Service quality, customer value and satisfaction relationship revisited for online wine websites

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Abstract

Purpose – Past research has examined the relationship between service quality, customer value and customer satisfaction in a traditional context. While most researches were limited to the study of relationships between global concepts, this paper attempts to go further and address the linkages between the different dimensions of these concepts in an online context for wine websites.

Design/methodology/approach – In all, 2,813 Internet customers filled in an online questionnaire after completing a specified task on 28 selected websites selling wine directly to customers.

Findings – The results highlight the impact of e-service quality dimensions (information, ease of use, design, security/privacy and reliability) on customer satisfaction via the dimensions of customer value (transactional, utilitarian and social value).

Practical implications – From a managerial point of view, in order to increase customer value and satisfaction, online wine merchants should focus on the different dimensions of e-service quality and more particularly on ease of use (propose a user-friendly navigation interface, facilitate the Internet user’s research by offering several search options (by price, region, grape variety, colour, occasion of consumption, etc.) and provide an internal search engine), reliability (indicate the level of stocks in real time, offer a variety of delivery methods and timescales, etc.), design (bottle video, ...) and security/privacy (offer various methods of payment, provide information regarding the data protection policy, etc.).
Key words: e-service quality, customer value, customer satisfaction, wine websites, Internet
1. INTRODUCTION

Online wine sales, following the pattern of other consumer goods, are experiencing growing success in France and throughout the world. Although this market still represents a very small proportion of the total wine market, it is estimated, in 2009, to be worth 176 million euro in France and slightly less than 4 billion euro worldwide, that is 4% of global wine sales across all distribution channels. Estimates of growth in this market are about 30% annually (Author, 2009). In France, more than 300 e-commerce sites share this market. However, three players generate in 2009 a turnover of more than 5 million euro each: 1855.com (€14.7m), Chateaounline.com (€9.4m) and WineandCo.com (€5.5m). The market players keep their cards close to their chest and remain silent on the subject of profitability. Distribution via Internet rests on key success factors, but these are closely guarded secrets that those in the industry are keeping to themselves. The evidence shows that simply creating a site is not enough to make it work. The major flaw in this distribution method (just as with mail order) is that it is impossible for the customer to sample the wine or ask retail personnel about their experience of the beverage or obtain advice on how to handle the bottle.

The e-business pioneers envisaged the internet as a platform for reaching new outlets and markets of global dimensions, with the advantage of virtually infinite product selection, intimate customer relationships, low cost and streamlined distribution chains (Mougayar, 1998). The properties of the internet itself meant that these expectations were well founded: providing new distribution channels, allowing universal customer access, one-to-one marketing opportunities, no need for physical presence and direct producer-to-customer relationships (Afuah and Tucci, 2000).

The increasingly systematic use of the Internet in consumers’ decision-making processes, coupled with the development of e-commerce, has led researchers and practitioners to examine the relationship between service quality, customer value and customer satisfaction in an online context. If the Internet intends to succeed as a major distribution channel, a key factor will be exploiting its potential to satisfy customers by delivering high customer value and service quality. As in traditional stores, online shoppers choose and return to retailers who offer superior customer value (Woodruff, 1997), online retailers must design and deliver a value proposition that is most appealing to online customers (Overby and Lee, 2006). Past research studied the relationship between service quality, customer value and customer satisfaction in a traditional (Dodds, Monroe and Grewal, 1991; Grewal, Monroe and Krishnan, 1998) and in an online context (Chang and Wang, 2008). However, to date, there has apparently been no research looking at the impact of electronic service quality dimensions on the dimensions of customer value and customer satisfaction in an online wine selling context.

Wine is expensive, fragile, heavy, and difficult to transport. The online merchant therefore has to build up a relationship of trust and profitability based on service quality, customer value and satisfaction in order to overcome the difficulties associated with this retail method.

The purpose of this paper is to revisit the link between service quality, customer value and customer satisfaction in an online context for wine websites. While most studies were limited to the study of relationships between global concepts, this research attempts to go further and address the linkages between the different dimensions of concepts. Understanding consumers’ online profitability chain is important for wine producers, wine boutiques, and wine website designers. With this aim, this paper is divided into three parts. First, a
conceptual framework is proposed and the hypotheses of the research are proposed. Next, the methodology for testing the model and the principal results are presented and discussed. Finally, limitations and research avenues are developed.

