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A STUDY OF CONSUMER PREFERENCES FOR E-RETAILERS'

ATTRIBUTES: AN APPLICATION OF CONJOINT ANALYSIS.

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ABSTRACT

The aim of this work is to determine and analyse consumer preferences regarding the profiles of an e-retailer's web page. Two types of products are examined, a pleasure trip and a laptop computer, to test whether there are differences in the individuals' preferences. There are two reasons for this choice: these two products are purchased the most over the Internet in Spain and the different motives for buying them   hedonic-pleasurable and utilitarian. We conducted an initial study, from which we identified the principal attributes valued by the participants in the survey. These attributes were then used to design the profiles for the conjoint analysis. The variables that are most relevant to the shopping task are those which receive a higher response frequency. In both products, the attributes that are most valued by the participants are the virtual store's security and privacy policy. However, for a laptop computer, consumers also emphasize the importance of the provision of the technical details of the product and the fact that the supplier also has a physical store. We recommend that e-retailers' web pages need to clarify and facilitate access to the most relevant variables to the shopping task. Likewise, public institutions and e-retailers need to continue to work towards minimising non-buyers' rejection of online purchasing and their fears regarding security on the Web. Firms with both physical and online outlets have an important competitive advantage over pure-players, for certain products at least.

Keywords

e-retailers, consumer behaviour, conjoint analysis.

INTRODUCTION

Electronic commerce has made rapid and radical changes to the way we make our purchases today. Proof of this is the €2.322 million -worth of goods and services purchased over the Internet in Spain in the second trimester (CMT, 2011). However, firms should not focus solely on increasing their Internet sales, but rather, as Rust *et al.* (2001) indicate, consider the potential sales they are missing out on because they are not offering what the consumer wants. Previous studies have analysed the relative importance of the attributes of a website, understood as "those factors both functional and psychological

that exist in an online store" (Lim and Dubinsky, 2004, p.501). Palmer (2002) and Yun and Good (2007) found that not all of a web page's attributes will receive the same favourable response from online consumers. It is essential therefore to understand how customers evaluate different attributes when they decide to make an online purchase [Iqbal *et al.* (2003); Bart *et al.* (2005); Shun and Yunjie (2008)]. In other words, electronic commerce needs to identify and focus on developing attributes which increase value for the customer [Han and Han (2002); Su (2007)].

The specific aim of this research is to identify and analyse consumers' preferences for the different attributes of e-retailers' web pages. Prior studies have focused on understanding whether a consumer's preference for online shopping changes with different types of products (Korgaonkar *et al.*, 2006). In this investigation, the products we have chosen are pleasure trips and laptop computers because these are the items that are purchased the most over the Internet in Spain. In 2010, 52.4% and 42.93% of Internet shoppers bought travel tickets and booked accommodation respectively; and electronic products in general were purchased by one in four Internet shoppers in Spain (ONTSI, 2011). Another reason for this choice is the different motives for buying these two products, respectively being, hedonic-pleasurable and utilitarian. This distinction between the type of product analysed allows us to carry out a conjoint analysis to test whether there are differences in the importance given to different attributes.

Following a literature review, we explain the methodology used and the reasons for our choice. We then set out the results of our conjoint analysis and propose a number of arguments and implications for their development. Lastly, the study's limitations and future lines of research will be discussed.

CONCEPTUAL BACKGROUND

To understand a consumer's choice of e-retailer, we must consider the relative importance that consumers give to its attributes at the time of purchase (Lim and Dubinsky, 2004). Prior studies have analysed the attributes of the online store as predictors of the consumers' intention to buy [Bart *et al.*, (2005); Su, (2007)], their satisfaction, their acceptance of new technology (Song and Zinkhan, 2003), their attitude towards online purchases (Lim and Dubinsky, 2004) and customer loyalty [Zeithaml *et al.*, (2002); Yun and Good, (2007)]. We now discuss the dimensions proposed in previous investigations, cited below: merchandise, convenience, interactivity, navigation, reliability, promotions and design.

