Web design: A key factor for the website success

Article *in* Journal of Systems and Information Technology · May 2009

DOI: 10.1108/13287260910955129 · Source: DBLP

3 authors:

Carlos Flavian
University of Zaragoza
178 PUBLICATIONS   **14,700** CITATIONS

SEE PROFILE

Raquel Gurrea
University of Zaragoza
54 PUBLICATIONS   **3,372** CITATIONS

SEE PROFILE

Carlos Orús
University of Zaragoza
45 PUBLICATIONS   **2,875** CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Project   Multichannel consumer behavior and sensory marketing View project

Project   Digital press and online newspapers View project

Web Design: A Key Factor for the Website Success

Carlos Flavián, Raquel Gurrea, Carlos Orús

University of Zaragoza, Spain

Purpose - Web design has been identified as a key factor for the acceptance and success of the websites and electronic commerce. We analyse from a marketing point of view the main aspects that could influence online users' perceptions and behaviours, in order to achieve a successful e-commerce website.

Design/Methodology/Approach - We developed an extensive literature review emphasizing the special role that web design could play in the interaction user-interface. Besides, the methodology related to benchmarking allows firms to know the best practices and to learn some key lessons for developing their businesses online.

Findings – The literature review allows us to affirm that web design is a key factor for getting positive outcomes as it influences on users and online consumers' perceptions and behaviours. A website design addressed to simplicity and freedom of navigation provides clear, timely and accurate information in all its contents and an appearance that calls for the users' attention.

Research limitations/Implications - We offer a Decalogue of guidelines that could improve the design of the e-commerce websites regarding the aesthetic appearance of the website, the navigation through the site, the information and contents and the characteristics of the shopping process.

It could be interesting to analyse empirically the impact of all key attributes on the users' perceptions and behaviours.

Originality/value - This is one of the first studies which explains how a website must be designed from the demand's perspective. The analysis of the users' perceptions and the marketing view of design could help designers to find the website that best matches their users' needs and so, to improve the relationships between users and companies through their interfaces.

Keywords - web design, usability, web atmospherics, marketing, e-commerce, success.

Article Type – General Review

1. INTRODUCTION

In the last years, the Internet is being developed with a great growth as a new commercial channel. In a market with a target of more than 1400 million people (Internet World Stats, 2008) and more than 70 thousand million dot-com websites in the world (Domain tools, 2008), the opportunities of trading are almost infinite. Thus, a great increase of competence is occurring, and firms are questioning what they must do in order to get the best results.

The starting point of the answer could be by understanding what users want. For this reason, there has been arising a great body of research focused on the factors that affect the success of an e-commerce website from the users' perspective (e.g. Jarvenpaa and Todd, 1997; Torkzadeh and Dhillon, 2002). In this line, many studies have identified the web design as a key factor for the development of a good interface to satisfy consumer needs. A good design is relevant for companies to survive in the extremely competitive World Wide Web (e.g. Ranganathan and Ganapathy, 2002; Liang and Lai, 2002; Tan and Wei, 2006).

This research is focused on the main analysis of the perspectives within the marketing discipline. These research lines are motivated by the consecution of successful interfaces which generate positive responses on users (Van der Heijden and Verhagen, 2003; Zviran *et al.*, 2006). Thus, the web design is important in order to obtain high levels of satisfaction with the website (Kim and Eom, 2002) or to increase the online purchase intention of the consumer (Swaminathan *et al.*, 1999).

In spite of the importance that web design has for the development of successful virtual stores, it seems remarkable the relative lack of consensus in the literature about how the factors that compose the design of the website have to be managed. In this way, we aim at finding answer to the following research questions:

RQ1: What are the main factors that affect the success of the e-commerce websites from a consumers' point of view? What is the role played by web design?

RQ2: Which are the main features of good web design practices carried out by successful virtual stores?

More concretely, the goal of this research is to argue the relevance of the website design for the success of the electronic commerce and to propose the main managerial guidelines with the aim of suggesting adequate structures and designs for the websites.

Taking these objectives as a reference, in the two following sections we point out a literature review regarding the key factors of a successful website, analyzing especially the relevance of the website design. The next epigraph develops the key guidelines for the success of the online businesses and finally, this study presents the discussion and conclusions related to this interesting topic.

2. FACTORS AFFECTING THE SUCCESS OF E-COMMERCE WEBSITE

In the last years, a great amount of researchers have made efforts in order to establish which factors may lead to the success of a website. In this sense, the marketing literature has stressed the users' point of view to define how an e-commerce website must be for being successful. In general terms, and in the context of electronic commerce, a successful website "is one that attracts customers, makes them feel the site is trustworthy, dependable, and reliable and generates customer satisfaction" (Liu and Arnett, 2000, p. 24).

Following this concept, some authors have emphasised the consumers' beliefs and perceptions of the value created by the characteristics of the websites (Keeney, 1999; Torkzadeh and Dhillon, 2002); some others have pointed out the main features of websites' quality from a consumer's view (Aladwani and Palvia, 2002; Van der Heijden and Verhagen, 2003). Besides, several research lines have been developed with the aim of remarking those determinant factors and emphasizing the importance of achieving the online customer satisfaction (e.g. Zviran *et al.*, 2006) and the impact on his purchase intention (Ranganathan and Ganapathy, 2002). In this way, we could point out the research developed by Jarvenpaa and Tood (1997), who examined online consumers' perceptions to identify the aspects that could influence their attitudes and intentions to buy on the Internet. These authors affirmed that the aspects related to the perceptions about the products, the shopping experience (e.g. required effort, convenience), the services (e.g. adequate information and attractive appearance) and the perceived risk (e.g. pay, possible dissatisfaction), affect significantly the consumers' attitudes and intentions to buy.

