Determinants of customer retention in virtual environments. The role of perceived risk in a tourism services context

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Abstract The aim of this paper is to determine whether perceived risk moderates the antecedents of customer retention in online travel purchasing or, whether, on the contrary, those antecedents explain predisposition to repeat purchase from a website, whatever the level of risk. The impact of perceived risk as a moderator of the influence of website reputation, consumer trust in the site and user satisfaction with the shopping experience on repurchase intention was tested through structural equation modelling techniques and multigroup analysis on a sample of 455 Internet purchasers of tourst accommodation. Data analysis confirms the role of satisfaction and website reputation as builders of online trust and, through that trust, as determinant factors in repurchase intention. Perceived purchase risk moderates the relationship between trust and satisfaction, so that when perceived risk is greater, that relationship is more intense.

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PALABRAS CLAVE
Riesgo percibido; Retención de clientes; Satisfacción; Confianza; Reputación

Determinantes de la retención de clientes en los entornos virtuales. El rol del riesgo percibido en el contexto de los servicios turísticos

Resumen El objetivo de este artículo es determinar si el riesgo percibido modera los antecedentes de la retención de clientes en las compras virtuales, o si por el contrario, o si, por el contrario, estos antecedentes explican la predisposición a repetir la compra en un sitio web 2.0, cualquiera que sea el nivel de riesgo. El impacto del riesgo percibido como moderador de la influencia de la reputación del sitio web, la confianza del consumidor en el sitio

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web y la satisfacción del usuario con la experiencia de compra en la intención de recompra fue analizado mediante técnicas de modelización de ecuaciones estructurales y análisis multigrupo con una muestra de 455 compradores de alojamiento turístico. El análisis de datos confirma el papel de la satisfacción y la reputación de la web como constructores de confianza online y, a través de esa confianza, como factores determinantes en la intención de recompra. El riesgo percibido de compra modera la relación entre confianza y satisfacción, por lo que cuando el riesgo percibido es mayor, esa relación es más intensa.

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Introduction

As a major source of electronic word of mouth (e-WOM) information, the Internet has transformed how people search and buy products and services (Serra Cantallops & Salvi, 2014; Sparks, So, & Bradley, 2016). Rapidly increasing global eCommerce makes many industries devote their efforts to attract online consumer attention. According to the last report on B2B in Spain (ONTSI, 2016), the estimated total volume of eCommerce in 2015 was 20,745 million euros, 27.5% higher than the previous year, with 20.4 million online shoppers by the beginning of 2016 (64.3% of all Internet users). Tourism products are at the forefront of products purchased over the Internet in Spain; mainly transport tickets (43.3% of Internet users in 2013), show tickets (40.4%) and accommodation (39.8%) (ONTSI, 2016). This is a worldwide trend because tourism is considered one of the most important industries in global online commerce (Tseng, 2017). Various authors have pointed out that the tourism sector has a number of characteristics that make it ideal for eCommerce, such as intangibility, perishability, inseparability between production and consumption and seasonality (Kim, Chung, & Lee, 2011; Ponce, Carvajal-Trujillo, & Escobar-Rodríguez, 2015).

Undoubtedly, the development of web 2.0 has transformed the tourism industry, becoming a key communication and distribution medium for tourism providers and significantly changing travellers’ behaviour. They now depend on user generated content and online travel agents to search for information, to plan their travel and to purchase (Amaro & Duarte, 2013, 2015; Ponce et al., 2015; Ruiz-Mafe, Tronch, & Sanz-Blas, 2016; Standing, Tang-Taye, & Boyer, 2014). In the current digital environment, information overload, ease of website comparison and strong price competition encourage online consumers to switch tourism service providers (Kim et al., 2011; Kim, Qu, & Kim, 2009). Therefore, for online travel websites, achieving customer retention becomes an important challenge that will provide companies with a significant competitive advantage, making it one of the keys to business success and survival (Flavían, Guinalíu, & Gurrea, 2006; Ruiz-Mafe et al., 2016; Sanz, Ruiz, & Perez, 2014). To be able to retain customers, tourism providers must understand the drivers of online travelling shopping.

However, in spite of the importance of eCommerce in tourism and the growing academic research in this area (Standing et al., 2014), understanding travellers’ purchase behaviour online is still a challenging issue and there are several research gaps that can be explored (Amaro & Duarte, 2013). While the literature provides ample support for the positive effects of satisfaction on relationship outcomes (Bai, Law, & Wen, 2008; Kim et al., 2011; Sanz et al., 2014), the study of moderators of the effect of satisfaction on those outcomes has received little attention (Casidy & Wymer, 2016). The investigation of boundary conditions is important since the potential moderators of satisfaction and trust may determine the effectiveness of relationship marketing strategies in influencing customer behaviour (Kim et al., 2011).

Understanding how risk perceptions interact with consumers’ satisfaction judgments and trust perceptions to impact on repurchase intention is, therefore, a relevant research question (Paulsen, Roulet, & Wilke, 2014). Several authors point out that insufficient research has taken place to analyse the role of perceived risk and trust in the specific context of online travel shopping (Amaro & Duarte, 2013; Kim et al., 2011; Lin, Jones, & Westwood, 2009; Ritchie, Chien, & Sharifpour, 2017). This is incongruent because perceived risk and trust play a major role in online travel purchases. In this sense, consumers generally perceive a greater risk when buying online tourism products because of the specific characteristics of tourist services and providers, combined with the perceived risk of buying online. First, the purchase of tourist services is perceived as risky because of their specific characteristics, intangibility, inseparability, high cost and complexity (Hsu & Lin, 2006; Kim, Qu, et al., 2009; Lin et al., 2009; Sun, 2014). Usually, the types of risk associated with tourism services are the same as can be found in other sectors (financial, physical, psychological, social, performance and time), but adapted to the tourism product (Kim, Qu, et al., 2009). For instance, the complexity of the purchase decision is higher in the case of lodging than in the case of buying a flight (Jun, Vogt, & Mackay, 2010). Second, due to the risks associated in making an online purchase, mainly those related to privacy and security (Lin et al., 2009). In the present paper, the impact of the two key components of overall risk perceptions (i.e. ambiguity and consequentiality risk) will be analysed.

