

A Study on E-service Quality Dimensions for Online Travel Agencies

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Abstract. With increasingly intense competition among online travel agencies, e-service quality has received widespread attention as a fundamental determinant for OTAs to stand out. This study takes a careful look into the underlying dimensions of e-service quality by using quantitative data collection method. Four core dimensions, namely Interactive Service Quality, Ease of Use, Information Quality, as well as Visual Appeal are identified as a result of factor analysis. In addition, important managerial implications with regard to this finding are discussed.

1 Introduction

In the era of e-commerce, Internet has served as an important platform for travel service providers to provide information and services to consumers. As a result, online tourism has also witnessed a great increase and gave rise to many OTAs (online travel agencies). According to iresearch, the total transaction volume of online tourism market has reached 738.41 billion RMB in 2017, with a growth rate of 25.1% and an online penetration rate of 13.3%. Despite the plus sides that Internet has brought to travel industry, the characteristics of e-commerce have also led to a few problems which make the competition among online travel agencies fiercer than ever. For example price has become transparent in the transactions on the Internet platform, which has caused a number of online travel agencies to lose the advantage of information asymmetry in the market competition. E-commerce operation pattern also greatly reduces the switching cost for customers, which makes it harder for platform to cultivate customer loyalty. Therefore, in order to maintain or expand the market share even further, online travel agencies must differentiate themselves by providing customers with high-quality services.

An extensive body of research has demonstrated that online travel agencies that provide high-quality e-services are more likely to attract more browsers compared with their competitors who fail to do so. Apart from that, many studies have proved that e-service quality affects customers' satisfaction levels, behavioural intentions, loyalty and eventually e-commerce profits. Hence, service quality has become the key to the success or failure of an online company.

In order to improve e-service quality, trying to figure out the attributes of e-service quality and get a clear mind on how to measure them is of great significance for online travel agencies. Previous work has identified service quality as a multiple-dimensional term, but no

unified conclusion has reached with regard to its components. Most researchers focused on studying the relationship among service quality, customer satisfaction as well as customer loyalty without giving the dimensions of e-service quality too much attention. The measurement of e-service quality was rarely under the spotlight let alone in the online travel context. Therefore, prior researches on e-service quality dimensions for OTAs were extremely limited. So what types of e-service quality customers may perceive when they purchase travel service online is still worth discussing. In this paper, the dimensions of e-service quality were identified and studied by carrying out an exploratory factor analysis.

2 Literature review

2.1 Service quality

Based on total quality management theory, Parasuraman, Zeithaml and Berry for the first time measured the quality of services in 1988, giving rise to a new service quality evaluation system [1]. According to their study, customers would form their own ideal expectations towards a service through "word of mouth, past experience, personal demand, and external communication". Service quality is a kind of perception that depends on the customers' expectations for the service and the service they actually perceives. In addition, a tool called SERVQUAL was introduced to measure the five dimensions of service quality, namely assurance, responsiveness, reliability, empathy and tangibility.

Since this study, the SERVQUAL instrument has been widely adopted to measure service quality within a wide range of industries. For instance, Cronin and Taylor proposed a performance-based perceptions-minus-expectations measurement to scale service quality after

studying four different industries [2]. Performance was used in this model to measure service quality directly rather than using the differences between customers' expectations before they received the service and their perceptions on the service performance itself.

2.2 E-Service quality

Santos defined e-service quality as customer's overall evaluation of the excellence and quality of the online service [3]. Fassnacht and Koese claimed that online service quality consisted of two important aspects: quality customers perceived during the process and that they perceived to the ultimate outcome. Therefore, they deemed online service quality defined as: e-service quality that both focused on effective results and efficient process to meet customer' requirements [4].

Over the past two decades, there has been a large body of researches delving into the definition, measurement and management of e-service quality. Boonghee and Naveen proposed SITEQUAL, an evaluation tool with four dimensions including ease of use, design, processing speed and safety [5]. Based on the research of other scholars, Stuart and Richar created another comprehensive evaluation tool called WebQual which measured service quality from three aspects: Usability, Information and Service Interaction [6]. Based on SERVQUAL, Parasuraman et al. put forward E-SQUAL, a tool specialized to the measurement of e-service quality [7].

2.3 E-travel service quality components

Compared with abundant studies with respect to e-service quality, researches about e-service quality of OTAs are relatively limited in the realm of tourism study. Taking Korean tourists as samples, Kim and Lee focused on studying the service quality of OTAs and online travel service providers. The results showed that information content, safety, website structure, usability and usability were the key dimensions of e-service quality for OTAs [8]. When investigating the customer satisfaction of the travel website, Mills and Morrison found the customers' perceived quality of the website was highly related to: download speed, service navigation, web display, interactivity, search engine, and security [9]. Based on the SERVQUAL model, Sun ling pointed out three factors influencing the website quality of travel agencies, namely information quality, system quality and service interaction [10]. A measurement on the website of online travel agencies termed T-WebQual was proposed by Ding to measure e-travel service quality through three dimensions: usability, information quality and interactive service quality [11].

