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Investigation of Visitors' Distribution towards Formulation of Design Planning Guideline for Shanghai Haichan Ocean Park

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Abstract

The objective of this investigation is to explore the "The general layout of theme parks for the distribution of visitors" A case study of Shanghai Haichang Ocean Park. For the purpose of figuring out the optimum tourism carrying capacity of the theme parks', attraction and spatial layout must be considered to assess its impact on visitor distribution, as a result to determine how park's spatial layout impacts on the visitor motion. The research objective is to examine "The general layout of theme parks for the distribution of visitors" Method: use quantitative research method and primary method of data collection. Use questionnaire survey. Sample size was 250 Sample location: Shanghai Haichang Ocean Park. In the regression analyses, hypotheses were proven and it was found that each independent variable demonstrated the strongest contribution to the dependent variable. According to the outcome, the Cronbach Alpha for the collected data in this research is 0.835. Hence, the collected data and questionnaire used for this investigation are dependable and could further contribute to the future research. To a large extent, these discoveries could possibly impact theme park capacity planning and operations.

Keywords: Theme Park, Attraction, Spatial Layout, Visitor motion, Tourism Carrying Capacity

Introduction

The objective of this current investigation is to review "The general layout of theme parks for the distribution of visitors" A case study of Shanghai Haichang Ocean Park. For the purpose of figuring out the optimum tourism carrying capacity of the theme parks', we must consider the dimensional and spatial layout to assess its impact on visitor distribution, as a result to determine how park's spatial layout impacts on the visitor motion (Zhang, 2017). Findings proved that visitor motion is influenced by attraction features(e.g., attraction type, experience value, facility capacity, floor area, and indoor feature) and spatial layout features(e.g., distance between attractions, path network, entrance location, and attraction distribution). The impacts of spatial layout and attraction features on the motion of the visitor,

are shown within the context of the advantages, costs, available data, alternatives and objective environment, supported by the theories which related to instinctive and logical decision-making (Zhang, 2017).

Zhang (2017) Study on the strategies that improve the facility capacity and reduce the customers waiting time by management strategies or via virtual queuing software. It has often been neglected that the spatial layout of the park is significant to the customer or visitor motion, notwithstanding its primary function in optimizing theme parks' spatial layout. Despite the fact that interdestination and intradestination visitor motion have been extensively studied by many researchers and academicians, only a few of the studies have investigated visitor motion within a tourist attraction. Moreover, methodological applications such as network analyses, GPS tracking of mobile phone data, and statistical cluster analyses of visitor motion patterns are typically highlighted in studies modeling visitors' spatial motion. Regardless of the benefactions of these studies in their respective fields, these investigations have supplied insubstantial statistical and theoretical support for visitors' activity options and motion patterns within a park (Zhang, 2017). This study explored the general layout of theme parks for the distribution of visitors" A case study of Shanghai Haichang.

The obstacles faced by theme park management in the development strategy include combining the components of the park itself with the elements that constitute the environment within the theme park (Milman, 2019). For instance, transportation facilities are essential to support the theme park's function. Likewise, food & beverage, along with the accommodation, are both elements that a successful theme park cannot operate without to fulfill visitor satisfaction. As a result, collaboration between public and private sectors is crucial to operate theme parks. Governments often outsource provision of services to the private sectors, in order to ensure a streamlined and efficient processes, mutual understanding between both parties is required, as the private sectors dependent heavily on the government investment, planning, and policies to supply the theme park environment including but not limited to transportation, accommodation, attractions and more.

Literature review

Generally, one of the elements of visitor attractions is theme parks itself. Visitor attractions are defined as long-term resources that are administered, handled, and planned for the recreation, satisfaction, joy, and education of the visitors (Universal Orlando Resort, 2018). Historic memorial, ancient structures, recreation parks, theme parks, zoo parks, arts museums, and so-on, are considered the primary genre of managed attractions for visitors which encourage and motivate people to travel from their homes when they are available, generally for a short trip and visit. While the definition preclude event which ungovernable, but the definition does suggest that attractions are structures or units that are capable of being restricted and controlled. The definition comprises four main genres of attractions: attributes of the natural environment (rivers, lakes, canyons); human-made structures, buildings and architecture built for a specific goal; other than attracting tourist (mosques and temples); human-made structure that built solely for enjoyment to attract visitors, for example theme parks (aquariums, cultural centers, seaside resorts), as well as special events (tournaments, marketplaces, merchandise streets). These four genres are categorized by two factors. Firstly, the first three genres are long-term attraction, while the last genre consists of short-term attractions. Second, visitors are often viewed as a potential risk to the first two genres, however are considered prospects for the last two genres.

