

GENERALIZATION OF THE USE BEHAVIOR OF ONLINE TRAVEL SITES: THE ONLINE TRAVEL COMMUNITIES ACCEPTANCE MODEL (OTCAM)

(Working paper)

Structured abstract:

Purpose – The paper attempts to analyze the behavior of tourists with regard to the online travel communities containing information about hotels and/or destinations. Concretely, it tries 1) to generalize the underlying behavioral model when explaining intention to use them according to its main determinants and 2) to analyze the effect of the variables ‘satisfaction’ and ‘intention’ on general and actual use.

Design/methodology/approach – To achieve these objectives, we develop a structural equations modeling (SEM), which was applied to two online travel communities selected for study, and a multinomial logistic regression, respectively. To do so, the respondents visited the Tripadvisor community and the Facebook profile of a hotel. A rigorously empirical research was conducted by means of a simple experimental design (visualization of two different online travel communities) and a web questionnaire.

Findings – The findings reveal that the original Technology Acceptance Model as a robust underlying model for studies aimed at examining these sites. The study shows that the relationship between certain cognitive and behavioral variables may vary depending on the specific website. It also finds that predisposition to use these applications and satisfaction with them can aid in making future estimations concerning the real use behavior.

Research limitations/implications – The study is limited to data from one country and a single context (a specific hotel), but an approach centered in the experimental conditions allows mitigating this limitation. The main management implications of this study are shown in the last section. The findings contribute several recommendations for web design and use of online travel communities by a tourism business. The outcomes are very interesting to increase the revenues through them.

Originality/value – The paper permits to gain firsthand knowledge about the information needs of the 2.0 tourists. Concretely, it is original in that it establishes a behavioral model that can be extrapolated to all Web 2.0 communities in the context of tourist destination or hotel websites.

Keywords – Online travel communities, Technology Acceptance Model (TAM), satisfaction, trust, structural equations modeling, multinomial logistic regression

Paper type – Research paper

INTRODUCTION

With the advent of Web 2.0-based sites (and online travel communities), users not only obtain information, but can also provide information to others (Ridings et al., 2002). This has led to a participatory and collaborative online environment that has had an impact on a wide range of sectors, concretely tourism. As a result, tourist behavior and habits have undergone major changes, giving rise to a new figure: the 2.0 tourist. Following Sobejano (2008), this kind of tourists can be defined as follows:

- Consumer: Tourists who make travel arrangements through travel agencies (the classic tourist).
- Prosumer (*PROducer or PROfessional + ConSuMER*): This term refers to tourists who make their own travel arrangements, that is, they create the product which they will subsequently consume. To do so, the prosumer uses a wide variety of information sources, especially Travel 2.0 websites such as social networks, virtual communities, blogs, and others.
- Adprosumer (*ADvertiser + PROducer + ConSUMER*): This term refers to an active *prosumer*. In this case, the tourist not only creates the product that will be consumed, but also posts experiences and opinions on travel websites.

In the Web 2.0-based platforms of the tourism sector (hereafter "online travel communities" or OTC), users not only take an active role in deciding and preparing their own trips, but also aid other tourists in forming an image or idea of their destination before traveling by posting their experiences, videos, etc. Thanks to these new applications, tourists are now able to obtain more useful and personalized information tailored to their tastes and preferences (Doolin et al., 2002), thus allowing them to make faster and more effective searches for information about a hotel and/or destination (Brown & Chalmers, 2003).

Given this new scenario, it is essential that tourism business take advantage of the different sites offered by Web 2.0 to enhance their reputation. Among the various actions that companies should take in light of this new Web generation are listening to customer feedback, building a direct relationship with them to determine their needs firsthand, responding to constructive

criticism of all kinds (positive or negative) and taking the appropriate measures to resolve complaints and follow through on negative comments from customers.

The general aim of this study is to examine tourist behavior in relation to OTC. To do so, the following objectives have been proposed:

1. **To generalize the underlying behavioral model when explaining tourists' intention to use OTC according to its main determinants.** To analyze this objective, we developed a behavioral model based on the original Technology Acceptance Model (TAM) named "Online Travel Communities Acceptance Model" (OTCAM), including the perceived "trust" toward these websites. To achieve this objective, we developed a structural equation modeling (SEM), which was applied to each of the sites selected for study.
2. **To analyze the effect of the variables 'satisfaction' and 'intention' on general and actual use of OTC.** A multinomial logistic regression was used to achieve this second objective.

To this end, empirical research was conducted by means of a simple experimental design (visualization of two different OTC) and a web questionnaire. The 452 respondents answered several questions related to the behavioral variables that influence them when visiting OTC. This work is original in that it establishes a behavioral model that can be extrapolated to all online travel communities in the context of tourist destination or hotel websites.

THEORETICAL FRAMEWORK: CONSUMER BEHAVIOR TOWARDS ONLINE TRAVEL COMMUNITIES

Development of the Technology Acceptance Model (TAM)

Several theoretical models have been proposed in the scientific literature to gain a better understanding of Internet user behavior, specifically information searches and electronic transactions (e-commerce). The most important models proposed are the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (TPB) (Ajzen, 1991) and the Technology Acceptance Mode (TAM) (Davis et al., 1989). However, due to its validity

and predictive capacity, the TAM proposed by Davis et al. (1989) is the model most commonly used to explain the acceptance of a system or information technology (IT) (e.g. Horton et al., 2001; Ramayah et al. 2003, Huang et al. 2009).

The TAM model has also widely applied to Internet across different fields. For example, it has been valuable to explain user behavior with regard to e-commerce (e.g. Chircu et al., 2000, Gefen et al., 2003; Pavlou, 2003; Shang et al., 2005), websites (e.g. Moon & Kim, 2001; Sánchez & Roldán, 2005; Castañeda et al., 2007a), online learning systems (e.g. Saad & Balhi, 2005), online banking services (e.g. Chau & Lai, 2003), the use of intranet (e.g. Horton et al., 2001), the use of new online management programs (e.g. Hernández et al., 2006), online tax payment systems (Wu & Chen, 2005), tourism and other related websites (e.g. Kaplanidou & Vogt, 2006), and travel social networking sites (e.g. Casaló et al., 2009).

In line with the TRA theory, the TAM model posits that perceived beliefs (the perceived usefulness and perceived ease of use) determine users' attitudes toward the system or IT. While subjective norms and attitude explain behavioral intention in the TRA, the subjective norms construct is not significant in the TAM (Davis et al., 1989).

In the context of the Internet, and social networks in particular, Casaló et al. (2009, p. 5) defined perceived usefulness as “the degree to which a consumer believes that the information obtained from a travel social network will provide a range of benefits that would otherwise be difficult to obtain without participating in it”. If we extend the above definition to this work, perceived usefulness can therefore be defined as the degree to which users believe that using Travel 2.0 websites will improve their performance when searching for information on a tourist destination and/or hotel.

Ease of use is related to website structure, that is, users find the site simple to use, easily understand their contents and functions and can find the information they want fairly quickly (Muñoz-Leiva, 2008). In our study, perceived ease of use is defined as the degree to which users find online or virtual travel communities easy to use.