Trust is especially important in risky environments and plays a central role in eCommerce (Amaro & Duarte, 2013, 2015; Kim et al., 2011; Wang, Law, Hung, & Guillet, 2014). As previous studies in different contexts have shown, trust and satisfaction are two fundamental determinants of customer retention in offline and online environments, and key factors for establishing and maintaining lasting relationships with customers (Currás-Pérez, Ruiz-Mafé, & Sanz-Blas, 2013;
Determinants of customer retention in virtual environments

Han & Hyun, 2015; Hazra & Srivastava, 2009). In addition, an important factor that contributes to improving trust and satisfaction is website reputation (Casaló, Flavián, & Guinalíu, 2007; Keh & Xie, 2009), which will also affect retention through the mediator effect of these two variables.

However, the relationships between trust and retention and between satisfaction and retention (Harris & Goode, 2004; Johnson, Sivadas, & Garbarino, 2008; Oliver, 1999) have been questioned by various researchers. Greater trust and satisfaction do not always lead to greater customer retention. This may be due to: (i) the need to consider other antecedents that may have a greater influence on retention; (ii) the way customer retention has been defined and measured in different studies; (iii) the possible influence of moderators in the relationship between these variables and retention. In this regard, Ranaweera, McDougall, and Bansal (2005) point out that a better understanding of online consumer behaviour requires a study of the moderator effect of different consumer characteristics, including perceived shopping risk.

The aim of this work is to determine whether perceived risk moderates the influence of direct and indirect antecedents on customer intention to repurchase on accommodation websites. Thus, the study hopes to contribute towards filling a gap in the literature by verifying whether different levels of perceived risk vary the impact of reputation, satisfaction and trust on online travel shopping, or whether their effect is independent of perceived risk. The work is divided into two parts. The first part includes the literature review and proposes the working hypotheses. The second part, through an empirical study of a sample of 455 Internet user purchasers of tourist accommodation, investigates the moderator effect of perceived risk in the relations established in the conceptual model.

**Conceptual framework and hypotheses**

**Direct effects on online customer retention**

In this study, customer retention is defined as favourable consumer attitudes towards the use of websites offering tourist accommodation which give rise to repeat purchase behaviour (Anderson & Srinivasan, 2003). Thus, retention is shown through repeat purchase behaviour, which in this work is reflected by intention to purchase again from the website.

As noted above, consumer retention is usually lower in an online environment (Kim et al., 2011; Turban, Lee, King, & Chung, 2000) and so companies need to invest resources to attract new customers, and to retain them. The literature review (Harris & Goode, 2004; Kim et al., 2011; Kim, Kim, & Shim, 2009; Sanz et al., 2014; Wen, 2010) shows that trust and satisfaction are essential in this task and are relevant factors behind the decision to continue using electronic channels to buy tourist products and services.

Järvenpää, Tractinsky, and Vitale (2000) define online trust as one party’s expectations concerning the other party’s motives and behaviours. Most studies consider trust to be a multidimensional construct formed by the dimensions of honesty, benevolence and competence (Flavián et al., 2006; Roberts, Varki, & Brodie, 2003; Singh & Sirdeshmukh, 2000). Honesty refers to the belief that the other party will fulfil its commitments and obligations. There is a belief, therefore, that the party is sincere and will fulfil its promises (Doney & Cannon, 1997). Benevolence is the belief that the other party is interested in achieving joint benefits and will not initiate actions that might harm the relationship (San Martin, Gutiérrez, & Camarero, 2004). Competence refers to appreciation of technical skills, professional experience and expertise in the company, which make it a leader in its field of activity and enable it to do its job well and offer a product or service with the promised quality (Roy, Dewit, & Aubert, 2001).

Previous studies show a significant link between trust and customer retention. Most studies conclude that retention is a consequence of trust (Rauyruen & Miller, 2007; Reichheld & Schefter, 2000; Sirdeshmukh, Singh, & Sabol, 2002) and that there is a direct positive relationship between both variables (Rauyruen & Miller, 2007). This relationship has also been found in virtual environments (Bauer, Grether, & Leach, 2002; Chiou, 2004; Flavián et al., 2006; Reichheld & Schefter, 2000; Sánchez-Franco, Villarejo, & Martin, 2009).

In relation to the purchase of tourism products, several studies have corroborated that the greater the trust that consumers have in the website, the greater is their behavioural or attitudinal loyalty. In an offline setting, Chang (2013) found support for this relationship in the restaurant context. Concerning online travel purchasing, Amaro and Duarte (2015), and Kim et al. (2011) proved this relationship in the context of tourist services in general (including accommodation), Lin and Lu (2010) in the context of online travel agencies, and Kim, Kim, and Kim (2009) in the airline setting. Thus, achieving trust in an online travel purchase environment is also a principal element for creating customer loyalty. Therefore, we posit that:

**H1. Consumer trust in a website selling tourist accommodation leads to greater repurchase intention.**

Online satisfaction is defined as consumers’ satisfaction with their prior online purchase experience (Anderson & Srinivasan, 2003) and is, therefore, considered to be a global, unidimensional measure (Garbarino & Johnson, 1999; Homburg & Giering, 2001).

