

WEB SITE AFFECTIVE QUALITY AND FEATURES QUANTITY IN RELATION TO CUSTOMER ONLINE SATISFACTION: A RESEARCH FRAMEWORK

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“The more the better” goes as a saying. Resorting to this quantity heuristic, consumers tend to decide on products which present more features than less, forgetting that features quantity comes with product complexity and less satisfaction in its use. In this paper we extend the construct of “feature fatigue” (Thompson, Hamilton and Rust, 2005), which derives from the cognitive complexity of a product with too many features, to Web sites usability. So far, previous research has investigated the impact of Web site quality as a key determinant to online success focusing on what makes a site “better than another” in general or for some type of industries. It has identified a large number of factors that have been found to influence the online experience satisfaction such as visual design, quality and quantity of information, personalization and last but not least: usability. Based on a literature review in marketing and human-computer interaction about affect and its interplay with cognition, we develop a model that link the affective dimension of a product and features quantity to satisfaction. The model is suggesting that perceived ease of use mediates the combined effect of the affective dimension and features quantity. We propose to test whether a task-related set of features would positively impact satisfaction via perceived ease of use when the features possess an affective quality, and if it would hold true even in a perceived case of complexity. In the proposed research framework, we would test whether a task-related set of features would positively impact satisfaction via perceived ease of use when the features possess an affective quality, and if it would hold true even in a perceived case of complexity. Hence, the purpose of this conceptual paper is to contribute to the field of electronic service quality product evaluation by incorporating both the affective and cognitive dimensions of evaluation in a single research model that could be empirically tested in the very specific context of a goal-oriented task and its related set of functionalities.

1. Introduction

The ever strengthening importance of Internet in e-commerce with a reported 24% increase in 2004 for the United-States (Grau, 2006), and in everyday life in general in Quebec (CEFRIO and Léger Marketing, 2006), urges the research necessity to understand what contributes to perceived quality in electronic environments and to online customer satisfaction in general. It is all the more necessary since the visit-to-purchase conversion rates observed are still very low, such as less than 2% in some cases (Sismeiro & Bucklin, 2004).

So far past research has investigated the impact of Web site quality as a key determinant to online success focusing on what makes a site “better than another” in general (Zeithaml, Parasuman, and Malhotra, 2002) or for some type of industries (Nantel and Bressoles, 2006). It has identified a large number of factors that have been found to influence the online experience satisfaction such as visual design, quality and quantity of information, personalization and last but not least usability (Ambra and Rice, 2001).

The relationship between usability and online satisfaction has received lots of attention from researchers (Hsu, 2006), who studied the usability globally, at the Web site level and not for each feature individually. If it is important for them to know what makes a Web site work, Web site managers also need to know:

- *how many features*, and
- *what features* really help consumers while accomplishing a specific task online (e.g., listening to music from an online music library), as well as
- *what moves an online customer to prefer one feature more than another* when many are available to them.

This research framework partly extends from the Thompson, Hamilton and Rust (2005) paper and the construct of “feature fatigue” that derives from the cognitive complexity of a product with too many features. We apply that notion to the more restricted context of a Web site set of features available to accomplish a specific task, and which are specifically designed for that purpose. For instance, in a job trading platform such as elance.com, it would correspond to the set of features available to post a job or to apply for one. Objective usability can be determined by experts’ evaluation and the threshold level of complexity to be manipulated in the experiment would correspond to a certain amount of features derived from usability testing of the Web site with consumers.

The Thompson, Hamilton and Rust (2005) paper focuses on the level of complexity, i.e., the total quantity of features present in the product. A literature review in marketing and human-computer interaction about affect and its interplay with respectively cognition and design, reveals that the affective dimension of a product does have an impact on the consumer’s evaluation of it in general and the perception of usability in particular (Zhang and Li, 2005).

Affective constructs are reviewed and their impact on perceived ease of use is tested in the Zhang and Li (2005) research, but not in the specific case of perceived complexity deriving from the availability of a high number of features. In the proposed research framework, we would test whether a task-related set of features would positively impact satisfaction via perceived ease of use when the features possess an affective quality, and if it would hold true even in a perceived case of complexity.

