

Assessing Critical Quality Factors in Travel Websites Using Analytic Hierarchy Process

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Abstract

Assessing website quality has been one of the important challenges in the recent business studies. The quality of travel websites can impact on the customers' online hotel booking decision. Many factors have been identified in the previous research for improving e-commerce websites. However, in case of travel websites, few studies are conducted with limit number of quality factors. This study is then conducted to fill this gap by providing a comprehensive framework of website quality factors in tourism context. The proposed framework includes attractiveness, system quality, information quality and service quality factors. The data is collected through two travel websites, Booking.com and TripAdvisor.com. The analysis is performed using Analytic Hierarchy Process through Expert Choice software. The results of our data analysis are provided and discussed.

Keywords: Travel websites, Quality factors, AHP, Booking.com, TripAdvisor.com

1. Introduction

Hotels have been making use of the internet as a marketing means to form direct communication with consumers (Schmidt, Cantalops, & dos Santos, 2008). Hotel websites are not just online channels to provide information on products and services, but also a profitability electronic platform. Detailed hotel websites provide vital information and additional benefits for consumers to generate sales volume and enhance the credibility of the hotel. In the case that users do not regard a hotel website as beneficial, it will entail a waste of website maintenance (Chung & Law, 2003). The company will be rewarded by the website users in the case that they provide beneficial services for their customers.

The theory of "website quality" was initially introduced by Jeong et al. (Jeong, Oh, & Gregoire, 2003) to the hotel sector. Scholars defined hotel website quality as the general effectiveness or excellence of a website in regard to providing intentional messages to its viewers and audience. Although, the quality of websites is an integral parameter concerning e-commerce since the perception of consumers on website quality has a direct and positive influence on their purchasing intention (Hsin Chang & Wen Chen, 2008; Nilashi et al., 2016c).

Consumer perception on website quality is on the basis of website traits in accordance to consumer needs and exhibits the overall excellence of the website (Afshardost, Farahmandian, & SaqiqEshaghi, 2013). The quality of websites is a multi-dimensional structure (Chang, Kuo, Hsu, & Cheng, 2014). Prior researches have investigated website quality in terms of numerous points of views.

Website quality consists of system, information and service quality (Lin, 2007). The numerous aspects of website quality may be classified as service quality, ease of use, information quality, enjoyment and security (Hasanov & Khalid, 2015). Website design is vital in determining website characteristics and also in attaining the service quality provided for consumers via the website. The proliferation of the applicability of the internet has given way to numerous researches on hotel websites pertaining to the hospitality and tourism management sector. The majority of such researches are focused on vital components in the success of hotel websites as a means for online marketing.

Online purchasing is the procedure of purchasing via the internet and consists of online purchasers who access online sales websites to seek, choose, buy, utilize and dispose products and services to meet their requirements (Ariff, Yan, Zakuan, Rahim, & Ismail, 2014). Online booking intent is the inclination and propensity of

customers to contribute to online trading that consists of website quality assessment and product information (Pavlou, 2003). In regard to the hospitality sector, the purchasing behavior of customers is significantly affected by gathered information through the internet (Xiang & Gretzel, 2010; Nilashi et al., 2017; Nilashi et al., 2018; Nilashi et al., 2019, Nilashi et al., 2016a; Ahani et al., 2019). Online sellers should prioritize website quality to enhance the potential of online customers in accessing and purchasing products online (Lee, Ariff, Zakuan, Sulaiman, & Saman, 2016).

2. Related Work

Wang, Law, Guillet, Hung, & Fong (2015) conducted a study on impact of hotel website quality on online booking intentions. They investigated the role of eTrust as a mediator in the proposed model. They used software AMOS 20.0 for data analysis. They found that hotel website quality is a strong predictor of eTrust. In addition, the results showed that eTrust can mediate the relationships between website quality and consumers' online booking intentions. Their study was based on questionnaire survey. Exploratory factor analysis was conducted on the pilot test. 397 male and 445 female contributed to the data collection. Law & Cheung (2006) developed a study on the importance of the overall website quality for different classes of hotels. They found that overall quality of website features is an important factor for upper-class hotels for the customers when they make an online purchase of a hotel room. The data collection was based on a survey questionnaire. They collected the data from 2400 international visitors. Bai, Law, & Wen (2008) conducted a study on the impact of website quality on customer satisfaction and purchase intentions from Chinese online visitors perspectives. They considered Functionality and Usability as two predictors of customers' satisfaction. In addition, the sub-factors of their model were: purchase information, service/products information, destination information, quality of information, contact information, language, layout and graphics, information architecture, user interface and navigation and general. They found that website quality has a positive impact on customer satisfaction. In addition, they found that customer satisfaction has a positive impact on purchase intentions. Musante, Bojanic, & Zhang (2009) conducted a research on the assessment of hotel website attribute utilization and effectiveness by hotel class. They found significant differences between 5-Star hotels and hotels from other classes.