Management teams of the first two genres of attractions typically are required to address the issues caused by the tourism, for example environmental degradation, contamination and vandalism. On the contrary, the management teams of the other two genres aim to capture the attention of visitors and visitors to maximize economic benefits (Universal Orlando Resort 2018).

Milman et al (2010) define the idea of themes is significant in operating the parks, with play areas, theme park rides, amusements, and nourishment all used to create a diverse and fun atmosphere. Modern theme parks commonly feature with interesting themes, for instance wildlife, legends, birds and insects world, underwater life, and futuristic societies. A sense of life involvement in a setting entirely different from daily experience is developed by these themes. Most theme parks are remote (McKercher, 2019). Before the emergence of the theme park idea, amusement parks developed in the early of 20th century and comprised a series of games, rides, and skill assessments offered at circuses, carnivals and fairs, and most of them had an bar or an outdoor areas for drinking. During the per-depression period, amusement parks were all the rage and also played an important role in attracting mass visitors for tourism purposes. However, world war II had an adverse impact in the transitional amusement park. Most of the amusement parks were financially ruined and declared bankrupt, while the survived operated on a reduced scale into the 1950s or even further (McKercher, 2019). The conceptual model of the study is showed in Figure 1.

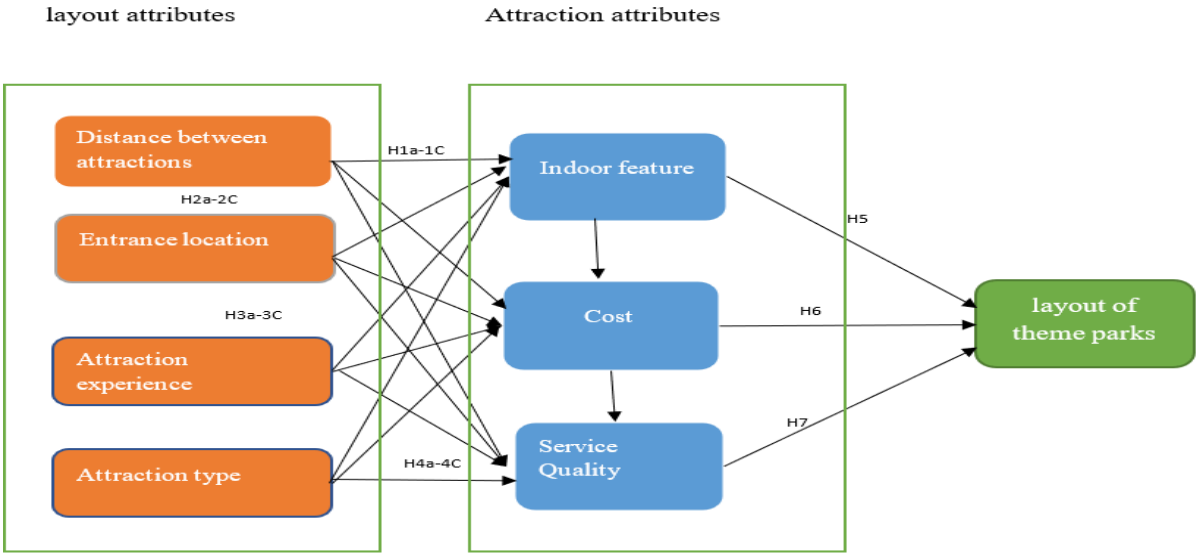

Figure 1

Methodology

Data collection methods generally are vital for constructing a research design. To collect the data, we adopt the traditional and common used method of a "questionnaire survey form" to gather the crucial data for our research. This method is helpful in providing informative data to our research. Primary data are the gathered data for a particular research problem, utilising the appropriate methods that suit the research objective. As this research adopts quantitative methods for primary data collection, the questionnaires have been distributed among the selected sample for the research physically and also through social platforms such as E-mail, WhatsApp and so-on. In order to spread the questionnaires in a more cost and time effective

manner, Google forms were used to generate the link and shared on various social media platforms (Howard, J. A. what's more, Sheth, 2015).

The questionnaire survey will be conduct in Shanghai Haichang Ocean Park
By referring to the selected population, a total of 250 survey questionnaires will be distributed to the population.

Data Analysis

Descriptive Analysis

The data collected from the target population were presented by indicating their levels of agreement and disagreement for each question in the questionnaire. To show the relationship between words and figures, Likert scale technique was used. The Likert Scale conversion has been applied in SPSS software, where 1 represents strongly disagree, 2 represents disagree, 3 represents neutral, 4 represents agree, 5 represents strongly agree. The following are descriptive analysis based on independent variables (attraction experience, entrance location, distance between attractions and the attraction_type and dependent variable (Layout of theme parks for the distribution of visitors for Shanghai Haichang Ocean park).