These studies mentioned above can help us better understand the dimensions of e-travel service quality. Table 1 shows some work on e-service quality dimensions by previous scholars. As demonstrated, there is a significant difference between the dimensions identified. This can be partly accounted for by the fact that different studies had their own research objectives. In

spite of this, some of the dimensions adopted from other e-service contexts can come in handy and serve as a basis in our construction of e-service quality for OTAs.

Table1. Dimensions of e-service quality identified by prior studies.

Author(s)	Study Setting	Dimensions
Cox & Dale [12]	Website service	Accessibility, credibility, communication, presentation, availability, reliability, security, functionality, integrity, resources, relationship
Jing Gao & Jiangnan Xiao [13]	Website service	Contents of information (including information effectiveness and accuracy); technical organization of information resources (user interface, retrieval function, website navigation, language version)
Kim & Lee	OTAs /suppliers	Content of Information, ease of use, reputation, security, usefulness
Kaynama & Black [14]	OTA	Service content, accessibility, service navigation, layout design /Presentation, responsiveness/feedback, background information, and Personalized service
Yuan Fu & Shaofeng Ru [15]	E-commerce	Accessibility, information communication, friendly interface, responsiveness
Ayo, Charles K., et al. [16]	E-banking	System availability, support staff's competence, responsiveness, service composition and reliability
Ho & Lee [17]	Online travel service	Information quality, security, ease of use, availability, customization, virtual communities, responsiveness, and delivery

3. Methodology

Based on the purposes of this research, the definition of online travel agencies is given as follows: online travel agencies refers to these companies that provide services allowing tourists book tour products or services with various travel service providers via the Internet and make revenue from the process.

3.1 Survey instrument

On the basis of previous literature, in-depth interviews and focus group interviews, 17 questions were adapted for this study to examine the dimensions of e-service quality. The survey instrument was composed of three sections. The purpose of the first section was to make sure information was collected from the relevant samples by filtering out the irrelevant ones. In the second section, a 7-point Likert scale was adopted to measure respondents' perceived quality of service provided by OTAs. As for the last part, consumers' personal

characteristics were added, including gender, education to form a total of 24 questionnaires.

3.2 Sampling and data collection

This study selected Shanghai as the research site and chosen Shanghai residents who had purchased travel-related products or services from OTAs within a year as our target population. A total of 400 questionnaires were distributed with convenience and snowball sampling design. The effective response rate was 83.5%, which is relatively high. The principal socio-demographic characteristics of the sample are given in Table2.

Table2. Demographic information.

Variables	Frequencies	Percent
Gender		
Male	144	43.1%
Female	190	56.9%
Age group		
18–24	150	44.9%
25–44	149	44.6%
45–64	30	9.0%
65 or above	5	1.5%
Education level		
Secondary school	67	18.6%
College/University	174	52.1%
Postgraduate Degree	93	27.8%
Daily internet use		
No more than1 hour	34	10.2%
1–3hours	186	55.6%
4–6 hours	50	15.0%
More than 6 hours	64	19.2%

Note: Sample size = 334

4 Data analysis

In this study, SPSS19.0 and AMOS7.0 were used as analysis tools to analyze the data collected.

4.1 Item analysis

In this paper, the Critical Ratio (CR) of each item was obtained by using criterion of internal consistency analysis. When the CR value >3 and reaches the significant level ($p < 0.05$), the questionnaire is proved to be discriminative and can distinguish the reaction of different respondents. The results of calculation showed that CR value of each item was greater than 3, and Sig value was significant. Therefore, each item in this questionnaire has good discrimination ability and can be retained.

4.2 Factor analysis

Factor analysis is used to study concepts that can't be measured directly. By collapsing a cluster of variables into several comprehensible underlying factors, consumers' perceived e-service quality can be explain to a greater extent.

The results showed that the Kaiser-Meyer-Olkin (KMO) value of the scale was 0.873. Since the recommended index of KMO is 0.600, this result showed the scale was suitable for factor analysis. In addition, the Barlett Test of Sphericity was 1698.164 ($p = 0.000$) indicating the sample was suitable for factor analysis once again.

Factors were extracted by Principal components factor analysis with varimax rotation. The number of factors was determined by the eigenvalue. Items were deleted if they cross loaded on more than one factor or the factor loading was lower than 0.35 [18]. The results of factor analysis are presented in Table 3.

Table3. Factor analysis results.

