

The Influence of Online Shopping Determinants on Customer Satisfaction in the Portuguese Market

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Abstract — To analyze the factors that influence customer's online shopping satisfaction, quantitative research is used through a survey. Six factors are used as independent variables in this study, namely: security, information availability, shipping, quality, pricing and time. The study, conducted in Portugal, uses primary data in the form of a survey with a questionnaire as a research instrument, using a five-point Likert scale. The sampling technique in this study uses convenience sampling. The data (n=193) were analyzed using Confirmatory Factor Analysis and Multiple Regression. The analysis carried out reveals the main factors that influence specific online shopping satisfaction, in the Portuguese market. The obtained result analysis confirmed that quality, information availability, pricing, and shipping have a significant effect on online shopping customer satisfaction, while security have no significant effect on online shopping customer's satisfaction and time presented an unacceptable internal consistency, and so it was not possible to conclude about this factor.

Keywords - online shopping; e-commerce; customer satisfaction.

I. INTRODUCTION

The present evolution of information technologies, whether on the Internet or in e-commerce allows the creation of several opportunities for organizations [1]. To remain competitive, they have to adapt [2] and, with the speed of information and the need to be constantly updated, it is on the Internet that new opportunities arise, since it is where the market is currently located [3]. In this sense, the e-commerce "phenomenon" arises, and presents advantages for its ability to act quickly and directly on the consumers' needs [4], as the current situation requires. Thus, e-commerce can be defined as one of the competitive advantages that a company can acquire, to the extent that it is understood as a way to develop an economic activity through the use of electronic connections [5]. And so, with the implementation of insightful pre-sales, sales, and post-sales strategies, companies promote their position, competitively, in the digital market.

According to [6] the scale of e-commerce distribution is a reality. Furthermore, 47% of professionals indicate that exploring new business models (e.g. marketplaces or direct-to-consumer sales) is a strategic priority for their company in the next 12 months [6]. On the other hand, customers expect more and more, and unfortunately there are many cases where

companies fail to use new tools, leading to inconsistent, negative, and below-expectations customer experiences. While consumers shop online for convenience or security, they also crave meaningful interpersonal connections [6].

In Portugal, according to the survey on the use of information and communication technologies by households, revealed by INE, in 2021, 40.4% of the Portuguese between 16 and 74 years old bought online in the last three months, which reflects an increase of 5.2 percentage points compared to 2020. COVID-19 pandemic has accelerated online shopping and the e-commerce phenomenon continues to grow in Portugal [7].

In order to leverage the business and grow in e-commerce platforms, customer attraction, satisfaction and loyalty are determinant. Satisfaction is directly related to loyalty, because when satisfied, there is a high probability of making new purchases and advising others, becoming an altruistic representative of the brand and loyal to e-commerce [1]. When customers are satisfied with a particular online retail shop, they will purchase there more [8]. Hence, both concepts, retaining and satisfying the customer, are becoming increasingly important for both online and offline business [9]. Considering that online commerce offers more satisfaction to modern consumers who seek convenience and speed [9], it seems useful to explore and analyze the connection between customer satisfaction and different determinants [9].

With this reasoning, the research question of this study is: "What is the influence of security, information availability, shipping, quality, pricing, and time on customer online shopping satisfaction?". From the research problem, it is established as a general objective to analyze the factors that influence customers online shopping satisfaction when choosing and staying loyal to an online e-commerce platform. The specific objective is to analyze how security, information availability, shipping, quality, pricing, and time affect the development of customer online shopping satisfaction, following the work of [9], in the Portuguese market.

The article's remaining sections are as follows. Next section discusses some existing literature about the determinants of online satisfaction and presents the six hypotheses and the research framework. Afterwards, the research method is explained. Follows a section that includes the main findings,

discussion, and conclusions with several implications of the study. Further research is drawn.

II. RESEARCH BACKGROUND

A. Satisfaction

Customers' perceptions are compared to their expectations [11] to determine customer satisfaction. This means that customer satisfaction can be evaluated during the use or consumption of a product/service, and this results in their intention to place new orders and/or repurchases. In this case, the consumer will compare the transaction to previously performed ones [12]. The results of this process can be positive, negative, or neutral, resulting in satisfaction or dissatisfaction [13], [14]. Moreover, the consumer will establish a relationship with the company and establish an emotional affinity, which will generate consumer loyalty [15] because the relationship between the loyal customer and the organization is essential to its survival [16].