Hence, the purpose of this paper is to contribute to the field of electronic service quality product evaluation by incorporating both the affective and cognitive dimensions of evaluation in a single research model that could be empirically tested in the very specific context of a goal-oriented task and its related set of functionalities. The research question can be formulated as: *How does affective quality impact the perceived usability of features? Does a task seem easier to accomplish when the features available are more attracting than when it is not the case? Can it be the case even when the amount of features available leads to complexity in use?*

The remainder of the paper is organized as follows: starting with a literature review covering and defining the basic concepts of electronic service quality, usability, affect and how it applies to the electronic service (i.e., Web site) system features differently than to the entire site as a global level. We follow with the presentation of the model and the propositions to test the model.

2. The literature review

2.1 Electronic service quality and usability

For many years, whenever you would hear about e-commerce in the public media or in the academic research sphere, it were in reference to the shopping cart abandonment phenomenon (Rajamma, 2006) with customers unable to proceed with their order due to the electronic barrier or more precisely to person-system communication failures (and occasionally to real technological system failures!).

It is indeed a well known fact that one of the main distinguishing characteristic of e-commerce is that it relies primarily on the customer interacting with a system and not a person (Hoffman and Novak, 1996). This very specific computer-mediated communication (CMC) which has undergone an interactive design revolution with direct manipulation interfaces about thirty years ago, is at the heart of the dialogic paradigm of the Human-Computer Interaction (HCI) field of study (Shneiderman, 1982).

In this discipline's perspective, successful HCI relies on the central tenet called *Usability* (Nielsen, 1994). This notion refers to the ease of use of a system that users can employ in order to achieve a particular goal¹ and it also extends to the principles and methods of measuring usability from which assessment can either be done by experts or by the customers themselves. Frokjaer and al. (2000) caution us about a flurry definition of the term:

“Although the importance of usability is gaining widespread recognition, considerable confusion exists over the actual meaning of the term. Sometimes usability is defined quite narrowly and distinguished from, for example, utility [Nielsen, 1994], on other occasions usability is defined as a broad concept synonymous to quality in use [Bevan, 1995]”

Borrowing theoretical concepts, principles, methods and measures from the HCI body of knowledge (Bevan, 1999; Grudin, 2006), most of the marketing empirical studies focusing on Web site electronic service quality have done so investigating the Web site usability performance as a sine qua non condition of its quality and as a predictor of customer satisfaction (Bressoles, 2004).

2.2 System feature usability

While previous research focused primarily on evaluating the global usability of Web sites, very few studies have looked at the usability of the features per se. The Thomson, Hamilton and Rust (2005) paper is an exception which studies “Feature Fatigue: When Product Capabilities Become Too much of a Good Thing” and discuss the balance between desires for product capabilities before use and real usability when the large quantity of features render the product use complex.

The latter part of their argument regarding the construct of feature fatigue is a basic trade-off in usability studies, as flexibility and complexity are two interdependent ergonomic criteria used for conception and evaluation and the more features offered in a system, the more flexible it is but the more complex it becomes as well (Bastien and Scapin, 1993). Illustrating this phenomenon with examples, the researchers chose for instance to evaluate a digital video player set of features in their experiments. Even though the results are clearly showing that too many features decrease

¹ See the ISO Norm 9241 for the definition of Usability : “The *effectiveness, efficiency, and satisfaction* with which specified users achieve specified goals in particular environments”.

the product ease of use, the quantitative argument limits the quality in use concept of usability and its research field to matters of amounts of features present in the system.

Studies have investigated how users navigate the Web sites in general (Catledge and Pitkow, 1995) and it is clear that it can be navigated and evaluated by consumers for hedonic (pleasure) as well as for instrumental (goal-oriented) purposes (Babin, Darden and Griffin, 1994). Further research has also suggested that online shopping experiences need to incorporate both shopping values in order to become truly compelling shopping experiences (Senecal, Gharbi & Nantel, 2002).