We could also mention the research carried out by Huizingh (2000), who focused on the content and design in order to develop an instrument to analyse the success of the websites. This study captured objective measures as well as consumer perceptions related to the commercial and non-commercial information, transaction information, navigation structure, search functions or perceptions about the quality of the structure, image and presentation style of the websites. The results revealed the great importance of considering user perceptions for the analysis of the websites. Nevertheless, according to

the author, the success also depends on external variables, such as the source, the type of industry and the size of the website.

Moreover, Liu and Arnett (2000) based their studies on the key factors of the website success in order to enhance the levels of customer satisfaction. With this purpose, the authors identified the determinants of a successful e-commerce website related to the information provided by it, the familiarity with it, the emotions that it generates, and the quality of its service and system. Using a group of experts' evaluation, they concluded that the success of an electronic commerce website depends mainly on the ease of use of the system, the quality of the information and the service, the quality of the design of the website and the feelings of hedonic pleasure provided.

Besides, Ranganathan and Ganapathy (2002) analysed the key characteristics of the electronic commerce websites in order to enhance the purchase intentions of the online consumer. The results revealed that the aspects associated to the security are the most outstanding in getting positive online purchase intention, as well as the privacy of personal information, the quality of the visual design, and the importance of offering a good information and navigation.

Consequently, it is possible to note the relevance of presenting high quality information, good contents and an efficient and attractive navigation. These aspects have been identified by Alba *et al.* (1997) and Geyskens *et al.* (2000) as the most important advantages of the online activity. Moreover, it seems remarkable that the majority of the studies emphasise the importance of the website design in order to get optimal results in the virtual channel.

3. THE RELEVANCE OF WEB DESIGN FOR THE E-COMMERCE

The design of websites has been widely studied from multiple points of view, most of them have identified the factors that could determine the degree of acceptation of the websites (e.g. Hoque and Lohse, 1999; Childers *et al.*, 2001; Liang and Lai, 2002; Kim and Stoel, 2004; Wilde *et al.*, 2004; Görn *et al.*, 2004). According to Cato (2001, p. 3), designing is "the process of creating an artefact with structure of form which is planned, artistic, coherent, purposeful, and useful". From a consumer perspective, a website must be designed with all these features in order to arouse the affective states of the users and to enhance their online visits or purchase intentions.

As the Internet and the Electronic Commerce are evolving, different points of view are arising to determine which could be the key factors of website design. In this sense, usability studies what elements must have a website so that the consumer can manage it easily. Nielsen (1994) defines the

usability of a website as the ease with which the user can learn to manage the system and memorise the basic functions, the efficiency of design of the site, the degree of error avoidance and the general satisfaction of the user. More specifically, the usability is a quality attribute that assesses how easy user interfaces are to use, and we can identify five dimensions or quality attributes: learnability, efficiency, memorability, errors, and satisfaction (Nielsen, 2003).

Following this line, the usability can also be understood as a tool for measuring the quality of a website (Ranganathan and Ganapathy, 2002). Thus, the ease of use of a system could improve a more complex learning and a higher ability to anticipate how that system will perform. Specifically, usability improves the best understanding of the contents and tasks that the consumer has to know for the achievement of a goal (e.g. to place an order). This reduces the probability of error and improves the levels of trust (Muir and Moray, 1996). Besides, usability is related to the consumer ability to identify where he or she is and what he or she can do in every moment of the navigation.

With reference to the design factors of a website, a good design must provide not only beauty and appeal, but also high levels of usability, since it influences the affective states of the user (Desmet and Hekker, 2007). Thus, a well-designed website should ensure a high level of usability (Cristóbal, 2006). An attractive design can evoke feelings of pleasure in the use of a website (Flavián and Gurrea, 2008). As a consequence, an adequate degree of usability, related to a comfortable atmosphere, could create a positive bias in the consumer. In fact, a good level of perceived usability could lead to higher levels of satisfaction, trust and loyalty towards a specific website (Flavián *et al.*, 2006; Kim and Eom, 2002; Chen *et al*., 1999).

Regarding commercial transactions, users may infer a higher quality of a product from its beauty which in turn implies higher levels of usability (Desmet and Hekker, 2007). So, we could note herein that usability and web design are highly correlated. Table 1 shows some of the main studies that point out the existence of a clear relationship between the concepts of usability and web design.

With this regard, we could stress the study carried out by Keeker (1997) who proposed several guidelines in order to improve the ease of use of the website and to encourage people to enjoy and become engaged in an experience. The author based his assumptions on a well-known group of online firms to identify the key aspects and to offer some recommendations related to the content of the websites (such as the information, the use of media -animation, sound, graphics-), the ease of use (provide goals to users, navigation, feedback), the promotion of the content (i.e. location, frequency of

updates), the specific content related for the media (i.e. community, customization) and the affective response of the consumer.