Merchandise

The dimensions attributed to the aspects of an e-retailer's merchandise include product information, the brands, the breadth and depth of the assortment and price [Degeratu *et al.* (2000); Lynch and Ariely (2000); Ward and Lee (2000); Su (2007); Yun and Good (2007); Cai and Xu (2008); Park and Lennon (2009)]. Goldsmith *et al.* (2001) find that the variety of the offering on the Internet has an important influence on its adoption as a purchasing method because it enables consumers to compare, contrast and choose between the alternatives available for meeting their needs while reducing the search costs (Grewal et al, 2004). Empirical evidence also confirms that Internet buying is influenced by consumers' perception of a price advantage [Meuter *et al.*, (2000); Vijayasarathy and Jones, (2000); Grewal *et al.*, 2003)], which is more important for online shoppers than for offline shoppers (Iqbal *et al.*, 2003), since the consumer has rapid and simultaneous access to pricing information for all the products on the Internet (Sinha, 2000).

Convenience

Of all the attributes associated with the Internet shopping experience proposed by Jarvenpaa and Todd (1997), convenience is the one that has received the greatest theoretical and empirical support. According to Dennis *et al.* (2009), it is one of the most attractive and significant elements for the online consumer, given that it reduces the search costs when time is limited, increasing efficiency for the online shopper and eliminating displacement costs. For example, several studies have demonstrated the significant effect of the speed and convenience of electronic shopping on the decision to use this commercial channel [Meuter *et al.* (2000); Vijayasarathy and Jones (2000)]. This is motivated by the reduced effort and ease of localisation (Lim and Dubinsky, 2004), compared to shopping in physical stores (Eastlick and Feinberg, 1999). Convenience, with regard to time and space, is often the main reason for the increase in online purchases (Kim and Forsythe, 2009). An e-retailer's convenience attributes include the number of links onto the site, the variety of payment options, the provision of quick jump buttons and images, the inclusion of pricing information in the product list and the product list type (Lohse and Spiller, 1998).

Interactivity

Interactivity refers to the extent to which an e-retailer allows the consumer to enter into direct, two-way communication at any time (Lim and Dubinsky, 2004). Merrilees and Fry (2002) demonstrate that interactivity was the most important determinant in forming a consumer's attitude towards an e-retailer, and has a positive influence on the perceived quality of the website (Ghose and Dou, 1998) and the adoption of electronic commerce [Limayem *et al.* (2000); Meuter *et al.* (2000); Liao and Cheung (2002)]. As Ghose and Dou (1998) demonstrate in their study of 101 web pages to identify the key factors of interactivity which influence the attractiveness of a website, the aspects used most often by consumers were customer support and help with personal choice. The former includes attributes such as software downloads, order confirmation and feedback, while the latter refers to attributes such as keyword search, purchasing history, FAQs or the ability to create and save shopping lists (Lim and Dubinsky, 2004).

Site Navigation

Site navigation refers to the appearance and design of a website and the possible sequence of clicks, images and paths [Lim and Dubinsky, (2004); Bart *et al.*, (2005)]. Among the factors associated with customer service it is worth emphasising ease of access to information [Vijayasarathy and Jones (2000); Joines *et al.* (2003); Cho (2004); Lim and Dubinsky (2004)]. In other words, reducing the search costs for a purchase is a key motivation for consumers to shop online. Online search costs, according to Gupta and Chattergee (1997), are the Internet connection time, the time and effort expended by the user in finding the e-retailer's page and the time taken to download the information. Internet users cannot tolerate waiting to open a web page, and are more affected by the perceived duration of the download time than by the actual waiting time (Dellaert and Kahn, 1999), which influences their satisfaction. In fact, when a potential customer is faced with a lengthy wait, they are likely to look for an alternative e-retailer or give up on the online purchase (Weinberg, 2000).

Reliability

The reliability of an online company encompasses dimensions such as security, privacy and reputation. The risks associated with an online purchase are seen to be alleviated when an e-retailer can guarantee the security and privacy of the personal data required for the purchase (Bart *et al.*, 2005). Equally, an e-retailer's reputation has a positive and significant effect on the consumer's decision to buy. Information about an e-retailer can reduce a potential client's uncertainty and perceived risk (Lim and Dubinsky, 2004). Several investigations have obtained empirical evidence related to the effect of reliability on Internet purchasing behaviour. It has been observed that a lack of reliability has a negative

effect on the take-up of electronic commerce [Korgaonkar and Lori (1999); Joines *et al.* (2003)], on the frequency of transactions (Miyazaki and Fernández, 2001), on future intentions to buy [Liang and Huang (1998); Vijayasarathy and Jones (2000); Liao and Cheung (2001)] and attitudes towards the channel [Jarvenpaa and Todd (1997); Vijayasarathy and Jones (2000)]. Another attribute related to reliability is the existence of a physical store. An e-retailer can operate as a pure-player, with an online store only, or as a traditional retailer, with both physical and online stores (Lim and Dubinsky, 2004). This distinction has been examined by authors such as Iqbal *et al.* (2003) and Keen *et al.* (2004), and their results demonstrate that consumers perceive greater security when the e-retailer has a physical store.