Davis et al. (1989) also introduced a direct relationship between perceived usefulness and intention to use, which implies that individuals will intend to use a technological innovation if

they perceive that using the new technology will improve their job performance in an organizational context (Muñoz-Leiva, 2008).

In the classic formulation of the TAM, attitude is a construct that mediates the relationship between the previous beliefs (usefulness and ease of use) and intended use. Sánchez & Roldan (2005), among others, state that it is essential to include attitude in the TAM in order to determine acceptance of a technological innovation (Moon & Kim, 2001; Lee et al., 2003; Izquierdo et al. 2009). From the standpoint of Travel 2.0, attitude can therefore be defined as tourist preferences for using interactive travel websites to find information about a particular destination and/or hotel.

Further constructs to improve the explanatory power of acceptance models

Importance of trust

Despite the importance of TAM, several research studies have suggested that the theory should integrate other theories or introduce further factors to improve its explanatory power regarding the acceptance of a technological innovation (Taylor & Todd, 1995; Shang et al., 2005). For this reason and in line with the theoretical foundations defended by Gefen et al. (2003), Pavlou (2003), Wu & Chen (2005) and Izquierdo et al. (2009), this study introduces a new variable in the original TAM: perceived trust toward the other party. This construct is of importance as the main problem of the online environment is that the different interactions taking place in this medium (transactions, communications, etc.) are not face-to-face and the lack of a social presence can lead to distrust of the medium (Gefen et al., 2003; Pavlou, 2003).

From a cognitive perspective, Rotter (1967, p. 652) defined trust as "the belief that one party will reliably keep its word or promise and fulfill its obligations in an exchange relationship". Gefen et al. (2003, p. 308) defined trust as "the expectations that other individuals or companies with which one interacts will not take improper advantage resulting from the dependence one has on them". In line with this definition, trust toward online travel communities can be defined as the belief or expectations that the content generated by other users are right and the latter will fulfill their obligations. In this sense, a user who reads web comments is the most vulnerable party, while trust is placed in the user who posts them.

It has also been shown that trust is a variable that mediates between the website and the behavioral intention of consumers (Sultan et al., 2002).

This research is novel in that it integrates a variable associated with the uncertainty of behaviour and the environment (trust) with the constructs of technology acceptance (usability, ease of use and attitude) to explain which factors lead to the adoption of T2W by potential tourists. While some authors have also incorporated this construct in the context of electronic commerce (e.g. Gefen et al., 2003a and 2003b; Pavlou, 2003), other studies that analyse the adoption of Web 2.0 or social networks (e.g. Willis, 2008; Casaló et al., 2009) do not include it. This work is also original in that it establishes a behavioural model that can be extrapolated to all Web 2.0 applications in the context of hotel websites.

Importance of user satisfaction

One of the most important theories on satisfaction is the Expectation Disconfirmation Theory proposed by Oliver (1980). Postconsumption customer satisfaction/dissatisfaction is generally defined as the “consumer’s response to the evaluation of the perceived discrepancy between prior expectations (or some other norm of performance) and the actual perceived performance of the product” (Tse and Wilton. 1988: p. 204). Likewise, Yi (1990) states that expectations are the predictions of consumers on the expected performance of the product. Al-Gahtani & King (1999) define satisfaction as emotional reactions of individuals toward the use of computer applications in general.

According to the Expectation Disconfirmation Theory, satisfaction with a product or service will be positive when the perceived performance of the product confirms the consumer’s expectations (Casaló et al., 2009). That is, the individual forms expectations about a particular product or service before purchasing it. Once the product or service has been purchased and consumed, the individual compares perceived performance to prior expectations. If perceived performance exceeds expectations, confirmation will be greater and the consumer will be satisfied and is likely to continue to use the product or service (positive disconfirmation). If the opposite occurs, that is, if the product performance falls short of prior expectations, the consumer will be dissatisfied and no longer use the product or service (negative disconfirmation). Finally, if the

results are consistent with prior expectations, consumers will adopt a neutral position (null confirmation or disconfirmation) (Bhattacharjee, 2001).

The main limitation to this theory is that it does not account for differences that may exist between pre-purchase and post-purchase expectations since prior expectations can arise as a result of advertising or the feedback of customers who have used the product, while post-purchase expectations are formed based on consumption. However, this theory is still used as a “framework of reference” for research on consumer satisfaction (Reyes et al., 2010). Regarding this conceptualization of the satisfaction (framework of reference), this construct can be interpreted in terms of a “specific transaction” as a post-choice evaluative judgment and/or an emotional answer of the consumer in a purchase, consumption or use determined; on the other hand, the “accumulative vision” evaluates the set of the user's experiences (e. g. Oliver, 1980; Giese y Cote, 2000; Vanhamme y Snelders, 2001). Presuming a focus of specific transaction, we will understand the satisfaction as the general attitude or behavioral variable that the consumer manifests by the experience accumulated of his or her purchase behavior (e.g. Fornell, 1992; Woodruff et al., 1993; Jones y Suh, 2000; Yu y Dean, 2001).

As regards the other models discussed in this manuscript, studies have examined satisfaction in relation to the variables of the TAM (ease of use, usefulness, attitude and intention to use) (e.g. Bhattacharjee, 2001; Ranaweera et al. 2005, Liao et al., 2007; Lin, 2008; Chang, 2009) but no study in the use of OTC. From the standpoint of our research topic, satisfaction can be defined as the user's affective reactions toward the use of OTC, particularly, toward the use of the information that can be found here.

Use of Travel 2.0 websites

Experience is gained through direct use or use in the past and has a positive impact on user beliefs when using a system (Hossain & Silva, 2009). There is evidence that more experienced people form beliefs and attitudes that last longer over time and are a better predictor of behavior than the beliefs and attitudes formed by less-experienced people. This may be due to the fact that the beliefs of experienced users are based on actual experience, while those of less-experienced users are based on indirect experience with the system or IT such as past experience obtained

from others in which word-of-mouth plays an important role in communication (Gefen et al., 2003, Muñoz-Leiva, 2008).

According Kim et al. (2008), previous experience is related to two dimensions: familiarity and experience. Familiarity has to do with all that the individual knows or perceives, while experience can be defined as the ability to solve task-related problems.

Several studies have shown that experience is directly related to the beliefs of the TAM and/or the use of a system or IT (Igbaria et al., 1995, Agarwal and Prasad, 1999; Al-Gahtani and King, 1999; Wöber and Gretzel, 2000). In the case of potential users of a system, tool or less commonly used services (i.e. hiring the services of a hotel or visiting a destination) the only way to examine actual usage is through the variable of memory of past behavior. To do so, some authors have employed the frequency of repetition of an action to reflect a habit or experience (Bargh, 1994; Zhang, 2005). In a similar manner, this paper considers experience in OTC as a variable to represent such usage.

RESEARCH HYPOTHESES RELATED TO THE PROPOSED BEHAVIORAL MODEL

A review of the relevant literature has shown that usefulness is a significant antecedent of other TAM model variables, among them: consumer attitude, consumer behavioral intention and actual behavior.