2. CONCEPTUAL FRAMEWORK AND HYPOTHESES

2.1. Service quality and e-service quality

Traditional service quality, i.e. for an interpersonal service experience, have been studied extensively over the past two decades. Nowadays, the study of the e-service quality is one of the most studied concepts in services marketing literature. Zeithaml, Parasuraman and Malhotra (2002) defined e-service quality as “the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery of products and services”. One of the most important, and probably the most evident, differences between traditional and e-service quality is the replacement of interpersonal interaction with human-machine interaction. Owing to the specific characteristics of online commerce, direct application of the dimensions of service quality developed in other environments (Parasuraman, Zeithaml and Berry, 1988) is not appropriate or, at best, does not capture all of the subtleties of the evaluation of e-service quality. To date, however, there is no consensus concerning the dimensions of e-service quality, five dimensions proposed recur fairly systematically (Barnes and Vidgen 2003; Author, 2006; Parasuraman, Zeithaml and Malhotra, 2005; Wolfinbarger and Gilly 2003):

- Information, quality and quantity of the information about the product or the service;
- Ease of use, refers to how a consumer perceives the ease of navigation offered by the site;
- Website design, aesthetic elements of the website like color, graphics, …;
- Reliability, capacity to fulfill promises (providing information on delivery periods, availability of products, the ordering process, and delivery methods);
- Security/privacy, security of financial data and respect of private life.

2.2. Customer value

Authors generally agree that customer value is a concept difficult to define and measure (Holbrook, 1994; Woodruff, 1997; Zeithaml, 1988), still, most consider broadly perceived value as a difference between perceived benefits (i.e., ease of use) and costs (i.e. time, effort, money). In this article, Zeithaml (1988) definition is retained, as we consider customer value as "the consumers' overall assessment of what is received relative to what is given". Customer perceived value is one of the most studied topics in recent literature as authors have found it to be a key predictor of consumers loyalty, and purchase intentions (Chang and Wang, 2008; Chen, Hsu and Lin, 2009; Yang and Peterson, 2004). In traditional retail settings, studies showed that value perception may result from different elements, such as functional elements, transactional ones, etc. The most important dimensions of perceived value identified in the literature, and retained here are the following:

- Utilitarian value, which is driven by utilitarian or functional elements, such as economic value for the money (Zeithaml, 1988), convenience and time saving (Jarvenpaa and Todd, 1997; Teo, 2001).
• **Transactional value**, which results from the consumers' perceptions of a psychological satisfaction or pleasure obtained when taking advantage of the financial terms of the price deal (Grewal, Monroe and Krishnan, 1998).

• **Social value**, which results from buying or using a given product (Holbrook, 1999), and is related the product's or service's capacity to be associated with a social class, a social status or a social group (Lai, 1995).

The critical aspect is then to check whether in-store customer value dimensions identified in the retailing literature are still equally relevant in an online context, and if so, to what extent are those dimensions related to the antecedent and consequences of online customer value. Service quality is an important antecedent of customer value, as many studies have validated a strong, positive, and significant effect of product’s or service’s quality on customer value perception (Agarwal and Teas, 2002; Bolton and Drew, 1991; Chen and Dubinsky, 2003; Dodds, Monroe and Grewal, 1991; Grewal, Monroe and Krishnan, 1998; Monroe and Krishnan, 1985; Sweeney and Soutar, 1999; Zeithaml, 1988). In online contexts, studies have shown that customer value is the link between online purchase/repurchase and perceived e-service quality (Chang and Wang, 2008; Zeithaml, Parasuraman and Malhotra, 2002). However, these researches have, for the most part, addressed the overall relationship between e-service quality and customer value. In this study, we try to focus the effects of e-service quality dimensions on customer value, and propose the following hypotheses:

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H1: \text{ There is a positive relationship between e-service quality dimensions and customer value dimensions.}
\]

### 2.3. Customer satisfaction

In the service marketing literature, much research has studied customer satisfaction, both in the traditional and online contexts (Evanschitzky et al. 2004; Szymanski and Hise, 2000; Wolfinbarger and Gilly, 2003). Satisfaction is an ex post evaluation of consumer experience with the service, and is captured as a positive, indifferent or negative feeling. Oliver (1997) defines satisfaction as “the perception of pleasure fulfillment of a service and loyalty as deep commitment to the service provider”. In the e-commerce context, Wolfinbarger and Gilly (2003) identify a positive link between e-service quality dimensions (design, reliability, security/privacy, customer service) and customer satisfaction. It would therefore appear that service quality dimensions contribute to satisfy the Internet user when visiting a site, in order to test this relationship, we propose the following hypotheses:

