

An Effective Model for Evaluating Website Quality Considering Customer Satisfaction and Loyalty: Evidence of Airline Websites

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Abstract

This paper provides a better understanding of the impact of e-quality on customer satisfaction which leads to the retention of loyal customers to airline e-ticketing websites. In this paper website quality is divided into three levels including: “website performance”, “website information” and “website online service”. Three sets of E-SERVQUAL criteria are chosen following a review of prior airline website studies in order to map each three levels. To measure customer satisfaction in each level, Additive Difference Model measurement method of Expectancy Disconfirmation Theory is integrated with the proposed model. Thus, the proposed model is comprised of the Expectancy Disconfirmation Theory model, a three-level framework, and E-SERVQUAL model. This model can help airline website decision-makers to understand the customer’s point of view concerning website quality and to identify the strengths and weaknesses of designed airline websites in attracting customers to e-ticketing.

Keywords: *Airline Websites Quality Criteria, Expectancy Disconfirmation Theory, E-SERVQUAL model, Three-Levels Framework.*

1. Introduction

The majority of organizations attempt to generate additional revenue through the web by enabling online transactions to sell their products and present services [1]. Despite its great benefits, not all websites succeed in persuading visitors to purchase products through the website, because the design of a website alone is not sufficient in and of itself to enable successful e-commerce. The quality of products and services offered should be considered as well [2, 3].

In the airline industry, distribution through the web is generally regarded as the most cost effective option because it deducts the cost of opening agencies everywhere [4]. Therefore, airline managers attempt to migrate customers from traditional channels to their own online channels for e-ticketing. In this regard, airlines have to understand customer needs and expectations about the quality of their website [5]. Meeting customer

expectations lead to feelings of satisfaction. Such feelings will encourage customers to repeat the online purchase [6]. Repurchase behavior gently changes customer attitudes, creating loyal customers [7]. This leads to the concept of e-loyalty which can be defined as the repurchase behavior of e-loyal customers from a specific website. Therefore, satisfaction of online purchases has a positive impact on e-loyalty [8].

Several theories and models are used in order to explain customer satisfaction of website quality. In this case, Expectancy Disconfirmation Theory model (EDT) is one of the popular theories which is able to explain customer satisfaction based on the perceived quality of products, services, and information [9, 10, 11, 12]. Based on Spreng and Page [11], EDT has five methods for measuring customer satisfaction and among them, “Additive Difference Mode (ADM) measurement method” provides a more distinct assessment in comparison to others. Measuring customer satisfaction produces more distinct and more effective results which help organizational decision-makers understand the strengths and weaknesses of the designed website in meeting customer needs, leading to the provision of better e-service quality. To the best of the author’s knowledge, none of the studies on airline websites have used ADM to assess customer satisfaction based on website quality.

Recently a three-level framework using “marketing mix 4Ps (place, price, product, and promotion)” approach was introduced by Chiou et al. [13] to evaluate website quality. In this model, the first level refers to the criteria related to the quality of presented information on the website; the second level mentions the features that facilitate online transactions on the website, and the third level proposes after sale criteria of products and services. Criteria in each of the three-levels are categorized to 4Ps elements namely: place, price, product, and promotion. This framework has been empirically applied in travel agencies [14] and

airline websites [15] to evaluate the quality of websites. In these studies, criteria for each of the three-levels have been identified based on the objectives and goals of an organization for developing a website. An expert-based evaluation was then done based on the objectives of each specific website. Thus, investigating the customer's point of view based on this three-level framework remains undone. Because customers are the ultimate users of airline websites, evaluating their point of view based on the suggested three-level framework is still needed [14]. Also, to evaluate the customers' views using an appropriate model of criteria seems necessary. Hence, this study synthesizes the literature and uses the E-SERVQUAL model [16] to define criteria which are important for airline customers in e-ticketing. Then, the three-level framework is redefined in order to measure the customer's point of view. Finally ADM measurement method of EDT is applied to measure customer satisfaction in each level.

