# Segmenting Online Customers Based on Electronic Service Quality Dimensions: An Application to Wine Websites

**Grégory Bressolles**

Professor of Marketing
Holder of the e-Commerce and Retail Chair

BEM – Bordeaux Management School
680 Cours de la Libération
33 405 Talence (France)
Email: gregory.bressolles@bem.edu
Phone: +335 56 84 22 28

**François Durrieu**

Professor of Marketing
Holder of the Creative Industries Research Pole

BEM – Bordeaux Management School
680 Cours de la Libération
33 405 Talence (France)
Email: francois.durrieu@bem.edu
Phone: +335 56 84 22 54

**Segmenting Online Customers Based on Electronic Service Quality Dimensions: An Application to Wine Websites**

**Abstract**

The online wine market is expanding at an annual growth rate of around 30%. Following the pattern of other consumer goods, the sale of wine on the Internet is experiencing growing success throughout the world. Moreover, 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 issues concerning service quality in an online context. This paper proposes a typology of online consumers of wine Websites based on dimensions of electronic service quality. In all, 2,813 customers of 28 wine Websites filled in an online questionnaire after completing a specific task. Six groups of customers are identified: the "secure seeker", the "opportunist", the "novice", the "customer service seeker", the "browser" and the "rational browser". The six groups can be defined according to their wine and Internet behaviour and the characteristics of the respondents.

**Key Words:** electronic service quality, typology, Internet, electronic commerce, wine.

## Introduction

Wine was one of the first products to received attention from Internet-only retailers (Gebauer and Ginsburg, 2003). The e-business pioneers envisioned the Internet as a platform to reach new outlets, markets of global dimensions, virtually infinite product selection, intimate customer relationships, low cost and streamlined distribution chains (Mougayar, 1998). These expectations were well grounded in the properties of the Internet, such as 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 & Tucci, 2000).

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 market, it is estimated to be worth 100 million euros in France and slightly less than 2 billion euros worldwide, i.e. 5% of global wine sales across all distribution channels. The estimations of growth in this market are about 30% annually. In France, more than 200 e-commerce sites share this market. However, three players generate turnover of more than 5 million euros each: 1855.com (€14.7m), Chateauonline.com (€9.4m) and WineandCo.com (€5.5m). The market players play their cards close to their chest and remain quiet on the subject of profitability. Distribution via the Internet channel rests on key success factors which are closely guarded by those in the industry. The evidence shows that simply creating a site is not enough to make it work. The major flaw in this method of distribution (just as with mail order) is that is it impossible to sample the product, particularly as the product could be heavy, fragile, expensive and difficult to transport. The online merchant therefore has to build up a relationship of trust based on service quality and develop a good reputation in order to overcome the difficulties associated with this retail method.

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 service quality issues in this context. The purpose of this paper is to propose a typology of online customers based on the dimensions of electronic service quality applied to wine Websites. The paper is in four parts. First, the conceptual framework presents the concept of electronic service quality and research into online typologies. This is followed by the methodology and the principal results and finally, managerial implications, limitations and research avenues are presented and discussed.

## Electronic Service Quality

### *Definition and differences from traditional service quality*

Over the last twenty years, research on traditional service quality (i.e. for an interpersonal service experience) has provided a greater understanding of this concept (dimensions, antecedents, consequences, etc.). The study of Website service quality, however, is in its early stages. Whereas traditional service quality is defined as "consumer's judgment about an entity's overall excellence or superiority" (Parasuraman, Zeithaml & Berry, 1988), electronic service quality represents "the extent to which a Website facilitates efficient and effective shopping, purchasing and delivery" (Parasuraman, Zeithaml & Malhotra, 2005). It is a transactional quality and includes elements of evaluation both "pre" and "post" service experience. Buying via the Internet seems to be a goal–oriented activity.

The biggest and possibly one of the most obvious differences between service quality in traditional and electronic commerce is the replacement of an interpersonal contact with a human-machine interaction. The interface between customer and service provider in the context of e-commerce can be seen as being a dynamic and interactive relationship with technology at its center (Dabholkar, 2000). This single distinction raises numerous questions regarding the types of dimensions that could or should be considered when evaluating the level of electronic service quality. For example, how can empathy with the service provider (one of the SERVQUAL dimensions) be assessed when the interaction is with a machine rather than an individual? Other characteristics specific to the Internet make direct application of traditional service quality dimensions inappropriate. These dimensions sometimes do not consider all the subtleties needed for the evaluation of commercial Website service quality. The technological nature of the interaction modifies the dimensions of service quality and legitimizes questioning traditional measurements of perceived quality. The "ease of use" and the "security/privacy" of a Website, for example, are additional factors to take into account. The majority of the new dimensions of service quality are specifically linked to technology.