Multi Linear Regression Model (MLR) Analysis

Generally, a well-known analytical method that employs various independent variables to forecast the outcome of the dependent variable is the Multi-Linear Regression Model. The primary objective of the Multi-Linear Regression Model is to establish the direct relationship between the independent variables and dependent variables (Borna et al., 2022). Thus, this model is utilized to investigate and discover the relationship between dependent variables and independent variables for this paper. Additionally, the formula for the Multi-Linear Regression Model is developed as shown below, including independent variables (X) and dependent variables (Y):

$Y = a + b1\ X1 + b2\ X2 + b3\ X3 + b4\ X4 + B$, represents,

A	Constant / Y-intercept	
Y	Dependent variable	(Layout of theme parks for the distribution of visitors for Shangha Haichang Ocean Park)
X1	Independent variable	distance between attractions
X2	Independent variable	Entrance location
X3	Independent variable	attraction experience
X4	Independent variable	the attraction type
X5	Independent variable	Indoor feature
X6	Independent variable	Cost
X7	Independent variable	Services quality
B	Beta (Constant)	

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.647[a]	.419	.402	.846

a. Predictors: (Constant), services_quality, cost, attraction experience, indoor_feature, the_attraction_type, entrance_location, distance_between_attractions

ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	124.894	7	17.842	24.926	.000[b]
	Residual	173.222	242	.716		
	Total	298.116	249			

a. Dependent Variable: layout_of_theme_parks

b. Predictors: (Constant), services_quality, cost, attraction experience, indoor_feature, the_attraction_type, entrance_location, distance_between_attractions

Coefficients[a]

Model		Unstandardized Coefficients		Standardize d Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.715	.716		2.517	.013
	Distance_between_attractions	.112	.117	.250	.027	.002
	Entrance location	.194	.145	.123	1.194	.003
	Attraction_experience	.129	.130	.127	1.113	.004
	The attraction_type	.196	.148	.130	1.144	.003
	services_quality	.139	.131	.127	1.113	.004
	Cost	.156	.130	.127	1.113	.004
	indoor_feature,	.159	.145	.123	1.194	.003

a. Dependent Variable: Layout_of_theme_parks_for_the_distribution_of_visitors

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + B,$$

The above formula represents the standard Multiple Linear Regression Model. Nevertheless, the research has advanced the formula of the Multiple Linear Regression Model incorporates coefficients, as illustrated below:

Artificial intelligence (Layout of theme parks for the distribution of visitors for Shanghai Haichang Ocean park) (Y) = 0.112 X1 + 0.194 X2 + 0.129 X3 + 0.196 X4 + 0.135 X5 + 0.156 X6 + 0.159 X7 + 1.715

This advanced formula provides a better refined method to conclude the relationship between the independent and dependent variables in the research. The dependent variable pertains to the layout of theme parks for the distribution of visitors, specifically focusing on Shanghai Haichang Ocean Park.

Discussion of the Results

This study uses Shanghai Haichang Ocean Park as a case study to investigate how a theme park's general structure affects the distribution of visitors. A total of 250 sample data were gathered using questionnaires and quantitative research techniques. This study confirmed the considerable impact of independent factors (such as attraction experience, entrance location, distance between attractions, etc.) on the dependent variable (Layout of theme parks for the distribution of visitors) by the use of multiple linear regression model analysis. The results demonstrated that visitor mobility was highly impacted by attraction attributes (such as Cost, Service quality and Indoor features) and layout attributes (such as Distance between attractions, Entrance location, Attraction experience, and Attraction type).

The study's conclusions have significant ramifications for operational management and capacity planning at theme parks. First, the study offers empirical evidence for theme park design optimisation by confirming that the layout attributes and attraction attributes of theme parks significantly influence visitor behaviour patterns. Second, theme park management may better plan the park layout for upcoming renovations and expansions, increasing visitor pleasure and operational efficiency, by thoroughly analysing the impacts of attraction attributes and spatial layout on passenger mobility. Furthermore, the study's sophisticated formulae and multiple linear regression model offer an improved methodological foundation for further investigations into the effects of theme park design on visitor distribution.

Conclusively, this research offers significant perspectives on theme park design and administration, specifically concerning the ways in which spatial arrangement and attraction attributes might be employed to impact the choices and movements of visitors. Building on this basis, future research might investigate techniques for optimising spatial layout for various theme parks and examine ways to enhance visitor experience through technology (e.g., virtual queuing software).

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