In summary, this study, by combining three concepts including EDT, Chiou et al. three-level framework and E-SERVQUAL model attempts to make a more coherent model to measure customer satisfaction and consequently customer loyalty to e-ticketing on airline websites. The objectives of developing such a framework are threefold: 1) to gain a full view of e-quality dimensions which are of concern to customers; defining a three-levels framework including the quality of the websites' performance in the first level, the quality of presented information on the website in the second level, and the quality of online transaction services in the third level, thereby generating important points of strength for the proposed framework 2) to achieve a more distinct results in measuring customer satisfaction; applying ADM measurement method of EDT in each of three-levels makes a second point of strength for the proposed framework 3) choosing the most important criteria of website quality from the customers' view point; E-SERVQUAL model playing a filtering role adds a third point of strength to the proposed framework.

2. Theoretical Background

2.1 Expectancy Disconfirmation Theory

In 1957, Leon Festinger [17] proposed the Cognitive Dissonance Theory (CDT) that defines the dissonance between the cognition of something and its reality. Perceived dissonance changes a person's idea about a specific cognition [18]. Expectancy Disconfirmation Theory (EDT) has evolved based on the CDT definition. EDT can measure customer satisfaction based on difference

between customer's expectation and the perceived experience of products and services [9, 10, 11]. The first model of EDT was proposed by Oliver between 1977 and 1980 [9, 19]. This model consists of four basic elements: expectations, perceived performance, disconfirmation, and satisfaction.

Expectations define a customer's expectations of the performance of products and services [20]. A customer's initial expectations are divided into first hand and second hand expectations. First hand expectations are based on a customer's own previous experience with using specific products or services and second hand expectations consist of feedback that customers receive from other customers, and advertising or mass media about products or services [21]. First hand expectations of customers which cause them to repurchase from a specific website are nearer to reality. Perceived performance indicates a customer's experience after using products or services that can be better or worse than the customer's expectations [12]. Disconfirmation is defined as the difference between a customer's initial expectation and perceived performance [18]. According to the literature, disconfirmation is divided into three types which consist of positive disconfirmation, negative disconfirmation and simple disconfirmation. When perceived performance of specific products or services do not meet customer expectations, negative disconfirmation will occur which leads to customer dissatisfaction. Positive disconfirmation will lead to customer satisfaction, if the perceived performance of specific products or services exceeds customer's expectations. Finally, when there is no difference between a customer's expectation and the perceived performance of specific products or services, perceived performance is equal to the expectations. In this case, simple confirmation occurs [9, 22].

Moreover, Spreng et al. [12] proposed an EDT model that shows information satisfaction as a customer satisfaction item. According to this model of EDT, information satisfaction should be regarded as well as customer satisfaction of products or services. Santos and Boote [22] proposed a conceptual framework which consisting of three parts: expectations (part 1), customer satisfaction or dissatisfaction (part 2) and customer behavior (part3). The third part explains customer behaviors which are derived by her/his satisfaction or dissatisfaction with previous purchases. Feeling of high customer satisfaction lead to complimentary behavior and feeling of dissatisfaction lead to complaint behavior. In part three, customer willingness to repurchase and consequently their loyalty to specific products or services will be emerged.

2.2 EDT Measurement Methods

Spreng & Page [11] examined five methods used to measure disconfirmation of customer expectations including Difference score (DIFF), Direct Effects Model (DEM), Better than/Worse than (BTWT), Standard-Percept Disparity (SPD), and Additive Difference Model (ADM). The description of these measurement methods and their advantages and disadvantages are shown in Table 1. The results of Spreng and Page [11] show that the methods that work well across customer expectations are the Additive Difference Model (ADM) and Direct Effects Model (DEM).

Although DEM appears to be a good choice when managers need information about expectations, it does not provide a distinct measure of the disconfirmation of customers' expectation and perceived performance. Hence, DEM is not suitable in most managerial issues because managers can not realize their performance in defining customer satisfaction accurately. In contrast, ADM provides a distinct measure of the disconfirmation of customer expectations and perceived performance. Hence, it is regarded as a more appropriate method for managerial issues such as better understanding customer satisfaction.