Focusing on the relationship between satisfaction and purchase intention, the marketing literature has shown that higher satisfaction with an organisation or provider reinforces consumer intention to acquire products or services from the supplier on a later occasion. Broad empirical evidence has been provided for the relationship between satisfaction and purchase intention in the context of online purchases (Pereira, Salgueiro, & Rita, 2016; Ranaweera, Bansal, & McDougall, 2008; Yen & Gwinner, 2003). Some studies in the specific area of online accommodation reservations have shown that intention to continue using or buying a service is determined by satisfaction with previous experiences (Bai et al., 2008; Kim et al., 2011; Pereira et al., 2016; Sanz et al., 2014; Tuu, Olsen, & Linh, 2011). Thus, intention to continue shopping at a website depends on past experience: when customer satisfaction is high,
repurchase intention increases (Premkumar & Bhattacharyee, 2008), therefore we posit:

H2. Consumer satisfaction with a website selling tourist accommodation leads to greater repurchase intention.

Indirect effects on online customer retention

Satisfaction also acts indirectly to boost online retention, reinforcing the positive effects of trust, as trust and satisfaction are two closely related constructs. Thus, satisfaction has been identified as an important antecedent of trust in offline (Forgas, Moliner, Sánchez, & Palau, 2010; Ravald & Grönroos, 1996) and online environments (Casaló et al., 2007; San Martin & Camarero, 2009). Crosby and Stephen (1987) observed that satisfaction increases the likelihood of renewed customer trust in the business. Similarly, Rust, Zeithaml, and Lemon (2000) found a positive relationship between both variables. A succession of satisfaction encounters with a supplier will obviously reinforce consumer trust that the supplier will be able to continue meeting its promises in the future because it has the necessary skills to do so. It will also favour the individual’s perception that the organisation is honest and seeks benefit for both parties. In the tourism domain, this effect was demonstrated in the online purchase of tourism services in general (including accommodation) by Kim et al. (2011) and in the context of upscale hotels by Kim, Kim, and Kim (2009). Therefore:

H3. Greater consumer satisfaction with a tourist accommodation website leads to greater trust in that website.

Online retention can also be reinforced by the effect of corporate reputation on trust and satisfaction. Corporate reputation can be defined as the global evaluation of a company over time (Gotsi & Wilson, 2001). Walsh and Beatty (2007) propose a fuller definition of what they call customer-based corporate reputation: “customers’ global evaluations of a company based on their reactions to the company’s goods, services or communication activities and their interactions with the company and its representatives or members (such as employees, managers or other customers) and known corporate activities”. A company’s reputation can also be acquired online through all the above channels (Järvenpää et al., 2000; Yamagishi & Yamagishi, 1994).

Companies can be perceived as having a “good” or “bad” reputation (Keh & Xie, 2009). A favourable corporate reputation can improve consumer trust in the company in three ways (Keh & Xie, 2009): by reducing the perceived risk of doing business with the company, increasing the perception that the company is capable of fulfilling its promises and reinforcing the belief that the organisation will behave honestly. The above arguments suggest corporate reputation contributes to build trust. This statement finds empirical support in the tourism sector: Han, Nguyen, and Lee (2015) and Chang (2013) in the restaurant context; Lin and Lu (2010) in the context of online travel agencies. Thus, it is proposed that:

H4. Consumer trust in a website selling tourist accommodation increases with website reputation.

Similarly, a favourable corporate reputation can improve levels of satisfaction with the company. Thus the direct influence of the perceived image of a brand or provider on consumer satisfaction has been sufficiently demonstrated in the area of services (for example, the studies by Andreassen & Lindestad, 1998; Bloemer & De Ruyter, 1998; or Zins, 2001, among others) and has received special attention in the tourism marketing literature (Barroso, Martin, & Martín, 2007; Bigné, Sánchez, & Sánchez, 2001; Chang, 2013; O’Leary & Deegan, 2005; Su, Swanson, Chinchanachokchai, Hsu, & Chen, 2016). In the same way, reputation can be expected to have a positive influence on satisfaction in virtual environments:

H5. Consumer satisfaction with a website selling tourist accommodation increases with website reputation.

Perceived risk: moderation effects

There is broad agreement among researchers on the importance of the role of perceived risk in consumer behaviour (Boksberger, Bieger, & Laesser, 2007; González, Díaz, & Trespalacios, 2006; Wu, Vassileva, Noorinan, & Zhao, 2015). The abundant marketing literature on perceived risk has its origins in the 1960s when Bauer (1960) introduced the concept into the marketing discipline. Bauer (1960) defines perceived risk as a concept consisting of two components: uncertainty and negative consequences. Uncertainty refers to the lack of knowledge about what might happen and the negative consequences of the losses associated with the purchase. According to Bauer (1960, p. 24), shopping behaviour involves risk whenever consumer actions lead to consequences that cannot be anticipated with certainty or where some of those consequences are not the expected ones. In the context of virtual environments, perceived purchase risk has been defined as Internet users’ expectations of loss in a given electronic transaction (Forsythe & Shi, 2003).

The moderation perspective suggests that moderators interact with satisfaction to influence the strength or direction of the relationship between satisfaction and purchase intentions (behavioural loyalty) (Tuu et al., 2011). Given the definition of risk, it can be expected to moderate the effect on the relationship between different variables in the area of consumer behaviour. This paper posits that the predictive strength of satisfaction on purchase intention for tourist services decreases when perceived risk increases. When perceived risk exceeds individual tolerance levels, this may lead to a decrease in the predictive power of tourist satisfaction on behavioural loyalty (repurchase intentions) because individuals tend to switch to other providers with lower perceived purchase risk. This reasoning is supported empirically by Ranaweera et al. (2005) and Tuu et al. (2011), who postulate that the effect of satisfaction with a website on the intention to shop at that website will be greater in the case of consumers who associate less risk with online shopping.

