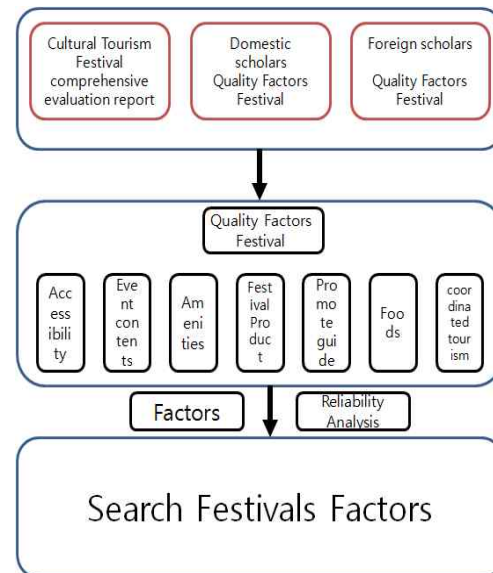
The questionnaire consisted of 25 items in a Likert scale (1 for not at all to 5 for extremely). SPSS 18.0 and AMOS 18.0 were used in the statistical analysis. Factor analysis, a multivariate statistical analysis technique, was applied in the form of an exploratory factor analysis and a confirmatory factor analysis. A reliability analysis was performed using Cronbach's alpha to assess the accuracy and consistency of responses.

2.3 Research Model

Based on the Comprehensive Evaluation Report on Cultural Tourism Festivals and

festival quality factors derived by scholars at home and abroad, this study performed a factor analysis (accessibility, festival details, convenience facilities, festival products, PR, food, related tourism) and a reliability analysis to derive search factors. The process of deriving search factors is shown in (Figure. 1).

(Figure 1) Search Festival derivation of the factors



3. Results

Demographic characteristics of the sample were determined in the empirical analysis. Festival search factors were derived from an exploratory factor analysis, reliability analysis, and confirmatory factor analysis.

3.1 Demographic Characteristics of the Sample

Responses provided by 240 visitors to the Suncheon Bay International Garden Expo 2013 were analyzed to determine general characteristics of respondents. First, the respondents consisted of 124 men (52%) and 115 women (48%), showing a good balance in gender. Second,

there were 17 respondents below 20 (7%), 77 in their 20s (32%), 71 in their 30s (29.6%), 64 in their 40s (26.7%), 7 in their 50s (3%), and 4 in their 60s (1.7%). The highest proportion was respondents in their 20s.

Third, there were 42 respondents living in the metropolitan area (17.5%), 27 in Chungcheong (11.2%), 108 in Jeolla (45%), 56 in Gyeongsang (23.3%), and 7 in other areas (3%). The highest proportion were respondents living in Jeolla.

Fourth, there were 134 respondents who came with their family (55.8%), 57 with their romantic partner (23.8%), 41 with their friends (17.1%), and 8 with others (3.3%). Most of the respondents were visiting the Expo with their family. The demographic characteristics of the sample are shown in <Table 2>.

<Table 2> Demographic characteristics of the sample

Division		Personnel	Ratio(%)
Sex	Male	124	52
	Female	116	48
Age	Under the age of 19	17	7
	20-29 years old	77	32
	30-39 years old	71	29.6
	40-49 years old	64	26.7
	50-59 years old	7	3
	60 years of age or older	4	21.7
Area	Metropolitan	42	17.5
	Chungcheong	27	11.2
	Jeonra	108	45
	Gyeongsang	56	23.3
	Etc.	7	3
Accompanying	Family	134	55.8
	Lovers	57	23.8
	Friend	41	17.1
	Etc.	8	3.3

3.2 Factor Analysis

Factor analysis is a technique that uses the correlation between variables to describe variability in terms of factors. It is a

statistical method that describes variability among observed variables using unobserved latent variables. The results of the exploratory factor analysis, reliability analysis, and confirmatory factor analysis are provided below.

3.2.1 Results of Exploratory Factor Analysis

Exploratory factor analysis extracts factors or concepts without any theoretical basis or prior knowledge of the research model. A common method employed by researchers, exploratory factor analysis assumes that common factors are correlated and explores various aspects of the given data to derive meaningful information that summarizes/describes the results.

In this study, the maximum likelihood method was used to extract factors. Since a correlation was assumed between extracted factors, direct oblimin rotation was selected. In the KMO and Bartlett's test, the KMO (Kaiser-Meyer-Olkin) value shows how well the correlation between variables is described by other variables. A small KMO indicates that poor variables have been selected for factor analysis. In general, a KMO value of 0.90 or higher is very good, 0.80 is quite good, 0.70 is suitable, 0.60 is average, 0.50 is poor, and less than 0.50 is unusable [13].

The variables selected in this study were found to be quite good with a KMO value of 0.821. The KMO and Bartlett's test results are shown in <Table 3>.

<Table 3> The value of KMO and Bartlett

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.821
Bartlett's Test of Sphericity	Approx.chi-Square	1631.082
	df	276
	Sig	.000

Factors with eigenvalues greater than 1.0 were selected. In addition, factors with loadings higher than 0.40 were considered significant, and those higher than 0.50 were very important.

This study selected factors with eigenvalues greater than 1.0 and loadings higher than 0.40. <Table 4> presents the results of the exploratory factor analysis. Among the 24 measurement items, items not meeting the eigenvalue and loading requirements were removed, leaving 21 measurement items and six search factors. The search factors were accessibility, PR, event details, festival products, food, and convenience facilities. The results of the exploratory factor analysis are presented in <Table 4>.

