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Introduction

In the era of sharing and knowledge economy, one of the most striking developments is employment of “Big Data” in research and industry. In tourism, the advent of social network platforms such as Facebook, TripAdvisor, and Flickr have intensified travel-related interaction and sharing experiences in a form of user-generated content (UGC) (Sun, Ryan & Pan, 2015). Accordingly, there has been a growing interest in harnessing UGC to explore hidden meanings for travelers that have not been well identified (Xiang, Schwartz, Gerdes & Uysal, 2015).

Big data analytics provides researchers with new research methods by reshaping previous understanding of the tourists’ behavior. Since UGC in tourism is produced by tourists who are direct participants in touristic activities, it is regarded as highly reliable data compared with other information provided by tour agents or DMOs (Mak, 2017). In spite of the significance of UGC impacting travelers’ decision-making process, there is a lack of research on theme park UGC representation. Theme parks have long been considered as a form of leisure activity in which people will have an opportunity for entertainment. Their popularity and touristic attraction continue to grow steadily because theme parks and visitors are increasingly associated with new experiences (Milman, 2001).

The objective of this study is to investigate visitors’ perceptions of three theme parks in Orlando which are Disney World, Sea World and Universal Studios expressed in their TripAdvisor online reviews. Specifically, this study investigates visitors’ experience and satisfaction, which are regarded the core determinants of re-visit intention destination brand loyalty (Xiang et al., 2015).

Literature Review

Perceptions of Theme Parks

Theme parks are important attractions or destinations in tourism as they deliver a sense of fantasy and escape emphasizing on hedonic and pleasurable experiences, in which visitors’ emotion or physical environment play an important role in creating tourist experiences (Ma, Gao, Scott & Ding, 2013).

Dong and Siu (2013) examined the association between service environment, customer predisposition and service experiences evaluation by adopting the quality of a servicescape. They clarified that how service systems can be categorized and how service experience evaluation can reflect visitors’ perception of and feelings about the entire services in the setting of theme park. The authors argued that a visitors’ predisposition for fantasy influenced the ability of servicescape elements to generate a favorable experience.

In the research on pleasure, arousal and satisfaction, Bigné, Andreu, and Gnoth (2005) analyzed how visitor emotions in a theme park environment influence satisfaction and visit intentions. Their study compared two conceptual models (emotion-cognition, and emotion and adaptation) of the impact of emotions on satisfaction, expenditure and loyalty. The authors found that the cognitive theory of emotions better predicts the influence of pleasure on satisfaction.

A recent study by Wu, Li, and Li (2018) identified the constructs of experiential quality and the relationships among experiential quality, experiential value, experiential satisfaction, theme park

image, and revisit intention perceived by visitors in theme parks. This study comprehensively evaluated theme park visitors' perceptions of quality by developing and estimating a hierarchical and multidimensional model. Study results indicated that the tangible and physical environment in a theme park is the most important determinant of experiential quality perceived by theme park visitors.

The previous studies on theme parks have been conducted in the context of experience and satisfaction with traditional survey data rather than online travel reviews in social media.

Social Media Usage in Tourism

Social media has incredibly changed the way how destinations communicate with visitors. While the traditional communication channels such as official DMO's websites, newspapers or broadcasts are one-way, the social media channels are two-way and hence are more engaging and interactive. Online customer reviews are recognized as one of the most powerful types of UGC for understanding hidden consumer behavior in tourism and hospitality field (Xiang et al., 2015). Customer reviews represent the way visitors think, perceive, and describe tourism destinations and then share their own experiences. Therefore, several studies have been conducted to investigate the employment of social media usage in tourism and hospitality industry.

Xiang et al. (2015) conducted an empirical study exploring big data analytics to better understand the relationship between hotel guest experience and satisfaction which is one of the important issues in hospitality industry. They applied a text analysis approach to a large quantity of reviews extracted from Expedia.com to analyze hotel guest experience and explore its association with the satisfaction ratings. The authors argued that through the analytical process as opposed to the qualitative methods the researchers can reveal latent patterns and evaluate consumers' actual experiences.

Although big data analysis is growing, there are few studies that examine and the relationship between experience and satisfaction in theme parks. In this regard, our investigation of visitors' perceptions of three theme parks in Orlando through UGC offers a qualified, authentic visitors' perceptions and is beneficial for the in tourism industry. Based on the aforementioned discussion, the following research questions were developed:

RQ (1) What are the perceptions of visitors on the three theme parks?

RQ (2) What is the nature and underlying structure of the theme park visitors' experience represented in TripAdvisor reviews?

RQ (3) What are the differences of visitor experiences among three theme parks in Orlando?