H6a. Consumer satisfaction with an accommodation website has a greater positive effect on intention to continue shopping on the website when consumers perceive less risk associated with shopping on that website.
Perceived risk relates to losses and future, uncertain consequences (Bauer, 1960). Thus, it is reasonable to anticipate that when consumers perceive high levels of perceived risk, their expectations and feelings of satisfaction are less stable due to the uncertainty they are experiencing. Perceived risk associated with booking accommodation online may cause consumers’ unstable feelings. Therefore, the predictive strength of satisfaction with a web 2.0 on trust decreases when perceived risk increases. San Martin and Camarero (2009) confirm empirically that if the perceived risk of online shopping is low, satisfaction will have a greater influence on trust than if the risk is perceived as high. They find that satisfaction does not influence website trust for consumers who perceive online shopping as high risk, but does have a significant effect on Internet users who perceive low risk.

H6b. Consumer satisfaction with an accommodation website has a greater positive effect on trust in the site when consumers perceive less risk associated with shopping on that website.

As it is easier to trust a company with a good reputation, it is suggested that reputation would be another highly valued aspect for risk-averse users and, therefore, the relationship between reputation and trust would be more intense for these individuals. San Martin and Camarero (2009) found a moderator effect of perceived risk in relation to reputation and trust in that company reputation had a significant effect on trust in the case of those who perceive online shopping as high risk but no significant effect when buyers perceive online shopping as low risk.

H6c. The reputation of an accommodation website has a greater positive effect on trust in the site when consumers perceive greater risk associated with shopping on that website.

Perceived risk can also moderate the influence of reputation or brand image on website satisfaction (De Ruyter, Wetzels, & Kleijnen, 2001; Gürhan-Canli & Batra, 2004). When perceived risk is high (versus low), it seems reasonable to expect that consumers are more likely to be concerned about the degree to which the online accommodation services will perform as expected (size of the rooms, cleanliness, location, etc.), and thus they will be more likely to seek for and use information about the tourist provider. As information generated by companies and other customers (eWOM) impacts on judgments (Ruiz-Mafe et al., 2016), we expect that when consumers perceive high risk they develop more favourable product/service evaluations (satisfaction) in response to strong (versus weak) arguments about the corporate reputation of the tourist service provider (Gürhan-Canli & Batra, 2004).

H6d. Corporate reputation of an accommodation website has a greater positive effect on satisfaction with the accommodation website when consumers perceive greater risk associated with shopping on that website.

Previous investigations have demonstrated that trust can influence behaviour only when, at least, some level of risk is perceived (Paulseen et al., 2014; Rousseau, Sitkin, Burt, & Camerer, 1998). In addition, Selnes (1998) asserted that, in highly uncertain environments, trust is the main driver of loyalty intentions. Thus, in the context of online shopping, where the perceived risk is higher, trust becomes a key determinant in service purchase (Flavián et al., 2006; Ribbink, Van Riel, Liljander, & Streukens, 2004). On the other hand, when perceived risk associated with the purchase of online services is low, trust is not necessary for repurchase intentions (Aldas-Manzano, Ruiz-Mafe, Sanz-Blas, & Lassala-Navarre, 2011).

It seems reasonable to suggest that the relationship between trust and purchase intention would be stronger for those users perceiving a high purchase perceived risk, as trust reduces part of their uncertainty towards the purchase. With this as background, Büttner and Göritz (2008) contended that in situations of high perceived risk, trust had a greater impact on online purchase intention. However, they found no significant relationship between trust and purchase intention, so their hypothesis was not confirmed. Nevertheless, it should be noted that in the context of offline purchases, the moderating impact of perceived risk on the relationship between trust and loyalty (considering purchase intention as behavioural loyalty) was demonstrated, with this relationship being significant only in the case of users with high risk perception (Paulseen et al., 2014).

H6e. Customer trust in an accommodation website has a greater positive effect on intention to continue shopping on the website when consumers perceive greater risk associated with shopping on that website.

The theoretical model is shown in Fig. 1.

Methodology

Design

To address the research objectives and verify the proposed hypotheses, an empirical study of a causal nature was carried out by means of personal interview with a structured questionnaire. The proposed relations in the theoretical model were estimated using structural equation models and multigroup analyses with EQS 6.1 software. The research was done on a sample of 495 Spanish Internet purchasers of tourist accommodation. Sampling was by gender and age quotas according to the characterisation of Internet users made periodically by the Spanish Association for Mass Media Research in its study on Internet users (AIMC, 2015). Out of the total sample, 54.3% were males and 45.7% were females. A high percentage of those interviewed are aged between 16 and 34 (53%), have higher studies (50.5%), an above-average income (48%) and are employed (51%). The main device used by the respondents to book tourist accommodation was the personal computer (68%), followed by mobile devices: tablets (21%) and smartphones (11%). Only 31.5% of respondents stated they booked accommodation using direct channels (hotel website), in contrast to 75.5% of users who obtained information from online travel agencies (OTAS). The most visited OTAS are Booking.com (30.3%) and Expedia (22%). 80% of the sample used browsers to look for advice,
TripAdvisor being used by 73% of respondents. 49.6% of the sample has been booking accommodations in their favourite website for more than 2 years and only 12.5% of the sample has less than 1 year of experience.

Table 1 shows the measurement of the variables used in this research. The scales are adapted from previous studies and measured on 7-point Likert scales ranging from 1 - "totally disagree" to 7 - "totally agree".

Psychometric properties of the measurement instrument

Firstly, second order Confirmatory Factor Analysis (CFA) was run using EQS 6.1 (Bentler, 2005), tending to demonstrate that honesty, benevolence and competence reflect a higher order construct, trust towards the online services provider. Given that model estimation showed no evidence of multivariate normality (Mardia's normalised coefficient = 72.53) and despite the existence of estimation methods consistent with the non-assumption of this condition, we followed the recommendation of Chou, Bentler, and Satorra (1991) to correct the statistics rather than use any other estimation method. This work, therefore, exhibits robust statistics (Satorra & Bentler, 1994) for model estimation using the maximum likelihood method. In the adjustment process three indicators had to be eliminated from the model (hon4, hon5 and ben6). The analysis results are shown in Table 2.