Promotions

A way for an e-retailer to attract more customers and increase competitiveness is by offering promotions, such as gifts and discounts. Promotions act as an immediate economic incentive to purchase a product. They can also be used as a means of evaluating a product and an online store (Raghubir, 2004) and can help to create a positive image [Collins-Dodd and Lindley (2003); Thang and Tan (2003)]. Promotions are also an effective way of attracting new customers and encouraging them to make an initial purchase (Darke and Dahl, 2003) as well as motivating consumers to switch brands (Sun *et al.*, 2005). Moreover, it has been found that price promotions, such as discounts, tend to increase the perceived value of the transaction and increases satisfaction and the intention to buy [Darke and Dahl (2003); Oliver and Shor (2003); Park and Lennon (2009)].

Design

With regard to web page design, Eroglu *et al.* (2001) define low task-relevant variables as those which are relatively unimportant for completing the online shopping task. These include elements such as colour, borders, text style and fonts, animation, music and sound, entertainment, a web counter, page affiliates and decorative images. However, according to the S-O-R paradigm (Mehrabian and Russell, 1974), these variables could be manipulated by the e-retailers to increase the consumer's pleasure and excitation, which may increase their intention to buy (Dennis, 2009). They also affect the consumer's emotional state, adding to the hedonic and experiential value of the purchase (Kim and Forsythe, 2009). The influence of the recreational dimension on online purchasing behaviour has been tested in numerous investigations [Jarvenpaa and Todd (1997); Teo *et al.* (1999); Vijayasarathy and Jones (2000); Yun and Good (2007); Manganari *et al.*, (2009)].

Table 1, below, shows the principal attributes identified from the literature review, grouped according to the dimensions described above, and form the basis of this empirical investigation.

Table 1. Attributes of e-retailer website.

Dimensions	List of attributes
Merchandise: • Product information • Assortment • Price	Breadth of the assortment Technical product description Well-known brands Price of product/service Existence of alternative payment Products' images Options to enlarge product's images Range of brands Video explaining the product
Convenience: • Timely delivery • Ease of ordering: fast check-out order confirmation by e-mail • Product display: product lists with both click buttons and pictures	Information on the shipping process Information on how to buy Payment information Stock availability information Information on postage and packing costs Delivery options Product guarantee and return policy Options to reserve products Phone or e-mail contact
Interactivity: • Customer support: software downloading, e-form inquiry, order status checking, customer comment and feedback. • Personal choice helper: keyword search, improved search functions.	Shopping support tools Purchase key Personalized messages FAQ Search history Recommend products list Posting customer reviews Download software
Navigation: • Time to loadt home pages • Expected waiting time to	Navigation comfort Web site connection time Web time download time

download pages of the site • Waiting information	*Absence of errors*
Reliability: • Reputation: company information • Secutity: information on transaction security • Privacy: privacy policies for personal information	*Retailer credibility* *Quality certificates e-trading* *Physical store* *Membership in e-commerce partnerships* *Data security and privacy policies* *Company reputation*
Promotions: • Promotions of the web site	*Sales promotions*
Design: • *Colors, borders, graphics, pictures, typestyles and fonts, ...*	*Web site design* *Accessibility:legible images, colors and text, links* *Music website*

METHODOLOGY

1. Conjoint analysis

Conjoint analysis is a multivariate technique used specifically to understand how respondents in a survey develop their preferences for products, services or stores. The technique is based on the fact that an individual's choice behaviour is governed by the maximisation of their preferences and that an item can be viewed as a set of attributes from which individuals can attain total utility [Hair *et al.*, (2000); Jaeger *et al.*, (2001); Gustafsson *et al.*, (2007)]. This utility is obtained from a set of partial utilities (part worth) provided by each attribute level for the individual. Conjoint analysis therefore enables an attribute hierarchy to be established. It also allows us to identify the customer's preference profile and which attributes of their web pages are considered to be most important. It will also provide an understanding of the attribute levels that an e-retailer requires if it wants to be the consumers' preferred supplier.

Butler *et al.* (2008) highlight the usefulness of multi-attribute preference models in the study of electronic commerce. Indeed, this approach has recently been applied in analyses of online consumers' preferences for attributes related to the sale of books (Talaga and Tucci, 2001), computers and CDs (Keen *et al.*, 2004), banking services (Laukkanen, 2007) and package holidays (Chiam *et al.*, 2009).

