

## **An Exploratory Study of the Tourist-computer Interaction: the Role of Web Site Usability on Hotel Quality Perception**

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### **Abstract**

*The aim of this study is to investigate the role of the perception of a hotel website on the tourists' perception of the hotel's overall quality, in relation to the effects of functionalities, language, layout and graphics.*

*We interviewed 50 subjects with experience on online hotel booking and we used the structural equation model to analyse the collected data. Our findings demonstrated the mediating role of layout and graphics on tourists' perception of the hotel overall quality.*

*The results show both the positive influence of a more appealing website on users' perception of hotel overall quality and the main influencing factors of a good hotel website from a tourists' point of view. Hence, it might be appropriate to mix an appealing layout and an effective graphics with more functionalities, by implementing innovative web user's interfaces for an easier and entertaining browsing.*

**Keywords:** *Technology Management, Human-Computer Interaction, Consumer Behaviour, Website Perception, Usability*

## **1. Introduction**

Due to the increasing competition in the service business, greater importance has been attributed to the service quality, which represents a key factor for evaluating customer's satisfaction [1].

Concerning the tourism and hospitality industry, it is important to notice how tourists' satisfaction usually contributes to increase rates of the retention of tourists' patronage, loyalty and acquisition. To achieve this task, many service businesses tried to improve their quality, in order to maintain existing consumers and attract new ones.

In fact, consumers have been increasingly using internet both to search for accommodation-related information on hotel websites and to organize trips [2] [3]. For instance, in the last three years there was a lack of online Italian tourism structures: more than the 80% of the total structures had not a website [4]; whereas in summer 2010 the online presence growth especially for hotel. In fact, the 85,9% of these structures had a webpage and about a third of customers used this facility to organize and book their touristic staying in Italy; to achieve this task, the 10% used the website of the hotel, the 6,5% a tourism portals, the 18.4% the e-mail [4]. In particular, at local level the most virtuous are the North-East firms (the 84.3% of them are online) [4].

Hence, internet has become a significant marketing tool in hospitality and tourism. As a consequence, hotel companies are forced to explore the web-based technologies as a tool for creating competitive advantages [5] [6] [7]. In fact, hotel websites can be used to deliver a large amount of information and services [8], to reach consumers, and to facilitate business transactions [9].

Despite the large deal of research on factors determining the traditional service quality perception, the topic related to the websites service quality is a fledgling domain [10]. Currently, there are different attempts in order to measure the effectiveness of hospitality and tourism website: the contribution by Kasavana et al. [11] based on the supplying of a sets of benchmarks

giving an evaluation to marketing on hospitality websites, the assessments of online marketing efforts of tourism-related organizations proposed by So and Morrison [12], the attempts of hotel and lodging website evaluation offered by Liang and Law [13], Baloglu and Pekcan [14], and Chung and Law [15].

Zafiropoulos and Vrana [16] noticed how previous models used to evaluate website quality focused mainly on managers' point of view. Furthermore, the contributions by Chung and Law [15] and Lin and Lu [17] emphasized the importance of examining users' perceptions about websites. The user's perception analysis provides issues to effectively manage the websites and to determine its eventual success.

Although the presence on the internet is not a guarantee of success, the evaluation of websites' effectiveness and related quality has become a key role for the vacation marketing and destination policies.

Hence, this study aims at investigating the link between the quality of a hotel website and the tourists' perception of the overall quality of the hotel, by taking into account the role of functionalities, language, layout and graphics. In particular, the analysis focuses on the use of the structural equation model to investigate the association among the variables under investigation.

This paper is organized as follows: the first part is devoted to the literature review for building the hypotheses, with emphasis on the role of human-computer interactions, while the second one focuses on the quantitative research involving 50 undergraduate students for identifying the key issues for destination marketing researches.

## 2. Theoretical background

The increasing presence of firm-hosted online communities, hotel interactive websites, blogs, and territories on social networks introduce important changes on the travel industry [18]. In fact, they provide new elements capable of influencing tourists' intention to travel, innovative services such as hotel online reservations [19] [20], hotel front office systems [21], airline business-to-consumer eCommerce websites [3], new modalities to access to territories [22] [23]. In this way, the websites might influence consumers' trust toward the firm/hotel with effect on the subsequent decision-making process and on the online booking [24]. Previous studies showed the strong link between usable website and trust between consumers and firms [25] [26]. As a consequence, there is a great deal of research on the development of the best users' interface and web aesthetic [27].