Usefulness-Attitude. Concretely, the relationship between perceived usefulness and attitude toward the use of a technological innovation has been demonstrated in various fields of study such as the context of websites (e.g. Moon & Kim, 2001; Sánchez & Roldán, 2005; Castañeda et al., 2007a), acceptance of online services including internet banking (e.g. Chau & Lai, 2003) and online tax payment systems (e.g. Wu & Cheng, 2005) or the use of Internet (e.g. Shih, 2004). From the point of view of tourism, this relationship has also been shown in several works, among them, Luque et al. (2007) and Castañeda et al. (2007b), who studied the use of the Internet to seek travel information and Kim et al. (2008), who focused on the acceptance of mobile devices by tourists. In the context of Web 2.0, the research results of Shin & Kim (2008) and Hossain and Silva (2009) also confirmed that when users perceive social networks and virtual

communities to be useful, they have a more positive attitude toward the use of and participation in these sites. Finally, research on Travel 2.0, specifically the use of travel social networks, has also found that tourists will have a more positive attitude toward these networking websites if they perceive that they are useful (Casaló et al., 2009, Huang et al., 2009; Korvenmaa, 2009). This brings us to the following hypothesis:

H1: The usefulness has a positive effect on attitudes toward Travel 2.0 websites.

Usefulness-Intention to use. The relationship between perceived usefulness and intention to use a technological innovation has also confirmed in subsequent research (e.g. Malhotra & Biscuit, 1999; Horton et al., 2001; Moon & Kim, 2001; Castañeda et al., 2007). Particularly, this relationship has also been empirically demonstrated in the use of e-commerce (e.g. Pavlou, 2003; Gefen et al., 2003), the intended use of a website (e.g. Moon & Kim, 2001, Sánchez & Roldán, 2005) and intention to revisit a website (e.g. Castañeda et al., 2007a). Furthermore, the influence has been shown with regard to the search for tourist information on the Internet (e.g. Luque et al., 2007; Castañeda et al., 2007b) and behavioral intention to participate in Web 2.0 virtual communities (Hossain & Silva, 2009). In addition, when tourists perceive that social networks and/or discussion forums are useful sites for finding travel information, they will have greater intention to use them (Huang et al., 2009; Casaló et al., 2009). We therefore establish the following research hypothesis:

H2: The usefulness has a positive effect on attitudes regarding intention to use Travel 2.0 websites.

The review of the literature on the TAM found that perceived ease of use is an antecedent of other variables of the model, namely perceived usefulness and attitude toward and intention to use a technological innovation.

Ease of use-usefulness. The effect of ease of use on perceived usefulness has been demonstrated in a large number of studies in different contexts. For example, to determine employees' satisfaction with a new information system in the healthcare field (Chang, 2009), the use of a

new collaborative technology for distance learning (Lee et al., 2003), the use of online services (Liao et al., 2007; Chau & Lai, 2003) and the acceptance of e-commerce (Sánchez & Roldán, 2005). Finally, this relationship has been demonstrated empirically in the tourism sector with regard to the search for tourist information on the Internet (Luque et al., 2007; Castañeda et al., 2007b; Ryan & Rao, 2008). It has also been shown in the context of Web 2.0 in studies on virtual communities (Lin, 2008; Hossain & Silva, 2009). In the context of OTC, the influence of ease of use on perceived usefulness indicates that when users find OTC easy to use, information about a destination and/or hotel provided by other people is perceived to be quite useful. Hence, we establish that:

H3: The ease of use has a positive effect on the perceived usefulness of Travel 2.0 websites.

Ease of use-Attitude. The relationship between ease of use and attitude has been empirically demonstrated in several studies subsequent to the TAM (e.g. Malhotra & Biscuit, 1999; Moon & Kim, 2001; Lu et al., 2003; Shih, 2004; Chau & Lai, 2003; Sánchez & Roldán, 2005; Wu & Chen, 2009). This effect has also been verified regarding the acceptance of Web 2.0 applications such as virtual communities and blogs (Hsu & Lin, 2008; Hossain & Silva, 2009). If we aggregate the results concerning the tourism sector and the Web 2.0 context, we can conclude that tourists will have a more positive attitude toward interactive travel systems when they perceive that such systems are not difficult to use (Korvenmaa, 2009); thus giving rise to the following research hypothesis:

H4: The ease of use has a positive effect on the attitude of tourists towards the use of Travel 2.0 websites.

Ease of use-Intention to use. Although most studies find that perceived usefulness has a greater influence on the acceptance of new technology than perceived ease of use, Chau & Lai (2003) demonstrated that the latter construct is the most significant determinant of acceptance by online banking users for example. According to previous research, when users perceive an information

or technological system to be easy to use, their intention to use it will be greater (e.g. Pavlou, 2003; Gefen et al., 2003). In other cases, both variables (perceived usefulness and ease of use) have also been shown to have a similar influence on the intention to use new online management programs in an organizational setting (Hernández et al., 2006). If we extend this relationship to Travel 2.0, it can be established that:

H5: The ease of use has a positive effect on tourists' intention to use Travel 2.0 websites.

Ease of use-Trust. The review of the literature on e-commerce has shown that trust has a positive effect on ease of use. If one has greater trust in the retailer's website, the transaction is easier to make because the buyer feels that there is less need to understand, or control the situation (Chircu et al., 2000; Pavlou, 2003). However, it has also been shown that the easier a website is to use, the greater the trust in it (Koufaris & Sosa, 2004; Flavián et al., 2004). Fogg et al. (2001) also argued that perceived ease of use is one of the most important factors in increasing perceived credibility. User-friendly websites are therefore perceived as being more reliable. In the case of OTC, it is more logical to establish a second relationship (perceived ease of use on trust) since if users perceive that these websites are easy to use, they will feel that they are in control of the situation and understand all the content posted on them, thus increasing user trust in the site. Our second hypothesis is therefore as follows:

H6: The ease of use of has a positive effect on trust in Travel 2.0 websites.

Attitude-Intention to use. The relationship between attitude toward a technological innovation and the intention to use it has been empirically supported by research in different fields of study, among them the adoption of an information system (Davis et al., 1989; Taylor and Todd, 1995; Malhotra & Galleta, 1999), wireless Internet connections in mobile devices (e.g. Lu et al., 2003) or a website (e.g. Sánchez & Roldán, 2005), the acceptance of users to participate in a social network (Shim & Kim, 2008) or a virtual community (Hossain & Silva, 2009), and finally, the use of social networks by tourists when searching for travel information (Huang et al., 2009; Korvenmaa, 2009; Casaló et al., 2009). Thus, if tourists have a positive attitude toward

interactive travel websites, they will be interested in using them in the future to find information about tourism products. Hence:

H7: Attitude has a positive effect on tourists' intention to use Travel 2.0 websites.

Several studies have demonstrated the relationship between the trust construct and the TAM variables, especially studies focusing on e-commerce. These studies have shown that online shopping services not only depend on perceived ease of use and usefulness, but also to a great extent on consumer trust in online vendors (Gefen & Straub, 2002; Gefen et al. 2003).

Trust-usefulness. According to previous research, trust positively influences the perceived usefulness of e-commerce. In other words, the greater the trust in the retailer's website, the more useful consumers will perceive the site to be. As a result, consumers will be expected to complete the checkout process (Chircu et al., 2000; Pavlou, 2003; Gefen, 2004). Hence:

H8: Trust has a positive effect on the perceived usefulness of Travel 2.0 websites.