2. Identify the attributes: initial sudy

The first stage in the application of a conjoint analysis is to identify the attributes which will comprise the desired profile. In this study, we identifed these attributes from the literature review and by carrying out an exploratory investigation (Louviere, 1994) using convenience sampling. The advantages of this type of non-probability sampling are accessibility and convenience, as well as being a quick and economical way to access a large number of responses. Its main disadvantage is the inability to calculate the accuracy or define the error generated. Prior research has used this sampling method in the context of electronic commerce or Internet use [Ha and Stoel (2004), Lim and Dubinsky (2004), Reisenwitz *et al.* (2007), Kim *et al.* (2009), Herington and Weaven (2009) and Chau and Ngai (2010)].

The convenience sample consisted of 150 university students. The behaviour of university students is often analysed in the B2C literature, for example in Childers *et al.* (2001), Menon and Kahn (2002), Lim and Dubinsky (2004), Korgaonkar *et al.* (2006), Jeong *et al.* (2009) or Kim *et al.* (2009). The majority of this population are Internet users and make online purchases. This indicates that this group will form the principal segment of consumers in electronic commerce[i].

From the forty attributes presented in Table 1, the participants were required to select the ten most important attributes when making a purchase from an online store. The students demonstrate situational involvement (Hoffman and Novak, 1996), in the context of achieving a specific objective (making the decision to buy). This situational involvement will decrease once the specific objective has been achieved (Gulas and Larsen, 2009). The products analysed in this study are a pleasure trip and a laptop computer. These products were chosen because data published by ONTSI (2011) shows that these are the products most frequently bought online in Spain. In addition, these products have commonly been analysed in prior research, for example by Chiam *et al.* (2009) or Keen *et al.* (2004), or by Bart *et al.* (2005), who include trips and computers, among other product categories. In addition, by examining two product types we are able to analyse whether the product category affects the importance ascribed to the attributes of a virtual store. Authors such as Bart *et al.* (2005) and Korkaongar *et al.* (2006) found that the determinants of online trust and consumers' preferences differ according to product type.

To eliminate the possibility of individuals ranking the attributes in the same order of importance simply for convenience, the questionnaires listed the items in a random order, which was different for each product. Finally, we also requested socio-demographic information from the individual (age, gender), whether they had made any online purchases within the last year and whether they intended to do so in the coming year.

3. Results of initial study

We received 140 valid questionnaires, from students enrolled in two degree courses, of whom 65% were women and 92% of the sample was under 27 years of age, 65% of the participants had made an online purchase in the previous year and 78% intended to do so over the coming year. The participants indicated the most important attributes of a virtual store (Table 2) some of which are common to both products, while others show statistically- significant differences according to the product[ii].

Table 2. Initial study: Percentages of choice of attributes

Attributes[iii]	Pleasure trip	Laptop computer
	% of choice	% of choice
Price of the product/ service	77.857	80.714
Product guarantee and returns policy	64.286	77.857
Data security and privacy policies	61.429	52.857
Payment information	55.000	40.714
Product's images	46.429	53.571
Existence of alternative payment	45.714	46.429
Make phone or e-mail contact	40.714	38.571
Option to reserve products	39.286	17.857
Company reputation	38.571	36.429
Posting customer reviews	37.857	30.714
Information on how to buy	36.429	30.714
Information on postage and packing costs	32.143	40.000
Technical product description	30.714	61.429
Well-know brands	20.000	32.143
Physical store distributor	17.142	32.143

The results show that the ability to make a reservation (corr=-0.237, sig=0.000) and payment options information (corr=-1.143, sig=0.017) are given the greatest value in the case of travel. For a laptop computer, the most frequently selected attributes are the provision of technical information (corr=0.308, sig=0.000), having a bricks and mortar presence (corr=0.174, sig=0.003), stocking well-known brands (corr=0.138, sig=0.021) and offering a product guarantee and returns policy (corr=0.150, sig=0.012).

Furthermore, for each product we analysed whether there were any significant correlations between attributes. This is because a fractional factorial design (Hair *et al.*, 2000) must be orthogonal, that is, there should be no correlation between attributes. The 2-tailed significance of the Fisher statistic indicated that there was a relationship between some of the attributes: for the travel product, the correlated pairs were payment information and the existence of several payment options (2-tailed sig. =0.011); and the firm's reputation and price (2-tailed sig. =0.039). In the case of the laptop, the related attributes were information on how to pay and price (2-tailed sig. =0.015); and reputation and price (2-tailed sig. =0.001). We therefore removed the information on how to pay and the firm's reputation, because, in addition to their statistical significance, we recognise the conceptual relationship between each respective pair.