Table 1. Web design and usability

Author(s)	Factors	Aims	Methodology	Results
Keeker (1997)	Content Quality Ease of Use Promoting Content Made for the Medium Content Emotional Response	Analyse of usability and marketing research on the Microsoft Network (MSN)	Cases Study	Guidelines for the designers in order to improve: ▪ Usability ▪ Appeal
Benbunan (2001)	Content Navigation Interactivity	Evaluate the e-commerce website usability	Protocol Analysis (experiential evaluation)	▪ Problems related to website content, navigation and interactivity ▪ Importance of offering an efficient navigation in order to achieve the user pleasure ▪ Better usability does not imply preference for a website, but it results in a more successful interaction and may help the user to make a purchase
Agarwal and Venkatesh (2002)	Content Ease of Use Promotion Specific Content Emotion	Develop an instrument for measuring the usability of a website (Design as a key tool, based on Keeker, 1997)	Heuristic Evaluation: ▪ Group of experts ▪ Questionnaires to users	▪ The salience of usability characteristics depends on the user task and industry ▪ In general terms, the content characteristics are the most important
Palmer (2002)	Download Delay Navigation Content Interactivity Responsiveness	Develop and validate website usability, design and performance metrics.	Longitudinal study of corporate websites: ▪ jury (users role) ▪ third-party ratings ▪ software experts	▪ High correlation between web design, usability and media richness for the success of a website ▪ Website success measures: Usability: download delay, content, navigation Media richness: interactivity and responsiveness
Hu, Shima, Oehlmann, Zhao, Takemura and Matsumoto (2004)	Title Format Title Position Menu Size Clipart Size Background Colour Colour Brightness Colour Harmonization	Examine the relationship between the audience impressions and the visual style of a website. Identify cultural differences on website perceptions	Cross-cultural (Japan, China, UK) Self-reported questionnaires	▪ Causal relationship between website usability and visual design perceptions ▪ Significant differences in subjects' perceptions depending on the country and the characteristics of the user ▪ Trade-off between different design combinations to create an optimal visual design
Zviran, Glezer and Avni (2006)	Usability User-based Design: ▪ Content ▪ Navigation ▪ Search ▪ Performance	Investigate the effects of usability and user-based design on the user satisfaction	Online survey Perceptual maps	▪ Differences in the effectiveness of the variables depending on the task and the type of purchase ▪ Highest satisfaction for online Shopping and customer self-service websites.

Source: Own research (2008)

In a similar way, Palmer (2002) proposed and validated measures of websites' usability and design, identifying aspects related to the response time (download delay), the organization of the contents (navigation), and the information and contents of the website (content). The research also established that the characteristics of the media richness, such as the capability of the website for customizing the appearance and the contents (interactivity), and the presence of feedback between the vendor and the consumer, were determinants of the success of a website.

In this line, the marketing literature has studied how the factors that define the store environment influence the consumer's mood and purchase behaviour (Baker, 1986; Donovan *et al.*, 1994; Spies *et al.*, 1997; Turley and Milliman, 2000). Design factors related to visual cues (e.g., layout,

colour) are important to get a positive response from the consumer and to facilitate consumer goals (Eroglu *et al.*, 2001). This issue has been taken to the web environment and has been adapted to e-commerce. Dailey (2004) defines web atmospherics as the intended design of web environments to generate positive effects (cognitive and affective) on the consumer in order to increase positively the consumer responses. Among these responses, it is possible to note the higher level of visits or the longer time browsing in the website, in order to turn the user of a website into a client.

In this sense, Van der Heijden and Verhagen (2003) examined the image elements in a virtual store that could increase the purchase intentions in the user, identifying the factors of design as the most important. We can also take into account the study carried out by Kim and Stoel (2004), who demonstrated that the factors of web appearance can lead to higher consumer satisfaction (see Table 2). The development of a good website design turns into a key question, since it will determine the entry of the consumer to the store (Melián and Padrón, 2006).

Into the website design, the literature has also revealed that visual aspects play an important role for the website success (see Table 2). Specifically, Dailey (1999) and Eroglu *et al.*, (2001) analysed the influence of web atmosphere on consumers and verified that the insights of this atmosphere influence the cognitive and affective states of the consumer, and as a consequence the purchase behaviour towards the website. Tan and Wei (2006) proposed that the appearance of the website is an instrumental factor that improves the perception of information in order for subjects to perform better cognitive mapping and better assessments of the decisions for execution. More specifically, these authors suggest that the graphical representations such as icons, colours, images and animations, give website a higher vividness. This fact could improve the degree of individuals' satisfaction with the web page and the navigation sensations (Zhang *et al.*, 2000).

Table 2. Web Design and elements of establishment atmosphere

Author(s)	Factors	Aims	Methodology	Results
Eroglu, Machleit and Davis (2001)	Atmospheric elements of the online store	Analyse the influence of the atmospheric cues on the cognitive and affective status of the user	Development of a theoretical model based on the S-O-R paradigm (stimulus, organism, response)	▪ The online retail store's environment is divided into two categories: high task-relevant information and low task-relevant information (stimulus) ▪ Theoretical and practical review from the perspective of atmospherics
Liang and Lai (2002)	Motivation factors Hygiene factors Media Richness factors	Examine the effect of the quality design of the online store on the purchase decision	Experiment ANOVA Experts and consumers	▪ Best considered elements for purchasing through the Internet: security, search engines, easy to sign up, home delivery and product organization ▪ Consumers are more likely to visit and purchase at well-designed stores
Van der Heijden and Verhagen (2003)	Usefulness Enjoyment Ease of Use Store Style Familiarity Trustworthiness	Develop a scale for measuring the quality of the online store image	Method of development of scales proposed by Churchill G. (1979) Experiment with students	▪ The attitude towards purchasing online can be explained by four dimensions: trustworthiness, settlement performance, usefulness and enjoyment ▪ Ease of use, store style and familiarity had no significant effects

	Settlement Performance			
Kim and Stoel (2004)	Web Appearance Entertainment Information Fit-to-Task Transaction Capability Response Time Trust	Determine the dimensionality of the website quality (1) Identifying which dimensions were significant predictors of the consumer satisfaction (2)	Questionnaire to female online shoppers Principal component analysis (1) Structural Equation Model (2)	▪ Multidimensionality of the website quality ▪ Information fit-to-task, transaction capability and response time are significant predictors of the consumer satisfaction
Richard (2005)	Navigational Characteristics Structure Effectiveness of Information Content Informativeness Organization Entertainment	Explore the surfer behaviour and the user purchase intention (based on Eroglu *et al.*, 2001)	Structural equation model	▪ Navigational characteristics affect positively on purchase intention ▪ Direct relationship between website involvement and purchase intention ▪ Significant relationship between website attitudes and the degree of involvement
Khakimdjanova and Park (2005)	Presentation Technique Supplementary Presentation Aesthetics of Presentation Display Structure and the Layout	Explore the practices of visual merchandising among the online stores, differentiating on the type of business	Exploratory survey of 32 websites (Top 100 of the magazine Stores)	▪ The authors identify strengths and limitations of the websites ▪ There are no differences between "click" and "click-and-mortar" stores ▪ There are differences between specialty and department stores
Tractinsky and Lowengart (2007)	"Classical" aspects "Expressive" aspects	Examine the role of aesthetics in the online businesses	Theoretical model based on the Elaboration Likelihood Model (ELM) (Petty and Cacioppo, 1981)	▪ The user and design characteristics influence the perceptions of the aesthetics ▪ Different aesthetic design implications, depending on type of user, purchase and product ▪ Differences effects derived from type of product, industry and consumer