Main functionalities of the website contribute to the richness of the navigation, by including quality of contents, activities which users can do while online, and quality of the interaction.

In this scenario, several researches emphasized the need to identify the most efficient tools capable of evaluating the website quality, in order to define the best procedure to design an interface capable of influencing consumers' decision making process [28]. For instance, Nysvee and Pedersen [29] identified how web interactive applications positively affect users' attitude towards a website; whereas other studies investigated the relationship between website design and user's perception of the firm quality [30]. Usability is considered an important dimension to evaluate and improve the website performance. In fact, a good website design evokes a favourable user's first impression, as well as it improves the user's perception of the overall firm quality.

Hence, design pleasant user's interface could provide a better representation of the information, by increasing the sales business [31]. In particular, a website should include search engine, a good navigation page layout and an attractive graphics design. Website layout and graphics might evoke in user's mind a range of emotions and behaviours that support his/her interaction with the system interface. Moreover, the website success can be affected by several factors such as user's interface, usability, colour perception, business [32].

Furthermore, the language of the website influences users' perception of it. In fact, an easy language supports users during the navigation, by displaying the contents in a clear way which requires a less cognitive effort [33] [34]. In addition, previous studies have claimed the role of

the website language and graphics to communicate to the users' information about their products and services. Furthermore, attention should be paid to the quantity of provided information, due to the negative effects on consumers' attitude towards the firm when the amount of information exceeds [35] [36]. These aspects allow user to create a mental model of the website organization when their browse its content.

Therefore, we may hypothesize:

*H1: Tourists' perception of the web site functionalities influences their perception of layout and graphic.*

*H2: The language of the web site has a direct influence on the perception of the functionalities.*

*H3: The language of the web site affects tourists' perception of layout and graphics.*

Perception quality plays a key role for leading consumers' loyalty and attracting new ones [37]. Concerning the perception of the overall hotel quality, Sigala et al. [38] argued that web sites must provide specific functionalities to support and met the users' needs, in order to fulfil their expectations and then favourite their decision making process. In fact, several researches examined the persuasiveness of destination websites by investigating the users' first impression [39]; whereas other authors demonstrated how the impressions formed and likely online booking intentions are influenced by several factors [40].

Especially in e-context the aesthetics of the website has a direct positive effect on consumers' perception of online service quality [27]. Indeed, visual images, which include graphics, digital material such as videos and photos, multimedia technologies are capable of improving the perceived quality of service [41].

Therefore, we may hypothesize:

*H4: Tourists' perception of the web site functionalities affects their perception of the hotel overall quality.*

*H5: The language of the web site influences the perception of the hotel quality*

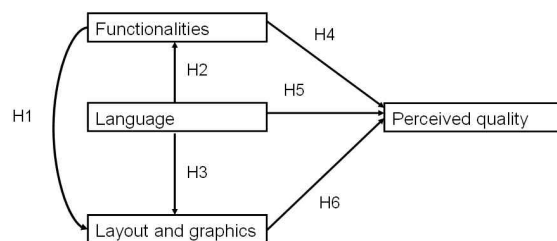
*H6: The web site layout and graphic has a strong impact on the hotel overall quality perception.*

Furthermore, usually consumers would expect that higher class hotels have more effective websites [42]. Since hotel websites are frequently used for finding information for upscale hotel and travelling [42], understanding the link between websites characteristics and tourists' perception of overall hotel quality plays a key role, with consequences on the expectations in the potential consumers.

### 3. Methodology of research

The variables emerged from the literature analysis are the following: functionalities, language, layout and graphics, and perceived hotel quality.

Figure 1 shows the hypothesized relationships among variables, by illustrating the research model.



**Figure 1.** Research frameworks

Structural equation model (SEM) has been used to investigate the accuracy of the constructive relationships among variables, as well as to explore the connection between the observable variance and potential one.

### 3.1. Sample

Since a great deal of research on the link between internet and tourism and hospitality involved scholars [43], our sample consists of 50 under graduate students, recruited at University of Turin (Italy) during October, 2010.

The demographic characteristics of the sample are based on gender, age, education, as well as on the knowledge on online booking (in terms of hotel booked), favored place for internet connecting and the time spent online (see Table 1). This information allows to the users' experience both in terms of online booked hotel and internet navigation.