Trust-Attitude. In the context of travel social networks in particular the Casaló et al.'s (2009) study has revealed that trust has a positive influence not only on perceived usefulness but also on consumer attitude toward the information that can be obtained on these websites. We therefore establish the following hypothesis:

H9: Trust has a positive effect on attitude towards Travel 2.0 websites.

Trust-Intention to use. Trust in online vendors and retail websites has a significant influence on Internet purchase intent (e.g. Gefen et al., 2003; Pavlou, 2003). In this regard, it has been shown that trust in a given website is positively associated to intention to use the Internet as a future shopping channel (Izquierdo et al., 2009). On the other hand, studies on the acceptance of Web 2.0 websites have found a relationship between the trust construct and the TAM variables. For example, Ridings et al. (2002) found that the higher the level of trust in a virtual community, the greater the intention to share information and accept the information provided by other members of the virtual community. In this context, the results of the work by Casal et al. (2009) reveal that

trust in travel networks has a positive influence on consumer intention to follow advice obtained from the network. Therefore:

H10: Trust has a positive effect on intention to use Travel 2.0 websites.

Satisfaction-Actual use. In addition, it was found that satisfaction directly influences users' actual behavior (e.g. Chang, 2009). Presuming a focus of specific transaction, we will understand the satisfaction as affective reactions or a behavioral variable that the consumer manifests by the experience accumulated of his or her purchase behavior (e.g. Fornell, 1992; Woodruff, et al., 1993; Jones y Suh, 2000; Yu y Dean, 2001) in the same level than the intention. For these reasons we include satisfaction as a predecessor variable of actual use of OTC. Hence:

H11: Satisfaction has a positive effect on actual use of Travel 2.0 websites.

Intention-use. Finally, general theories of behavior, among them, the Theory of Reasoned Action, the Theory of Planned Behavior and TAM, posit that intended use is the best predictor of actual behavior (e.g. Fishbein & Ajzen, 1975; Pavlou, 2003; Zhang, 2005; Metzger, 2006). Particularly, the intention of use is the best predictor of actual behavior toward a retail website (Pavlou, 2003; Zhang, 2005; Metzger, 2006). Therefore:

H12: Intention to use has a positive effect on actual use of Travel 2.0 websites.

The relationships established in the above research hypotheses are summarized in Table 1, configuring an extended version of the TAM: The Travel 2.0 Websites Acceptance Model (OTCAM).

Table 1. Technical specifications and sample characteristics

Hypotheses
H1: Usefulness → Attitude
H2: Usefulness → Intention to use
H3: Ease of use → Usefulness
H4: Ease of use → Attitude
H5: Ease of use → Intention to use
H6: Ease of use → Trust
H7: Attitude → Intention to use
H8: Trust → Usefulness
H9: Trust → Attitude

Hypotheses
H10: Trust → Intention to use
H11: Satisfaction → Actual use
H12: Intention to use → Actual use

METHODOLOGY: SCOPE OF STUDY, DATA COLLECTION AND QUALITY OF THE MEASUREMENT SCALES

Experimental design: Online travel communities selected and visits to websites

According to the survey conducted at the *World Travel Market Trade Fair 2010* held in London, 36% of tourists from the UK used social networks as a source of information for making travel arrangements. The main sites used were Tripadvisor (66%) and Facebook (34%) (Hosteltur, 2010). Additionally, the survey found that Facebook is the world's largest social network in terms of volume of users and level of participation, attracting more than 850 million users in just seven years (Facebook, 2012). In addition, Tripadvisor is the most popular travel community in the world with over 40 million monthly travellers, 20 million registered users and more than 50 million reviews and opinions from real travellers around the world (Tripadvisor, 2012).

These reasons justify the decision to study the following two OTC: a Tripadvisor community and a Facebook profile. The specific tourism product that has been chosen for study is the *Hotel Botanico & Oriental Spa Garden* five-star hotel of Tenerife in the Canary Islands (Spain).

We decided to focus our study on this particular hotel for two reasons. First, because this is the first hotel in the Canary Islands belonging to the prestigious "The Leading Hotels of the World" chain, which is synonymous with the highest quality service; and secondly, due to the presence of this hotel in Web 2.0 platforms such as Facebook and Tripadvisor, among others, where comments are posted about the hotel.

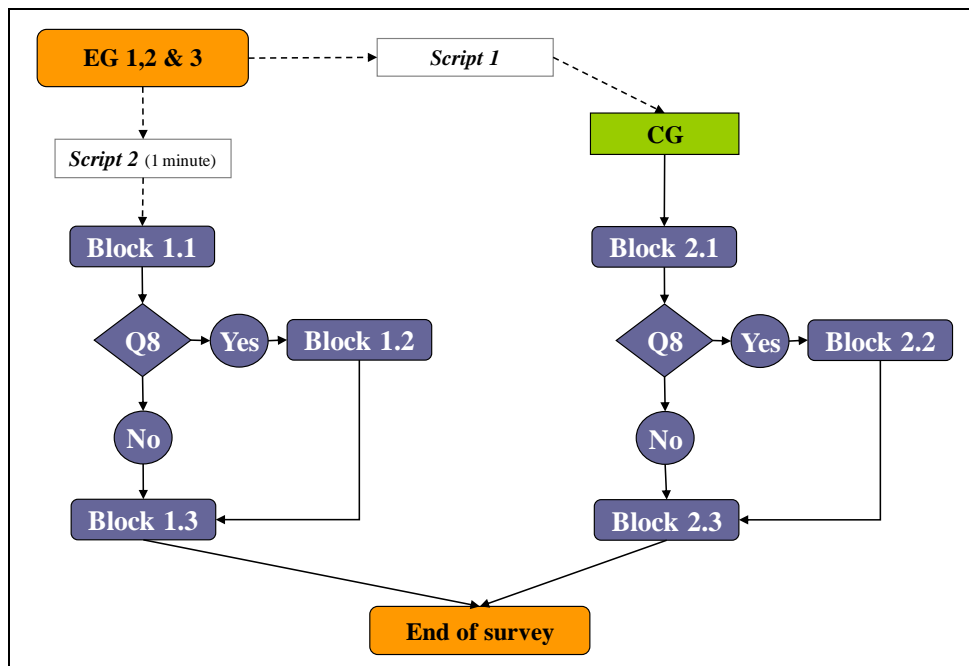
The sample frame was divided into three scenarios for respondents to visit. These scenarios gave rise to other experimental groups:

1. **Control group (CG).** Respondents who participated directly in the survey without previously viewing the websites (control group). This group permitted to verify additionally that the variables of satisfaction and intention to use determine actual use of OTC by means of general questions (social networks, communities, hotel website, etc.).

2. **Experimental group 1 (EG1)**. Respondents who had viewed the hotel's **Facebook profile** before participating in the survey (see Appendix 1 or http://webcim.ugr.es/design2_f.htm).
3. **Experimental group 2 (EG2)**. Respondents who first visited the **Tripadvisor** website containing comments about the hotel (see Appendix 1 or http://webcim.ugr.es/design3_t.htm).