4. Application of conjoint analysis

The first step was to select the most important attributes –those which were most frequently chosen in the pilot study [Bauer and Scharl, (2000); Bart *et al.*, (2005)]. Then, to limit the amount of information given to the respondents (a high number of attributes generates a great number of profiles for the participants to evaluate), we chose a number of attributes that would give the right balance. Finally, because of the significant differences, we used a different list of attributes for each product. There were nine in total: with seven attributes in common and two which were different for each product. The next step was to decide on the levels for each attribute, making them realistic in order to increase the validity of the preferences (Table 3).

Table 3: Attribute and attribute levels

Attributes		Attribute levels
Common to both products	Price of product /service	• *High products price* • *Medium products price* • *Low products price*
	Product guarantee and returns policy	• *Yes* • *No*
	Data security and privacy policies	• *Both policies* • *Either policy* • *No policy*
	Product's images	• *Yes* • *No*

	Existence of alternative payment	• *Credit card* • *Cash payment* • *Pay by instalments*
	Options to make phone or e-mail contact	• *Yes* • *No*
	Information on postage and packing costs	• *Yes* • *No*
Only for pleasure trip	Option to reserve product	• *Yes* • *No*
	Posting customer reviews	• *Yes* • *No*
Only for laptop computer	Technical product description	• *Yes* • *No*
	Physical store distribution	• *Yes* • *No*

Our study consists of six attributes with two levels and three attributes with three levels, for each product analysed, giving a possible 1,728 combinations[iv]. Given the difficulty of evaluating such a high number of combinations we used a fractional factorial design, which provides an appropriate fraction of all the possible combinations of the attribute levels. The orthogonal matrix[v] was designed using the SPSS 17.0 Orthoplan procedure, which captures the main effects of each attribute. This matrix consists of eighteen profiles, sixteen of which were used to estimate the model parameters and the remaining two were used to validate the results.

We used the full profile method of data collection. Each participant was asked to rank the eighteen combinations[vi] on a scale of 1 (least preferred) to 7 (most preferred). The preference model chosen is the part-worth function model, which is suitable for categorical data. To estimate the model's parameters, the relative importance of the attributes and the partial utility of the levels, we used the SPSS 17 Conjoint Procedure. For the internal validation measures we used the Pearson correlation coefficient and the Kendall tau coefficient.

The population sample used to obtain the data consisted of university students, who had not participated in the initial questionnaire. The convenience sample includes students from five university courses, which covers a broad spectrum of the student population. We contacted 290 participants, and received 274 responses in the case of choosing a pleasure trip and 270 for the laptop computer. The

respondents' demographic data is shown in Table 4. The sample descriptives for both the pilot study and the conjoint analysis were very similar and we can therefore assume that it is acceptable to apply the most important attributes for the choice of an e-retailer that were identified in the pilot study to the conjoint analysis.

Table 4. Samples characteristics (in percentages)

Characteristics		Inicial study (n=140)	Pleasure trip (n=274)	Laptop computer (n=270)
Age	18 to 27 years	92	92	91,5
	27 + years	8	8	8.5
Sex	Female	65	63.6	63.5
	Male	35	36.4	36.5
Previous online purchase	Yes	65	65.7	67.8
	No	35	34.7	32.2
Future purchase intention	Yes	78	78.1	80
	No	22	219	20

ANALYSIS OF THE RESULTS OBTAINED FROM THE CONJOINT ANALYSIS

In the example of a pleasure trip, the attributes that are most valued by the participants are the virtual store's security and privacy policy, having a product price list and availability of product images (Table 5). The participants' satisfaction with each level of the attributes enables us to identify the sample's preferred online retailer. This will be the store that combines the levels with the greatest partial utility: providing low product prices, a product guarantee and returns policy, product images, data security and privacy policies, the option for the customer to pay by instalments, the option to make telephone or e-mail contact, clearly visible postage and packing costs, the option to reserve products and posting customer reviews. The total of the partial utilities of these levels indicates the total utility attributed to the preferred online store, plus the constant, which gives a total value of 5.836[vii].

Table 5. Relative attribute importance and part-worth utilities of attribute levels. Pleasure trip.