Fifty volunteer participants (23 male and 26 female) took part in the experiment.

**Table 1.** Sample demographic characteristics

Measure	Items	Number	Percent
Gender	Male	23	46%
	Female	26	52%
	Missing	1	2%
Age	Under 25	26	52%
	26-35	16	32%
	Over 36	7	14%
	Missing	1	2%
Education	High school	4	8%
	Master Degree	35	70%
	PhD/Specialization	8	16%
	Missing	3	6%
Favored place for Internet connecting	Home	33	66%
	University/office	16	32%
	Missing	1	2%
Involved in previous usability experiments	1 time	6	12%
	Among 2 and 5 time	22	44%
	More than 5	21	42%
	Missing	1	2%
Time online before choosing	Less than 10 minutes	3	6%
	About 30 minutes	30	60%
	More than 1 hour	16	32%
	Missing	1	2%

All the participants had experiences with internet and they had been involved in previous usability tests (82%). Most of them were under 26 years old.

A noteworthy data is related to the favored place for internet connecting and the time that subjects spends online before the hotel choice. In particular, 66% identified own home as the best place for connecting, whereas the 60% needs more than 30 minute before choosing and the 32% more than 1 hour. This data is important to understand users' decision-making process while online.

Participants were asked to browse Italian hotel websites of the city of Turin, taking into account the classifications in stars' categories. The task consisted on the hotel choice in relation to the only information available at the web site. Furthermore, they assessed the measurement

items for the functionalities, language, layout and graphics and perceived overall hotel quality on five-points Likert scale.

### 3.2. Key findings

Each measurement has been validated by investigating the value of Cronbach's alpha (Table 2). Since the value for each variable satisfies the suggested ones [44], the proposed research model is very reliable.

**Table 2.** Cronbach's alpha values

Factors	Items	$\alpha$ Cronbach
Functionalities (F)	8	0.724
Language (L)	4	0.660
Layout and graphics (LG)	5	0.735
Perceived hotel quality (PU)	5	0.855

As suggested by literature, few fitness indexes has been evaluated in order to understand the reliability of the model: Chi-square to degree of freedom, goodness-of fit index (GFI), adjusted goodness-of fit index (AGFI), normed fit index (NFI), comparative fit index (CFI), root-mean-square error of approximation (RMSEA), which can be evaluated through the Lisrel software. Table 3 compares the obtained fitness indexes value with suggested ones [3] [45] [46] [47], as presented in Table 3.

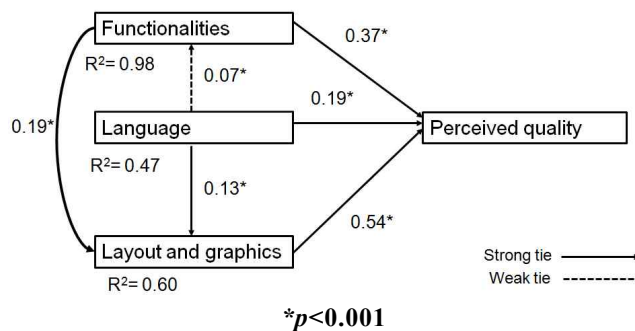
**Table 3.** Model fit indexes values compared to the ones suggested by literature

Fit index	Recommended value	Result
$\chi^2/\text{degrees of freedom}$	<3	2.47
GFI	>0.8	0.81
AGFI	>0.8	0.80
NFI	>0.9	0.92
CFI	>0.9	0.92
RMSEA	<0.08	0.07

Afterwards, authors adopted Lisrel software to perform the path analysis, in order to investigate the hypothesized relationships among variables.

In particular, the results outline a good fit between the research model and the data structure which supports the validation of the hypothesized model, with  $p < 0.001$ .

Figure 2 shows the significance of the path coefficients and the value of variance related to the variables.



**Figure 2.** Structural equation model results

As noted in Figure 2, path coefficients were significant as hypothesized (higher than 0.10), except for the relationship between functionalities and language, thus the hypotheses are supported except H2.

Since the direct paths from functionalities to layout and graphics (H1), and to perceived hotel quality (H4) are supported, there is a causal relationship correlation between the two variables, with a high value of  $R^2$  for layout and graphics which explains the 0.98 of variance, and as a consequence it excludes the presence of other latent variables.

Results show also a weak tie between website language and perception of the functionalities.