Respondents were allowed to freely browse the different options available (menus, links, multimedia displays, etc.) on the two sites selected. Visits or web scenarios included two Java codes (scripts) as described below (Figure 3). The first code sent the web questionnaire to members of the control group if their browser did not support iframe tags or they were disabled. The second code automatically sent the web questionnaire to the experimental groups 60 seconds after they began to browse the website. In the event that the browser blocked the Java script, a button "Go to the survey" could be operated manually to activate the questionnaire. The database used to send the survey invitations randomly assigned the programmed scenarios to the experimental units. The final structure of the questionnaire is shown in Figure 1.

Figure 1: Structure of visits and Web questionnaire



Fieldwork and sampling procedure

Participation in the survey was voluntary. Research data was collected from September 8th to September 28th 2010 by means of a web survey to which a total of 3,269 regular Internet users (sample frame), who connect to Internet more than three times a week.

The total number of valid questionnaires was 452 ($n_{CG}=164$; $n_{EG1}=140$; $n_{EG2}=148$). The final response or retention rate¹ after sending the first invitation and a second reminder was 18.84%.

The sampling error in each group ranged from 7.65% to 8.28% in the estimation of a proportion (see Table 2).

Table 2. Technical specifications and sample characteristics

Population	Population of Spanish tourists that use the Internet as a source of information; habitual Internet users
Sampling type	Simple random sampling
Sample size GC	164 valid cases
Sample size EG1 (Facebook)	140 valid cases
Sample size EG2 (Tripadvisor)	148 valid cases
Sample error GG*	7.65%
Sample error EG1*	8.28%
Sample error EG2*	8.06%
Date of fieldwork	September 8 th -28 th , 2010

* For the estimation of a proportion where $P=Q=0.5$ and a confidence level of 95% according to the principles of simple random sampling.

Structure of the questionnaire

After 60 seconds of free browsing time, respondents were administered a web questionnaire. A block structure consisting of a total of 17 items ranking from 1 (strongly disagree) to 5 (strongly agree) was used. The full text of the questions is provided in Appendix 4.

A mandatory filter question (Q8) permitted us to control whether or not an individual had interacted (frequency of use) with different applications (social networks discussion forums, and destination websites) that allow users to provide feedback before continuing or not onto the second block.

By evaluating two different websites (scenarios) across two different samples and randomizing the experimental units, the causal relationships between the population of Internet users and potential travelers to the hotel can be generalized. Experiments of this kind conducted in a

¹ Defined as the retention rate or percentage of participants reaching the last block of the survey (Göritz, 2006; Muñoz-Leiva et al., 2010; Sánchez-Fernández et al., 2010).

natural environment (field experiments) have high external validity (Luque, 1997: 153). With regard to internal validity, 1) several factors taken into account in the research design such as time devoted to browsing, 2) the same object for comparison (the Hotel Botanico) or 3) the equivalence of measurement scales across different scenarios, among others, guarantee the suitability of the design for drawing accurate conclusions regarding the effects of the experiment.

Development of the measurement scales

To measure the constructs, scales used by other authors in previous research were employed (see Appendix 4). Specifically, to measure perceived ease of use of Travel 2.0 websites o applications (consisting of four items) we adapted the scales previously used by Davis (1989), Venkatesh & Davis (2000) and Sánchez & Roldan (2005). The perceived usefulness scale (consisting of four questions) was adapted from the work of Pavlou (2003) and Castaneda et al. (2007b). The trust scale (4 items) was adapted from the scales of Flavián et al. (2004) and Muñoz-Leiva et al. (2010). The scale of attitude toward OTC (composed of three items) was adapted from the study by Castro et al. (2007b). The intention to use scale (consisting of one item) was adapted from the work by Sánchez & Roldan (2005). Finally, the classic satisfaction scale (consisting of one item) was derived from Flavián et al. (2004) and Abdinnour-Helm et al. (2005).

To verify the suitability of the measurement scales, the reliability and validity of the scales were analyzed by means of both exploratory (SPSS 17.0) and confirmatory (AMOS 18) methods.

DATA ANALYSIS

Exploratory and confirmatory analysis

The Cronbachs's *alpha* indicator was first used to measure the reliability of the scales, with 0.7 as the reference value (Nunnally, 1978). All the variables obtained very good values in the two groups or subsamples ($\alpha > 0.8$).

An exploratory factor analysis of principal components was then performed to assess the degree of scale unidimensionality. In this case, we found that the principal component analysis was appropriate for the variables under study because: 1) the proportion of variance that the variables

have in common (KMO) always exceeds the value of 0.5, therefore indicating that the sampling in the two groups (Facebook and TripAdvisor) is adequate; 2) Bartlett's test of sphericity demonstrated a significant value (sign. = 0.000) in the two groups, therefore the null hypothesis of no difference between the correlation matrix and the identity matrix is rejected; and 3) the correlation coefficients of the anti-image correlation matrix showed low values in all two cases. Therefore, we conclude that the measurement scales have a unidimensional structure.

To test the convergent and divergent validity of the scales, a confirmatory factor analysis (CFA) was performed. In this analysis, the items that contributed least to the explanatory power of the model were eliminated ($R^2 < 0.5$). Convergent validity was evaluated by means of the factor loadings of the indicators. In our work we demonstrate that the coefficients are significantly different from zero, and that the loadings between latent and observed variables are high in all cases ($\beta > 0.7$). Consequently, we can say that the latent variables adequately explain the observed variables (Bollen, 1989; Hair, 1995).

With regard to discriminant validity, the variances were found to be significantly different from zero. Moreover, the correlation between each pair of scales did not exceed 0.8. Given the weak relationship among the constructs, we can therefore confirm that there are five constructs in the two models proposed.

The reliability of the scales can again be evaluated from a series of indicators drawn from the confirmatory analysis. The standard compound reliability (SCR) and the average variance explained (AVE) exceed the threshold used as a reference at 0.7 and 0.5, respectively, as well as other indicators of overall fit for the measurement model (Bollen, 1989; Hair, 1995).

Analysis of structural models

After analyzing the reliability and validity of the measurement scales, the research hypotheses based on the review of the literature were tested. To do so, a Structural Equation Modeling (SEM) was developed for each experimental group. Considering the absence of normality of the variables, we opted for the Maximum Likelihood (ML) estimation method and bootstrapping technique (or bootstrap learning samples) for 1,000 consecutive steps and a significance level of

95%. The ML is preferable in the case of small samples, as opposed to Generalized or Weighted Least Squares (West et al., 1995). In the bootstrapping technique, we use the Bollen-Stine's corrected p-value and through re-sampling this technique permit correct the standard error of the constructs, in absence of normality.