After confirming that trust in the online services provider is a second order factor expressed in/as a function of supplier honesty, benevolence and competence, an index for each of the dimensions was calculated (by calculating the average of their indicators). Thus the full model estimation included trust as a first order factor with three indicators: honesty (hon), benevolence (ben) and competence (com).

In order to confirm the validity and reliability of the measurement instrument used for the global model, a CFA including all the variables in our theoretical model was carried out. In the model adjustment process one indicator had to be eliminated (pur3). Table 3 shows the main goodness of fit indicators for the measurement model and the values of the indicators calculated to examine the model's psychometric properties. As usual, other goodness of fit measures were used in addition to S-B $\chi^2$, due to the influence of sample size on the significance of this statistic (Bentler & Bonnet, 1980). The values in Table 3 show that the model offers good global fit as the corresponding critical values are exceeded (Hair, Black, Babin, Anderson, & Tatham, 2005).

Table 3 shows the high internal consistency of the constructs. The three indicators used to evaluate measurement instrument reliability were Cronbach's alpha coefficient (Cronbach, 1951; critical acceptance value = .7), Composite Reliability index (Fornell & Larcker, 1981; threshold value = .7) and the Average Variance Extracted (Fornell & Larcker, 1981; threshold value = .5). As the table shows,
Table 1: Scales used in the empirical study.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
<td>I think that X usually fulfils its commitments</td>
<td>Adapted from: Doney and Cannon (1997); Roy et al. (2001); Flavián et al. (2006).</td>
</tr>
<tr>
<td>Honesty</td>
<td>I think the information X offer is true and honest</td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
<td>I think I can trust the terms and conditions X offer</td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
<td>X never make false statements</td>
<td></td>
</tr>
<tr>
<td>Honesty</td>
<td>X is characterised by their transparent offer of services to the user</td>
<td></td>
</tr>
<tr>
<td>Benevolence</td>
<td>The advice X offer to users is intended to be mutually beneficial</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>X is concerned about their users’ present and future interests/benefits</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>X takes into account the repercussions of their activities on their users</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>X wouldn’t doing anything to harm their users intentionally</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>The design of X’s commercial offer takes into account users’ needs and desires</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>X address their users’ needs.</td>
<td>Adapted from: Oliver (1980); Flavián et al. (2006); Janda, Trocchia, and Gwinner (2002).</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>X has sufficient capacity to do their work</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>X has sufficient experience in marketing the products/services they offer</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>X has all the resources necessary to perform their activities successfully</td>
<td></td>
</tr>
<tr>
<td>Reputation</td>
<td>X offers products/services adapted to their users’ needs</td>
<td>Adapted from: Järvenpää et al. (2000); Doney and Cannon (1997); Ganesan (1994).</td>
</tr>
<tr>
<td>Reputation</td>
<td>X has a good reputation</td>
<td></td>
</tr>
<tr>
<td>Reputation</td>
<td>X has a good reputation compared to the physical offices</td>
<td></td>
</tr>
<tr>
<td>Reputation</td>
<td>X has a reputation for offering good tourist product/services</td>
<td></td>
</tr>
<tr>
<td>Reputation</td>
<td>X has a reputation for being fair in its relations with users</td>
<td></td>
</tr>
<tr>
<td>Perceived risk</td>
<td>I think it could be a mistake to reserve/buy on X</td>
<td>Adapted from: Stone and Gronhaug (1993).</td>
</tr>
<tr>
<td>Perceived risk</td>
<td>I think that making a reservation/buying online in X might cause me problems</td>
<td></td>
</tr>
<tr>
<td>Perceived risk</td>
<td>I think I am running a risk when making a reservation/buying accommodation in X</td>
<td></td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>I expect to use X to buy tourist accommodation online in the near future (next few years)</td>
<td>Adapted from: Taylor and Todd (1995); Gefen and Straub (2000).</td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>I am thinking about using X to buy tourist accommodation in the near future</td>
<td></td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>I will definitely use X to buy tourist accommodation in the near future</td>
<td></td>
</tr>
<tr>
<td>Repurchase intention</td>
<td>It is likely I repeat the purchase of tourist accommodation over the Internet (next few years).</td>
<td></td>
</tr>
</tbody>
</table>

"X" = my favourite accommodation website.
these three reliability indicators exceed the corresponding threshold values for each of the five factors analysed. Convergent validity is evidenced by the CFA results which indicate that all item loads on their predicted factors are significant \( (p < .01) \), these standardised loads exceed .6 \( (\text{Bagozzi & Yi, 1988}) \) and their averages exceed .7 \( (\text{Hair et al., 2005}) \).

Finally, the measurement model was checked to ensure discriminant validity. First the \( \Phi \) matrix was calculated (correlations between constructs, Table 4), and by calculating the corresponding confidence intervals (value ± two standard errors) it was found that inter-factor correlations were significantly less than one (or 1?) \( (\text{Bagozzi & Yi, 1988}) \). Finally, following \text{Fornell and Larcker (1981)}, it was verified that the variance extracted for each construct exceeded the square of the correlation between the construct and any other construct; compliance with both criteria confirmed the measurement model’s discriminant validity.

### Analysis of the results

**Verification of the theoretical model**

Table 5 shows the standardised coefficients of the structural relations contrasted with their associated \( t \) values and the verification of the corresponding hypotheses. As can be seen, the goodness of fit indexes for the structural model show that the theoretical model fits the data well (BBNFI = .920; BBNNFI = .936; CFI = .947; IFI = .948; RMSEA = .063).