Methodology

Data Collection and Preparation

The data in this study were collected from TripAdvisor. TripAdvisor has long been one of the most popular platforms for tourists to give opportunities to engage in actively sharing experiences on the Internet. The data were collected during the period of January to December 2016. The total sample size is 40,978 reviews.

The collected data have both structured and unstructured attributes. The key structured attributes are as follows: a) ID: the user number for identification; b) Date Published: the date of review publishing; c) Rating: overall satisfaction. The unstructured text attributes are: d) Title: title of the

reviews; e) Text: description of visitors' experiences; f) Author Name: user name; g) Location: city-level geo-location information if available; and h) Trip Type: single, family, etc.

Data Analysis

To answer the first research question, sentiment analysis was conducted using RapidMiner Studio to obtain sentiment scores for each theme park. To answer the second research question, factor analysis was conducted in SPSS by analyzing word vector generated from RapidMiner Studio to identify the underlying structure of visitor reviews. To answer the third research question, one-way ANOVA and comparison analysis were used to compare the differences of satisfaction ratings, sentiments, and topics among the three theme parks.

Results

Overall perceptions

Theme parks with star rating from four to five constituted 86.4% of all reviews. Average satisfaction rating of theme parks is 4.46/5, with a standard deviation of 0.916. The median of satisfaction rating is 5. Sentiment analysis shows that the average sentiment for all three theme parks is 0.125 (slightly positive) on a scale from -1 (extremely negative) to 1 (extremely positive), with a standard deviation of 0.272.

Table 1 shows the list of the 17 visitor experience-related words that explained satisfaction ratings. These words represent aspects related to the theme park visitor experience, including (1) the very core product such as “park”, “Disney”, “World”, “Harry”, “Potter”, “Magic”, “World”; (2) sentiment such as “great”, “amazing”, “love”, “good”, “awesome”; (3) experience and service such as “time”, “family”, “visit”, and “experience”. Word occurrence to some extent represents guests' positive perception of their theme park experiences, which is consistent with the satisfaction and sentiment analysis.

Table 1. Top 17 words in theme park visitor reviews.

Word	N	Word	N
Great	4472	Good	1309
Park	3661	Family	1304
Amazing	2208	Visit	1294
Place	2038	Harry	1290
Disney	1940	Magic	1180
Magical	1658	World	1056
Time	1571	Awesome	1039
Love	1412	Experience	1033
Potter	1374		

Overall Experience Structure

Factor analysis was conducted to examine the underlying semantic structure. The number of words from data matrix was reduced into meaningful groupings of words. Ten meaningful factors were extracted explaining 10.82% of all variance. The cut-off loading was set at ± 0.20 in order to incorporate as many words as possible. Each factor was named based on the meaning it represents. The ten factors were named “attraction (Harry Potter)”, “wait time”, “attraction (Star War)”,

“attraction (Magic Kingdom)”, “attraction (Epcot)”, “attraction (Animal Kingdom)”, “attraction (Universal Studios)”, “attraction (Sea World)”, “age group”, “roller coaster and staff”.

Overall, these factors represent the core product/experience of theme parks as salient aspects of theme park visitor experience because most of the words in visitor reviews had relatively high loadings on these factors. Meanwhile, common themes across theme parks also include service experiences such as wait time, age group, and staff.

Differences in visitors’ perception among theme parks

Table 2 shows the descriptive statistics on satisfaction rating and sentiment of the three theme parks. The Universal Studios has the highest average satisfaction rating which was followed by Disney World. Sea World has the lowest average satisfaction rating. However, for sentiment score, Sea World has the highest sentiment score followed by Universal Studios and Disney World.

Table 2. Descriptive statistics about satisfaction rating and sentiment

	Satisfaction Rating		Sentiment score		N
	Mean	SD	Mean	SD	
Universal Studios	4.58	0.82	0.15	0.27	17646
Disney World	4.37	0.97	0.09	0.27	19826
Sea World	4.34	0.96	0.17	0.28	3695

ANOVA was conducted to test the significance of average satisfaction and sentiment differences on three theme parks. The result was significant at the $p = 0.05$ level between any two theme parks, which means the differences among three theme parks were significant in term of satisfaction rating. However, ANOVA on sentiment scores did not show significant difference between Sea World and other two theme parks. The results only showed a significant higher sentiment score of Universal Studios than Disney World.

Factor analysis among three theme parks

Factor analysis was also conducted for each theme park. After renaming the 15 topics of each theme park based on the implied meaning, reviews reflect following topics in Table3. The factor analysis found that some of these topics were recurring in reviews of all three parks, showing shared experience aspects. These similar factors include waiting time, fast pass, price, show/event/festival, guest service, food, and recommendations. These factors demonstrate services, such as long waiting time, high price, good guest service, and good food have significant influences on guest experiences. Besides, show/event/festival is also key to visitors’ experience in all three theme parks.