Given the crucial role of consumer evaluation in the services domain, an important issue is the identification of the dimensions of service quality perceptions. Even if goods and services bought online are the same as those bought in a traditional context, the online and offline buying experiences are very different. Online buying is more impersonal and automatic, it offers fewer immediate sensorial indicators and less direct satisfaction, and it has more legal uncertainty and a higher risk of fraud or abuse. Parasuraman and Grewal (2000) address such issues, emphasizing the specific dimensions for the evaluation of perceived quality of interaction with technology-mediated services. The classic dimensions of traditional service are "tangible elements", "reliability", "reactivity", "assurance", and "empathy" of the supplier.

No consensus exists regarding similar dimensions of electronic service quality. Some dimensions have been suggested in an anecdotal manner, and others are mentioned almost systematically: "information", "ease of use", "design", "reliability", "security/privacy", "offer" and "interactivity".

*The principal dimensions of electronic service quality*

The relevant literature on electronic service quality indicates that a site is not simply a utilitarian tool for finding information about the qualities of services or products, for making choices, and for ordering a product or service. Studies in this area have progressively taken into account other dimensions linked to the pleasure of the site visit and the interaction between the user and the Website. Seven main dimensions of electronic service quality arise from a review of literature and an exploratory qualitative study carried out among cyber-consumers and experts on online buying (Bressolles, 2006).

***(1) Quality and quantity of information**:* These elements are frequently cited as significant reasons for online buying (e.g. Barnes & Vidgen, 2003; Wolfinbarger & Gilly, 2003) and have not been directly examined in the evaluations of traditional service quality. The absence of contact with the service provider during online buying increases the need for clarity and precision of information. This dimension measures the Internet user's perceptions of the quality and quantity of commercial or technical information on the services or products that the business provides.

***(2) Ease of use**:* Transactions made via the Internet appear complex and so can intimidate many consumers. The ease of use of the Website is thus an important factor in electronic service quality (Eighmey, 1997). Ease of use was, for a long time, referred to as usability in the Internet context (Swaminathan, Lepkowska-White & Rao, 1999). Usability refers in the physical world to the layout of the shop and the ease of making one's way around it (Lohse & Spiller, 1998). For a Website, usability refers to how the user perceives and interacts with the site: Is it easy to use? (Nielsen, 1999).

***(3) The Website design or aesthetic elements**:* These refer to the richness of the representation of the Website's environment, linked to its formal characteristics (Steuer, 1992) such as graphics, colours, images, icons, animated sequences, videos, and pop-ups. These elements contribute to the atmosphere of the Website.

***(4) Reliability and respect of commitments**:* As in the traditional context, these are linked to the ability of online sellers to keep their promises, to fulfil the terms of the exchange, and to deliver the product as ordered (in terms of quantity, price, and description) while meeting service requirements and respecting the delivery timetable (Parasuraman, Zeithaml & Berry, 1988).

***(5) Security and privacy**:* Security refers to protecting the user from the risk of fraud and financial losses. Privacy refers to protection of personal details and the implicit or explicit agreement not to sell or exchange the personal information gathered from consumers during the service experience. This dimension is specific to online commerce (Yoo & Donthu, 2001).

***(6) Offer:*** Measures the richness and variety of the goods offered by the Website and the good deals the site offers.

***(7) Interactivity:*** Allows customers to define and to model for themselves the offer best adapted to their needs, to have a privileged relationship with the Website, to modify the contents and the shape of the environment mediatised in real time (Steuer, 1992). The interactivity of Internet allows adapted answers (Ghose & Dou, 1998) and increases the possibilities for contacting customer services in order to obtain a personalized service (Bitner, Brown & Meuter, 2000).