The results of the estimation show that the influence of trust on online repurchase intention is significant \( (\beta = .37; p < .01; \text{H1 not rejected}) \), and that satisfaction with the online provider of tourist accommodation services also significantly influences online repurchase intention \( (\beta = .38; p < .01; \text{H2 not rejected}) \). In addition, both variables exercise a similar effect and are, therefore, equally important to ensure that customer expectations are met and even exceeded and to transmit to customers that the company is honest and concerned about them and is able efficiently to carry out online sales of tourist accommodation.

Estimation of the model confirms the role of satisfaction and web reputation as builders of online trust and, through that trust, as determinant factors in repurchase intention. Thus, website satisfaction has a significant impact on trust \( (\beta = .23; p < .01; \text{H3 not rejected}) \) and, secondly, website reputation also leads to, with even more intensity, a greater perception of website honesty, benevolence and competence \( (\beta = .54; p < .01; \text{H4 not rejected}) \). More interestingly, the indirect effect (through trust) of satisfaction on repurchase intention is also significant \( (\beta = .09; p < .01, \text{see Table 6}) \).

Finally, reputation is also capable of indirectly influencing trust via satisfaction \( (\beta = .14; p < .01, \text{see Table 6}) \), and repeat purchase intention through significant improvement of satisfaction with experience on the website \( (\beta = .61; p < .01; \text{H5 not rejected}) \). Therefore, reputation is a significant antecedent of online customer retention via satisfaction and online trust \( (\beta = .48; p < .01, \text{see Table 6}) \). Thus, a tourist accommodation website that builds a good reputation will increase the level of satisfaction among its customers and their trust in the website will increase which will make them more willing to reserve accommodation on the website in the future.
Determinants of customer retention in virtual environments

Table 3  CFA: reliability and convergent validity.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Convergent validity</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Loading (robust t value)</td>
<td>Load average</td>
</tr>
<tr>
<td>Perceived risk (RIS)</td>
<td>ris1</td>
<td>4.64</td>
<td>1.89</td>
<td>.82 (20.85)</td>
<td>.90</td>
</tr>
<tr>
<td></td>
<td>ris2</td>
<td>4.58</td>
<td>1.96</td>
<td>.93 (29.79)</td>
<td>.90</td>
</tr>
<tr>
<td></td>
<td>ris3</td>
<td>4.67</td>
<td>1.88</td>
<td>.84 (22.12)</td>
<td>.83</td>
</tr>
<tr>
<td>Reputation (REP)</td>
<td>rep1</td>
<td>5.31</td>
<td>1.81</td>
<td>.80 (19.89)</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>rep2</td>
<td>5.17</td>
<td>1.62</td>
<td>.79 (17.85)</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>rep3</td>
<td>5.31</td>
<td>1.56</td>
<td>.91 (22.58)</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>rep4</td>
<td>5.33</td>
<td>1.56</td>
<td>.83 (17.86)</td>
<td>.83</td>
</tr>
<tr>
<td>Satisfaction (SAT)</td>
<td>sat1</td>
<td>5.56</td>
<td>1.86</td>
<td>.79 (18.05)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>sat2</td>
<td>5.76</td>
<td>1.58</td>
<td>.80 (15.69)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>sat3</td>
<td>5.58</td>
<td>1.94</td>
<td>.86 (22.49)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>sat4</td>
<td>5.74</td>
<td>1.70</td>
<td>.88 (20.31)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>sat5</td>
<td>5.75</td>
<td>1.68</td>
<td>.86 (18.32)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>sat6</td>
<td>5.76</td>
<td>1.62</td>
<td>.84 (17.95)</td>
<td>.84</td>
</tr>
<tr>
<td>Trust (TRU)</td>
<td>hon</td>
<td>5.04</td>
<td>1.55</td>
<td>.73 (17.07)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>ben</td>
<td>4.92</td>
<td>1.51</td>
<td>.90 (24.83)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>com</td>
<td>5.19</td>
<td>1.40</td>
<td>.83 (19.31)</td>
<td>.84</td>
</tr>
<tr>
<td>Repurchase intention (PUR)</td>
<td>pur1</td>
<td>5.73</td>
<td>1.36</td>
<td>.71 (15.26)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>pur2</td>
<td>5.63</td>
<td>1.39</td>
<td>.81 (20.36)</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>pur3</td>
<td>5.55</td>
<td>.99</td>
<td>Deleted</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>pur4</td>
<td>5.56</td>
<td>1.32</td>
<td>.77 (17.48)</td>
<td>.84</td>
</tr>
</tbody>
</table>

Goodness-of-fit index

<table>
<thead>
<tr>
<th></th>
<th>BBNI</th>
<th>BBNFI</th>
<th>CFI</th>
<th>IFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-B χ² (142df) = 351.64 (p = .00)</td>
<td>.923</td>
<td>.942</td>
<td>.952</td>
<td>.953</td>
<td>.057</td>
</tr>
</tbody>
</table>

Note: CR = composite reliability; AVE = average variance extracted.

Table 4  Discriminant validity.

<table>
<thead>
<tr>
<th></th>
<th>REP</th>
<th>SAT</th>
<th>TRU</th>
<th>PUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIS</td>
<td>.81</td>
<td>.04</td>
<td>.01</td>
<td>.20</td>
</tr>
<tr>
<td>REP</td>
<td>[.10-.31]</td>
<td>.69</td>
<td>.36</td>
<td>.45</td>
</tr>
<tr>
<td>SAT</td>
<td>[.01-.20]</td>
<td>[.49-.68]</td>
<td>.70</td>
<td>.30</td>
</tr>
<tr>
<td>TRU</td>
<td>[.35-.55]</td>
<td>[.48-.65]</td>
<td>.67</td>
<td>.34</td>
</tr>
<tr>
<td>PUR</td>
<td>[.28-.47]</td>
<td>[.50-.70]</td>
<td>[.49-.66]</td>
<td>.59</td>
</tr>
</tbody>
</table>

Note: Diagonal represents average variance extracted; above the diagonal are the shared variances (squared correlations); below the diagonal the 95% confidence interval for the estimated factors correlations is provided.