Satisfaction is understood as the cognitive and affective evaluation that the customer makes based on his personal experience and throughout all episodes of the relationship [17], considering two dimensions related to satisfaction:

- Specific satisfaction, referring to the evaluation that the customer makes about the events in terms of procedures, offers and behaviors of the interaction with the company's employees referring to the specific satisfaction with encounters or events [13], [18], [19].

- Overall customer satisfaction, a variable that captures the customer's cumulative satisfaction with the company and its products and services in general [18], [19]. Cumulative satisfaction acts as an anchor that is updated with new information from different service experiences [20].

While the first concept can provide an immediate diagnosis about a specific product or service, the second concept is a more fundamental indicator of a company's past, present, and future performance [21], [22], and is therefore the one that is most often used to define customer satisfaction.

The full satisfaction or dissatisfaction of the customer, measured or evaluated using precise variables and metrics, constitutes an operational management tool, allowing companies to define strategies and offer products and/or services of excellence.

The indexes of satisfaction provided by customers are of great tangibility and clearly translate important feedback to brands. Customer satisfaction metrics are good indicators of performance, and among the various metrics the ones that stand out most in the analysis of the relationship between customer satisfaction and performance are: the national and international customer satisfaction indexes, the Net Promoter Score [23], the average global satisfaction, the composite indexes, the satisfaction Top Box and satisfaction Top 2 Box [24].

B. Online satisfaction

The company's concern regarding consumer satisfaction, in the particular case of online business, is due to the fact that when consumers are satisfied with an online shopping, they will repeat their access and their purchases. This can grant the company a competitive advantage and can help retain

customers [9] "Hence, it leads to better efficiency, sales growth, enhanced communication with consumers and easier penetration on new markets" [25, p. 1].

Therefore, it is important to understand which determinants can influence the satisfaction of the online customer as it can be regarded as a benchmark to evaluate the performance and development of a business and so companies can better orient their online strategies [26].

For the last decades, a compilation of metrics have been established in order to measure the e-commerce users' satisfaction. In the reviewed literature, some resumed in Table I, we can find several studies that researched these issues, with different numbers of determinants being identified, generally focusing on the same global aspects.

TABLE I. LITERATURE ON ONLINE CUSTOMER SATISFACTION

| Authors | Determinants of online customer's satisfaction |
|--|---|
| Wang et al. (2001, as cited in Maditinos & Theodoridis, 2010) [27] | <ol style="list-style-type: none"> customer support security ease of use transaction and payment information content innovation |
| Lee, Joshi, & Bae (2009) [28] | <ol style="list-style-type: none"> time-saved website functional quality website aesthetic properties risk customer support |
| Maditinos and Theodoridis (2010) [27] | <ol style="list-style-type: none"> product information quality user interface quality service information quality purchasing process convenience security perception product attractiveness user's participation |
| Abdul-Muhmin (2010) [29] | <ol style="list-style-type: none"> product prices product quality customer service required payment methods perceived payment security delivery time |
| Guo, Ling, & Liu (2012) [30] | <ol style="list-style-type: none"> web design security information quality payment methods e-quality of the service product quality product range service provision |
| Vasić, Kilibarda, & Kaurin (2019) [9] | <ol style="list-style-type: none"> security information availability shipping quality pricing (saving) time |

| | |
|-----------------------------|---|
| Jain & Sharma (2020) [26] | <ol style="list-style-type: none"> 1. website layout 2. security concerns 3. information quality 4. payment mode, customer support or e-service quality 5. product quality 6. variety of products/ assortment 7. delivery service and support (websites) |
| Jaiswal & Singh (2020) [31] | <ol style="list-style-type: none"> 1. Website usability 2. Economic value 3. Customization 4. Security 5. Post-purchase experience 6. Customer service 7. Customer awareness |
| Ali & Naushad (2021) [32] | <ol style="list-style-type: none"> 1. perceived convenience 2. perceived value 3. perceived service quality 4. perceived product quality 5. risk factor 6. value for time |

Source: Own elaboration.

Since this paper intends to replicate the study of the Vasiç, Kilibarda, and Kaurin's research in the Portuguese market, we will follow their approach, considering the six determinants recognized by the authors: security; information availability; shipping; quality; pricing; and (saving) time. The main function of this replication will be to verify the research finding and to generalize results to a different population [33].