2.3 Interplay between affect and cognition

If enjoying the activity (hedonic dimension) weighs as much as its end result being the purchase (instrumental dimension) while performing the shopping task -whether it is online or offline-, what can we conclude about affect? Can affect be considered information? How is it part of the information processing required to accomplish the shopping task?

Focusing mainly on mood and persuasion (Shwarz, Bless & Boner, 1991), the interplay of affect and cognition and its influence on social behaviour has been long and widely studied in consumer research. The ultimate objective is to include affect in comprehensive models of cognition (Isen, 1987), and to further advance the understanding of its influence on consumer decision-making for managerial implications (Pham & al., 2001).

“Spontaneously evoked affective reactions rather than cognitions tend to have greater impact on choice” write Shiv and Fedorikhin (1999), especially when one does not have much time to think. The systematic influence of positive affect has also been shown to improve creative problem solving by facilitating cognitive flexibility in choosing perspectives (Ashby, Isen and Turken, 1999).

In a related vein, the literature on ambiance factors related to consumer settings define atmospherics as “the cues that can create a specific atmosphere” or “the effort of design and conception of the outlet, that aim to generate in the consumer a number of specific emotional reactions which are supposed to increase his likelihood to buy” (Lambert, 2006) and trace the concept back to Kotler himself about thirty years ago (Kotler, 1974). “Insights for the creation of the online shopping *webmosphere* through more effective design of interactive retail shopping environments” are offered in the Childers and al. (2001) paper on “Hedonic and utilitarian motivations for online retail shopping behaviour”.

2.4 Affective quality features of an electronic system

Drawing mainly from the marketing literature on affective states of individual users and incorporating it into their research on Web site evaluations, De Wulf and al. (2004) have developed a process model for assessing Web site success in an online shopping setting, integrating pleasure as a key mediating variable between evaluations and success. In their research, Mathwick and Rigdon (2004) have observed users performing an information search task (i.e., goal-oriented type of task) and they observed that perceived playfulness - even while performing a goal-oriented task - is closely linked to a state of optimal experience called flow (Csikszentmihalyi, 1975), also characterising a compelling online experience (Novak, Hoffman, & Yung, 2000).

Hence affect in general and enjoyment in particular as sources of experiential value (Holbrook and Hirschman, 1982) are far from new on a theoretical level, but beyond the on line experience and flow literature, it has still not been so extensively examined as it applies to Web sites features and not the online experience in general.

In their empirical investigation, Zhang and Li (2005) found that perceived affective quality is determining in user's evaluation and use of IT. Their results show a strong positive link between perceived affective quality and perceived ease of use and perceived usefulness. Based on studies in the IT context, they have identified and compared research work that are all including "affective constructs" described similarly and operationalized in very close fashions. For instance, "First impression" is used in Schenkman and Jonsson (2000) and corresponds to the following affective quality/features: "Beauty, mostly illustrations versus mostly text, overview and structure". "Secondary emotions", "Hedonic quality", "Perceived aesthetics" and "Perceived visual attractiveness" are the others affective constructs identified that are manifest in lay out, colors, graphs, images, shapes, textures and even music...

Building on the work of Russell (2003), the researchers define affective quality as being "the ability to cause a change in core affect" and "core affect (also known as affect, feeling, mood)" is "a neurophysiological state that is consciously accessible as a simple, non reflective feeling. It is considered an integral blend of hedonic/valence (pleasure/displeasure, the extent to which one is feeling good or bad); and arousal/activation (sleepy/activated, the extent tot which one is feeling engaged or energized) values." Core affect is also characterized as being "primitive, universal, ubiquitous" and "the core of all emotion-laden events".

2.5 Satisfaction

As research indicates that affective quality features impact consumer's evaluation and use of IT, via perceived ease of use and perceived usefulness, it can be transitively considered to be linked to satisfaction as this concept has so far been systematically associated with Web site quality and online success as the result of many factors (Zeithaml, Parasuman, and Malhotra, 2002), but predominantly ease of use (Nantel, Mekki Berrada and Bressoles, 2004).