Source: Own research (2008)

So, a great part of the literature remarks the relevance of aspects such as an appropriate appearance, the easiness for navigation, the ease of use, the security and privacy or the content and information. These factors are determinants of consumers' behaviour and consequently, of the website success in the e-commerce context. However, it seems remarkable the relative lack of consensus in the literature about how those factors have to be managed. Consequently, it seems necessary to develop a series of guidelines in order to design interfaces that satisfy the users and organizations' needs.

4. GUIDELINES FOR THE SUCCESS OF ONLINE BUSINESSES

Taking into account the high competition in the new electronic environment and the growing interest of e-businesses in developing websites which satisfy the users as much as possible, this research proposes a series of guidelines in order to suggest adequate structures and design of the websites.

In this line, the literature review allows us to state the importance of web design in order to get positive outcomes in the electronic commerce context. However, achieving an efficient design is not an easy task. There are a lot of factors to take into account, not only in terms of design itself, but also in terms of possible costs derived from the implementation and maintenance of the website, and the possible losses in the download speed because of the use of design tools. It emerges a challenge for e-businesses, since the limited dimensions of the computer screen imply that designers have to carefully

manage the design alternatives, displaying the options that reflect the essence of the website in the best way and satisfying the users and consumers' needs.

Bearing in mind all above, this research could offer some recommendations which may lead in a right way the effectiveness of a website. Firstly, given the fact that the shopping window is the same as the computer screen in an e-store (Eroglu *et al.*, 2001), it seems reasonable to tackle the websites' navigation and appearance cues:

The managers of the website design should make an effort to offer a navigation characterized by simplicity (Gehrke and Turban, 1999), and in addition that it allows to users a certain degree of freedom (Lorenzo and Mollá, 2007). In this way, the possibility of enjoying a free navigation leads to consumer's positive outcomes, such as higher satisfaction with the website and a higher purchase intentions (Richard, 2005; Zviran *et al.*, 2006).

The addition of sophisticated search engines in the websites is a key aspect highlighted by the specialized literature for improving the users' valuations of a website (Liang and Lai, 2002). The managers of websites should take care on the effectiveness of their search engines, offering timely and accurate answers to the consumers' requests. Thus, the online store Amazon.com (www.amazon.com) represents a good example of efficient search engines, allowing users to search for products in every page of the site and offering advanced search functions for products' categories and subcategories (see Figure 1).

Figure 1. Amazon search functions (www.amazon.com)
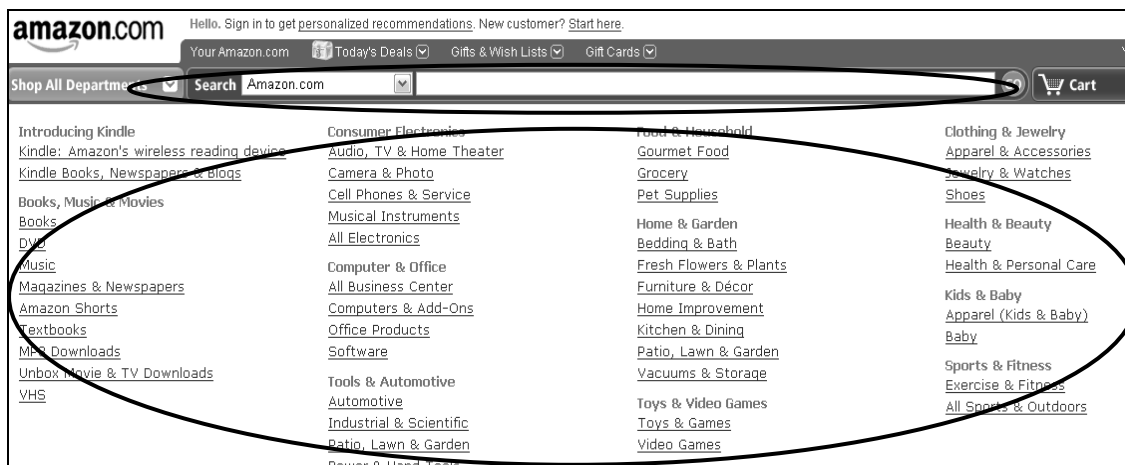
Furthermore, the websites should provide a good level of download speed (Lohse and Spiller, 1999) of the page. In this sense, a more downloading time, derived from overloads in the contents or even in the use of images, could lead users to avoid the website and leave it. Thus, it is necessary to get a well-balanced equilibrium between the appearance of the website and its downloading speed.

In this way, the possibility of controlling in which place and moment the user is during the navigation has turned into a key factor for improving the use of a website. A simple aspect such as incorporating a backward button is highly valuated by the users. Similarly, the presence of a map of the site is specially considered by the more experienced users. Besides, the capability of the website to offer an efficient shopping process, displaying a process step-by-step in a clear and easy way (Gehrke and Turban, 1999) has been revealed in the literature as another key aspect for determining consumer behaviour (Eroglu *et al.*, 2001). In this line, we could mention the case of Dell's online shop (www.dell.com), where the user knows where he is at every moment of the navigation. Moreover, the shopping process is displayed in four simple visually stages. All these features allow a high control by the user during the navigation and the purchase process (see Figure 2).