The formulation of ADM by Spreng, et al. [12] and Spreng and Mackoy [23] as bellow shows disconfirmation is a subjective assessment of how perceived performance is different from the expectation multiplied by an evaluation of this difference.

$$\sum SDi ei \quad (1)$$

where: (SDi) is the subjective judgment of the degree of difference between perceived performance and the expectation. (ei) is the evaluation of this difference.

The additive difference model has many advantages over the combinatorial models. The first advantage according to Westbrook [24] is that the model is considered to be a more general structure of such models as the ideal-point model (e.g. DIFF) or value-percept disparity model (e.g. DEM, BTWT, and SPD). The second advantage of the additive difference model, claims that both the value percept disparity model and the ideal point model, due to probable negative evaluation of anything except for what is anticipated, suggest that congruency evaluation is a negative function of the comparison between expectation and performance. On the other hand, making two measures for each attribute is considered to be the only known disadvantage of this model.

Prior studies in the field of airlines' websites used EDT measurement methods implicitly. For example Chen [25] used a method according to Parasuraman et al. [26] namely DIFF.

$$\sum (Pi - Si) \quad (2)$$

where Pi is the performance of attribute i; Si is the standard of attribute i. Finn et al. [27] used a method based on Churchill and Surprenant [20] namely BTWT.

$$\sum SDi \quad (3)$$

where: SDi is the subjective judgment of the degree of difference between performance and the standard, and an evaluation of this difference. In this study disconfirmation is a subjective assessment of whether the performance was better or worse than a standard.

2.3 Three-Levels Framework

Chiou et al. [13] proposed a strategic framework for evaluating websites. They initially chose 53 criteria for evaluating websites from 1995–2006. Among these criteria those more concerned with literature were categorized into 4PCs marketing oriented factors including product, promotion, price, and place plus customer relationship. In this category, product is defined as related information or activity toward products, promotion involves activities for promoting online a store's product or services, price is a related issue to price of product or services during online transaction, place is defined as designed place for distributing information and facilitating online purchase, and customer relationship displays personalization and interactivity for supporting a buyer–seller relationship. Transaction in each three-level of web strategy is defined as below:

- The information level: First level attempts to satisfy customers from information presented by a website.
- The agreement level: Second level refers to satisfied customers from presented online facilities on the website
- The settlement level: Third level is proposed for satisfying customers from quality of perceived products, after sale services and on time delivery etc.

Thus, this model is based on the perspectives of “marketing mix 4Ps” and “three-level website quality”. This model was used to examine the quality of website in some studies. For example, Chiou et al. [14] examined this model in the case of two leading online travel agency websites that have different business strategies. Tsai et al., (2011) also empirically examined this model in five Taiwanese airline websites.

2.4 E-SERVQUAL Model

Gaining a customer satisfaction is the only way to ensure and guarantee the success of companies which aim to enhance online purchases [28]. According to Su and Lin [29] customer loyalty and satisfaction can be greatly affected by service quality. If the companies can make customers go through the transactions process easily on the web site, they can make the maximum use of the electronic commerce and enjoy its full benefits. According to Yang and Fang [30] electronic service quality (e-SQ) has a significant role in electronic commerce and for that matter airline web sites should enhance the e-SQ to strengthen the competitive atmosphere of the market. That is, the involved criteria for evaluating e-SQ should be fully identified by online ticketing service providers. And in the next phase, they should enhance the performance of these critical criteria.

Parasuraman et al. [16] developed the e-core service quality scale E-SERVQUAL which includes efficiency, system availability, fulfillment and privacy. Hu [31] used fuzzy model to identify important attributes of E-SERVQUAL in travel websites and added three criteria to e-core service quality of Parasuraman et al. [16]. These three criteria consist of responsiveness, benefit, and customization.

3 Research Model and Hypothesis Development

Most of the previous literature divided customer satisfaction into two types: specific satisfaction and overall satisfaction [32]. Specific satisfaction is defined as customer evaluation in terms of a specific usage experience of a product or service [33], and overall satisfaction indicates the combination of all previous specific usage experiences of a product or service [34]. In this study, we redefine three-level framework for measuring customer satisfaction of airline website quality by the definition of EDT model. The proposed model by this study is shown in Figure 1.