The dissimilar factors exemplify unique core experiences that differ across three parks. For example, Universal Studios is featured by Harry Potter magic experience, Adventure Island, and other movie-theme experience; Disney World reviews focus on Animal Kingdom and other attractions and Sea World has topics related to marine animals. What related to unique experiences from attractions is the feeling or motivation of visitors. For Universal Studios, visitors used “escape”, “sick”, and “challenge” to describe their experiences. For Disney World, “terror”, “thrill”, and “fantasy” were used. For Sea World, “discovery”, “thrill”, and “soak” were mostly

mentioned. The unique experiences of each theme park form their unique attractiveness and advantage of their competitiveness.

Moreover, there are several other important review topics. For Universal Studios, “access to hotel/site/resort” and “enjoyed by all age group” are two unique topics showing non-barrier access or facilities of Universal Studios provide a better experience for visitors. For Disney World, “culture experience” (i.e. learning culture about the world and other countries) identifies itself from other theme parks. “Character meeting” that only happens in Disney World meets the needs of kids in particular. For Sea World, the unique experience of “interaction with marine animals” not only brings fun to visitors by feeding and touching animals, but also has educational meanings. Besides, “Busch Garden” is one of the most frequently mentioned word in the Sea World reviews, showing a bounded brand effect.

Table 3. Review topics of the three theme parks

Universal Studios	Disney World	Sea World
Escape: Diagon Alley/wand	Animal kingdom	Waiting time
Marvel, water ride, Jurass	Terror and thrill: Roller coaster:	Food/souvenir
Waiting time	Attractions	Thrill (rides)
Fast pass/price	Fast pass/reservation	Rescue/learn marine animals
Harry Potter	Sense of mission	Interaction: feed/touch
Adventure Island	Stunt show	Discovery
Recommendations	Fantasy: star war, Hollywood Studios	Busch Garden
Shows: Transformer, Simpson	Price	Ocean/blue
Food: butter, beer, ice cream	Culture about the world, countries	Fast pass/reservation
Leaki, cauldron, broomstick, lunch	Event: parade, firework	Soak
Challenge	Magic experience	Whale killer/Annual event
Similar roller coaster	Festivals and food/wine	Friendly staff
Access to hotel/site/resort	Guest service/friendly staff	Show
All age group: kid/adult/old/ young	Waiting time/crowd	Cost
Guest service	Character meeting/needs of kids	Roller coaster recommend

By examining the adjective words in each factor of three theme parks, positive and negative factors have been identified. Positive factors include core experiences, which are described as “thrill”, “learn”, “haunt”, “surprise”, and “terror”; roller coaster, which is described as “recommend”, “incredible”, and “sick”; staff, which is described as “friendly”, “help”, and “clean”; cost (worth); and food (delicious). This shows that the visitors are generally satisfied with core experiences, staff, and some services such as cost and food. In contrast, negative factors include waiting time (disappointed); drink, food, meal, bottle, and snack (expensive); and price (expensive), showing waiting time and price are main dissatisfaction aspects.

Conclusion and Discussion

This study used social media big data to analyze the perception and experiences of theme park visitors. The study extracted latent information on visitor perception and experience from volunteered UGS, which can help the theme parks to adjust their products and services. This study has shown satisfaction and sentiment differences between Universal Studios, Disney World, and Sea World, and different topics of visitor reviews. Overall, the main park performance dimensions expressed in UGS reviews can be described as the “shared features” (e.g. waiting time, show/event/festival, food, and guest service), “unique features” (e.g. unique attractions and

experience, special service), “positive experiences” (e.g. core experiences, roller coaster, staff, and food) and “negative experiences” (e.g. waiting time, cost, and price). We suggest that if visitors give higher satisfaction rating and sentiment score to a theme park, they may have more positive experiences and less negative experiences, and the theme park may perform better in shared features and/or unique features compared to other theme parks.

Our results are consistent with Milman’s (2001) suggestion that theme parks need to provide new and diverse tourist experiences and offer convenient on-site services in order to survive. The literature shows that online tourist reviews genuinely reflect tourist experience and can help theme parks improve their products and services. Our results suggest that on the one hand, the share features among theme parks call for attentions on tourists’ needs in that details of experience design and service may influence visitors’ ratings. On the other hand, uniqueness, which refers to unique attractions and services, is also crucial for the success of theme parks, in which creativity needs to be paid more attention. Theme parks should identify their weakness and improve experience quality and service in order to improve their capacity to stand out within the competitive industry.

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