Figure 2. Dell shopping process (www.dell.com)
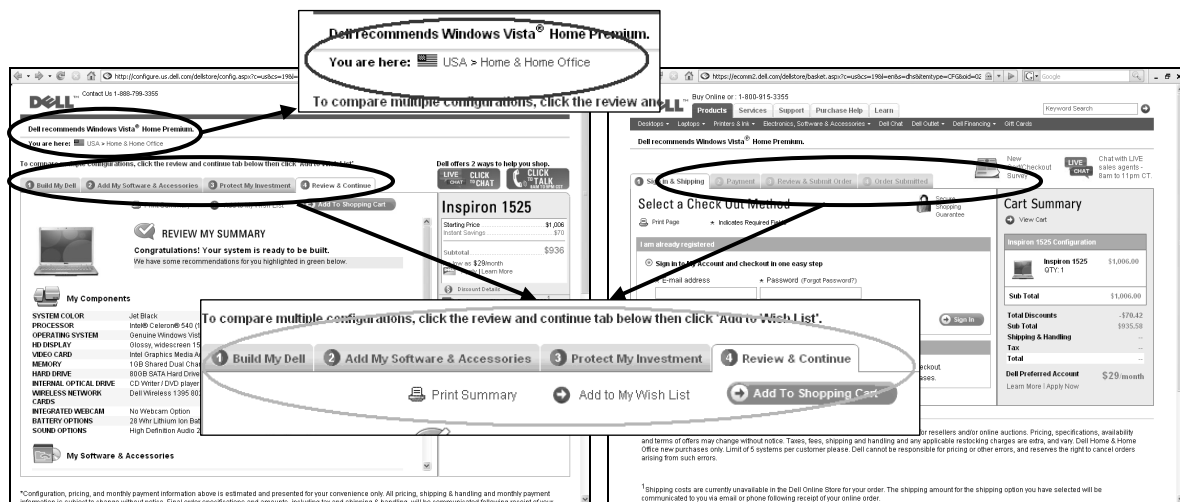
The appearance of a website, in terms of store aesthetics, has also to be considered for achieving a successfully website design. In this way, the first impression of a website determines the user evaluation of that website (Tractinsky and Lowengart, 2007), so that influences on his perceptions and behaviours (Hu *et al.*, 2004). Specifically, the aesthetic aspects could affect the consumer in a great extent, such as on the satisfaction with the website as well as the shopping motivations (Zhang and Von Dran, 2000). According to Liang and Lai (2002), consumers tend to purchase more in well-designed websites. Besides, the aesthetic appearance of a website becomes an assessing method of the website credibility (Fogg *et al.*, 2002). In this line, a bad-designed website may represent a good reason not to shop on that website (Jarvenpaa and Todd, 1997). Thus, the management of visual features is revealed as the main tool in order to improve the attractiveness of a website. As a consequence, the development of a website with a good use of images, graphics, icons, animations or colours, may represent a

potential source to offer a more vivid website and to get a positive response of the consumer (Zhang *et al.*, 2000; Lee and Benbasat, 2003; Görn *et al.*, 2004).

As important as an adequate structure of the website, is also a good content that could be able to satisfy the needs of the online consumer. Thus, it seems interesting to analyse the cues related to the content provided by the website. Organizing and managing the information displayed in a website in an efficient way could become another key issue in order to achieve the success of an online business. The design managers should take into account the content of the information that they provide in the website. In this sense, we could consider the need to offer quality information as an important factor to get high levels of users' satisfaction (Agarwall and Venkatesh, 2002; Kim and Stoel, 2004). Specifically, the effectiveness of the information content affects the user's degree of involvement and improves his purchase intention (Richard, 2005). Consequently, it seems recommendable to display the contents with timely, updated, understandable and relevant information.

The information related to the shopping processes has been emphasised as another critical aspect in order to achieve an effective e-commerce website, as Schubert and Selz (1999) indicated. More specifically, the designers should take care of the information quality related to the products and services supplied in the e-store (Huizingh, 2000) and to offer any additional information that could be useful for the consumer (Lohse and Spiller, 1999). Besides, the e-businesses should stress the importance of the security and privacy concerns along the commercial transactions (e.g. Torkzadeh and Dhillon, 2002; Ranganathan and Ganapathy, 2002). In this way, the low cost airlines' websites, such as Clickair (www.clickair.com), could be considered a case of good practices. This website offers information not only related to the conditions of the flights, but also with accommodation at the destination, transport to the airports or even the possibility of renting a car once the traveller has arrived to the destination (see Figure 3).

Figure 3. Clickair front page (www.clickair.com)

Searching for commercial information about products and services is one of the most performed activities that users carry out through the Internet (European Interactive Advertising Association, 2007). Thus, offering accurate information could be a source for obtaining potential users and consumers. Specifically, the last goal of a website should be to show quality information about the products and services characteristics (Liang and Lai, 2002).

In this way, the visual aspects play an important role. On one hand, the use of product images with a proper size and quality becomes a key question so that the user could acquire a better knowledge about the product (Lee and Benbasat, 2003) and could make a more efficient shopping decision. Besides, the interactive visualization tools (e.g. motion and animations) may create a better match between the task and the decision environment, which improves the quality of the information and reduces the effort required (Erick and Wills, 1995). Thus, we could mention the case of the Nokia's website (www.nokia.co.uk), where the use of high-quality images and the availability of a 360º view stress the beauty and quality of its products. This fact allows users to see all the visual details that implies greater amount of information and therefore a better knowledge of the product (see Figure 4).

Figure 4. Nokia product presentation (www.nokia.co.uk)

5. CONCLUSIONS

In the last years, the growing development of the Internet is related to an extremely competitive context. This research has focused on the specialized literature and empirical evidences about the main factors which affect the levels of success of the companies in the electronic commerce. More specifically, it is possible to emphasise the aspects related to websites design.