Expectancy Disconfirmation Theory (EDT) can measure customer satisfaction from perceived quality of products or services [9, 10, 11]. Website performance can be defined as one kind of service which is presented to customers in online purchases. Hence, EDT can measure customer satisfaction from the website performance with the formulation of the difference between customer expectations and perceived performance.

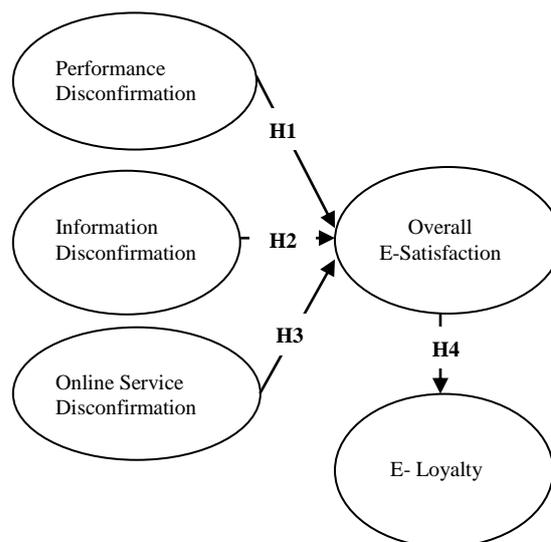


Fig. 1 The proposed model

If the perceived performance of a website is able to satisfy customer expectations, then positive disconfirmation occurs, leading to customer satisfaction. In contrast, if the perceived performance of a website does not match with customer expectations, then negative disconfirmation leads to dissatisfaction. Thus, we hypothesize as follows:

H1: positive/negative disconfirmation of a websites' performance has a positive/negative effect on overall customer e-satisfaction.

Spreng et al. [12] proposed a model that shows that information satisfaction is an important factor for customer satisfaction. According to this model of EDT, satisfying customers is not limited to satisfying their expectations of products or services. Along with satisfying customers' through offered products and services, satisfying customers from perceived information can attract customers to purchase and repurchase. EDT is capable of measuring customer satisfaction from the information presented on the airline website. If customers realize that perceived information of products or services satisfies their expectations, then occurred positive disconfirmation leads to customer satisfaction. In contrast, if the perceived information of products or services does not match with their expectations, negative disconfirmation leads to dissatisfaction. The importance of evaluating information quality is confirmed in many studies such as [35]. Thus, we hypothesize as follows:

H2: positive/negative disconfirmation of a website's information has a positive/negative effect on overall customer e-satisfaction.

EDT can measure customer satisfaction from perceived quality of products or services [9, 8, 11]. E-services such as online transaction can be defined as a sub definition of services which is provided on a website. Thus, we assume that EDT is capable in measuring customer satisfaction from the quality of perceived online transaction on the airline websites. If the customers realize that perceived online services satisfy their expectations in the quality of e-service, then occurred positive disconfirmation leads to their satisfaction. In contrast, if the perceived online service does not match with their expectations, then negative disconfirmation leads to their dissatisfaction. Thus, we hypothesize as follows:

H3: positive/negative disconfirmation of a websites' online services has a positive/negative effect on overall e customer -satisfaction.

E-satisfaction leads to enhance a customer's trend to continue purchase behavior with a specific e-business [36, 37]. According to Evanschitzky et al. [38], e-satisfaction is a key element leading to customer loyalty and makes a long term repurchase relationship between customer and business. The positive impact of e-satisfaction on e-loyalty is confirmed by prior studies [8, 39]. All products and services which airline websites present to customers in order to meet the customers' satisfaction make sense when they are able to retain the customers' loyalty to purchase e-ticket. Thus, we define the final goal of EDT model as having loyal customers for the airline websites as stated in the following hypothesis:

H4: a customers' positive overall e-satisfaction has a positive effect on customer e-loyalty.