Attributes	Relative importance	Levels	Part-worth utility estimates	Std.error
Price of product/service	13.565	1	-0.201	0.099
		2	-0.123	0.130
		3	0.324	0.130

Product guarantee and returns policy	11.183	1	0.368	0.074
		2	-0.368	0.074
Product's images	11.364	1	0.394	0.074
		2	-0.394	0.074
Data security and privacy policies	17.013	1	0.383	0.117
		2	0.182	0.140
		3	-0.565	0.117
Existence of alternative payment	10.361	1	-0.039	0.099
		2	0.001	0.116
		3	0.038	0.116
Make phone or e-mail contact	10.621	1	0.370	0.080
		2	-0.370	0.080
Information on postage and packing costs	10.268	1	0.335	0.074
		2	-0.335	0.074
Option to reserve product	8.390	1	0.259	0.074
		2	-0.259	0.074
Posting customer reviews	7.235	1	0.218	0.080
		2	-0.218	0.080

Constant= 3.147. Pearson´s R: Value = 0.990, sig. =0.000.

Kendall´s tau: Value = 0.883, sig. =0.000. Kendall´s tau for holdouts: Value = 1, sig. =0.000

As for the reliability of the results, the Pearson correlation coefficient is 0.990, and the Kendall tau is 0.883, which indicates that the results obtained are reliable. Kendall tau coefficient for the two holdout profiles and their value of 1 confirms the validity of the results.

In the case of the laptop computer, the attributes given the highest value by the participants are the data security and privacy policies, the product price and the product guarantee and returns policy (Table 6). The levels that comprise the ideal profile are low product prices, a product guarantee and returns policy, product images, the implementation of a data security and privacy policies, the ability to pay by instalments, the ability to contact the store by telephone or e-mail, clearly visible postage and packaging costs and a physical store. The sum of the partial utilities of these levels is 5.68[viii], which is the highest global utility that a profile can attain.

Table 6: Relative attribute importance and part-worth utilities of attribute levels. Laptop computer.

Attributes	Relative importance	Levels	Part-worth utility estimates	Std. error
Price of product/service	12.762	1	-0.102	0.118
		2	-0.075	0.138
		3	0.177	0.138
Product guarantee and returns policy	11.356	1	0.365	0.088
		2	-0.365	0.088
Product's images	10.034	1	0.341	0.088
		2	-0.341	0.088
Data security and privacy policies	16.003	1	0.315	0.118
		2	0.243	0.138
		3	-0.558	0.138
Existence of alternative payment	10.565	1	-0.064	0.118
		2	0.158	0.138
		3	-0.093	0.138
Make phone or e-mail contact	8.062	1	0.255	0.088
		2	-0.255	0.088
Information on postage and packing costs	9.315	1	0.297	0.088
		2	-0.297	0.088
Technical product description	11.270	1	0.384	0.088
		2	-0.384	0.088
Physical store distribution	10.633	1	0.350	0.088
		2	-0.350	0.088

Constant= 3.038. Pearson´s R: Value= 0.986, sig. =0.000

Kendall´s tau: Value= 0.900, sig. =0.000. Kendall´s tau for holdouts: Value= 1, sig. =0.000

With regard to the reliability of the results, the Pearson correlation coefficient values, Kendall tau (0.986; 0.9) and Kendall tau for the holdout profiles show that the results are reliable.

Finally, we compared the results from conjoint analysis with the replies from the 257 students who responded for both products [Keen, *et al.* (2004); Chiam *et al.* (2009)]. Four of the attributes attained similar and have high evaluations in both cases (Table 7).

Table 7: Relative attribute importance and part-worth utilities of attribute levels for both products. (Sample size = 257 respondents).

