

E-LOGISTICS SERVICE QUALITY IN THE DIGITAL ERA: KEY DRIVERS FOR GAINING CUSTOMER SATISFACTION AND LOYALTY

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Abstract

In the digital era, where customers are shopping online, the internet has represented a new challenge and opportunities for retailers to reach customers. While the development of this channel has benefited consumers in terms of monetary and time savings, on the other hand the e-commerce retailing scenario has introduced new issues which are not related to merely the price and quality of the service but also relative to e-logistics service quality (e-LSQ). Thus, in order to analyse the significance of e-logistics service quality factors influencing the consumer's satisfaction in the shopping online, we propose a survey-based analysis concerning the impact of these elements, assuming that the consumer satisfaction leads to consumer loyalty and retention. The multiple regression analysis has confirmed the significance of the site ease-of-use and the Physical Distribution Service Quality (PDSQ) in predicting the customer satisfaction, whereas other antecedents, such as the Physical Distribution Service Price (PDSP) and the product returns management (PRM), has been disconfirmed. The study firstly contributes to extend previous models, by verifying the direct correlation among the ease of use and consumer satisfaction and loyalty. In addition, the results identify the existing trade-off among the price and quality in the e-logistics service quality. Finally, the non-significance of the hypothesis concerning the product returns management introduces the need for further studies.

Keywords: *E-logistics service quality, customer satisfaction, customer loyalty, last mile.*

Introduction

In the digital era, where customers are daily shopping online, the internet development has been seen as a fundamental tool that allows retailers to run their business in this new channel. The electronic home shopping in a B2C

context brings some challenges for retailers, because it requires specific characteristics, which are identifiable in speed, connectivity, information sharing, goods exchange and service. Since consumers have been finding the online shopping as

a source of benefits, such as monetary savings (Close & Kukar-Kinney, 2010; Pappas, Kourouthanassis, Giannakos, & Lekakos, 2017) and time savings (Miyatake, Nemoto, Nakaharai, & Hayashi, 2016), one of the e-retailers' aim is to identify the elements of the purchasing experience on-line. Accordingly, a recent report (KPMG, 2017) found that among the main reasons why consumers purchase online, the majority is focused on the aforementioned benefits of money and time saving.

Furthermore, the consumers' familiarity with the e-commerce is growing as well as their propension to share online shopping experiences and feelings, giving feedbacks on what they have bought, for instance, through the Word of Mouth (WOM). Hence, the e-retailers are considering the consumer's satisfaction as an important element to be studied (Cristobal, Flavián, & Guinaliú, 2007), in order to firstly understand what the consumers expect, then to provide an appropriate customer's service and a pleasant online shopping experience. Indeed, the customer service has been proven to retain existing customers (Zeithaml, 2000): three out of five online customers would not purchase if the customer service is considered inadequate (Meola, 2016; Wertz, 2017).

While the e-commerce retailing scenario brought several benefits, it has also introduced new challenges for the practitioners: what has been emerging is the difference among the offline and online physical distribution. In the first, the consumers are asked to reach a brick-and-mortar store, whereas the second requires that the retailers manage the fulfilment process. In other words, what has raised complexities is the "last mile process", which is that portion of the supply chain delivering products directly to the consumer (Kull, Boyer, & Calantone, 2007) and it represents the only personal contact existing

between the retailer and the customer. Thus, it has a repercussion on the consumer's satisfaction, the e-WOM and retention.

This study is based on the concept that the consumer's satisfaction in the online shopping leads to his/her loyalty and retention, therefore the existing relationship is deeply investigated. Thus, the research idea is to focus on the consumer's satisfaction, considering in particular the effects of high-levels e-Logistics Service Quality (e-LSQ) on satisfaction. In particular, this study takes into account the impact of Physical Distribution Service Quality (PDSQ), Physical Distribution Service Price (PDSP), and the role of product returns management (PRM) on the overall customer satisfaction. In addition to these variables, a context specific variable is considered, regarding the ease of use of the e-tailer website. The paper is structured as follows: a literature review and hypotheses will be detailed; then the method and main results will be provided. Last, a discussion and conclusion section will be illustrated.