The first research question presented in this study referred to the identification of the main factors that affect the success of the e-commerce websites from a consumer's point of view. The literature review allows us to affirm that web design is a key factor for getting positive outcomes as it influences on users and online consumers' perceptions and behaviours. In this way, the design of websites represents an excellent framework for online firms to generate users' satisfaction, trust, and positive intentions towards the website. In particular, we have pointed out the link between web design and usability in order to make it easier for users to navigate through the website, allowing them to control their own tasks and giving them freedom sensations during the navigation. Besides, the importance of web atmospherics has been revealed to attract users' attention to the website, to improve users' knowledge about the company's offering and to encourage users' purchase intentions. Therefore, the role played by web design is crucial for getting website's success. In addition, we have stressed several examples of good design practices in order to find out which are the main characteristics related to web design performed by successful virtual stores.

Nevertheless, it seems reasonable to propose that there is not a unique optimal design, since it depends on the type of product commercialized, the type of user that is front of the screen, or even on the geographic location where the website is being visited. All these factors could determine the success of a given website. In general terms, users are more predisposed to visit and/or purchase in well-designed websites (Liang and Lai, 2002), but there are different combinations which could lead to the creation of an optimal design (Hu *et al.*, 2004). Investment in designing is needed for establishing perceptions of trust in users' minds so that it generates more online purchase intentions (Schlosser *et al.*, 2006).

Despite this fact, we could argue that a website design addressed to simplicity and freedom of navigation provides clear, timely and accurate information in all its contents and an appearance that calls for the users' attention. This may lead to a virtual store with high probability of success. Besides, the aspects related to the privacy and security must be considered in every time and place of the website.

In this context, this paper proposes a series of guidelines in order to establish the key aspects for the achievement of high levels of success of online business. Thus, we offer a Decalogue of actuations that could improve the design of the e-commerce websites (see Table 3). This Decalogue could be particularly useful for designers in order to determine the basic elements that must be considered when designing a website. More concretely, we have noticed that online users' point of view has to be emphasised in every aspect of the websites; thus, the dimensions identified in this series of recommendations establish the basis to influence online users' perceptions and behaviours, and therefore to determine the website' success.

Firstly, it seems reasonable to take into account the aesthetic appearance of the website, since the first impression will determine the relationship between the consumer and the firm (Robins and Holmes, 2008), so a bad designed website may represent a good reason not to shop on it. Secondly, the navigation through the website has to be considered, specially attending to the simplicity and the possibility of controlling by the users, which improves the ease of use of the site and the feelings of freedom during the navigation. Thirdly, e-firms have to carefully manage the information and contents of the website, displaying good quality information in adequate forms. Lastly, the characteristics of the shopping process have been revealed as a critical aspect for the achievement of a successfully e-commerce website. It would be desirable that designers try to homogenize the stages of the shopping

process in order for users to better know and learn the commercial process in the Internet and may feel more self-confident to purchase a product.

Table 3. Decalogue for improving the websites' design

Dimension		Guidelines	Tools
Appearance	1)	Launch a good appearance is important for getting high levels of credibility in the website, which leads users to trust.	▪ Visualization Tools
			- Images
	2)	Offer vividness in the website to get a positive response by the consumer	- Graphics
			- Icons
	3)	Find a well-balanced equilibrium between the aesthetic appearance and the download speed	- Animations
			- Colours…
Navigation	4)	Offer a navigation characterized by simplicity	▪ Map of the site
	5)	Allow users to control where he/she is in every moment during the navigation and what he/she can do	▪ Backward button
			▪ Search engine
Content	6)	Organize and manage the contents in a clear way making ease the search of information	▪ Information:
			- Updated
	7)	Provide quality information/contents	- Comprehensible
			- Relevant
			▪ Visualization tools:
			- Product images with proper size and quality
Shopping process	8)	Offer an efficient and easy shopping process	▪ Shopping process step-by-step (no more than five stages)
	9)	Provide quality information of the products and services offered	▪ Links with useful information for the purchase (related products, overviews, additional information)
	10)	Emphasise privacy and security aspects	▪ Privacy and security information in all the stages of the shopping process

As we have mentioned, these guidelines could represent the basis for the development of successful e-commerce websites. Many web designers have been mistakenly guided by the challenges of technology rather than users' needs (Helander and Khalid, 2000), developing more sophisticated designs regardless of what their visitors want. Although there is no doubt that these tools affect consumers in a great extent, it always be essential to follow the basic rules of design, that is, create a reliable appearance and experience, and make the web site easy to use and navigate (Zhang and Myers, 2005)

Finally, regarding the growing interest in this analysis topic in the literature and in the management scope, it seems necessary to propose some further research lines. It could be interesting to analyse empirically the impact of all key attributes on the users' perceptions and behaviours. Thus, the use of experimental evaluations could be appropriated for our research, since this method is particularly useful when the website is being designed (Benbunan, 2001). Also, it would be interesting to analyse some moderating effects in the relationships proposed. We have pointed out that perceptions about design may change depending on the users' characteristics or external variables. Specifically, it could

be desirable to study the moderating role of variables such as Internet user experience, product class knowledge or examining cultural differences on users and websites.

REFERENCES

Agarwal, R. and Venkatesh, V. (2002), "Assessing a firm's Web presence: A heuristic evaluation procedure for the measurement of usability". *Information Systems Research*, Vol. 13 No. 2, pp. 168-186.

Aladwani, A.M. and Palvia, P.C. (2002), "Developing and validating an instrument for measuring user-perceived web quality", *Information and Management,* Vol. 39, pp. 467-476.

Alba, J., Lynch, J., Weitz, B., Janiszawski, C., Lutz, R., Sawyer, A. and Wood, S. (1997), "Interactive home shopping: consumer, retailer, and manufacturer incentives to participate in electronic marketplaces", *Journal of Marketing,* Vol. 61 No. 3, pp. 38-53.