Attributes	Relative importance Pleasure trip	Relative importante Laptop computer	Levels	Pleasure trip		Laptop computer	
				Part-worth utility estimates	Std. Error	Part-worth utility estimates	Std. Error
Price of product/service	13.522	12.765	1	-0.212	0.098	-0.103	0.119
			2	-0.125	0.129	-0.074	0.138
			3	0.337	0.129	0.177	0.138
Product guarantee and returns policy	11.351	11.357	1	0.381	0.074	0.365	0.089
			2	-0.381	0.074	-0.365	0.089
Product's images	11.570	10.038	1	0.402	0.075	0.342	0.088
			2	-0.402	0.075	-0.342	0.088
Data security and privacy policies	16.826	16.001	1	0.375	0.116	0.314	0.120
			2	0.177	0.140	0.245	0.138
			3	-0.552	0.116	-0.559	0.138
Existence of alternative payment	10.412	10.564	1	-0.051	0.099	-0.065	0.118
			2	0.002	0.115	0.159	0.139
			3	0.049	0.115	-0.094	0.139
Make phone or e-mail contact	10.389	8.063	1	0.364	0.081	0.255	0.087
			2	-0.364	0.081	-0.255	0.087
Information on postage and packing costs	10,408	9.312	1	0.339	0.074	0.299	0.088
			2	-0.339	0.074	-0.299	0.088
Option to reserve product	8.35	-	1	0.257	0.073	-	-
			2	-0.257	0.073	-	-
Posting customer reviews	7.182	-	1	0.220	0.079	-	-
			2	-0.220	0.079	-	-
Technical product description	-	11.271	1	-	-	0.386	0.087
			2	-	-	-0.386	0.087
Physical store distribution	-	10.628	1	-	-	0.350	0.088
			2	-	-	-0.350	0.088

The most important attribute is the concern for privacy and security, which was accorded the highest value in the travel category. According to Bart *et al.* (2005, p.135), privacy is given a greater

value for products which involve sensitive data, such as a trip, since this requires information such as a customer's whereabouts and activities. In second place is pricing information, which is also more important in the pleasure trip example (Chiam *et al.*, 2009). Two other attributes, the product guarantee and return policy and information on payment methods, are given similar relative importance. There are differences in the relative importance given to the other attributes. Whereas for the pleasure trip, product images is the third most important, for the laptop, the important attributes are the technical description of the product and the fact that the supplier also has a physical store. These results may be explained by the product type. In the case of the computer, the individual is considered to be in a situation of high rational involvement, which means that the search for information is focused more on the technical aspects of the product.

For the trip, on the other hand, this can be viewed as a situation requiring high emotional involvement for the individual, in which there is a search for information, but with a greater focus on the hedonic-pleasurable elements. The different attribute levels present similar partial utilities, except in the case of the payment methods, since for the pleasure trip there is a preference for paying by instalments, whereas for the computer the option of paying up front has a greater utility.

In order to test whether there are significant differences in the participants' choices for the two products, and given that the samples are related, we applied the Wilcoxon signed-rank test for the seven attributes that are common to both product types and their levels (Table 8).

Table 8: Wilcoxon signed-rank test.

	Relative attribute importance Trip/laptop	Part-worth utility estimates Trip/laptop
Z	-2.028(a)	-0.071(b)
Asymp. Sig. (2-tailed)	0.043	0.943

a Based on positive ranks. b Based on negative ranks.

The results show that there are no significant differences in the partial utilities of the levels of the two product types, but there are differences in the relative importance of the attributes. The sum of the relative importance of the seven attributes analysed is 84.48% in the case of the trip and 78.1% for the laptop computer. This means that, in the case of the laptop, the participants consider that almost 22% of an e-retailer's total importance is derived from the provision of the technical details of the product and the existence of a physical store. Similarly, there are differences in the importance given to the attributes. In the case of the pleasure trip, five out of the seven attributes analysed obtain higher values in this respect than for the laptop. Only the existence of alternative payment options is considered to be slightly more important than in the case of the trip. Finally, turning to the characteristics of the respondents, we tested

for differences between the consumers' preferences. The variables used to segment the sample were gender and previous experience in Internet purchasing. Using these variables, no statistically-significant differences were found in the relative importance of the attributes or in the partial utility of the levels, for either product.

DISCUSSION, PRACTICAL IMPLICATIONS AND LIMITATIONS

Firstly, from the results of the initial study to determine the attributes of the profiles for the conjoint analysis, it is clear that the least important attributes are aspects of a web page's design or the variables which have little relevance to the task (Eroglu *et al.*, 2001). However, the variables which assist the shopping task, such as price, product guarantee and returns policy, the data security and privacy policies, information on how to buy, product images or technical description, all achieved high selection percentages from the participants. These variables have a utilitarian motive and include all the web page descriptors (verbal or pictorial) which appear on the screen, making it easier for consumers to achieve their purchasing aims. E-retailers therefore need to make it easy to identify and access the variables on their web pages which are most relevant to the task, given that online consumers need this information in order to make the decision to buy. Nevertheless, the variables relating to the attractiveness of the web page should not be overlooked.