Security

According to [9] can be interpreted as the ability of an e-commerce to protect the personal data of its consumers from the threat of information theft when transacting online. Customers have significant concerns about the security of e-commerce websites, they want to know about the trustworthiness of the payment method, how their personal data is stored and transmitted [34]. Security was considered, in the first studies, as the most crucial factor that influenced consumers' satisfaction in online shopping [26]. Currently, it is still an important factor with a positive effect on consumer satisfaction, however, some studies already present other factors as having a higher impact [9], [35].

Information availability

Online customers expect that online retailers present all the important information about the products and services they offer. This information must be accurate since consumers cannot see and touch the product before the purchase, so they have to rely on the information provided by the online retailer [35], [36]. The accuracy of information in online shopping is strongly related with the reliability of the content presented in the website [30], [36].

Shipping

Shipping regards the variables involved in getting the consumer what they want and when they want it. This is a

determinant that is considered to have a direct impact on customer satisfaction, when a reliable, safe and timely delivery occurs [33]. In the research of [8] it was verified that it had a positive impact on customer satisfaction.

Quality

Quality of product or service describes a consumer's evaluation of the general superiority of a given product or service [35]. It is considered to be the most important issue influencing the decision to buy in online shopping [26]. Therefore, it is very important to manage quality in online business. This can be done, even though customers cannot touch or feel the quality of the products, but they have access to a full description of the products or to other customers reviews [26]. Indeed, product and website quality, in terms of design and information are associated with the success of e-commerce platforms [37]. Similarly, quality is related to the pleasure of the experience provided, that is, satisfaction [1], since it drives permanence.

Pricing

Pricing is believed to be an important component affecting customer satisfaction. The customers always assess the value of a certain product or service in comparison with the asked price [9]. The price of a product bought in a website is expected to be lower than the price paid in an offline store, since customers can research in different online stores for the best price [35].

Time

Customers are more and more concerned about time [32]. When customers perform their shopping online it is considered that there is a saving in time since they are able to satisfy their needs without having to go to the stores [32], [35]. Furthermore, customers are prepared to carry out various tasks in a short time, hence, they need to access different goods in the same place so they don't have to visit different stores [32].

Following [9] research, we maintained the six original hypotheses, now applied to the Portuguese market, as follows:

H1: Security has a positive effect on customer satisfaction.

H2: Information availability has a positive impact on customer satisfaction.

H3: Shipping has a positive impact on customer satisfaction.

H4: Quality has a positive effect on customer satisfaction.

H5: Pricing has a positive impact on customer satisfaction.

H6: Time has a positive impact on customer satisfaction.

III. METHOD

The methodology followed in this article is quantitative and descriptive correlational in nature. Data collection was conducted through a cross-sectional survey, as data were

collected in a specific period and statistically analyzed [38], making it possible to obtain information, through a structured questionnaire, distributed electronically (Googleforms) using institutional emails and social media. The convenience sampling technique was used for data collection. The data obtained were analyzed using the Jamovi statistical program (version 2.2.5), using univariate and multivariate statistical techniques (Table II).

TABLE II. METHODOLOGICAL SYNTHESIS

| | |
|--------------------------|-----------------------------|
| Temporal basis | Cross-Section |
| Unity of analysis | Online users |
| Sampling | Convenience |
| Sample | 193 |
| Data collection | Survey questionnaire online |
| Dates | January and February 2023 |
| Data analysis | Univariate and multivariate |
| Software | Jamovi (version 2.2.5) |

Source: Research data.

IV. FINDINGS

This section presents the study's findings, from the choice of the measurement items until the hypothesis testing.

A. Measurement

The measurement items for the survey instrument were adopted from previously validated research instruments and adapted to fit the context of this research. The questionnaire used is an adaptation of the one used in the following article: The Influence of Online Shopping Determinants on Customer Satisfaction in the Serbian Market, by [9], which is a study that develops the research model to determine the impact of certain online shopping determinants on consumer satisfaction in the market of Serbia. The validity of the questionnaire was confirmed by professors and experts' comments, in a pretest with six individuals.

A complete list of items used in this analysis is provided in Table III. All items are scored on a five-point Likert scale (1-strongly disagree; 2-partially disagree; 3-neither agree nor disagree; 4-partially agree; 5-fully agree).