## Typologies of consumers on the Internet

There are few online typologies (Rohm & Swaminathan, 2004). Generally, research has compared online buyers with non-buyers in terms of representations, socio-demographic characteristics, utilitarian motivations, innovativeness (Barnes, Bauer, Neuman, & Huber, 2007; Gattiker, Perlusz & Bohmann, 2000; Mathwick, Malhotra & Rigdon, 2001), their attitude toward Internet shopping (Nyeck, Xuereb, Ladhari, & Guemarra, 2000), their sensitivity to risk, their propensity to impulse buy or their search for variety (Donthu & Garcia, 1999), and their concern for privacy (Sheehan, 2002). Research has shown that online buyers are older and have a larger income than non-buyers. They are characterized by a desire for convenience and choice. They are innovative, impulsive, and insensitive to risk. They are more sensitive to advertising and direct marketing than non-buyers. In questioning a sample of 3,700 Internet users, Kau, Tang and Ghose (2003) identified six groups of customers who are differentiated from each other in terms of modes of information research, motivations, and attitude toward online commerce. Rohm and Swaminathan (2004) have developed an online consumer typology based on buying motivations. Four groups of consumers are identified: (1) *Convenience shoppers*, principally motivated by the practicality linked to buying online (economy of time and effort); (2) *variety seekers*, who are on the lookout for different or new sites, products, and brands; (3) *store oriented shoppers*, more motivated by characteristics of "offline" shopping (social contact, immediate possession of products bought), and (4) *balanced buyers*, who have average scores in all four buying motivation dimensions. This group makes fewer plans regarding purchases and so has a tendency towards impulse buying.

Consumer segmentation in the wine industry takes many forms: demographic, geographic, psychographic and behavioural (Thach & Olsen, 2006). Nevertheless, to date, no typology of online wine consumers has been done. This paper is not interested in identifying the motivations for online buying or in comparing online buyers with non-buyers in the wine sector. Existing typologies do not take into account how electronic service quality can influence an online shopper's motivations. Moe (2003) considers some dimensions, such as browsing and information search, to describe her online consumer typology. This article intends to propose a typology of online customers based on the dimensions of electronic service quality applied to wine Websites.

## Methodology

About 100 Internet users per site, all members of the Ciao Surveys online sample group, were invited to navigate on the 28 selected Websites selling wine directly to customers (see the list in appendix 1). The Websites used for this study were selected regarding their quality of referencing among the main search engine (e.g. Google) on the "purchase wine" terms. With this query, Google proposed more than 1,800,000 result pages. With the aim of producing exploitable results, we deliberately focused on the first 20 French Websites selling directly to customers and the most famous international ones. The Internet users had to achieve a precise task in order to guarantee a minimum navigation time (i.e. simulation of a wine purchase with a 150€ budget). Eighty-one per cent of the respondents could accomplish the requested task easily. The mean time for this operation was 15 minutes. Finally, 2,813 Internet users (French, English, Italians, Germans, Spanish, North Americans and Australians) filled in the online questionnaire analysing 28 sites (20 French, 2 English, 1 Italian, 1 German, 1 Spanish, 2 North American and 1 Australian). After completing the navigation process, participants were asked to complete an online questionnaire that included items measuring electronic service quality based on the NetQual scale (Bressolles, 2006). The questionnaire also included a series of socio-demographic, Internet and wine behaviour questions.

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 y.o. 40% of the respondents had an A-level or a Bachelor and 15% had an MSc or more. 85% of the group belonged to a family composed of at least 2 people. 28% were white-collar workers while 33% were blue-collar workers. 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. Regarding the source of information about wine, advice from friends or family was the first source for all the respondents (83%). Nevertheless, we also observed that people who buy wine on the Internet also use information from Internet sites (45%) and advice from professionals (56%).

## Results

### *Profile of the e-wine buyer*

Of the 2,813 Web users who filled in the online questionnaire, 10.2% had already bought wine online. On the basis of their responses we can create a specific profile of the e-wine buyer.

E-wine buyers tend to be male (69.5% compared to 51% Internet users surveyed overall), significantly older (48% over 35 years old compared to 37% overall). They have a high level of education (31% have a Masters degree or higher compared to 15% overall). Managers and professionals are over-represented among online wine purchasers (31% compared to 15%). They have above average annual net income (46% earn between €30k and €60k, whereas this only applies to 34% of survey respondents overall).

Regarding familiarity with the Internet and expertise in online shopping, the online wine purchaser has used the Internet extensively for over 5 years (75% compared to 65% for all people interviewed) and has made online purchases for more than 5 years (43% compared to 27%). 73% of online wine purchasers questioned have conducted more than 5 online purchases in the last 12 months (compared to 54% of those interviewed overall).

Online wine buyers describe themselves as more competent on the subject of wine than the total Internet users surveyed (44% informed amateurs compared to 27% of those surveyed overall). They also generally purchase more expensive wines (46% place their wine purchases between 10 and 20 euros, compared to 34% of interviewees overall).