Secondly, although the security and privacy policies are not the most important attribute in the initial study, given the response frequency obtained for the two products analysed, the results of the conjoint analysis show that this is the attribute of the web page which is given the highest relative importance. In fact, according to ONTSI (2008), the risk attached to data security and confidentiality is one of the specific arguments that non-purchasers maintain against online purchasing. Therefore public institutions with policies to support electronic commerce and the firms which sell their products and services on the Internet should continue striving to minimise consumers' rejection of online purchasing and their concerns regarding the problem of online security. They should publicise the advances made in guaranteeing the privacy of personal data.

Thirdly, we can verify that there are differences in the relationship between product type and the most valuable attributes of a web page. Thus, in the case of the laptop, the technical description of the product and the fact that the e-retailer also operates from a physical store are given high importance. In fact, one of the fundamental reasons for Internet users not shopping on the web is their preference for physical stores, where they can see what they are buying and can gather all the technical and commercial information that they believe to be important.

Therefore, companies with physical stores and an Internet outlet have significant competitive advantage over the pure-players, for certain products at least, since consumers prefer these websites.

Thus, in April 2010, the EU approved the new Vertical Restraints Block Exemption Regulation, which allows brand owners to prevent the sale of their products on Internet sites which do not also have a physical presence. They could, for example, choose suppliers with a bricks and mortar store, in order to present a uniform sales environment.

Fourthly, although –in common with Bhatnagar and Ghose (2004) – we have been unable to prove any differences in the respondents' preferences according to their characteristics. Conjoint analysis is a methodology which provides managers with useful information which they can apply to their web page design strategy for different consumer segments. Equally, web pages could be tailored according to aspects such as the consumer's previous experience as an online shopper (Zhu and Zhang, 2010) or age (Kim and Forsythe, 2010). The Internet is a channel for marketing, information and assistance which allows a high degree of adaptation to each client's profile, to help satisfy all of their consumer needs.

Another alternative is proposed by Kamakura *et al.* (1994), Bhatnagar and Ghose (2004) and Ramaswamy and Cohen (2007), who suggest that the information regarding partial utilities obtained through conjoint analysis could be usefully applied to latent class models. These models could be used in future investigations to identify segments which describe the Internet shopper according to characteristics that are not known a priori to the researcher. Once these segments have been identified, the socio-demographic characteristics of the individuals that comprise each segment could be analysed. This would make it possible to identify whether significant differences exist between the characteristics of the individuals in each segment, thereby facilitating web page design improvements and providing appropriate information relating to the requirements of each segment.

Finally, the limitations of this research arise from the methodology used. The number of attributes and levels must be decided by the investigator: a conjoint analysis cannot be carried out using a high number of them, since the factorial design would produce too many profiles for the individual to evaluate. Another limitation refers to the fact that we cannot generalize the results as we have used a convenience sample of university students.

CONCLUSION

In this study we have analysed consumers' preferences regarding the attributes built into e-retailers' web pages. Unlike previous research, whose dimensions encompass several attributes, making it difficult to understand the importance ascribed to each one, our study used simple attributes which can be easily evaluated by individuals. This affords a better understanding of how they actually make their choices, maximising the global utility of each attribute. We also proved that the type of product analysed influences the importance of the e-retailer's attributes. In both products, the attributes that are most valued

by the participants are the virtual store's security and privacy policy. However, in the case of a laptop computer, consumers also emphasize the importance of the provision of the technical details of the product and the fact that the supplier also has a physical store. The methodology used was conjoint analysis, a method which is ideally suited to the aims of this study.

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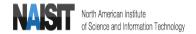
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[1] According to the ONTSI study (2011) by the Spanish Ministry of Industry, Tourism and Commerce, the profile of Internet shoppers describes males aged 25 to 49 years, who are educated to at least high school standard, with a high representation from university students, who are resident in urban areas and are of average socioeconomic status.

[2] Using the T-test for related samples.

[3 The order of attributes is a function of the highest percentages of choice for pleasure trip.

[4] There are six two-level attributes and three three-level attributes, thus the total number of combinations is calculated as: $2^6 * 3^3 = 1728$.

[5] The design obtained is orthogonal, since it is shown that $n_{ij} = \dfrac{n_i \cdot n_j}{N}$

[6] The attributes were listed in a different order for each profile.

[7] 0.324+0.368+0.394+0.383+0.038+0.370+0.335+0.259+0.218+3.147= 5.836. Any other profile would achieve a lower global utility, since this result matches the preferred profile.

[8] 0.177+0.365+0.341+0.315+0.158+0.255+0.297+0.384+0.350+3.038=5.68