Table 5  Hypotheses testing.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Estandardized coefficient (β)</th>
<th>Robust t value</th>
<th>p Value</th>
<th>Concluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 Trust ⇒ Purchase Intention</td>
<td>.37</td>
<td>5.36</td>
<td>Not rejected</td>
<td></td>
</tr>
<tr>
<td>H2 Satisfaction ⇒ Purchase Intention</td>
<td>.38</td>
<td>4.97</td>
<td>Not rejected</td>
<td></td>
</tr>
<tr>
<td>H3 Satisfaction ⇒ Trust</td>
<td>.23</td>
<td>3.42</td>
<td>Not rejected</td>
<td></td>
</tr>
<tr>
<td>H4 Reputation ⇒ Trust</td>
<td>.54</td>
<td>7.95</td>
<td>Not rejected</td>
<td></td>
</tr>
<tr>
<td>H5 Reputation ⇒ Satisfaction</td>
<td>.61</td>
<td>9.13</td>
<td>Not rejected</td>
<td></td>
</tr>
</tbody>
</table>

Goodness-of-fit indexes

<table>
<thead>
<tr>
<th></th>
<th>BBNI</th>
<th>BBNFI</th>
<th>CFI</th>
<th>IFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-B χ² (99df) = 275.03 (p = .00)</td>
<td>.920</td>
<td>.936</td>
<td>.947</td>
<td>.948</td>
<td>.063</td>
</tr>
</tbody>
</table>

Note: * p < .01.
Multigroup analysis: testing the moderation hypotheses

To contrast the moderator effect of perceived purchase risk on the influence of reputation, satisfaction and online trust on customer retention (repurchase intention) a multigroup analysis (MA) was carried out using EQS 6.1. Before conducting the moderation analysis, we checked that the differences between the groups were caused by their differing perceived purchase risk levels, and were not due to other variables, such as gender or age. The result of the conducted $\chi^2$ analyses indicated that $p$-values were greater than .05, which confirmed no potential confounders associated with the moderating effect (Gender: $\chi^2 = 7.269$, $p = .122$; Age: $\chi^2 = 8.835$, $p = .065$; respectively).

Firstly, the sample was divided into two groups of Internet users classified by their high or low perception of tourist accommodation online shopping risk. As Table 1 shows, a 3-item scale adapted from Stone and Gronhaug (1993) was used to measure this online consumer characteristic. After confirming adequate scale reliability ($\alpha = .896$), a perceived shopping risk index was created by calculating the arithmetic mean of the scale items. The cut-off point used to divide the sample was the average of that index ($m_{Risk} = 5.00$) (Mantel & Kardes, 1999).

This division produced one group of 194 individuals with high perceived shopping risk ($Risk = 6.23$) and another of 261 consumers with low perceived shopping risk ($Risk = 3.44$). The independent $t$-test confirms the significant difference of the average perceived risk indicator between both groups ($t = 27.89; p < .01$). Then the model was estimated through MA. Figs. 2 and 3 reflect the estimation value of the model parameters for the groups of individuals with high and low perceived risk.

An initial, merely descriptive reading of the results shown in both figures indicates that, in the case of consumers with high risk perception, it is sufficient that they are satisfied with their experience of shopping on a tourist accommodation website for them to have the intention to make a reservation on the website in the future, since trust does not significantly influence repeat purchase intention.

In addition, it is shown that satisfaction can be enhanced significantly by building a strong, positive online reputation. A priori, it is surprising that trust does not affect repeat purchase intention in this group of consumers. A possible explanation for this result is that Internet users who are more reluctant to shop on a website are less likely to believe in the website’s honesty, benevolence and competence and base their beliefs on aspects that can be easily verified (such as their prior satisfaction) to form their future behaviour intentions. Although the mainstream of the literature claims that trust positively influences repurchase, there are some studies on the online environment that have found a non significant correlation between trust and purchase intention (Brown & Jayakody, 2008; Chen & Chou, 2012). Satisfaction had a stronger effect on repurchase intention in consumers who perceived greater tourist accommodation online shopping risk, thereby reinforcing the importance of satisfaction for consumers with high perceived risk.

The relationship pattern of individuals who perceive low risk is fairly similar, as no significant differences have been found in any of the relationships except for the influence of satisfaction on trust. Thus, although in this case trust does have a significant effect on repeat purchase intention, satisfaction is still the main determinant of Internet buyers’ behavioural loyalty and, in fact, the $\chi^2$ difference is not
sufficiently significant to confirm a moderator effect of risk on this relationship. Again, reputation becomes a key aspect for online customer retention because of its contribution to the formation of consumer satisfaction and, in addition, in low risk consumers, it will also influence repeat purchase intention through trust, although to a lesser extent.

Consequently, perceived purchase risk only seems to exercise a moderator effect on the influence of website satisfaction on online trust, but in the opposite direction to that proposed in H6b, as consumers with a greater perception of risk show a significant increase in trust due to their satisfaction with the website, while the effect is not even significant if they perceive low risk. This result may be due to the fact that when high risk is perceived, consumers are more demanding when it comes to trusting the company and will only trust it if it has a good reputation and has been capable of satisfying them, the most important factor. However, when perceived risk is low, consumers consider the positive reputation of a website as an indicator that it can be trusted.