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H2: \text{ There is a positive relationship between e-service quality dimensions and customer satisfaction.}
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The relationship between perceived customer value and satisfaction has been studied in numerous studies (McDougall and Levesque, 2000). They have shown that value perception occurs especially during pre-purchase evaluation (Woodruff, 1997), and that satisfaction is a post-purchase evaluation (Oliver, 1997). Then, customer value is an antecedent to customer satisfaction (Parasuraman, 1997; Ravald and Grönroos, 1996). Authors also started to study this relationship in an online context (Chang and Wang, 2008), yet the perceived customer value dimension’s effect on customer satisfaction still needs further attention, so we formulate the following hypotheses:

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H3: \text{ There is a positive relationship between customer value dimensions and customer satisfaction.}
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3. METHODOLOGY

In this paper, online e-commerce wine websites were chosen for testing the model and the hypotheses. Online wine sales are experiencing growing success throughout the world. Buying does not seem to be the primary motivation for visiting a wine website: Bruwer and Wood (2005) consider that comparing prices and obtaining information are the principal motivations. The security of personal and financial information is the most important factor for online wine-buying. Other important considerations include fair pricing, product content, website functionality and e-mail or digital receipts (Bruwer and Wood 2005). So the main factors which could explain consumer behavior on wine websites are not related to the product but more to the evaluation of the online experience by aspects related to e-service quality.

28 websites, selling wine directly to customers (20 French, 2 English, 1 Italian, 1 German, 1 Spanish, 2 North American and 1 Australian) were selected for this study regarding their quality of referencing (SEO) among the main search engine (e.g. Google) on the term “buy wine”. In all, 2,813 Internet users, members of the Ciao Surveys online sample group, had to navigate on one of the 28 website selected in order to achieve a precise task, i.e. simulation of a wine purchase with a 250€ budget. After completing the navigation process, participants were asked to complete an online questionnaire that included items measuring e-service quality based on the NetQual scale (Bressolles, 2006), a measure of customer satisfaction (Oliver 1997) and a measure of online customer value adapted from a multidimensional perceived value scale (Amraoui, 2005). The questionnaire also included a series of socio-demographic and Internet behaviour questions. All the scales were 5-points Likert ones.

The observed sample group was representative of Internet users (quotas on principal variables were set). It was composed of 49% of women, 60% of the respondents were younger than 35 and 31% were between 35 and 55 years old 40% of the respondents had an A-level or a Bachelor and 15% had an MSc or more. 50% had a net annual income of between 20 and 50 k€. Most of them had been using Internet for more than 5 years (65%) and had been purchasing online for less than 3 years (56% with 27% for more than 5 years). 54% of the respondents had made more than 5 online purchases during the last 12 months. 33.8% of those questioned stated that they had already visited a wine purchasing website and 10.2% declared that they had already purchased wine online.

4. RESULTS

A Confirmatory Factor Analysis (CFA) was implemented to examine if it is reasonable to maintain the initial factor structure of the electronic service quality concept using EQS model (EQS 6 – Bentler and Wu, 2002). We use chi-square difference between the model with equal parameters in each group and the model with unequal parameters in each group. If the difference is significant, the dimensions are discriminant (Bagozzi, 1981). The difference between the two models is significant (difference of Chi²: 687.132, difference of df.: 10, p=0.000). We confirm five dimensions of e-service quality: ease of use, design, security/privacy, reliability and information. All the indicators (Chi² 191.72, p=0.000, GFI
0.99, AGFI 0.98, NFI 0.99, NNFI 0.99, and RMSEA 0.03) respect their criteria of validity. The reliability of NetQual scale is equal to 0.93 (alpha of Cronbach). R square of the model (0.70) verifies a good predictivity.