Baker, J. (1986), "The role of environment in marketing services: the consumer perspective", in Cepeil *et al.* (Ed), *The Services Challenge: Integrating for Competitive Advantage*, AMA, Chicago, pp. 79-84.

Benbunan, R. (2001), "Using protocol analysis to evaluate the usability of a commercial Web site", *Information and Management*, Vol. 39 No. 2, pp. 151-163.

Cato, J. (2001), *User-Centered Web Design,* Pearson Education, London.

Chen, H., Wigand, R.T. and Nilan, M.S. (1999), "Optimal experience of Web activities", *Computers in Human Behavior,* Vol. 15, pp. 585-608.

Childers, T.L., Carr, C.L., Peck, J. and Carson, S. (2001), "Hedonic and utilitarian motivations for online retail shopping behaviour", *Journal of Retailing,* Vol. 77, pp. 511-535.

Churchill, G. (1979), "A paradigm for developing better measures of marketing constructs", *Journal of Marketing Research,* Vol. 16, pp. 64-73.

Cristóbal, E. (2006), "El merchandising en el establecimiento virtual: Una aproximación al diseño y la usabilidad", *Esic Market,* Vol. 123, 139-163.

Dailey, L. (1999), "Designing the world we surf in: a conceptual model of Web atmospherics", In Brow, S. and Sudharshan, D. (Ed.), *AMA Summer Educator's Conference Proceedings*, Chicago, Illinois.

Dailey, L. (2004), "Navigational Web atmospherics. Explaining the influence of restrictive navigation cues", *Journal of Business Research,* Vol. 57 No. 7, pp. 1-9.

Desmet, P.M.A. and Hekkert, P. (2007), "Framework of product experience", *International Journal of*

Design, Vol. 1 No. 1, pp. 57-66.

Domain tools, (2008), "Domain Counts & Internet Statistics", available at: http://www.domaintools.com/internet-statistics/ (accessed 30 September 2008)

Donovan, R.J., Rossiter, J.R., Marcoolyn, G. and Nesdale, A. (1994), "Store atmosphere and purchasing behaviour", *Journal of Retailing,* Vol. 70 No. 4, pp. 283-294.

Erick, S.G., and Wills, G.J. (1995), "High interaction graphics", *European Journal of Operational Research,* Vol. 81 No. 3, pp. 445-459.

Eroglu, S.A., Machleit, K.A. and Davis, L.M. (2001), "Atmospheric qualities of online retailing: A conceptual model and implications", *Journal of Business Research, Special Issue on Retail Strategy and Consumer Decision Research,* Vol. 54 No. 2, pp. 177-184.

European Interactive Advertising Association (2007), "EIAA Mediascope Europe 2007 Pan European Executive Summary", available at: http://www.eiaa.net/research/researchdetails.asp?SID=1&id=375&lang=6&origin=mediaconsumption.asp (accessed 20 January 2008)

Flavián, C., Guinalíu, M. and Gurrea, R. (2006), "The role played by perceived usability, satisfaction and consumer trust on website loyalty", *Information and Management,* Vol. 43, pp. 1-14.

Flavián, C. and Gurrea, R. (2008), Reading newspapers on the Internet: The influence of websites attributes, *Internet Research*, Vol. 18 No. 1, pp. 26-45.

Fogg, F.J., Soohoo, C., Danielsen, D., Marable, L., Stanford, J. and Tauber, E. R. (2002), "How do people evaluate a Web site's credibility?" *Persuasive Technology Lab,* Stanford University.

Gehrke, D. and Turban, E. (1999), "Determinants of successful website design: Relative importance and recommendations for effectiveness", In *Proceedings of the 32nd Hawaii International Conference on System Sciences*. Hawaii, United States.

Geyskens, I., Steenkamp, J.B.E.M. and Kumar, N. (1999), "A meta-analysis of satisfaction in marketing channel relationships", *Journal of Marketing Research,* Vol. 36 (May), pp. 223-238.

Görn, G.J., Chattopadhyay, A., Sengupta, J. and Tripathi, S. (2004), "Waiting for the Web: How screen color affects time perception", *Journal of Marketing Research,* Vol. 51 (May), pp. 215-225.

Helander, M.G. and Khalid, H.M. (2000), "Modeling the customer in electronic commerce", *Applied Ergonomics,* Vol. 31, pp. 609-619.

Hoque, A.Y., and Lohse, G. (1999) "An information search cost perspective for designing interfaces for electronic commerce", *Journal of Marketing Research,* Vol. 36 (August), pp. 387-394.

Hu, J., Shima, K., Oehlmann, R., Zhao, J., Takemura, Y. and Matsumoto, K. (2004), "An empirical study of audience impressions of B2C Web pages in Japan, China and the UK", *Electronic Commerce Research and Applications,* Vol. 3, pp. 176-189.

Huizingh, E.K.R.E. (2000), "The content and design of web sites: An empirical study", *Information and Management,* Vol. 37, pp. 123-134.

Internet World Stats (2008), *Internet World Stats Homepage,* available at: www.internetworldstats.com (accessed 30 September 2008)

Jarvenpaa, S.L. and Todd, P.A. (1997), "Consumer reactions to electronic shopping on the World Wide Web" *International Journal of Electronic Commerce,* Vol. 1 No. 2, pp. 59-88.

Keeker, K. (1997), "Improving Web site usability and appeal", available at: http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnsiteplan/html/improvingsiteusa.asp (accessed 15 February 2008).

Keeney, R. (1999), "The value of internet to the customer", *Management Science,* Vol. 45 No. 4, pp. 533-542.

Khakimdjanova, L. and Park, J. (2005), "Online visual merchandising practice of apparel e-merchants", *Journal of Retailing and Consumer Services,* Vol. 12, pp. 307-318.

Kim, E.B. and Eom, S.B. (2002), "Designing effective cyber store user interface", *Industrial Management and Data Systems,* Vol. 102 No. 5, pp. 241-251.