Therefore, in response to the question about whether perceived risk has a moderator effect on the direct and indirect antecedents of online consumer repurchase intention, in the context at least of this study, behavioural loyalty (repurchase intentions) is mainly explained by satisfaction and by reputation through its influence on satisfaction regardless of the individual’s level of perceived risk.

**Conclusions**

This paper makes two theoretical contributions: (i) it provides insights into the relationships among satisfaction, trust, reputation and repurchase intentions in the specific context of online travel services; (ii) it analyses the moderating role of perceived risk on the effect of satisfaction on relationship outcomes.

This paper also makes empirical contributions; the positive moderating effect of perceived risk on the relationship between satisfaction and trust, contrary to previous findings, opens an interesting discussion in the context of online tourism services. As Buhalís and Law (2008) point out, online consumers of tourism products are much more sophisticated and experienced and therefore are much more difficult to please. Lai and Hitchcock (2017), discovered dramatic differences in service expectations between new, repeat and frequent travellers. Our findings support this argument, providing new insights in the specific context of online travel services: when perceived risk is high, repeat online travellers are very demanding and will only trust the tourist provider if it has a good reputation and has been capable of satisfying them, the most important factor.

For the online purchase of tourist accommodation, satisfaction has been found to be the key trigger for repeat purchase intention. A way of increasing satisfaction is to improve different aspects of website design to facilitate the purchase process and turn it into a pleasant experience. It is, therefore, fundamental to find a balance between attractive design and navigation speed, because account must be taken of the fact that not all users have computers with the same characteristics. This is especially important in the purchase of accommodation, because photographs are a very important part of the information that the customer expects to find, so these should be included in a format that does not make navigation excessively slow. Similarly, it is important to offer transparent information on prices and special offers and cancellation terms and conditions.

Trust also has a positive effect on repeat purchase intention in the global sample of consumers, although in the case of individuals who perceive high online shopping risk, the effect is not significant. In any event, companies that operate in virtual environments must take steps to reinforce consumer trust. Consumer belief in the company’s honesty, in its concern for customer satisfaction and its ability to do its job well is not something that can be taken for granted; consumer confidence has to be won. For example, by offering full, easy to understand information about how to shop, by providing information on customer rights and, one of the most important aspects, making it easily apparent to the consumer that the transaction is secure and by assuring them their personal data will be protected.
Likewise, given that reputation has a strong influence on satisfaction and online customer trust, it becomes an important indirect antecedent of intention to make a repeat purchase on a specific website. However, it is not easy to develop a good corporate reputation, and even more so in online environments. Although the company can reinforce its reputation in many different ways, by, for example, using public relations tools, it is also exposed to other influences that it cannot control. In this respect, online word of mouth merits mention. Yamagishi and Yamagishi (1994) have already pointed to the important role of other people’s experiences with the website for its reputation, and this phenomenon has multiplied exponentially thanks to web 2.0 and even web 3.0. Thus, although companies can use social media to their benefit and many of them are hiring specialists (online community managers), in a matter of minutes social networks can go from being allies to being serious threats if negative comments about the organisation are propagated (whether fair, unfair or rumour). It is, therefore, fundamental for organisations to monitor the online environment to gather any information that is transmitted about them. This will allow them to make the most of positive comments (for example, many hotels with a good evaluation on TripAdvisor highlight the fact on their own website) or to address negative ones (some companies respond to users who write criticisms of the company, offering apologies, clarifications or indicating actions that will be taken to resolve the problem).

The main limitations of this study include the small sample size for each of the groups used in the Moderating Analysis. The findings may also be conditioned by specific aspects of the study context, that is, accommodation websites. It is an occasional purchase service, which is subject to important restrictions like chosen destination, the time available for searching for and purchasing accommodation and budget, among others. Therefore, it would be very useful to repeat the study in other contexts such as the purchase of shows (cinema or theatre tickets), virtual supermarkets or the purchase of books or music.

In addition, Spain, as other Latin countries, scores high in uncertainty avoidance according to Hofstede’s cultural model (Hernández, Aldás, Ruiz, & Sanz, 2017) and, so, it is reasonable to assume that Spanish consumers have greater risk aversion, which may bias the findings. To overcome this limitation, it would be very helpful to conduct cross-cultural studies to make comparisons with countries with different levels of risk aversion in order to ascertain how perceived risk affects online travel shopping behaviour.

Similarly, given that in this study perceived risk has not exercised the moderator effect that some authors postulated, it would be advisable in future research to look for other moderator variables that might lead towards a better understanding of online consumer behaviour. So, risk aversion or willingness to trust others may be more appropriate moderator factors than perceived risk (Ranaweera et al., 2008). The literature has also pointed out that the perception of the cost of switching may have a moderator effect on determinants of intention to switch or to continue with the same provider (Antón, Camarero, & Carrero, 2007; Bansal, Taylor, & James, 2005). On the basis that many authors consider perceived risk as a multidimensional construct, it would be interesting to see if different types of risk have a different moderator effect on the antecedents of online retention, given that it is possible that significant moderator effects might be obtained in this way. As our sample is formed by consumers with previous experience, we have measured perceived risk associated with using the website. A limitation is that this risk may be determined by other variables of the model. Therefore, we propose that a future research line should test the moderating effect of the general risk of online shopping.

Finally, it is proposed that other moderator variables beyond perceived risk, such as the kind of service used (e.g. reservation of flights, reservation of hotels, payment, etc.) be included in the model. Specifically, in the future it would be interesting to analyse the effects of satisfaction and reputation on trust, depending on the amount of previous purchases on the website (previous experience). It is likely that reputation will be more relevant when previous buying experience is low, whereas highly experienced buyers will take decisions on the basis of their own experiences (satisfaction).

Conflict of interest

None declared.

Acknowledgements

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