Literature Review

Customer satisfaction and loyalty in the online retailing have been widely analysed in the literature. Several aspects have been investigated, particularly among their antecedents, such as the influence of service quality, thus comprehending the impact of the order procurement and fulfilment process (Heim & Sinha, 2001), the effects of pre-purchase, transaction-relation and post-purchase on the customer's loyalty (Jiang & Rosenbloom, 2005; Otim & Grover, 2006) and the overall service quality for the site-to-store purchases (Swaid & Wigand, 2012).

Although the achievement of customer's satisfaction does not always equate customer's loyalty, a significant stream of

research recognizes the first as a key predictor of the second (Cheng, 2012; Chiou & Droge, 2006; Davis-Sramek, Droge, Mentzer, & Myers, 2009). In addition, other studies investigated how the relationship between these two variables might be different if offline-online comparison is considered (Cheng, 2012). Therefore, the literature has begun to examine the online retail supply chain under a customer's perspective.

Since each customer might differently perceive the quality of the service, the determinants that influence the consumers' purchase experience required to be identified. Among such determinants, the ease-of-use of the website (Liu, Tucker, Koh, & Kappelman, 2003), and the relationship among the price paid and the quality of the distribution service (Brynjolfsson & Smith, 2000; Cao & Zhao, 2004), are all drivers of the customers' experience. In addition, the returns management process provided by the e-tailer can play a key role in determining customer satisfaction (Griffis, Rao, Goldsby, & Niranjana, 2012),

These determinants are defining the measures that ensure an accurate analysis of the retailers' performance, not only in terms of price, but also in terms of product fulfilment process and the consumers' expectation about the service. One of the key determinants of the consumer satisfaction in the online shopping is the ease-of-use of the website.

The ease-of-use is defined as the ease with which a customer is able to use an e-commerce site, thus the customer's opinion that the online shopping requires less effort (Chiu, Chang, Cheng, & Fang, 2009; Collier & Bienstock, 2006; Lin & Sun, 2009). The relation among this independent variable and the customer satisfaction has been confirmed by considering the greater perceived website usability (Belanche, Casaló, & Guinalú,

2012; Flavián, Guinalú, & Gurrea, 2006). Thereafter, other studies occurred with the specific aim of analysing this causality: while Lin & Sun (2009) observed a positive impact of the website service quality, which is formed also by the ease-of-use, in the e-satisfaction, (Deng Turner, Gehling, & Prince, (2010) proved a more general concept based on the perceived utilitarian performance of an IT, which positively influences the IT satisfaction. Recently, Jain, Gajjar, Shah, & Sadh (2017) carried out a research comprehending the E-business quality, a variable similar to those already mentioned, which includes the ease-of-use of the website, with the aim to measure the service quality of e-tailers. Nonetheless, the relation among the ease-of-use and the customer satisfaction has not fully developed in the literature yet. Thus, being the first step for creating a nice and positive experience for the customer, the first hypothesis is the follow:

H1: site ease positively affects customer's satisfaction

A considerable stream of research has established the importance of the Logistics Service Quality (LSQ) to achieve customer satisfaction (Carol C. Bienstock, Royne, Sherrell, & Stafford, 2008; Davis-Sramek, Mentzer, & Stank, 2008; Mentzer, Flint, & Hult, 2001). LSQ refers to the customer service activities related to the logistics, which enhance product value by identifying time, place and form utility (Carol C. Bienstock et al., 2008). Mentzer, Flint, & Kent (1999) conceptualized this concept by identifying a LSQ scale based on nine different dimensions: as final results, they stated that LSQ must be linked to specific measures, such as loyalty, WOM, price sensitivity and others related to the supplier point of view. A considerable stream of research has established the importance of the LSQ to achieve customer satisfaction (C. C. Bienstock, Royne, Sherrell, &

Stafford, 2008; Davis-Sramek et al., 2008; Mentzer et al., 2001).