"Satisfaction is one of the most important consumer reactions in B2C online environments. Recent statistics showed that 80 percent of highly satisfied online consumers would shop again within two months, and 90 percent would recommend the Internet retailers to others (N.DIRECT, 2002; Web Partner, 2002)" (in Cheung and Lee, 2005).

The managerial imperative of, and research interest in customer satisfaction, is definitely driven by profitability rationale as theoretical research has established a link between satisfaction and (re)purchase intention and customer retention (Zeithaml & al., 1996), even though strongly moderated by customer characteristics (Mittal and Kamakura, 2001).

Nevertheless, e-satisfaction empirical studies (Szymanski and Hise, 2000; Hsu, 2006) have only focused on negative and positive Web site attributes performance on satisfaction (e.g., security, site design, information quality or convenience) without linking their "satisfaction with e-commerce framework" to traditional dominant marketing views of consumer satisfaction

conceptualizing it as the difference between the consumers' expectations regarding a product/service and its performance (Oliver, 1980).

Even though still dominant in consumer research and managerial practice, the confirmation/disconfirmation of expectations model of consumer satisfaction is increasingly being criticized with several limitations, either for not proposing a “complete picture of satisfaction formation” (Spreng and al, 1996) or for being “insufficient or even irrelevant” in some consumer cases by not addressing the dynamic process of satisfaction (Fournier and Mick, 1999). Leaving the heated theoretical debates per se for future research, it is clear that this dominant consumer satisfaction paradigm is based on a rational perspective that implies a highly cognitive comparison process.

3. The classic theoretical general framework in CR

Even though we have seen that efforts are being attempted towards understanding the interplay of affect and cognition, research strives for a more complete appraisal of the determinants of behaviour in a commercial service environment. Many researchers are getting stronger at contesting the dominant cognitive paradigm in marketing with lack of interest and/or inherent limitations for non cognitive dimensions (Lambert, 2006), and it is obviously all the more the case in the interpretive research stream (Belk, 1994; Hudson, Ozanne and Ozanne, 1988).

The necessity to enlarge and enrich the classic theoretical general framework in consumer research with recent findings in neuropsychology about the role of affect in information processing is also echoed in the HCI (Human-Computer Interaction) field where the usability community is now reaching forward the design community and insisting upon including “product attractiveness” as an integral part of the usability definition² (Norman, 2002 and 2004).

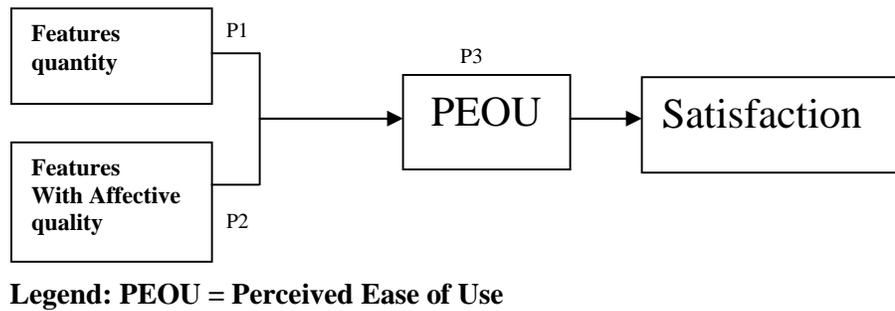
3.1 Proposed research model

From this literature review, we derived the following research model and propositions. Figure 1 presents two factors or independent variables (“Features quantity” and “Affective quality features”), one dependent variable (“Satisfaction”) and a mediating variable (“Perceived ease of use”):

- “Features quantity” with two levels being High and Low, as it corresponds to the number of features leading to perceived complexity in the High condition and the reverse
- “Affective quality features” with two levels being Presence and Absence, as it corresponds to the presence or absence of features with affective quality
- “Satisfaction” would be operationalized as intention to use the electronic service again, intention to renew membership and intention to recommend the Web site
- “Perceived ease of use” measured via the usability evaluation scale called WAMMI – WebSite Analytics MeasureMent Inventory