Their wine-purchasing habits, in terms of location as well as different purchase frequency: logically the Internet is over-represented among online wine purchasers, while mass retail dominates among those surveyed overall. In addition, they purchase wine more regularly (across all distribution channels): 44% of online purchasers buy it at least once a month compared to 35% of all interviewees. 75% of those who purchase wine on the Internet own a wine cellar or stock of wine, compared to only 51 % of those surveyed overall.

In terms of purchase motivation, the hierarchy remains practically unchanged, regardless of whether it is the average Internet user or online wine purchaser: the main motivation is "for a nice meal with friends".

Regarding the method of access to online wine retail sites, 70% of those surveyed use an online search engine. In addition to this method of access, Internet users who have already purchased wine online access sites by directly typing the address (41.6%) or have stored the address of the site among their favourites (40%).

*Validation of the structure of the NetQual scale for wine Websites*

An Exploratory Factor Analysis (with principal components analysis) is used to find the structure of the NetQual scale for electronic service quality. A Varimax rotation is carried out during the Exploratory Factor Analysis. The reliability with the Rho of Jöreskog (1971) is verified for each dimension of the construct. Table 1 shows the structure of the seven factors revealed.

The seven dimensions concern aspects linked to **ease of use**, **information, security/privacy, design**, **reliability**, **offer** and **interactivity**. We consider the constructs to be reliable when $\rho$ is more than 0.8. Design, Reliability and Interactivity are quite reliable.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| It is easy to move around and find what I am looking for on the site | 0.80 | | | | | | |
| The site is easy to use | 0.79 | | | | | | |
| The organization and the layout of the site make information research easy | 0.75 | | | | | | |
| It is easy look for information on the site | 0.74 | | | | | | |
| The site is set out in a clear and simple way | 0.72 | | | | | | |
| This site provides sufficient information to identify the product (or service) with the same precision as in store | | 0.76 | | | | | |
| The site gives detailed information on the product(s) or service(s) supplied | | 0.75 | | | | | |
| Information on the site is accurate | | 0.73 | | | | | |
| Information on the site is pertinent | | 0.70 | | | | | |
| I think my personal details are safe on this site | | | 0.82 | | | | |
| I have confidence that the site will not use my personal information for bad purposes | | | 0.80 | | | | |
| Generally, I have confidence in the site's security | | | 0.77 | | | | |
| The site is visually attractive | | | | 0.76 | | | |
| The site is creative | | | | 0.76 | | | |
| The site looks good | | | | 0.65 | | | |
| This site gives information concerning availability of the products | | | | | 0.78 | | |
| This site proposes several means of delivery | | | | | 0.68 | | |
| This site gives information concerning the delivery delays | | | | | 0.65 | | |
| This site offers good deals | | | | | | 0.83 | |
| This site proposes good bargains | | | | | | 0.80 | |
| This site gives me information to contact the customer service (e-mail, telephone,) | | | | | | | 0.76 |
| Thanks to this site, I can easily contact the company | | | | | | | 0.74 |
| Dimension | Ease of use | Information | Security/ Privacy | Design | Reliability | Offer | Interactivity |
| %Variance | 17.81 | 13.89 | 12.00 | 10.39 | 9.74 | 8.04 | 7.31 |
| Reliability (ρ of Joreskog) | 0.87 | 0.82 | 0.84 | 0.77 | 0.75 | 0.80 | 0.72 |

*Table 1: Dimensions of electronic service quality – NetQual scale*

*Proposition of a typology of online customers of wine Websites*

A typology of online customers is constructed using K-means method because of the size of the sample. This method poses the problem of the number of groups because this has to be fixed before computing the method. While proceeding by iterations, a first solution higher than four groups is tested in order to allocate the individuals who are badly classified. This initial solution consists of 10 groups, but they are not of similar size. The final solution is composed of 6 groups. Table 2 gives means of electronic service dimensions by groups.

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| ease of use | 0.23 | 0.42 | 0.24 | -0.17 | -1.55 | 0.46 |
| information | 0.14 | 0.64 | -0.07 | -1.43 | 0.47 | 0.03 |
| security/privacy | 0.45 | -0.24 | 0.00 | -0.04 | -0.10 | -0.04 |
| design | 0.17 | 0.13 | 0.56 | 0.08 | 0.10 | -1.28 |
| reliability | -1.04 | 0.05 | 0.52 | -0.06 | 0.11 | 0.29 |
| offer | 0.49 | -1.01 | 0.28 | -0.32 | 0.22 | 0.49 |
| interactivity | -0.37 | 0.18 | -0.60 | 0.53 | 0.25 | 0.26 |
| size | 0.16 | 0.20 | 0.21 | 0.14 | 0.14 | 0.15 |

*Table 2: Means of electronic service quality dimensions by groups*

The first group is composed of the ***secure seeker***. The Web consumers who make up this group want to be reassured when they seek a product on a site (personal and financial data security, information on the delivery delays and products in stock). They want to be able to contact the company in the event of problems or questions. However, they do not find on the site information on the availability of the products, indications on the times and the means of delivery, and cannot contact the site to answer their questions.