However, few studies considered the online environment (Bouzaabia, Van Riel, & Semeijn, 2013; Griffis, Rao, Goldsby, & Niranjana, 2012). While the markets have evolved to better match the customer's requirements, the literature followed this trend by studying the consequences of the e-LSQ on the customer's satisfaction. Even though some studies have provided relevant theoretical and managerial contributions (Rao, Goldsby, Griffis, & Iyengar, 2011; Stank, Pellathy, In, Mollenkopf, & Bell, 2017), further investigations seems necessary.

The Physical Distribution Service Quality (PDSQ) can be defined as a framework to measure in which ways firms provide customer value through logistics, considering the dimensions of availability of products, timeliness in the duration of the order delivery cycle, condition of order and return (Mentzer, Gomes, & Krapfel, 1989). In other words, it is a technical component of LSQ that has the process of delivery as its function (Rafiq & Jaafar, 2007). More recently, the PDSQ literature has been expanded to the omni-channel strategy (Murfield, Boone, Rutner, & Thomas, 2017), where the evolution of the logistics service was considered, respectively from LSQ to e-LSQ (Rao et al., 2011) and from PDSQ to e-PDSQ (Xing, Grant, McKinnon, & Fernie, 2010). Indeed, when the e-commerce grew relevance, the traditional distribution has evolved from the brick-and-mortar to the online retailing, in which the supply chain partners play a fundamental role, because they are distributing directly to the end customer (Vinhas et al., 2010). In other words, the physical store position as unique channel for the distribution has been partly replaced and, at the same time, completely replaced by the online channel. There-

fore, the hypothesis is concerned with the online purchase satisfaction of the consumer and how the PDSQ influences it. The second hypothesis is:

H2: PDSQ positively affects customer's purchase satisfaction.

The consumer needs to find a reasonable similarity among the price paid for the logistics service and the actual service. Initially, even though the price represents an important variable to determine the consumer satisfaction, the literature concerning the LSQ had not issued a proper study of this determinants: price was cited as less important than the level of PDSQ (Bienstock, Mentzer, & Bird, 1996). However, the service provided by the e-tailer is proportional to the economic feasibility of the quality standard, so that a high quality service is yielded if the sellers is able to do that at a competitive price that allows them to obtain a profit (Rabinovich & Bailey, 2004). Hence, online retailers should seek ways to improve PDSQ while simultaneously reducing associated costs. Rabinovich, Rungtusanatham, & Laseter (2008) investigated the drop-shipping, a practice aimed at reducing the costs of shipping products by centralizing warehousing and storage through outsourcing these activities. The concept of Physical Distribution Service Price (PDSP) determines a need for the online retailers to provide a service at a certain affordable cost, without reducing the quality standard that consumers are supposed to receive. Accordingly, the customer will not be satisfied if the service quality is not balanced to the perceived economic effort. Therefore, consumers' satisfaction and PDSP are connected, because the second is strictly connected to the first: the positive impact of the PDSP and consumers satisfaction was studied by Rao et al. (2011). Following studies (Rao, Rabinovich, & Raju, 2014) linked the risk

of returns with the PDS price by stating that the e-tailers service should be tailored to the type of consumer, favouring those that have a longer relationship. In conclusion, companies have to find the right trade-off between the price and the level of the service and consumers respond to the trade-off with satisfaction or dissatisfaction, and this leads to the third hypothesis:

H3: PDSP positively affects customer's purchase satisfaction

In the online environment, the customer's dissatisfaction of the product leads to a product return, which follows a specific procedure identified in the website. The customer materializes the satisfaction in returning the product if he can actually do that, in other words if the instructions are enough easy for him. The product returns management (PRM) intervenes in the customer's satisfaction and loyalty when these variables are understood in their negative meaning, so that one of the reasons behind returns is the customer's dissatisfaction (Jaaron & Backhouse, 2016). Accordingly, the consumer receiving late, damaged or faulty products, will decide to return the items (Potdar & Rogers, 2012), thus confirming a poor logistics service quality provided by the retailer. On the other hand, customer service can benefit from the returns management (Chen, Anselmi, Falasca, & Tian, 2017; Rogers, Lambert, Douglas, Croxton, Garcia-Dastugue, , 2002; Stock & Mulki, 2009), because it alleviates the consumer's remorse feeling (Chen, Anselmi, Falasca, & Tian, 2017; Rogers, Lambert, Douglas, Croxton, Garcia-Dastugue, , 2002; Stock & Mulki, 2009), (Walsh, Albrecht, Kunz, & Hofacker, 2016) or discrepancies with the expected features (Rao et al., 2014). Since e-retailers aim at satisfying the consumers, a lenient returns policy (Janakiraman, Syrдал, & Freling, 2016; Wood, 2001) and