Consistent with H3 and H5, the language of the website influences users' perception of layout and graphics, as well as the overall quality of the hotel, with a  $R^2$  for language which explains the 0.47 of variance. As a consequence, this value implies that other variables may not be involved in the relationships.

The findings also suggest that layout and graphics plays the strongest impact on the hotel quality perception process (H6). Furthermore, the  $R^2 = 0.60$  for layout and graphics may exclude the presence of other variables involved in this relationship.

Hence, the quality of the hotel website can be expressed in terms of functionalities, layout and graphics and language, which play an important role on users' perception of the overall quality of the hotel.

#### **4. Discussion**

This study attempts to understand the link between tourists' perception of hotel website and perception of the overall hotel quality. In particular, this study investigated the extent to which the websites attributes are strictly linked to the users' perception of hotel overall quality.

Our results show a strong direct influence of layout and graphics on the users' perception of hotel quality. These elements provide the search of information faster and easier. As a consequence, they determine the appealing of the hotel website, as well as a good first impression, consistently with results of previous studies [39] [41]. Furthermore, these factors are mostly affected by the language and functionalities of the hotel website. Language has a direct influence on hotel perception, although it plays a marginal role on the perception of the functionalities.

Summarizing evidences, we notice that the tourists' perception of hotel website functionalities influences their perception of layout and graphics that, in turn, has a direct strong impact on the perception of the hotel overall quality; whereas the conjoint effect of language, functionalities and layout and graphics affects users' perception of hotel quality.

These findings contribute to a comprehensive understanding of the key roles of the dimensions related to website hotel design aesthetic and usability investigation. In particular, they illustrate the hedonic value emerging by the layout and graphics aspects over the utilitarian one, thus visual appeal becomes a central factor in determining tourists' evaluations and emotions, consistent with literature, which maintains that a higher aesthetic formality is usually preferred by consumers while online [27].

Therefore, our findings show both the positive influence of a more appealing website on users' perception of hotel overall quality and the main influencing factors of a good hotel website from a tourists' point of view.

#### **5. Managerial Implications**

The results of this study provide insights for improving tourists' perception of hotel through the online channel. The findings suggest that the website appeal in terms of layout and graphics are capable of influencing consumers' perception of overall hotel quality, with consequences on their choice. In this way, managers would reflect on the possible firm-controlled personalization of hotel websites for a more effective communication.

An efficient website is capable of attracting new tourists and maintaining existing ones, thus interactive and updates contents become key factors for tourists' satisfaction and loyalty. More

attention should be placed on the visual appearance of the website, in terms of a more usable layout and pleasant graphics, due to their role on perceived online service and quality. For this reason, also larger hotels should focus on more effective websites design strategies, according to their market share.

In fact, it might be appropriate to mix an appealing layout and an effective graphics with more functionalities, by implementing innovative website interfaces for an easier and entertaining browsing. This combination might lead to positive evaluations of the hotel quality and evoke positive emotions on tourist, in order to reduce the gap between tourists' expectations and effective hotel performance with consequence on the final choice.

Furthermore, the language should be as easiest as possible also for a wider range of population, and directed also for youth who usually make an extensive use of internet to plan their trips [4].

## 6. Limitations and recommendations

Although the research offers important issues, there are some limitations which should be taken into account.

The first limitation is related to the choice of the sample, which consists only of experienced users, thus users with no experience in online booking could present different responses. Another limitation is related to the sample size, which involved a convenience group. Hence, further investigation could involve a larger size to evaluate the role of hotel's website in the decision-making choice, as well as to predict the tourists' adoption of these websites for planning the holiday.

Since the research focuses just on the components of hotel website for the choice of accommodation, the research does not consider the social influences of friends and family which usually affect the decision-making choice of a tourism destination.

Since the increasing efforts development of digital contents for influencing consumers' choice [48][49], future research could focus on the innovative technologies to be included on the hotel website for providing contents which best fit users' needs and requests, as well as on adaptive recommendation systems capable of suggest the best solution and influencing consumers' choice.

## 7. Note

Although the views expressed in the paper belong to all of the authors, paragraphs 1 and 4 are attributed to Milena Viassone, paragraphs 2 and 3.1 are attributed to Rocco Servidio, paragraphs 3.2 and 5 to Eleonora Pantano, and research frameworks and paragraph 6 to all the authors.

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