The second group concerns the ***opportunist***. The Web consumers who make up this group navigate on the site in search of information to find good bargains they cannot find.

The third group contains the ***novice***. The Web consumers who make up this group have a basic evaluation of the site through its aesthetic characteristics, information on the availability of the products and the delivery delays and the possibilities to contact the company. They cannot find a way to contact the company on the site.

The ***Customer service seeker*** makes up the fourth group. These Web consumers cannot find information about the offer on the site. They thus seek to the contact customer service of the company in order to have their questions answered.

The fifth group is represented by the ***Browser***. The Web consumers who make up this group navigate on the site in search of information on the products or services. The ergonomics of the site do not meet their needs.

The ***Rational browser*** makes up the sixth group of the typology. This group of Web consumers navigates on the site in search of information on the products. They evaluate the aesthetic characteristics of the site in a negative way: the Website is not pleasant or attractive. They are more in search of a functional Website which they want to be more efficient.

The stability of the segmentation is analyzed by comparing typology building according to two methods. The first one is obtained by using K-means method and the second one by discriminant analysis. We present the classification result of the discriminant analysis.

| | | Predicted group membership | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| K-means classification | 1 | 82.71 | 0.66 | 10.72 | 3.50 | 1.31 | 1.09 |
| | 2 | 0.36 | 88.18 | 7.82 | 1.64 | 1.27 | 0.73 |
| | 3 | 0.85 | 1.70 | 93.03 | 2.38 | 1.19 | 0.85 |
| | 4 | 0.50 | 1.00 | 7.98 | 89.03 | 0.50 | 1.00 |
| | 5 | 1.53 | 0.26 | 3.58 | 1.53 | 93.09 | 0.00 |
| | 6 | 0.70 | 0.23 | 3.52 | 1.17 | 0.00 | 94.37 |

*Table 3: Classification result of the discriminant analysis*

Ninety per cent of the observations are correctly classified. This result verifies the quality of clustering results. Next, we profile the clusters in terms of variables that we do not use for clustering by using Chi-square statistic. We present only the variables that discriminate the groups in the wine online consumer typology so the label of variable is characteristic when compared with the entire sample. These variables are Internet and online buying behaviour, wine consumption, satisfaction and loyalty intentions (visiting, buying and word-of-mouth intentions) and finally, characteristics of the respondents (see appendix 2 for detailed results).

The ***secure seekers*** consume wines from a wider variety of countries (French, Spanish, American and Chilean) than the other groups but they do not have a cellar and they do not compare prices when they buy wine. It is an occasional consumption (at least once a month). They are novices concerning online buying and have a high level of loyalty intentions. The secure seeker is generally single, young or old (between 18 and 24 years, between 55 and 65 years), with a low income and average level of education. The Websites that characterized this group are lesavourclub.fr, lavinia.es, laithwaites.co.uk and chateauonline.it.

The ***opportunists*** consume French wines, they do not have a cellar, they compare prices and they need some advice from friends, experts and reviews when they buy wine. It is an occasional consumption (at least once a month) with a meal. They are experts in online buying and have a high level of satisfaction and buying intentions. The opportunist is generally cohabiting or divorced, older (between 45 and 54 years), with a low income and average level of education. The websites that characterized this group are millesima.com, sodivin.com, 1855.com and vin-fr.com.

The ***novices*** consume American and Australian wines more than the other groups, they need reviews when they buy wine. They are Internet and wine novices and have a high level of satisfaction and loyalty intentions because they do not have a high level of needs or expectations. The novice is generally married, widowed or divorced, with average income and average or high level of education. The Websites that characterized this group are vin-online.net, vinatis.com and wine.com.

The ***customer service seekers*** have no preference in terms of wines. They do not use reviews when they buy wine. It is an occasional consumption (at least once a month). They are experts in online buying. The customer service seeker is generally married or widowed, older (between 35 and 44 years), with average income and a poor level of education. The Websites that characterized this group are bountyhunterwine.com, chateauonline.de, intercaves.fr and oovin.com.