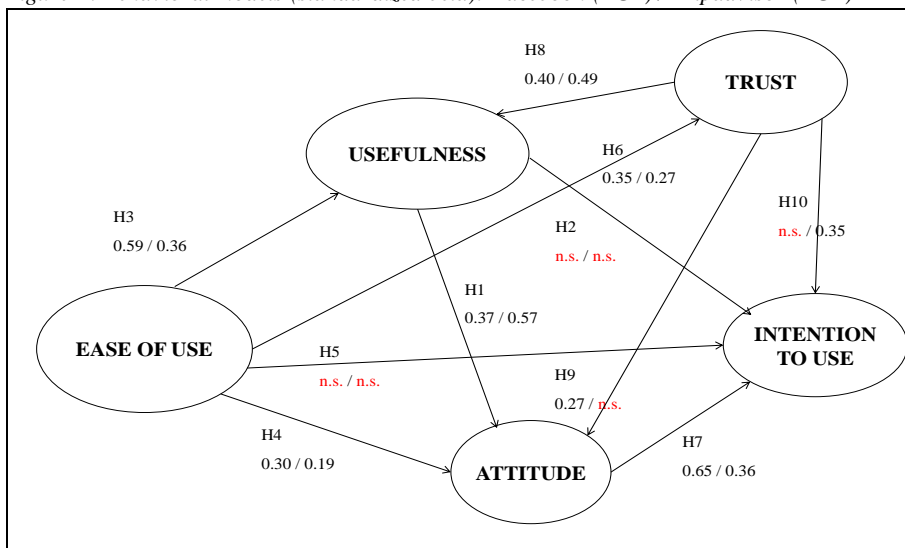
Before evaluating the two models in further depth and examining the differences among them, the overall goodness of fit was verified to be satisfactory as the values of the goodness of fit indicators were within the levels recommended in the literature (Bollen, 1989; Li and Lai, 2008; Muñoz-Leiva, 2008): CFI, IFI, CFI > 0.9, GFI, AGFI > 0.8, RMSEA < 0.08 (see Table 3).

Table 3: Goodness-of-fit indicators in structural model

Coefficients	RMSEA	NFI	CFI	IFI	GFI	AGFI
Facebook (EG1)	0.079	0.920	0.960	0.961	0.904	0.845
Tripadvisor (EG2)	0.075	0.937	0.970	0.971	0.918	0.850

The Facebook and Tripadvisor behavioral model is shown in Figure 4.

Figure 2: Behavioral models (standardized beta): Facebook (EG1) / Tripadvisor (EG2)



n.s.: not significant

Specifically, the Facebook behavioural model rejected hypotheses H2, H5 and H10. No empirical evidence was found to reject the remaining hypotheses. Specifically, the relationship between trust and usefulness proves to be very significant for tourists who use the Hotel Botanico's Facebook profile (H8). Furthermore, the relationship between perceived ease of use and trust (H6) is also fulfilled; trust has a positive influence on attitude (H9); and this construct

has a positive influence on intention to use (H7). The same relationships are found with regards to Tripadvisor.

As with the Facebook model, the Tripadvisor behavioural model rejected the hypotheses that usefulness and ease of use have a positive influence on intention to use (H2 and H5). The model also rejected the hypothesis on the relationship between trust and attitude (H9). However, the rest of the hypotheses were not rejected. For example, the positive relationship between trust and intention to use (H10) was fulfilled for Tripadvisor.

Determinants of the acceptance of Travel 2.0 websites

After reviewing the scientific literature, we have found that satisfaction positively can determinate the use of e-commerce. Likewise, general theories of behavior, among them the Theory of Reasoned Action and the Theory of Planned Behavior, posit that intended use is the best predictor of actual behavior (Fishbein & Ajzen, 1975; Pavlou, 2003; Zhang, 2005; Metzger, 2006).

Some authors have used the frequency of repetition of an action to reflect a habit or experience (e.g. Bargh, 1994; Zhang, 2005). Therefore, intention to use and satisfaction are expected to be the main determinants of actual use of OTC, which is measured through usage experience.

Due to the nature of the dependent variable (categorical) in the data analysis, a multinomial logistic regression was performed. In this context, the established relationships are a regression equation with one polynomial dependent variable (experience) and several metric-type independent variables (intention to use and satisfaction). Specifically, actual usage is measured by means of the average frequency of use of OTC. This last visit frequency had to be categorized based on the percentiles 33 and 66. The intention to use and satisfaction with OTC were included as (co)variables.

The likelihood ratio tests of the final model indicate the significant independent variables in the model. In this case the model accepted the two variables introduced with significance lower than

0.05 (intention: $\chi_1 = 12.19$, sign. = 0.002 / satisfaction: $\chi_2 = 26.53$, sign. = 0.000). Moreover, the classification table shows that the model correctly classified 55.1% of the cases (*Hit ratio*) (see Appendix 3) and the model is valuable.

Finally, the table of parameter estimates table (Table 5) shows the significance value of the dependent variable for each category. The Wald statistic indicates if the differences in the beta coefficients between groups are significant or not for each variable/category. Satisfaction is found to have a significant positive effect in the case of experienced users (B = 0.71, Wald = 18.83, sign. = 0.000) and to be less pronounced for users who have sometimes used OTC when preparing a trip (B = 0.28, Wald = 2.82, sign. = 0.093) when compared to those who have never or rarely used these travel websites (inexperienced users). In this case, hypothesis H11 is accepted in part, and is fulfilled only in the case of experienced users.

Table 5: Estimations of parameters (CG)

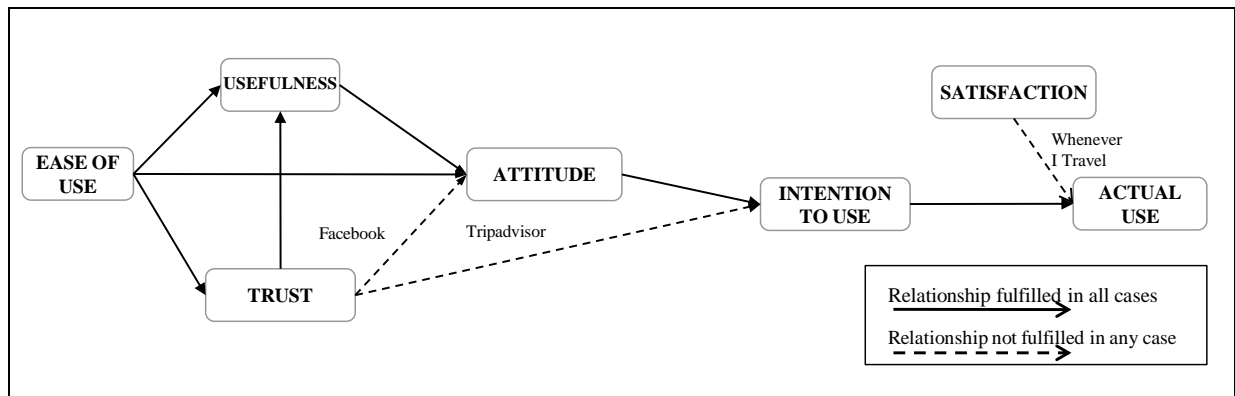
Usage experience (Frequency) ^(a)	Factor	B	SE	Wald	df	Sign.
Sometimes	Intersection	-1.38	0.71	3.80	1	0.052
	Intention	0.50	0.16	9.60	1	0.002
	Satisfaction	0.28	0.16	2.82	1	0.093
Whenever I travel	Intersection	-2.67	0.71	14.05	1	0.000
	Intention	0.54	0.16	12.08	1	0.001
	Satisfaction	0.71	0.16	18.83	1	0.000

a. Reference category: Never or rarely

Additionally, it can be seen that intention to use has a significant positive effect in the case of both individuals who sometimes use these OTC (B = 0.50, Wald = 9.60, sign. = 0.002) and experienced users (B = 0.54, Wald = 12.08, sign. = 0.001) and compared to inexperienced users. Therefore, there is no empirical evidence to reject hypothesis H12.