3. Research Method

The proposed framework of this study includes Attractiveness (Advertisement, Enjoyment, Multimedia, Design), System quality (Accessibility, Navigability, Time response, Portability), Information quality (Accuracy, Completeness, Format) and Service quality (Reliability, Responsiveness, Trust, Empathy).

Responsiveness, Empathy and Trust) factors. The framework is shown in Fig. 1.

4. Data Analysis

4.1 Method

Multi-Criteria Decision Making (MCDM) approaches have been effective in the assessment of multi-criteria problems (Yadegaridehkordi et al., 2018; Nilashi et al., 2015; Nilashi et al., 2016b; Esfahani et al., 2017; Ahmadi et al., 2015).

Analytical Hierarchy Process (AHP) was introduced by Thomas L. Saaty (Saaty, 2008). It is mainly used to solve multi-criteria decision making problems (Zare et al., 2016). This technique is widely applied for criteria assessment in different context through experts perspectives. Numerical fundamental scale ranges from 1 to 9 are used for assessing the criteria.

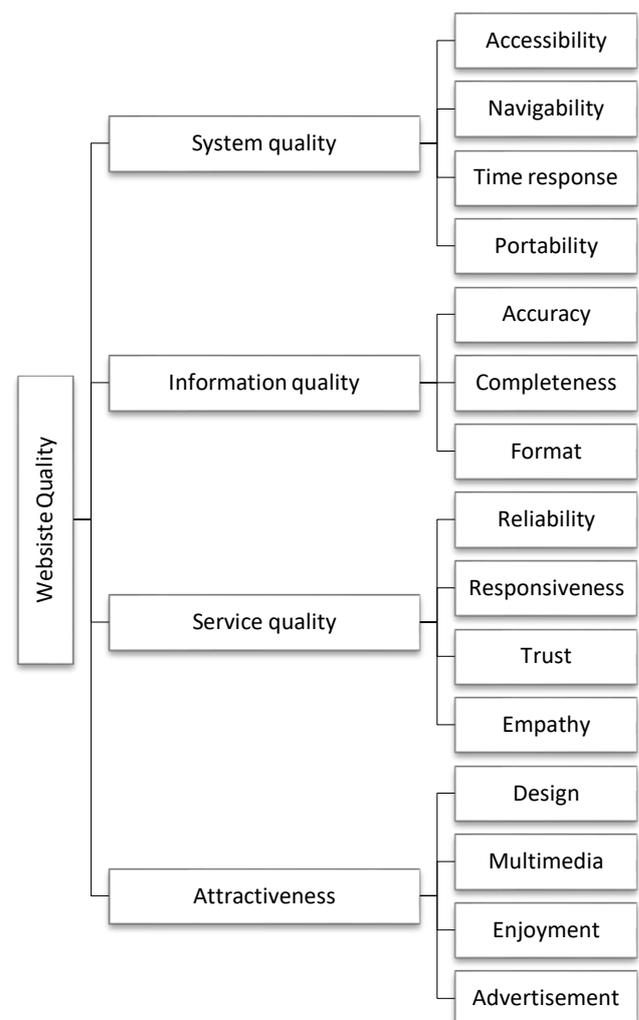


Fig. 1. Research Framework

The scale ranges were proposed by Thomas L. Saaty which is shown in Table 1.

Table 1
Table of Saaty's fundamental scale

Scale of a_{ij}	Interpretation
1	i and j are equally important
3	i is slightly more important than j
5	i is more important than j
7	i is strongly more important than j
9	i is absolutely more important than j

The AHP procedure is presented in Fig. 2. It is found that CR plays an important role in assessing the criteria of the model by experts. For each pairwise comparison matrix A , CR must be less than 0.1.

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{21} & \dots & a_{2n} \\ \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} \quad (1)$$

where n indicates number of criteria. In AHP, weighted geometric mean method is used to aggregating individual judgment matrices (see Eq. (2)).