3.1 Combining the Defined Hypothesis with E- SERVQUAL Model

A review of the previous studies of airline websites shows that the first four dimensions of E-SERVQUAL Parasuraman et al. [16] including efficiency, privacy, fulfillment, and system availability have some criteria which are used frequently to measure the customers' point of view. In contrast, three remaining dimensions of Hu [31] including benefits, customization, and responsiveness are of less consideration when used to evaluate airline website quality. The criteria related to these seven dimensions of E-SERVQUAL are shown in Table 1. A combination of these criteria with the proposed model (Fig.1) lead to the final model of this study (Fig.2). Related criteria in each level is defined based on marketing mix 4PCs including place, product, price, and promotion. In the first level, we defined criteria for

website performance that are related to the place. In the second level, we considered the informational aspects of price, promotion, and products. In the third level, we defined criteria which are related to online transaction quality of the website (place) and offered products for facilitating e-ticketing.

Table 1: E-SERVQUAL criteria

E-SERVQUAL Dimensions	Source
Efficiency (first e-quality dimension) (Easy to find the needs, Fast loading of pages, Completing a transaction quickly)	[40, 41]
System availability (second e-quality dimension) (Availability of the website)	[40, 41]
Fulfillment (third e-quality dimension) (Amendment or cancellation of reservation)	[40]
Privacy (fourth e-quality dimensions) (Protect credit card information)	[40, 41]
Responsiveness (fifth e-quality dimension) (Frequency of flight program)	[42]
Customization (sixth e-quality dimension) (Several payment method, Suggestion of alternative flights)	[31]
Benefits (seventh e-quality dimension) (Promotion and discount, Reasonable price)	[31]

5 Conclusions and Suggestion

For evaluating airlines' websites effectiveness and providing new directions to airlines on how to improve overall e-commerce performance, this study attempts to propose a much stronger model for evaluating the quality of websites. This study proposed model provides three contributions. First, this model is comprised of three models consisting of EDT model, three-level framework and E-SERVQUAL model which integrate the capabilities of these three models to make a more effective model. Second, in evaluating customer satisfaction by EDT, this model uses the ADM measurement methods which lead to more distinct results, which have not been used in airline website studies. Third, this model uses the E-SERVQUAL criteria in the definition of each three-levels of the framework for measuring the customers' point of view in contrast with previous expert- based studies.