TABLE III. VARIABLES AND ITEMS

| Factors | Items |
|--------------------------|---|
| Security | Hesitation about providing information |
| | Risk of the loss of privacy |
| | Risk of identity theft |
| Information availability | Identical information |
| | Accurate information |
| | Timely information |
| Shipping | Free shipping (<i>removed</i>) |
| | Product delivery |
| | Delivery of the mistaken product |
| | Delivery of appropriate size of the product |
| | Quality and freshness of the delivered product |
| | Product delivery at weekends (<i>removed</i>) |
| Quality | Same quality product |
| | Same purchase conditions |
| | Rare product inconsistency |

| | |
|-----------------------|--|
| Pricing | Money saving |
| | Cheaper purchase |
| | Lower expense per transaction |
| Time | Time saving (<i>removed</i>) |
| | 24/7 purchase (<i>removed</i>) |
| | Smart time spending (<i>removed</i>) |
| Customer satisfaction | Satisfaction with online shopping |
| | Attractiveness for usage |
| | Recommendation to others |
| | Pleasure of usage |
| | Excellence of usage |

Source: Vasić et al. (2019).

To establish the adequacy of performing the factor analysis, the Kaiser Meyer-Olkin measure of sampling adequacy was then computed (KMO=0.8), and Bartlett's test of sphericity was conducted (Bartlett's test of sphericity =1744.007; df=231; p-value < 0,001). The KMO values between 0.8 to 1.0 indicate the sampling is adequate. Variables with communalities less than 0.5 or loadings less than 0.6 or high loadings on two or more factors were removed. With this, four items were removed, one regarded the factor "Shipping" and the other three regarded the factor "Time" (Table III). As such, since all "Time" items were removed, the factor was also removed from the analysis. In fact, the Cronbach alpha of this factor is less than 0.6, i.e., it presents an unacceptable internal consistency, which makes it impossible to verify H6. Although this could be a potential source of doubt on the results, we believe that the removal of this determinant will have less impact than the maintenance of it [33].

B. Data Collection and Sample

Table IV presents some characteristics of the respondents in this study. The sample consisted of 193 respondents, being 65.6% female and 34.4% male, with an average age of 44 years, standard deviation of 10.4 years (minimum age 21 and maximum 74 years of age), mostly with Postgraduate/MBA/Master/PhD (65.3%) and married or cohabiting (64.1%). Regarding the professional situation, 84.4% are employed. In terms of the frequency of Internet navigation during the day, the largest number of respondents, that is, 113 or 58.5% of the sample, spent more than four hours on the Internet.

TABLE IV. SAMPLE SOCIODEMOGRAPHIC CHARACTERISTICS

| | Frequency | % |
|-----------------------------------|-----------|------|
| Sex | | |
| Male | 66 | 34.4 |
| Female | 126 | 65.6 |
| Highest level of education | | |
| Up to 9h grade completed | 2 | 1.0 |
| Secondary school completed | 8 | 4.1 |
| Higher education (Bachelor) | 57 | 29.5 |
| Postgraduate/MBA/Master/PhD | 126 | 65.3 |
| Marital status | | |
| Single | 50 | 26.0 |
| Married/Living together | 123 | 64.1 |
| Divorced/Separated | 18 | 9.4 |
| Widowed | 1 | 0.5 |

| Professional situation | | |
|--|-----|------|
| Student | 10 | 5.2 |
| Employed | 162 | 84.4 |
| Self-employed/employer | 12 | 6.25 |
| Other | 8 | 4.2 |
| Frequency of Internet usage per day | | |
| Less than 1 hour | 2 | 1.0 |
| 1-2 hours | 19 | 9.8 |
| 2-3 hours | 32 | 16.6 |
| 3-4 hours | 26 | 13.5 |
| More than 4 hours | 113 | 58.5 |
| Frequency of online shopping | | |
| Never | 13 | 6.7 |
| Biannually | 24 | 12.4 |
| Quarterly | 52 | 26.9 |
| Monthly | 88 | 45.6 |
| Weekly | 13 | 6.7 |
| More than once a week | 3 | 1.6 |
| Average money spent on an online purchase | | |
| Less than 10 euros | 2 | 1.1 |
| 10-25 euros | 18 | 10.0 |
| 26-50 euros | 79 | 47.8 |
| 51-100 euros | 64 | 35.6 |
| 101-150 | 10 | 5.6 |
| More than 150 euros | 7 | 3.9 |

Source: Research data.

Concerning online shopping, 45.6% (88 respondents) purchase on a regular monthly basis and 79 (47.8%) spend on average between €26 and €50 and only 20 (11.1%) spend a maximum of €25.