The ***browser*** group consumes American and Spanish wines more than the other groups. They have a cellar but do not use reviews when they buy wine. They are Internet experts (diversity in terms of online buying) and novices in wine because it is an occasional consumption (at least once a semester). The browser is generally married or widowed, with a high income and high level of education. The Websites that characterized this group are wineandco.com, 1855.com and vin-fr.com.

The ***rational browser*** group consumes French and Australian wines more than the other groups. They have a cellar but they need advice and use a search motor when they buy wine with a high level of satisfaction, buying intentions and positive word-of-mouth. It is a regular consumption (at least once a week). They are Internet experts. The rational browser is generally old or young (between 18 and 24 years, between 55 and 65 years) single, average income and poor level of education. The Websites that characterized this group are vin.fr, cave-spirituelle.com, nicolas.com and chateauonline.fr.

## Managerial implications, limitations and research avenues

The study of electronic service quality is relatively new in the marketing and wine literature. The structure of the NetQual scale developed and validated in other sectors (cultural goods, online travel, etc.) is confirmed in the online wine sector. Seven dimensions of electronic service quality are important for consumers when they evaluate wine Websites: ease of use, information, security / privacy, design, reliability, offer and interactivity.

This article has put forward six groups of Internet users, defined principally by electronic service quality dimensions: the secure seeker, the opportunist, the novice, the customer service seeker, the browser and the rational browser.

The secure seeker needs to be confident in the reliability of the Website. In order to reassure the secure seeker, 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.

The opportunist is not satisfied if he is not able to find special offer on the Website. Online wine merchants should develop and update the range regularly. The opportunist likes to discover new wines so merchants should also offer a wide range of products with different prices and characteristics and put in place promotions to stimulate sales.

The novice has a low level of expectations concerning the wine Website. He/she expects a high level of interactivity with the online wine merchants. For example, it is important for him/her to be able to contact the site's wine oenologist (e-mail, direct chat) in order to obtain answers to their questions. The Website could also provide videos of the producer's vineyard in order to establish visual contact, and offer a delivery tracking service online. The Website could also use direct marketing techniques to get to know the client base better.

The customer service seeker needs information in order to be confident in his/her online buying. So online wine merchants should describe each wine accurately via an illustrated information card (labels, etc.), give more details on the different vintage years, provide flavour ratings (site wine oenologist and / or independent guides), the characteristics of the soil, a brief description of the land, flavour advice, information on the storage potential of the wine or information on food accompaniment.

The browser wants to be satisfied by the navigation on the Website. In order to satisfy the browser, 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.

The rational browser takes account the ergonomics 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.

The Security / Privacy dimension is not a discriminating factor for the groups but it does seem to be an important dimension for all the groups. Bruwer & Wood (2005) found that the security of personal and financial information is the most important risk perception for online wine buyers. Online wine merchants must take this 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 by 100 Internet users each. The target population is representative of the Internet user population of each country. Hence, the ranking observed relies on the assessment by real Internet users, potential clients of the studied sites and not the opinion of one or two Internet experts. However, this strength can also be a weakness because the Internet users selected may not match the profile of the customers of the Websites analysed. Nevertheless, the goal that we set during this study was to have an Internet user accomplish a precise task, independently of its intrinsic characteristics. To generalize the results, this study should be replicated with a buyer sample of each Website.

Another limitation concerns the over-representation of French Websites in the sample (20 out of the 28 Websites studied). Future research should integrate more foreign wine Websites in order to be able to compare cultural differences and to have a real intercultural comparison of electronic service quality for wine Websites.

Future research could also confirm the NetQual scale for online wine Websites by using confirmatory factor analysis and defining the weight of each dimension for each group using multi-group analysis.

In an area where information on the market is kept strictly confidential, this study, conducted thanks to the evaluation by Internet users, shows us behind the scenes in wine selling on the Internet and the key success factors of this distribution channel.