Factor	Factor loading	Cronbach Alpha
Ease of Use		
It is easy to find what I want on OTA websites.	.573	.792
OTA websites do not waste my time.	.631	
It is convenient to complete a transaction on OTA websites.	.706	
OTA websites always work correctly	.748	
OTA websites have well-arranged categories.	.733	
Information Quality		
OTA websites provide updated information.	.780	.633
OTA websites provide concise information.	.749	
OTA websites provide in-depth information.	.492	
Interactive Service Quality		
I get what I booked from OTA.	.753	.853
Staff of Customer service is always there to help me.	.784	
OTA enjoy a good reputation.	.733	
OTA have features personalized to users.	.473	
OTA creates a platform where I can exchange travel experiences.	.780	
It is safe to do transactions with OTA websites.	.719	
My privacy can be very protected at OTA websites.	.677	
Visual Appeal		
OTA websites look attractive.	.819	.717
OTA websites look organized.	.873	

Principal component method with varimax rotation with factor Loadings ≥ 0.35

Four factors were identified with eigenvalue greater than one, which explained 61.59% of the total variance. More than 60% of the total variance of the original variables was explained, indicating that the factors extracted can reflect most information of the original variables, so the factor analysis was relatively ideal.

Of the four factors, the first factor, Interactive Service Quality, explained the largest proportion (36.913%) of the overall variance. This factor was made up of seven

scale items that were profoundly concerned with the interactive characteristics of an OTA.

The second factor, Ease of Use, captured 10.044% of the overall variance and comprised five items. This factor is associated with functionality and accessibility of the websites, effective navigation and consistency as well as ease of procuring desired products or services.

The third factor, Information Quality, explained 8.074% of the overall variance with an eigenvalue of 1.373. This factor contains three items and is highly related to whether the information provided by OTAs is concise, complete or up to date.

The fourth factor, Visual Appeal, was related to two items and captured 6.560% of the overall variance with an eigenvalue of 1.115. It includes two items on how information is presented, that is, whether the website including layout, the use of colour, multi-media, text as well as graphics and so on makes customers feel organized or attractive. These factors would affect how customers perceive the service quality in a special way.

4.3 Reliability analysis

After factor analysis, reliability test is needed to further understand the reliability of the dimensions extracted.

Cronbach Alpha has been widely used when the reliability of a Likert scale need to be checked. The minimum reliability criterion is generally considered to be 0.70. The higher the Cronbach Alpha is, the higher the internal consistency is. It can be seen from table 3 that the Cronbach Alpha of the four subscales were above 0.7 and the total scale reliability was 0.844, which indicates that the scale has an acceptable level of reliability.

5 Results and discussion

Interactive Service Quality includes seven items with regard to the fulfilment, security, responsiveness, reputation, product/service differentiation, customization as well as community of an OTA website. As it captured the largest proportion (36.913%) of the overall variance explained, this dimension is regarded as the most vital part of e-service quality for OTAs. Usually, customers very much cared about interactive service, containing elements like fulfilment that provides products or services that meet the level of companies' commitment, security that deals with to what degree a website is proved to be trustworthy for its customers, responsiveness that are measured by whether a website can answer the requests or complaints of the consumers in time, reputation that refers to the popularity of an OTA website, product/service differentiation and customization that are concerned with meeting customers' particular needs by providing them with special services, as well as community which developed through a website platform where online customer can interact with the website and other customers. It is a good opportunity for them to share opinions and exchange information.

The second dimension, Ease of Use, is composed of five items regarding functionality, website accessibility,

highly efficient navigation, search capabilities, and the ease of finding desired products and services. This dimension refers to the convenience that customers can enjoy when buying travel-related products and services online. This factor can fall into two main categories: the first one refers to whether the service or products provided is easy to find and the transaction is simple and convenient. The second one is about whether it can save time and energy for consumers. Customers can easily close the website if it lacks accessibility, or has bad navigation, for much time may be wasted unnecessarily in the process.

As for the third dimension, Information Quality, consistent with prior work, is inevitably a key component of e-service quality. Tourism is an information-oriented industry. Too much or too little information will trigger customers' negative emotions towards the website. Therefore, providing customers with proper amount of information are crucial in attracting tourists. Besides, the comprehensiveness, accuracy and uniqueness of information will greatly improve consumers' experience.

The fourth dimension, Visual Appeal, consists of two items. It is about whether the website is organized or attractive. Similar to the environmental display of physical stores, visual appeal can affect consumers' perception towards service quality. An attractive combination of colour, font size, moving pictures, sound effect and text can make the website more visually appealing and organized.

In this study, the underlying dimensions of e-service quality for OTAs were explored and a scale developed. This new measurement can be used as a management tool for OTAs to evaluate their performance and improve their e-service quality more precisely and effectively. For example, interactive service quality indicates OTAs must enhance the ability to interact with customers and improve the quality of e-travel services comprehensively. As a result, OTA should give this key dimension, fulfilment, security, responsiveness, reputation, product/service differentiation and customization as well as community much more attention when it comes to the design and enhancement of their websites.

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