To summarize, the underlying model (TAM, in black) and the extended model (OTCAM) are shown in Figure 3.

Figure 3: Extended model underlying the online travel communities: The OTCAM model



Discussion of results

The development of Web 2.0 has led to significant changes in tourist behavior. Traditionally, travelers used the Internet to prepare their trips with the sole purpose of obtaining general information on certain destinations and/or hotels posted on official websites. However, following the emergence of a new generation of travel webs applications such as travel virtual communities, social networks, and others, travelers not only have access to general information about travel, but can also form an image of the destination and/or hotel they wish to visit thanks to the content posted by other tourists (experiences, photos, videos, etc.). For this reason, this paper has attempted to analyze the behavior of tourists with regard to the different OTC.

Given this changing context, the first objective of the study was to evaluate which variables influence the behavioral intention of tourists to use OTC. To this end, we have developed a behavioral model based on the original Technology Acceptance Model (TAM) which includes a variable of trust. The results of the study are consistent with those in the literature, showing that the original TAM is a robust and parsimonious underlying model for the study of OTC. Furthermore the relationship between perceived ease of use and trust is fulfilled in the two applications studied. In this sense, users will trust in or rely more on OTC that they perceive to be easy to use.

The causal relationship between trust and perceived usefulness proves to be very significant for tourists who use the Facebook profile and the Tripadvisor page of the Hotel Botanico. It can therefore be said that, in general, when tourists trust the content posted by other users

(comments, travel experiences, videos, etc.), they believe that these sites are useful for preparing their trips.

The previous studies state that intention to use is influenced not only by attitude, but also by ease of use and usefulness. In the case of Facebook and Tripadvisor, however, intention to use is only determined by attitude. This may be because although many tourists feel that virtual communities and travel social networks are easy to use and useful, they prefer to use other OTC such as blogs, which post the experiences of other travelers as well as a greater variety and amount of information.

Nonetheless, certain differences in tourist behavior have also been found depending on the online travel community used:

- First, trust has a positive influence on the attitude of tourists in the case of Facebook, but not in the case of Tripadvisor. This may be because, although tourists rely on feedback from other users in this virtual community, they do not have a positive attitude toward the website itself and instead prefer to use other applications where they can find the opinions and experiences of other travelers as well as other types of information such as flight information, hotels, travel competitions or reviews from friends; a fact that influences their choice of a destination and/or hotel.
- Secondly, the positive relationship between trust and intention to use was fulfilled for Tripadvisor, but rejected for Facebook. This may be due to the fact that many tourists do not rely on feedback from other travelers posted on social networks as it can be manipulated by the company in question (in the case of positive feedback) or posted by the competition (negative comments). However, this does not prevent tourists from showing intention to use travel social networks because the information on these sites may aid them in finding more reliable information on other websites.

Furthermore, we studied which variables (satisfaction and/or intention) determine the actual use of OTC. To do so, we developed a multinomial logistic regression where the dependent variable was user experience with these sites and satisfaction and intention to use were independent variables. The results indicate that among experienced users (“adprosumers”) of these websites,

both satisfaction and intention to use have a positive effect compared to novice users. For users who have sometimes used these sites, intention has a positive effect compared to inexperienced users. In this case, satisfaction was found a very weak effect on actual use.

In conclusion, we can say that intention to use and satisfaction can be employed to make future estimations on the adoption of a Web 2.0 travel website by users. Hence, the predictive validity of the scales of intention to use and satisfaction has been confirmed.

Management implications

Today, many companies use Web 2.0 as a communication strategy. These OTC will not only increase the number of travelers to the company's official website, but also the company's revenues.

First, it is essential that companies be present in different communities such as Facebook profiles, Tripadvisor, and others. These platforms can serve as a complement to their marketing and communication actions and ensure that such actions are in line with the current demands of clients. In this sense, it is important that companies have a profile in different social networks (particularly Facebook as it is the most well-known and widely-used tool) so that they can interact directly with their clients and gain information about their needs and concerns. These social networks can also be used by hotels to post their main offers and ask users about their experiences in the hotel. This type of interaction permits hotels to learn what image tourists have of the hotel as well as writing quality articles that may be posted later on the websites.

In addition, hotels must take into account the comments posted by users on the Tripadvisor website. The negative feedback and complaints of clients in particular can serve as a basis for future measures and actions to improve overall service.

As the results of this article have shown, OTC must be perceived as being easy to use and useful if users are to have a positive attitude toward them and a greater intention to use them. The study has also revealed that when these communities are easy to use, users will trust the content published in them more highly. For this reason, it is important that tourist company websites

(included blogs or discussion forums) post the full range of content travelers might need when traveling (travel tips, interesting facts, current news on travel and hotels, travel guides, experiences of other travelers, etc.) in a clear and orderly manner so that users perceive the website to be useful in searching for information on specific destinations and/or hotels. By doing so, users will have a sense of ‘belonging’ to the hotel, travel agency or tourism enterprise and visit the company’s official website directly to book flights or holidays, make travel arrangements, or acquire a trip or excursion.

Strengths of the study and future line of research

With regard to methodological issues, it is important to note that the field experiment in a natural environment has a high external validity. Additionally, it is possible to generalize the causal relationships found to the population of Internet users by simultaneously evaluating two OTC among two different samples and by the careful random assignation of the units to the experimental groups. With regard to internal validity, it is important to highlight the thoroughness and care taken in establishing the experimental conditions (time, comparison of the same object of study, and equivalence of measurement scales). By doing so, we have ensured that the conclusions drawn provide an accurate account of the effects produced in the experiment. This approach centered in the experimental conditions allows mitigating the limitation of using a single context (specific hotel). Future researches could analyze simultaneously different hotels.

Finally, given that Web 2.0 applications are based on the socialization and participation of users, it is essential to take into account a number of variables that have not been analyzed in this study, particularly subjective or social norms such as the extent to which users perceive that others approve of their involvement in online travel websites, the sense of belonging to a community and perceived enjoyment as many people use these tools not only to search for information but also for entertainment and fun. An interesting future line of research could therefore be aimed at developing a behavioral model that includes these variables in the OTC setting.