A Confirmatory Factor Analysis (CFA) was then implemented to examine if it is reasonable to maintain the initial factor structure of the customer value concept using EQS model (EQS 6 – Bentler and Wu, 2002). We verify the discriminant criteria (Bagozzi, 1981). We use the chi-square difference between the two models. The difference is significant (difference Chi²: 144.240, difference of df.: 3, p=0.000). We confirm three dimensions: social value, transactional value and utilitarian value. All the indicators (Chi² 11.67, p=0.000, GFI 0.99, AGFI 0.99, NFI 0.99, NNFI 0.99, and RMSEA 0.02) respect their criteria of validity. The reliability of customer value scale is equal to 0.89 (alpha of Cronbach). R square of the model (0.68) verifies a good predictivity.

After that, the model that test the relationship between the dimensions of e-service quality on the dimensions of customer value and satisfaction is validated by using EQS model (EQS 6 - Bentler and Wu, 2002) with maximum likelihood method. We tested three different models (direct, non direct and full model) as shown in Figure 1 below.

![Figure 1: Test of three models of relationship between the concepts](image)

In Table 1, we present fit index of the three models. We choose the model that minimizes the Chi-square. So the analysis suggests that we should choose the non direct model (2nd model) that take into account indirect (e-service quality → Customer value → satisfaction) relationships.

<table>
<thead>
<tr>
<th>Model</th>
<th>Chi²</th>
<th>Df</th>
<th>Chi²/df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct model</td>
<td>6061,69</td>
<td>234</td>
<td>25,90</td>
</tr>
<tr>
<td>Non direct model</td>
<td><strong>2026,31</strong></td>
<td>229</td>
<td><strong>8,85</strong></td>
</tr>
<tr>
<td>Full model</td>
<td>2125,45</td>
<td>226</td>
<td>9,40</td>
</tr>
</tbody>
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*Table 1: Comparing direct and non direct and full models*
The figure 2 below presents the test of the non direct model between the dimensions of e-service quality, customer value and satisfaction.

![Figure 2: the relationship between e-service quality dimensions, online customer value dimensions and online customer satisfaction](image)

The five dimensions of e-service quality (information, ease of use, design, security/privacy and reliability) have a positive impact on the three dimensions of online customer value: social value ($R^2=0.58$), utilitarian value ($R^2=0.88$) and transactional value ($R^2=0.51$), which validates hypothesis H1. We confirm the general results of Chang and Wang (2008) and we go further by validating the linkages between the dimensions of e-service quality and the dimensions of customer value.

The non direct model is retained base on chi-square comparison. So, hypothesis H2 is not validated; this result might be due to the fact that we have introduced the mediating effect of customer value between e-service quality and customer satisfaction relationship. Finally, the predictive validity of our global model is 0.85; all the structural coefficient showed in Figure 2 are significant at 0.05.

The three dimensions of online customer value have a positive impact on online customer satisfaction. These results validate hypothesis H3, and are consistent with preceding findings in offline context showing that perceived value is a key antecedent of customer satisfaction (McDougall and Levesque, 2000; Chen and Dubinsky, 2003; Yang and Peterson, 2004).

If we analyse our results more precisely, all the customer value dimensions are influenced by at least two e-service quality dimensions.

Social value is influenced by design (0.58) and security privacy (0.26). When customers positively evaluate the website design, they are more willing to talk about their experience, and share it with their surrounding (Van Dolen, Dabhoklar and de Ruyter, 2007).
The visual representations of wine (bottle, labels...) and of winery (via video of the winemaker) on the website can create customer value. The fact that the website gives reassurance to the customer about the security conditions and the respect of the privacy encourages the customer to talk about his/her experience on the website and enhance the social value of the experience on the website.

Utilitarian value is more influenced by ease of use (0.35) and reliability (0.32). This result is consistent with previous findings showing that online shopping experience can be increased by improving the utilitarian characteristics of websites and especially ease of use (Chen, Hsu and Lin, 2009; Overby and Lee, 2006). Moreover the lower the search cost is (with a good ease of use of the website), the lower price sensitivity is (Lynch and Ariely 2003). When customers are easily able to compare the prices on the website (i.e. the navigation process is facilitated by a price comparator for instance), the price sensitivity increase. So, the ease of use of shopping facilities (i.e. shopping list, price comparison, recipe information facility to make selection preferences and payment security) can create "efficiency ... and consumer value may be acquired through the convenience" (Bevan and Murphy 2001). Moreover the reliability aspects of e-service quality (indication of stock level, delays, choice in delivery method ...) improve the online buying on the website concerning its utilitarian aspects.

Finally, transactional value is influenced by all the dimensions of e-service quality (except design). The reliability dimension has the strongest impact on transactional value (0.35).