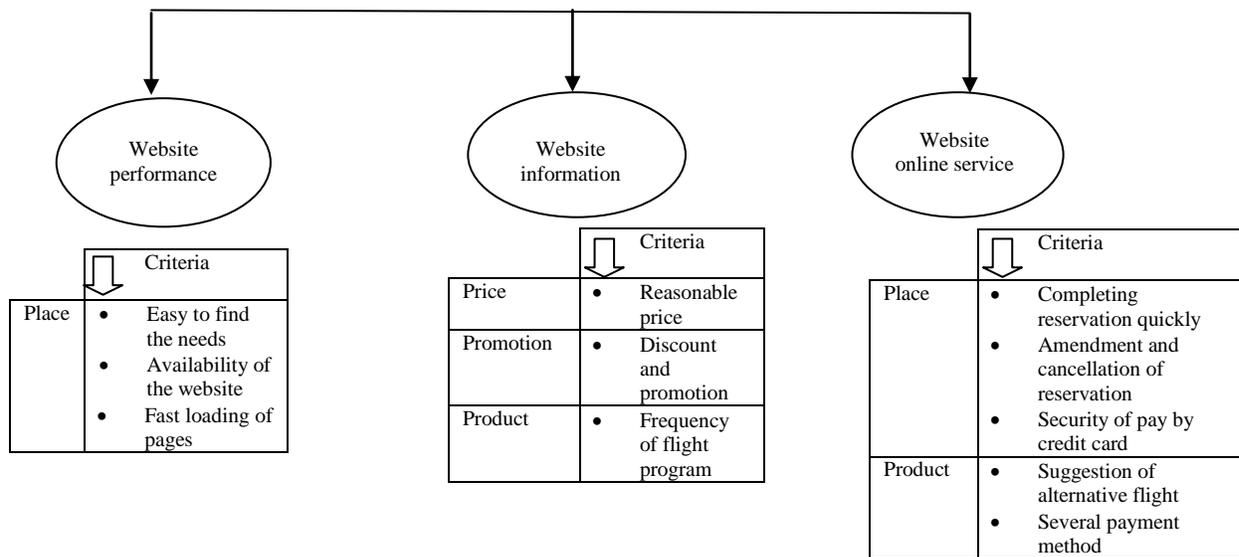


Fig. 2 E-SERVQUAL criteria in proposed model

Applying the proposed model of this study to the airline websites helps e-commerce managers understand the strengths and weaknesses of their website in attracting customer satisfaction. Also, the airlines can make resource allocation decisions on how to improve current websites to achieve the desired level. Finally, it helps airline organizations keep their customers loyal and derive more benefit in the e-ticketing marketplace by realizing its competitive strengths and weaknesses and comparing these with competitors.

The final proposed framework which is comprised of these three contributions is shown in Figure 3. This study recommends more exploration on website quality criteria which are important from the airlines' customers' view point and can fit in the structure of proposed three-level using E-SERVQUAL model. Also, this model can be defined according to other industry websites by modifying the criteria of E-SERVQUAL model which are related to a specific industry.

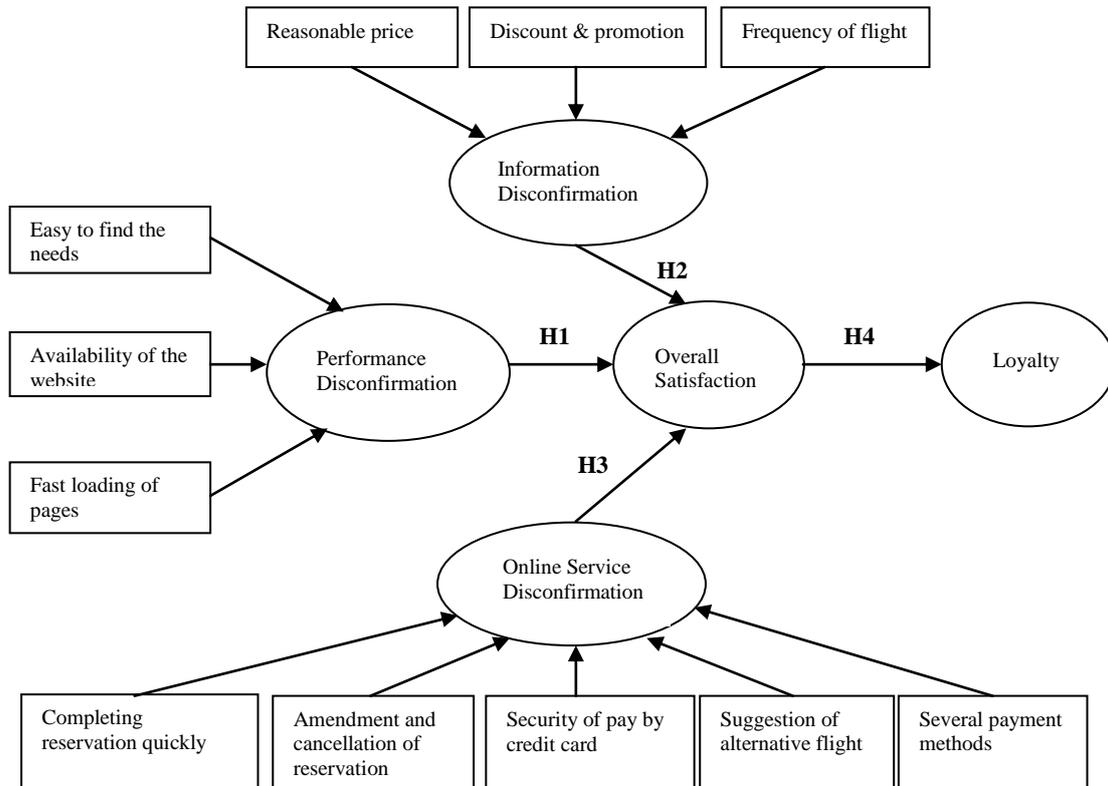


Fig.3 Proposed model

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