*Appendix 1: List of the wine Websites audited*

www.nicolas.com
www.rouge-blanc.com
www.vin.fr
www.chateaunet.com
www.cave-spirituelle.com
www.chateauonline.fr
www.vinatis.com
www.1855.com
www.lesavourclub.fr
www.vin-online.net
www.vin-fr.com
www.75cl.com
www.vintageandco.com
www.wineandco.com
www.mondovino.com
www.lavinia.fr
www.sodivin.com
www.millesima.com
www.oovin.com
www.intercaves.fr
www.wine.com (US)
www.bountyhunterwine.com (AUST)
www.vintagecellars.com (AUST)
www.chateauonline.it (IT)
www.chateauonline.co.uk (UK)
www.laithwaites.co.uk (UK)
www.chateauonline.de (GERMANY)
www.lavinia.es (SPAIN)

*Appendix 2: Wine, Internet behaviour and characteristics of the groups*

| | **Secure seeker** | **Opportunist** | **Novice** | **Customer service seeker** | **Browser** | **Rational browser** |
|---|---|---|---|---|---|---|
| Distribution channel | | retail<br>direct selling | | | retail | |
| Consumption occasions | | meal | | | | meal |
| Wine cellar | NO | NO | | | YES | YES |
| Advice | | YES | | | | YES |
| Reviews | | | YES | NO | NO | |
| **Internet practices** | | | | | | |
| Search Motor | | YES | | | | YES |
| Price comparison | NO | YES | | | | |
| Web consumer product | | | | | | |
| Travel | | | | | YES | |
| Photo & Video | | | NO | | YES | YES |
| Books, Music and Film | | | | | YES | |
| Flowers and Gifts | NO | | YES | | YES | |
| Phones and Internet connections | NO | | NO | | YES | |
| Finance & Insurance | NO | | | | YES | |
| Previous buying | less than one year | | less than one year | more than five years<br>between 2 and 3 years | between 2 and 3 years | |
| Internet access | between 2 and 3 years | between 4 and 5 years | | more than five years | more than five years | between 4 and 5 years |
| Buying frequency in wine | at least once a month | at least once a month | never | at least once a month | at least once a semester | at least once a week |

| | Secure seeker | Opportunist | Novice | Customer service seeker | Browser | Rational broswer |
|---|---|---|---|---|---|---|
| Wines | French wines<br>Spanish wines<br>American wines<br>Chilean wines | French wines | American wines<br>Australian wines | | Spanish wines<br>American wines | French wines<br>Australian wines |
| High level of satisfaction | | YES | YES | | | YES |
| **Loyalty intentions**<br>Buying intentions | YES | YES | YES | | | YES |
| WOM | YES | | YES | | | YES |
| Visiting intentions | YES | | YES | | | |
| Websites country | UK, Italy, Spain | France | US | US, Germany | UK | France |
| Symbolic Websites | lesavourclub.fr<br>lavinia.es<br>maithwaites.co.uk<br>chateauonline.it | millesima.com<br>sodivin.com<br>1855.com<br>vin-fr.com | vin-online.net<br>vinatis.com<br>wine.com | bountyhunterwine.com<br>chateauonline.de<br>intercaves.fr<br>oovin.com | wineandco.com<br>1855.com<br>vin-fr.com | vin.fr<br>cave-spirituelle.com<br>nicolas.com<br>chateauonline.fr |
| **Sample characteristics**<br>Age | between 18 and 24 years<br>between 55 and 65 years | between 45 and 54 years | | between 35 and 44 years | | between 18 and 24 years<br>between 55 and 65 years |
| Marital status | single | cohabiting<br>divorced | divorced<br>married<br>widowed | married<br>widowed | married<br>widowed | single |
| Annual income | less than 19,999 euro; | between 20,000 and 29,999 euro; | between 20,000 and 29,999 euro; | between 30,000 and 39,999 euro; | more than 40,000 euros | between 20,000 and 29,999 euro; |
| Education | Bac + 2 | Bac + 2 | Brevet / BEPC<br>CAP / BEP<br>Bac + 4 | Brevet / BEPC<br>CAP / BEP | Bac + 5 and above<br>Bac + 3 | Bac |

**Bibliography**

Afuah, A., & Tucci, C. L. (2000). *Internet business models and Strategies: Text and Cases*. Burr Ridge, IL, McGraw-Hill Irwin.

Barnes, S.J., & Vidgen, R.T. (2003). An integrative approach to the assessment of e-commerce quality. *Journal of Electronic Commerce Research*, 3 (3), 114-127.

Barnes, S.J., Bauer, H.H., Neuman, M.M., & Huber, F. (2007). Segmenting cyberspace: a typology for the Internet. *European Journal of Marketing*, 41 (1), 71-93.

Bitner, M.J., Brown, S.B., & Meuter, M.L. (2000). Technology Infusion in Service Encounters. *Journal of the Academy of Marketing Science*, 28 (1), 138-149.

Bressolles, G. (2006). “La qualité de service électronique : NetQual. Proposition d’une échelle de mesure appliquée aux sites marchands et effets modérateurs [Electronic service quality: NetQual – Proposition of a measurement scale to commercial websites and moderating effects]. *Recherche et Applications en Marketing*, 21 (3), 19-45.