an efficient reverse logistics are drivers of consumer satisfaction. This introduce our last hypothesis:

H4: Efficient product returns management (PRM) positively affects customer satisfaction towards the e-tailer

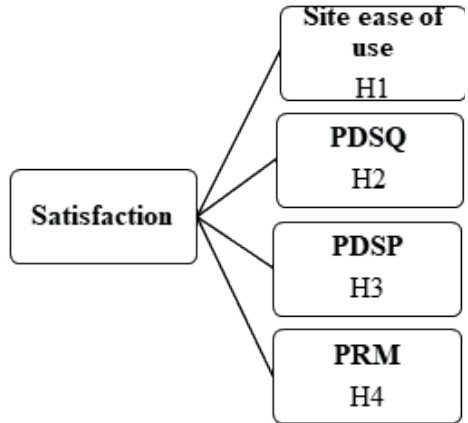


FIGURE 1. RESEARCH MODEL

Method

We asked participants to complete an online survey based on their experience of being consumers of online retailers. The survey was sent to participants through the Survey Monkey platform, with the link posted on various social media pages.

Participants were asked to answer questions related to their satisfaction about several dimensions that constitute their overall satisfaction toward the online purchasing experience. They were asked to provide the name of the main retailer they purchase from. In particular, respondents were asked to evaluate the relevance of four main satisfaction antecedents that are site ease of use, PDSQ, PDSP and returns management. All the scale were taken from existing literature and each item was measured with a 7-point Likert scale (from 1 = highly dissatisfied to 7 = highly satisfied). In particular, respondents were asked to

TABLE 1. DESCRIPTIVE STATISTICS.

Variables	Mean	St.Dev.
Site Ease of use	5,72	0,86
PDSQ	5,90	0,72
PDSP	5,30	0,98
Returns management	5,02	1,14
Customer satisfaction	6,00	0,88
Customer loyalty	6,20	2,04

evaluate the relevance of four main satisfaction antecedents that are site ease of use (Heim & Sinha, 2001), PDSQ (Rao et al., 2011, 2014), PDSP (adapted from Rao et al., 2011)(Rao et al., 2011, 2014), PDSP (adapted from Rao et al., 2011) and PRM (Mollenkopf, Rabinovich, Laseter, & Boyer, 2007). All the scales were taken from existing literature and each item was measured with a 7-point Likert scale (from 1 = highly dissatisfied to 7 = highly satisfied).

Two more constructs were inserted to capture the overall satisfaction (Mollenkopf et al., 2007) and loyalty (Rao et al., 2011) toward the e-tailers by respondents; (Rao et al., 2011) toward the e-retailer by respondents.

A further section of the survey related to exploring the demographic characteristics of the sample (gender, age, education and frequency of use of internet and online purchases) was added.

A total of 195 participants filled in the survey. The ages of the participants ranged from 19 to 29 years old. 38% of respondents were males and 62% were females.

Table 1 presents the means and standard deviations of the selected variables. An average, PDSQ represents the dimension consumers are more satisfied with, although all the selected variable have received an average mean of more than 5 to 7 point scale. Regarding the dependent variables, the average mean was 6 for satisfaction and 6.20 for loyalty, although the latter one has a great standard deviation (st.dev=2) while the former has a standard deviation of 0.88, with more homogeneous results.

Results

Data analysis was realized via a multiple regression analysis adopting SPSS software.