$$GM_i = \left\{ \prod_{j=1}^N a_{ij} \right\}^{1/n} \quad (2)$$

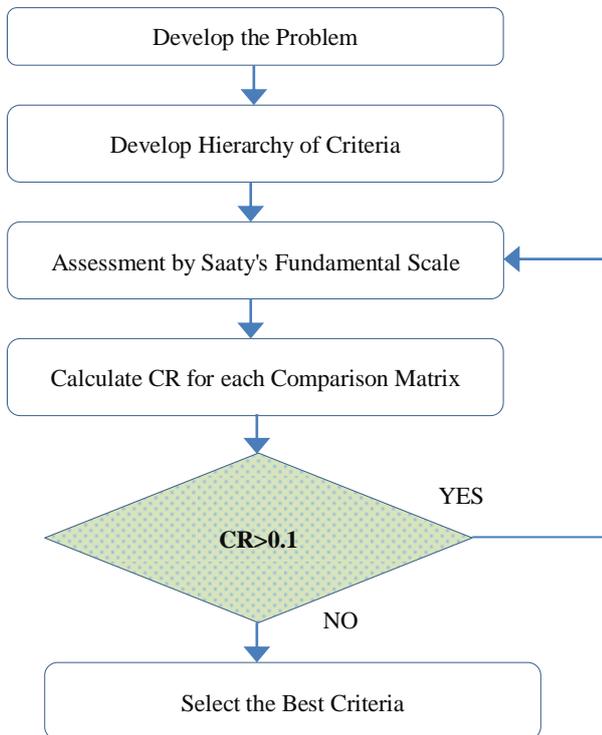


Fig. 2. The AHP procedure

4.2 Data Collection

The data was collected from 20 experts who had experience with the design of business websites. The majority of the respondents was male (n=17, 85%). In addition, the age of majority of the respondents was between 32-37 (n=30). In addition, the respondents hold Bachelor (45%), Master (30%) and PhD (25%) degrees. The respondents had experience with booking online from travel websites. The questionnaire for data collection was based on AHP procedure with Saaty's fundamental scales. The respondents were asked to refer to two online booking (travel) websites, Booking.com and TripAdvisor.com, and assess the websites according to the items in the questionnaire.

5. Results

The collected data was analyzed using AHP technique through Expert Choice software. The results for all factors of the model, Attractiveness (Advertisement, Enjoyment, Multimedia, Design), System quality (Accessibility, Navigability, Time response, Portability), Information quality (Accuracy, Completeness, Format) and Service quality (Reliability, Responsiveness, Empathy and Trust), are provided through aggregating individual judgment matrices in AHP. The results of AHP are presented in Tables 2 and 3. The results show that Information Quality in both websites has been more important, followed by Service Quality, System Quality and Attractiveness. In addition, the outcome of AHP indicates that Accuracy in TripAdvisor.com and Booking.com is one of the most important criteria of the model.

Table 2
The AHP results for TripAdvisor.com

Main Factor	Weight	Criteria	Local Weight	Final Weight
System Quality	0.205	Accessibility	0.466	0.096
		Portability	0.164	0.034
		Navigability	0.100	0.021
		Time response	0.290	0.059
Information Quality	0.450	Accuracy	0.558	0.251
		Completeness	0.320	0.144
		Format	0.122	0.055
Service Quality	0.240	Reliability	0.258	0.062
		Responsiveness	0.190	0.046
		Empathy	0.445	0.107
		Trust	0.108	0.026
Attractiveness	0.105	Design	0.478	0.050
		Multimedia	0.105	0.011
		Enjoyment	0.182	0.019
		Advertisement	0.235	0.025

Table 3

The AHP results for Booking.com

Main Factor	Weight	Criteria	Local Weight	Final Weight
System Quality	0.139	Accessibility	0.596	0.083
		Portability	0.115	0.016
		Navigability	0.650	0.090
		Time response	0.225	0.031
Information Quality	0.455	Accuracy	0.528	0.240
		Completeness	0.333	0.152
		Format	0.140	0.064
Service Quality	0.320	Reliability	0.267	0.085
		Responsiveness	0.153	0.049
		Empathy	0.485	0.155
		Trust	0.096	0.031
Attractiveness	0.086	Design	0.458	0.039
		Multimedia	0.079	0.007
		Enjoyment	0.173	0.015
		Advertisement	0.289	0.025

Overall, our finding from the traveling websites shows that information quality is the most important concern of the customers when they want to make decision to choose a destination through the online booking websites. This finding is supported by the previous studies in the context of service quality from customers' perspectives (Kuo, Lu, Huang, & Wu, 2005; Liang & Chen, 2009; Xinli, 2015; Yan, Sun, & Wang, 2009).

6. Conclusions

This study investigated the importance of website quality factors in travel websites. We conducted a literature review on the website quality factors and developed a framework with four main dimensions along with several criteria, Attractiveness (Advertisement, Enjoyment, Multimedia, Design), System quality (Accessibility, Navigability, Time response, Portability), Information quality (Accuracy, Completeness, Format) and Service quality (Reliability, Responsiveness, Empathy and Trust). The data was collected from 20 experts through a pairwise questionnaire. The data was analyzed using AHP technique. Two travel websites were assessed through AHP questionnaire, TripAdvisor.com and Booking.com. The results indicated that Information Quality in both websites has been more important, followed by Service Quality, System Quality and Attractiveness. In addition, the outcome of AHP found that Accuracy in Information Quality dimension in TripAdvisor.com and Booking.com is one of the most important criteria of the model.

This research has several limitations. First, the data was collected from 20 experts. As we examined the factors from experts' perspective, the future studies may perform the assessment from the customers perspectives. Second, this study used crisp AHP to find the importance level of factors for websites quality. Accordingly, it is suggested that other multi-criteria decision making techniques such as

fuzzy AHP and fuzzy ANP be used as the data analysis technique for factors assessment. Third, this study has included four main dimensions of website quality factors, therefore, future studies may extend the proposed framework for other factors such as Security and Privacy.

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