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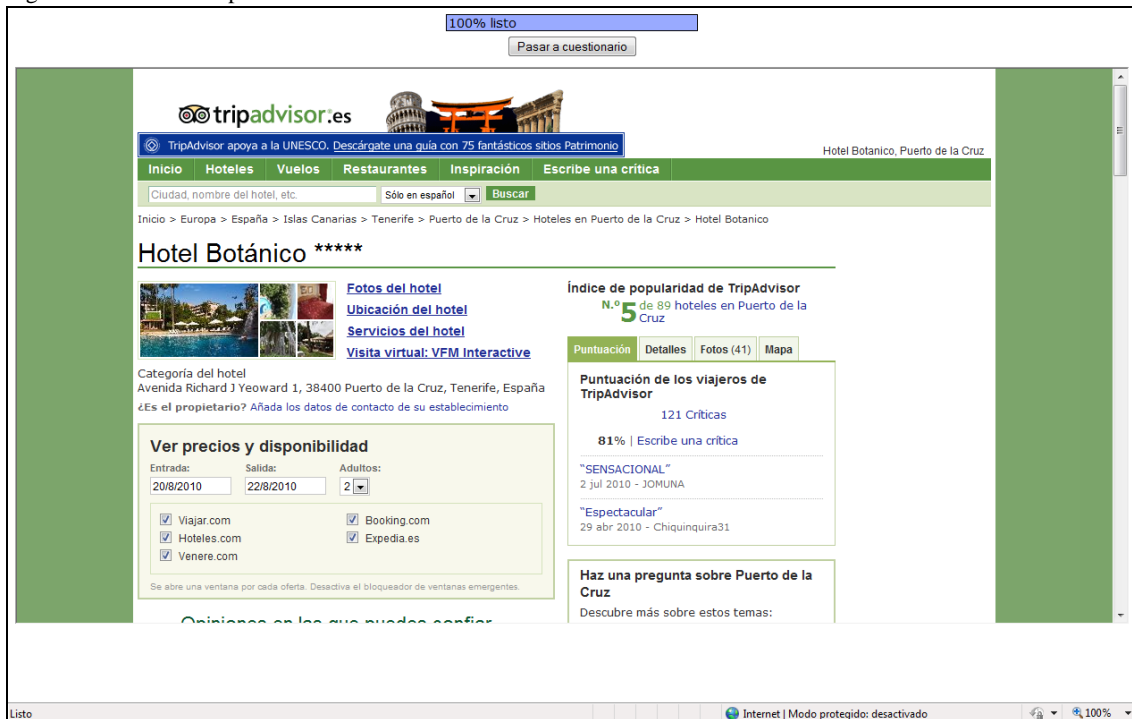
APPENDIXES

Appendix 1: Experimental scenarios

Figure A1.1: EG1 - Facebook



Figure A1.2: EG2 - Tripadvisor



Appendix 2: Models proposed: Partial Travel 2.0 Websites Acceptance Models

Table A2.1. Causal relationships of the websites studied

Website	Causal relationship	Non-Stand. beta	Stand. error	Critical ratio	sign.
Facebook (EG1)	H1: Usef. → Att.	0.37	0.10	3.69	0.000
	H2: Usef. → Int.use	0.34	0.18	1.88	0.060
	H3: Ease use → Usef.	0.60	0.11	5.45	0.000
	H4: Ease use → Att.	0.30	0.10	3.15	0.002
	H5: Ease use → Int. use	-0.14	0.17	-0.84	0.402
	H6: Ease use → Trust	0.35	0.08	4.34	0.000
	H7: Att. → Int. use	0.65	0.19	3.35	0.000
	H8: Trust → Usef.	0.40	0.12	3.25	0.001
	H9: Trust → Att.	0.28	0.10	2.82	0.005
	H10: Trust → Int. use	0.11	0.17	0.64	0.521
Tripadvisor (EG2)	H1: Usef. → Att.	0.57	0.10	5.62	0.000
	H2: Usef. → Int.use	0.25	0.18	1.39	0.164
	H3: Ease use → Usef.	0.36	0.09	4.08	0.000
	H4: Ease use → Att.	0.19	0.07	2.78	0.005
	H5: Ease use → Int. use	-0.003	0.11	-0.03	0.980
	H6: Ease use → Trust	0.27	0.06	4.35	0.000
	H7: Att. → Int. use	0.36	0.17	2.17	0.030
	H8: Trust → Usef.	0.49	0.14	3.48	0.000
	H9: Trust → Att.	0.12	0.11	1.07	0.286
	H10: Trust → Int. use	0.35	0.18	1.99	0.047

Appendix 3: Multinomial logistic regression (CG)

Table A3.1. Summary of cases processing

		N	Percentage
Experience of use (Frequency)	Never o rarely	66	11.3%
	Sometimes	209	33.8%
	Whenever I travel	327	55.0%
Valid		602	100.0%
Missing		15	
Total		617	
Subpopulation		67(a)	

a. The dependent variable only has an observed value in 16 (23.9%) subpopulations

Table A3.2. Likelihood tests

Effect	Model Fit Criterion	Likelihood tests		
	-2 log likelihood of reduced model	Chi-Squared	d.f.	Sign.
Intersection	339.24	16.27	2	0.000
Intention of use	335.16	12.19	2	0.002
Satisfaction	349.51	26.53	2	0.000

Table A3.2. Classification table

Observed	Predicted			
	Never o rarely	Sometimes	Whenever I travel	Correct percentage
Never o rarely	2	14	50	3.0%
Sometimes	1	19	189	9.1%
Whenever I travel	1	15	311	95.1%
Global percentage	0.7%	8.0%	91.4%	55.1%

Appendix 4: Questionnaire

Respond to the following statements on a scale of 1-5 (where 1 is completely disagree and 5 is completely agree):	Completely disagree					Completely agree				
The website you just visited [Facebook/Tripadvisor] is clear and easy to understand.	①	②	③	④	⑤					
Learning to use [Facebook/Tripadvisor] is easy for me.	①	②	③	④	⑤					
It is easy for me to become skillful at using	①	②	③	④	⑤					

Respond to the following statements on a scale of 1-5 (where 1 is completely disagree and 5 is completely agree):	Completely disagree					Completely agree
[Facebook/Tripadvisor].						
Overall, I find the [Facebook/Tripadvisor] easy to use.	①	②	③	④	⑤	
Using [Facebook/Tripadvisor].	①	②	③	④	⑤	
Using [Facebook/Tripadvisor] enables me to search for information about this hotel more quickly.	①	②	③	④	⑤	
Overall, [Facebook/Tripadvisor] is useful when I am looking for information about the hotel.	①	②	③	④	⑤	
The information offered on [Facebook/Tripadvisor] is reliable and authentic.	①	②	③	④	⑤	
False statements are never made on [Facebook/Tripadvisor].	①	②	③	④	⑤	
[Facebook/Tripadvisor] provides honest and clear information to users.	①	②	③	④	⑤	
Overall, I think [Facebook/Tripadvisor] is reliable.	①	②	③	④	⑤	
Given that I have access to [Facebook/Tripadvisor], I will try to use it in the future to look for information about a hotel.	①	②	③	④	⑤	

In general, your opinion about [FACEBOOK/TRIPADVISOR] is...						
Bad	①	②	③	④	⑤	Good
Unfavorable	①	②	③	④	⑤	Favorable
Negative	①	②	③	④	⑤	Positive

Think about when you have had to make travel arrangements. Respond to the following statements on a scale of 1-5 (where 1 is completely disagree and 5 is completely agree):	Completely disagree					Completely agree
In general, I'm satisfied with the information on these websites	①	②	③	④	⑤	

Have you ever shared your travel experiences, given recommendations or posted opinions on travel websites (social networks, virtual communities, hotel websites, etc.) for other users to read?				
Never	Rarely	Sometimes	Whenever I travel	DK/NA
①	②	③	④	⑤