The regression analysis indicated that two of the four antecedents that were investigated as predictors of customer satisfaction were significant, that are Site Ease of Use (H1 supported) and PDSQ (H2 supported).

On the contrary, PDSP and Returns management were found to be not significant predictor for customer loyalty (H3 and H4 not supported). Table 2 summarizes the main results. Overall, the model had a good fit with a R² of .463.

TABLE 2. RESULTS FROM THE REGRESSION ANALYSIS.

Variables	Unstandardized coefficients		Standardised coefficients	t	Sig.
	Beta	St.Dev. error			
(Constant)	.630	.439		1.436	.153
Ease of use	.424	.064	.413	6.631	.000
PDSQ	.392	.073	.321	5.355	.000
PDSP	.065	.053	.072	1.224	.222
Returns management	.059	.048	.076	1.216	.225

In addition, as the present study focuses on the main antecedents that help e-retailers to gain high levels of customer satisfaction, the last step of analysis is to verify, whether the relationship between satisfaction and loyalty exists in our research setting.

In doing so, we conducted a second regression analysis where satisfaction was the predictor of our outcome variable, customer loyalty. Results show a significant and positive impact of customer satisfaction on customer loyalty ($\beta=.290$, $p\text{-value}<.001$).

Implication, limitations and future research

Consumers buying online are increasing on a daily basis and data prove that they are more interested in purchasing online. Achieving consumer satisfaction and loyalty have become relevant and challenge goals for every companies. Since all retailers are facing the omni-channel/multichannel issue by putting interest on build a cost-optimized distribution across channels, this leads to the aim of increasing performance and preserve customer satisfaction.

This paper tries to provide a highlight on the role of logistics service in a B2C online context. The antecedent involved in the study are primarily the quality of the physical distribution service, the cost/quality of the distribution service, the product returns management and

lastly the ease-of use of the websites. Thus, this study contributes to research and practice by identifying and testing factors that affect consumer satisfaction and loyalty in the e-commerce retailing.

This study contributes to confirm the validity of previous models about the positive relationship between ease of use and consumer satisfaction and loyalty (Belanche et al., 2012). Further, this research highlights the need to invest more on the quality aspect of the distribution service because it has the strongest impact on the customer’s satisfaction and loyalty instead to concentrate on physical distribution service price. Delivery is the service that has the major importance with the customer interaction and the rapidity is one of the best challenges. The complexity and the cost of delivery are higher in order to meet customer expectations for that retailers are also offering different delivery service options as a way to retain customers. This last aspect needs further research to understand better the right match between delivery speed (same day, next day, within two-day, etc.), the destination (customer’s home or pick up from the store) and time scheduling (morning instead of evening) consistent with Ishfaq, Defee, Gibson, & Raja, (2016).

However, as a second implication our data showed product returns management is not significant for our sample.

This probably happens for the millennials, who constitute our sample as they consider returns policy as a part of regular service. This controversial aspect needs further studies in future particularly in the case of service failure.

Third, our findings indicate that the impact of PDSQ on satisfaction and loyalty is not significant, thereby establishing the complexity of the necessary drivers on consumers. This is consistent with the shift of economy toward servitization. Under this perspective, one of the key elements is a strong customer centricity (Confente, Buratti, & Russo, 2015). The main concept is that firms should be able to face price competition through the offering of an augmented product where the physical distribution service price is important but again it is part of the consumers' expectations. This is probably the Amazon effect with free express shipping for Amazon prime customer that poses challenge for several e-retailer (PWC, 2018).

PDSQ and PDSQ highlight a typical trade-off between service and efficiency across the supply chain. Efficiency may require cost optimization and the most appropriate delivery choice while logistics service may require speed and reliability. Our findings show how PDSQ is perceived as more important than PDSQ. Further research need to investigate how to calibrate better PDSQ to have an effect on customer satisfaction and loyalty. For example, recent survey by PWC reveals that consumers are willing to pay more for same-day or faster delivery. We encourage future research to further unpack the interactions between satisfaction, loyalty, and willing to pay more in order to provide a better understanding of the thresholds at which same day delivery become germane to loyalty.

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