<Table 4> Exploratory factor analysis

Head	Quality Factors					
	Acce ssibi lity	Pro mot e guid e	Ev ent co nte nts	Fest ival Pro duct	Foo ds	Am eniti es
Easily look up venue	0.78					
Distance from venue	0.71					
C o n v e n i e n t transportation	0.73					
I n f o r m a t i o n Systems	0.76					
contents festival		0.71				
Information Facility Pamphlet		0.75				
Satisfied with the service		0.70				
Is interesting			0.69			
Varies			0.73			
Experience Program			0.64			
Local culture			0.61			

Kind of souvenir				0.64		
The quality of souvenirs				0.67		
The price of souvenirs				0.60		
Types of food					0.69	
Prices of food					0.72	
Taste and quality of food					0.75	
Parking facility use						0.78
Sitting area						0.75
Clean the bathroom						0.79
Eigenvalue	2.22	2.07	1.78	1.21	1.55	1.79

3.2.2 Results of Reliability Analysis

Reliability is the consistency of results when measurements are taken using comparable, independent methods. It is the likelihood of obtaining the same results under repeated measurements.

Reliability analysis examines the accuracy and consistency of responses, and reflects the accuracy or precision of the measuring instrument. After performing factor analysis to extract several sub-factors, reliability analysis is used to determine if the sub-factors consist of homogeneous variables. The Cronbach's α (Alpha), which ranges from 0 to 1, is a common indicator of reliability. In the case of exploratory analysis, measurements are considered reliable if the Cronbach's alpha is higher than 0.60. Generally, a Cronbach's alpha higher than 0.70 is acceptable and higher than 0.80~0.90 is outstanding [14]. This study obtained an acceptable Cronbach's α (Alpha) of 0.816. The Cronbach's α (Alpha) values are shown in <Table 5>.

<Table 5> Cronbach's α (Alpha) values

Cronbach's α (Alpha) 값	Count
0.816	21

3.2.3 Results of Confirmatory Factor Analysis

Confirmatory factor analysis is used to perform factor analysis when certain assumptions have been made between measurement variables and latent factors based on theory or prior knowledge. In other words, it is a method used to modify the existing model to confirm the researcher's hypothesis [12].

This study performed confirmatory factor analysis on measurement items that were subjected to exploratory factor analysis and reliability analysis. Confirmatory factor analysis is a statistical technique used to verify the exploratory factor analysis model. It confirms the reliability of the factor model that has been theoretically established by the researcher.

The p-value of 0.289 obtained from confirmatory factor analysis and chi-square analysis showed that the model is a good fit for the data. The CMIN/DF value of 1.100 was also smaller than 2. GFI, AGFI, CFI, NFI, and IFI were all greater than 0.9, and RMSEA was 0.018. The final results of the confirmatory factor analysis are shown in <Table 6>.

<Table 6> Confirmatory factor analysis of the end result

Division	Analysis Result	Goodness of fit Reference value	Fitness Whether
CMIN/p value	1.119/0.289	p>0.05	Fitness
CMIN/DF	1.100	2 or lower	Fitness
RMR	0.049	0.05 or less	Fitness
GFI	0.973	0.9 or more	Fitness
AGFI	0.959	0.9 or more	Fitness
CFI	0.975	0.9 or more	Fitness
NFI	0.993	0.9 or more	Fitness
IFI	0.977	0.9 or more	Fitness
RMSEA	0.018		Fitness

4. Conclusion

The implementation of the five-day workweek has led to an increase in leisure time, allowing more people to enjoy leisurely activities and attend local festivals. In particular, there has been a rise in the number of people using mobile applications to search for information on festivals. However, the search results displayed in mobile applications are typically organized according to area, month, theme, and ranking. Regardless of the type of mobile application, users are exposed to standardized information that does not reflect the unique characteristics of each festival.

To resolve the aforementioned issue and provide more user-friendly information, this study performed factor analysis based on satisfaction ratings for items in the Comprehensive Evaluation Report on Cultural Tourism Festivals provided by the Ministry of Culture, Sports and Tourism and festival quality factors used in past research. Search factors were derived by conducting factor analysis in the form of an exploratory factor analysis, reliability analysis, and confirmatory

factor analysis.

Under exploratory factor analysis, the KMO (Kaiser-Meyer-Olkin) value shows how well the correlation between variables is described by other variables. A small KMO indicates that poor variables have been selected for factor analysis. The variables selected in this study were found to be quite good with a KMO value of 0.821. This study selected factors with eigenvalues greater than 1.0 and loadings higher than 0.40. Among the 24 measurement items, items not meeting the eigenvalue and loading requirements were removed, leaving behind 21 measurement items and six search factors. The search factors were accessibility, PR, event details, festival products, food, and convenience facilities.

Reliability analysis examines the accuracy and consistency of responses, and reflects the accuracy or precision of the measuring instrument. The Cronbach's α (Alpha), which ranges from 0 to 1, is a common indicator of reliability. This study obtained an acceptable Cronbach's α (Alpha) of 0.816.

Confirmatory factor analysis is performed on measurement items after exploratory factor analysis and reliability analysis. It is a statistical technique that confirms the reliability of the factor model that has been theoretically established by the researcher.

The p-value of 0.289 obtained from the confirmatory factor analysis and chi-square analysis showed that the model is a good fit for the data. The CMIN/DF value of 1.100 was also smaller than 2. GFI, AGFI, CFI, NFI, and IFI were all greater than 0.9, and RMSEA was 0.018.

As future work, mobile applications that provide festival information should be developed using the six factors of accessibility, PR, event details, festival products, food, and convenience facilities.

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