Kim, S. and Stoel, L. (2004), "Apparel retailers: Website quality dimensions and satisfaction", *Journal of Retailing and Consumer Services,* Vol. 11 No. 2, pp. 109-117.

Lee, W. and Benbasat, I. (2003), "Designing an electronic commerce interface: Attention and product memory as elicited by Web design" *Electronic Commerce Research and Applications,* Vol. 2, pp. 240-253.

Liang, T.P. and Lai H.J. (2002), "Effect of store design on consumer purchases: Van empirical study of on-line bookstores" *Information and Management,* Vol. 39 No. 6, pp. 431-444.

Liu, C. and Arnett, K. (2000), "Exploring the factors associated with Web site success in the context of

electronic commerce", *Information and Management,* Vol. 38*,* pp. 23-33.

Lohse, G. L. and Spiller, P. (1999), "Internet retail store design: how the user interface influences traffic and sales", *Journal of Computer-Mediated Communication,* Vol. 5 No. 2, available at: http://jcmc.indiana.edu/vol5/issue2/lohse.htm (accessed 2 November 2007)

Lorenzo, C. and Mollá, A. (2007), "Website design and e-consumer: Effects and responses", *International Journal of Internet and Advertising,* Vol. 4 No. 1, pp. 114-141.

Melián, L., and Padrón, V. (2006), "Tangibility as a quality factor in electronic commerce B2C", *Managing Service Quality,* Vol. 16 No. 3, pp. 320-328.

Muir, B.M. and Moray, N. (1996), "Trust in automation. Part II. Experimental studies of trust and human intervention in a process control simulation", *Ergonomics,* Vol. 39 No. 3, pp. 429-460.

Nielsen, J. (1994), *Usability Engineering*, Morgan Kaufmann, San Francisco.

Nielsen, J. (2003), "Usability 101", available at: http://www.useit.com/alertbox/20030825.html (accessed 15 February 2008)

Palmer, J.W. (2002), "Web site usability, design, and performance metrics", *Information Systems Research,* Vol. 13 No. 2, pp. 141-167.

Petty, R.E. and Cacioppo, J.T. (1981), "Issue involvement as a moderator of the effects on attitude of advertising content and context", *Advances in Consumer Research*, Vol. 8, pp. 20-24.

Ranganathan, C. and Ganapathy, S. (2002), "Key dimensions of B2C Web sites" *Information and Management,* Vol. 39, pp. 457-465.

Richard. M.O. (2005), "Modelling the impact of internet atmospherics on surfer behaviour", *Journal of Business Research,* Vol. 58, pp. 1632-1642.

Robins, D. and Holmes, J. (2008), "Aesthetics and credibility in Web site design" *Information Processing and Management,* Vol. 40, pp. 386-399.

Schlosser, A., White, T.B. and Lloyd, S.M. (2006), "Converting Web site visitors into buyers: How Web site investment increases consumer trusting beliefs and online purchase intentions, *Journal of Marketing,* Vol. 70 (April), pp. 133-148.

Schubert, P. and Selz, D. (1999), "Web assessment – Measuring the effectiveness of electronic commerce sites going beyond traditional marketing paradigms", In *Proceedings of de the 32nd Hawaii International Conference on System Sciences*. Hawaii, United States.

Spies, K., Hesse, F. and Loesch, K. (1997), "Store atmosphere, mood and purchase behaviour", *Journal of Research in Marketing,* Vol. 14, pp. 1-17.

Swaminathan, V., Lepkowska-White, E. and Rao, B.P. (1999), "Browsers or buyers in cyberspace? An investigation of factors influencing electronic exchange", *Journal of Computer-Mediated Communication*, Vol. 5 (December), available at: http://jcmc.indiana.edu/vol5/issue2/swaminathan.htm (accessed 13 January 2008)

Tan, G.W. and Wei K.K. (2006), "An empirical study of Web browsing behaviour: Towards an effective website design", *Electronic Commerce Research and Applications,* Vol. 5, pp. 261-271.

Torkzadeh, D. and Dhillon, G. (2002), "Measuring factors that influence the success of internet commerce", *Information Systems Research,* Vol. 13 No. 2, pp. 187-204.

Tractinsky, N. and Lowengart, O. (2007), "Web-store aesthetics in e-retailing: A conceptual framework and some theoretical implications", *Academy of Marketing Science Review,* Vol. 11 No. 1, pp. 1-18.

Turley, L.W. and Milliman, R.E. (2000), "Atmospheric effects on shopping behavior: A review of the experimental evidence", *Journal of Business Research,* Vol. 49, pp. 193-211.

Van der Heijden, H. and Verhagen, T. (2003), "Online store image: conceptual foundations and empirical measurement", *Information and Management,* Vol. 41, pp. 609-617.

Wilde, S.J., Kelly, S.J. and Scott, D. (2004), "An exploratory investigation into e-tail image attributes important to repeat, internet savvy customers", *Journal of Retailing and Consumer Services,* Vol. 11, pp. 131-139.

Zhang, X. and Myers, M. (2005), "Web design and e-commerce", in Gao Y. (Ed) (2005): *Web System Design and Online Consumer Behavior*, Idea Group Publishing, Hershey, pp. 205-221.

Zhang, P. and Von Dran, G.M. (2000), "Satisfiers and dissatisfiers: A two-factor model for website design", *Journal of the American Society for Information Science,* Vol. 51 No. 14, pp. 1253-1268.

Zhang, P., Von Dran, G.M., Small, R.V. and Barcellos, S. (2000), "A two factor theory for website design", In *Proceedings of the 33rd Hawaii International Conference on System Sciences*, Hawaii, United States.

Zviran, M., Glezer, C. and Avni, I. (2006), "User satisfaction from commercial Web sites: The effect of design and use", *Information and Management,* Vol. 43*,* pp. 157-178.