² ISO 9126: “Usability is the capability of the software product to be understood, learned, used and **attractive** to the user, when used under specified conditions » (<http://www.iso.org>)

Figure 1: Research Model



3.2 Propositions

From the above discussion, and controlling for the objective usability, three main propositions including their subparts could be tested in a future empirical study:

P1: The number of features available in a system to help accomplish a goal-oriented task impacts online customer satisfaction via perceived ease of use (PEOU)

P1a: A system with lots of features (i.e., HIGH level condition with many features leading to complexity in terms of usability evaluation) impacts PEOU negatively

P1b: Few features (i.e., LOW level condition with few features leading to flexibility in terms of usability evaluation) impacts PEOU positively

P2: The affective quality of a feature available in a system to help accomplish a goal-oriented task impacts online customer satisfaction via perceived ease of use

P2a: A system feature available in a system to help accomplish a goal-oriented task that presents an affective quality (i.e., PRESENCE) impacts PEOU positively

P2b: A system feature available in a system to help accomplish a goal-oriented task that does not present an affective quality (i.e., ABSENCE) impacts PEOU less positively than one with an affective quality present in the system

P2c: The impact of a system feature available in a system to help accomplish a goal-oriented task that presents affective quality is greater than the impact of a system feature that does not

P3: The number and the affective quality nature of system features have a combined impact on the online customer satisfaction via PEOU

A system with lots of features (i.e., HIGH level condition with many features leading to complexity in terms of usability evaluation) that also present an affective quality (i.e., PRESENCE) impacts PEOU positively

4. Conclusion

Web sites can serve many purposes for each individual user depending on the contextual needs. Unless the commercial offer is unique, evaluating the usability of a Web site is very useful to position it as a definite shopping option on a highly competitive market of vendors (Lynch and Ariely, 2000). Nevertheless, it does not help site managers in identifying how it is used, as they presently solely rely on the computation of Web site use statistics that indicate download/access page frequency but does not provide explanations as for why it is accessed. To put it differently: “*What features are really used to perform a specific task (i.e., one specific need amongst others) and for what reasons?*” And also, “*Is affect information?*” when consumers process the affective quality of Web site features in the same line as what Childers and al. (2001) indicate that there are hedonic and utilitarian motivations for shopping.

The affective quality of a feature is a construct that definitely requires refinement as it is just emerging and basically associated with aesthetic dimensions. Future research should explore the personalization literature to find how much of the personalized elements in a Web interface (Dufresne and Prom Tep, 2006) can impact perceived ease of use and lead to increased customer satisfaction at the affective level.

In a different direction, the social response theory, also called the media equation (Reeves and Nass, 1996) explores how much people treat electronic and computerized systems as social actors, and interact with them the same way they would with human beings (see the use of humour by Nass and al., 1999). It would be interesting to find if specific Web site features could benefit from more polite interaction for instance (Moon, 2000).

In the same vein, the increasing use of Avatars in electronic service environments (Holzwarth, Janiszewski, & Neumann, 2006) may contribute to an interpersonal dimension to the usually impersonal Web shopping experience, and in the process, make shopping more enjoyable for consumers. Whichever direction taken, a prior qualitative research with users/customers would be a privileged way to identify affective quality features that would emerge from deep interviews with and observation of participants “telling and showing” us what moves them on the Web sites they visit on a regular basis.

As a closing remark, we are aware of several limits to this research proposition’s model. For one thing, controlling for high levels of Internet experience, domain expertise and involvement is not equivalent to fully taking these variables into consideration in testing the model. The literature has proved that these variables have an impact on task completion success and satisfaction and more particularly on the perception of complexity, and it would be necessary to include them accordingly in empirical future research. Last but not least, we want to stress the fact that the proposed research model is based on the premise of the dominant model of satisfaction and does not take into consideration other research models that are still emerging in the satisfaction literature, like the model incorporating the dynamic dimension of satisfaction developed by Mick and Fournier (1998).

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