Customer satisfaction is influenced by the three customer value dimensions and more precisely by social value (0.40) and utilitarian value (0.52). This study provides a better understanding of the link between customer value and customer satisfaction, since the results not only confirm the strong positive relationship between perceived value and satisfaction in an online context for wine websites, but also shows that the social value and the utilitarian value are the essential drivers to satisfy consumers who visit a given website. This could be related to the fact that wine consumption is a social activity (Charters and Pettigrew, 2005; Groves and ali. 2000). Wine consumption focuses more on symbolic, aesthetic and hedonic dimensions. The consumer goal is not to make the right decision but to have a holistic and aesthetic experience. He or she seeks pleasure in getting knowledge, feelings and strong emotions of beauty, sublime even if a wine itself could not be an aesthetic object for some people. It is not only a question of creating a unique experience during the visit, but this experience should be cultivated by creating post-visit strategies. If the experience was strong and pleasant, the consumer will be undoubtedly interested in renew it. This development of consumer loyalty passes by the feeling of membership to a club (invitation to the events in preview, proposal for special offers). A newsletter which develops a stronger feeling of belonging to a community could remind a customer his/her pleasant experience. So, the winery visiting experiences refer to the social identity, the social groups and the various cultures. As price remains an important criteria for online shopping (Vijayasarathy and Jones, 2000), transactional value has a weak, but yet significant effect on customer satisfaction (0.15).

5. CONCLUSION, LIMITATIONS AND RESEARCH AVENUES

The study of traditional service marketing concepts like service quality, customer value and satisfaction gains increasing importance in online service marketing literature. E-service
quality may lead to improve online customer value and online satisfaction. These variables are key factors of success for an online wine retailer. The dimensions of e-service quality (information, ease of use, design, security/privacy and reliability) have an impact on online customer value dimensions (social, utilitarian and transactional value) which influence in return online customer satisfaction. Past researchers have studied the relationship amongst these concepts without looking at the impact of electronic service quality dimensions on the dimensions of customer value and customer satisfaction. This paper presents some results relating to these impacts. It finally stresses the role of social and utilitarian value as drivers for online customer satisfaction.

From a managerial point of view, in order to increase customer value and satisfaction, online wine merchants should improve the different dimensions of the e-service quality of the website. In order to improve the information, online merchants should describe each wine accurately via an illustrated information card (labels, etc.), give more details on the different vintage years, provide flavor ratings (website wine oenologist and/or independent guides), the characteristics of the soil, a brief description of the land, flavor advice, information on the storage potential of the wine or food accompaniment. In order to improve the design of the website, online wine merchants should offer a graphic charter which is sober and consistent with the types of products sold and the positioning of the site. They could also provide videos of the producer's vineyard in order to establish visual contact and improving customer value. In order to improve the reliability of the website, online wine merchants should indicate the level of stocks in real time, offer a variety of delivery methods and timescales, ensure that the delivery can be tracked on the site and/or by e-mail so the customer can be informed at every stage, and provide efficient and perfect customer service in case of breakages, delays in delivery, etc. In order to improve the ease of use of the website, online wine merchants should propose a user-friendly navigation interface, facilitate the Internet user's research by offering several search options (by price, region, grape variety, colour, occasion of consumption, etc.) and provide an internal search engine. Finally, online wine merchants must take the security/privacy dimension into account and offer various methods of payment in order to reassure the Internet user at the point of purchase (bank logos, quality seals, etc.). The site must also allow easy access to the Terms and Conditions of Sale and provide information regarding the data protection policy (possibility of unsubscribing from e-mailings, etc.).

This study has some limitations; however, its main asset is the evaluation of all 28 websites, each by 100 Internet users representative of the Internet user population in each country. This strength can also be a weakness because the Internet users selected may not match the profile of the customers of the websites analyzed. Nevertheless, the goal set during this study was to have an Internet user accomplish a precise task, independently of his/her intrinsic characteristics. To generalize the results, researchers should replicate this study with a buyer sample for each website. Another limitation comes from the over-representation of French websites in the sample. Future research should integrate more non French wine websites in order to be able to compare cultural differences. Finally, future research could take into account other variables able to have an influence on the relationship between e-service quality, customer value and satisfaction like personal characteristics of the respondents, impulsivity, time pressure, online and/or goods expertise, etc.

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