Bruwer, J. & Wood, G. (2005). The Australian online wine-buying consumer: Motivational and behavioural perspectives. *Journal of Wine Research*, 16 (3), 193-211.

Dabholkar, P.A. (2000). Technology in service delivery: implications for self-service and service support, in Eds. Swartz T.A. and Iacobucci D., *Handbook of Services Marketing* (pp.103-110), Sage Publication, New York, NY.

Donthu, N., & Garcia, A. (1999). The Internet shopper. *Journal of Advertising Research*, 39 (3), 52-58.

Eighmey, J. (1997). Profiling user responses to commercial web sites. *Journal of Advertising Research*, 37 (3), 59-66.

Gattiker, U.E., Perlusz, S., & Bohmann, K. (2000). Using the Internet for B2B activities: a review and future directions for research. *Internet Research: Electronic Networking Applications and Policy*, 10 (2), 126-140.

Gebauer, J., Ginsburg, M. (2003). The US wine industry and the internet: an analysis of success factors for online business models. *Electronic Markets*, 13 (1), 59-66.

Joreskog, K. (1971). Statistical Analysis of Sets of Congeneric Tests. *Psychometrika*, 36 (2), 109-133.

Keng Kau, A., Tang, Y.E., & Ghose, S. (2003). Typology of online shoppers. *Journal of Consumer Marketing*, 20 (2), 139-156.

Lohse, G. L., & Spiller, P. (1999). Internet retail store design: how the user interface influences traffic and sales. *Journal of Computer Mediated Communication*, 5 (2), from http://jcmc.indiana.edu/vol5/issue2/lohse.htm

Mathwick, C., Malhotra, N., & Rigdon, E. (2001). Experiential value: conceptualization, measurement and application in the catalogue and Internet shopping environment. *Journal of Retailing*, 77 (1), 39-56.

Moe, W. (2003). Buying, searching, or browsing: differentiation between online shoppers using in-store navigation clickstream. *Journal of Consumer Psychology,* 13 (1), 29-39.

Mougayar, W. (1998). *Opening digital markets. Battle plans and business strategies for Internet commerce*. New York: McGraw-Hill.

Nielsen, J. (1999). *Designing web usability: the practice of simplicity*. New Riders Publishing, Indianapolis.

Nyeck, S., Xuereb, J.M., Ladhari, R., & Guemarra, L. (2000). Typologie d'attitudes de shopping sur le Web : une recherche exploratoire. *Proceedings from the 16th Congress of the French Marketing Association, Montréal.* 619-630.

Parasuraman, A. & Grewal, D. (2000). The impact of technology on the quality-value-loyalty chain: a research agenda. *Journal of The Academy of Marketing Science,* 28 (1), 168-174.

Parasuraman, A., Zeithaml, V.A, & Malhotra, A. (2005). E-S-Qual: a multi-item scale for assessing electronic service quality. *Journal of Service Research,* 7 (3), 213-233.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing,* 64 (1), 12-40.

Rohm, A.J., & Swaminathan V. (2004). A typology of online shoppers based on shopping motivations. *Journal of Business Research,* 57 (7), 748-757.

Sheehan, K.B. (2002). Toward a typology of internet users and online privacy concerns. *The Information Society,* 18 (1), 21-32.

Steuer, J. (1992). Defining virtual reality: dimensions determining telepresence. *Journal of Communication,* 42 (4), 73-93.

Swaminathan, V., Lepkowska-White, E., & Rao, B. (1999). Browsers or buyers in cyberspace? An investigation of factors influencing electronic exchange. *Journal of Computer Mediated Communication,* 5 (2), from http://jcmc.indiana.edu/vol5/issue2/swaminathan.htm

Swartzberg, M., & Solomon, J. F. (2000), Clicking on wine: will e-commerce and other forces increase U.S. consumer access to wine? *Salomon and Smith Barney equity research report*.

Thach, E.C. & Olsen, J.E. (2006), Market segmentation analysis to target young adult wine drinkers, *Agribusiness*, 22 (3), 307-322.

Wolfinbarger, M., & Gilly, M.C. (2003). eTailQ: dimensionalizing, measuring and predicting Etail quality. *Journal of Retailing,* 79 (3), 183-198.

Yoo, B., & Donthu, N. (2001). Developing a scale to measure the perceived quality of Internet shopping sites (SITEQUAL). *Quarterly Journal of Electronic Commerce,* 2 (1), 31-47.