As for the list of websites most frequently used by customers to make an online purchase, the first place was attributed to Worten.com (Worten is a Portuguese retailer of electronic, consumer and entertainment products), which was used for online purchases by 78 of the respondents, i.e. 40.4% of the sample. In second place Amazon.com (Amazon is an American multinational technology company focused on e-commerce, cloud computing, streaming and artificial intelligence) and in third place Fnac.com (Fnac is a French chain of stores selling cultural and electronic products) which were used by 37.8% and 31.1% of the sample respectively (see Fig. 1).

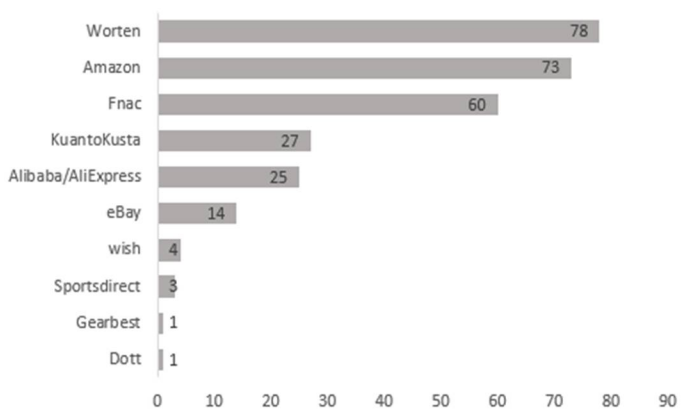


Figure 1. List of websites most frequently used.

C. Analysis

The descriptive statistics were analyzed, as well as the reliability indices of the dimensions presented in Table V. The results for the fit indices were satisfactory for all dimensions and ranged from alpha 0.752 for security to 0.891 for the price dimension. Afterwards, the factor scores were calculated using the Regression Method, resulting in six standardized variables. Considering the significance level for the p-value ($p < 0.05$), Hypothesis H1 is rejected and all other hypotheses are accepted.

TABLE V. TABLE DESCRIPTIVE STATISTICS AND RELIABILITY ANALYSIS

| Factors | Item means | Item variances | Cronbach's α | Internal consistency |
|--------------------------|------------|----------------|---------------------|----------------------|
| Security | 3 | 1.2 | 0.752 | Acceptable |
| Information availability | 3.4 | 1.1 | 0.881 | Good |
| Shipping | 3.7 | 1.1 | 0.889 | Good |
| Quality | 3.8 | 1.0 | 0.802 | Good |
| Pricing | 3.2 | 1.2 | 0.891 | Good |
| Customer satisfaction | 3.9 | 0.9 | 0.881 | Good |

Source: Research data.

The correlations between the factors were also tested. The correlations of the factor information availability, shipping, quality, pricing with customer satisfaction were significant and, as expected, all positive (see Table VI). Values ranged from $r=0.213$ for customer satisfaction and shipping, to $r=0.534$ for customer satisfaction and quality. These findings indicate that high scores on one of them would possibly indicate high scores in customer satisfaction.

TABLE VI. CORRELATIONS BETWEEN THE FACTORS USED

| Factors | Security | Information availability | Shipping | Quality | Pricing |
|--------------------------|----------|--------------------------|----------|---------|---------|
| Information availability | 0.105 | — | | | |
| Shipping | 0.303* | 0.001 | — | | |
| Quality | 0.111 | 0.440* | 0.129 | — | |
| Pricing | 0.003 | 0.083 | 0.206* | 0.289* | — |
| Customer satisfaction | -0.025 | 0.361* | 0.213* | 0.534* | 0.339* |

*-valor-p<1% Source: Research data.

V. DISCUSSION AND CONCLUSIONS

For e-commerce platforms, it seems important to offer value to consumers, with quality and appropriate content to capture their attention and generate interest. The obtained results could be enhanced if e-commerce platforms were to promote a security system such as the digital certificate. More broadly, for loyalty it will be necessary to stimulate the relationship brand-customer, retaining them with frequent content and according to their expectations because when offering exactly what the customer wants, there is a greater chance that they will remain loyal to the brand. This work intended to contribute with

knowledge about the more relevant factors for customer satisfaction when shopping online, so that brand can consider the appropriate contents in order to fulfill needs and desires within their digital strategies and activities.

As stated before, replication is one of the key ways to build confidence in previous results. When the result from one study is found to be consistent by another study, it is more likely to represent a credible assertion of new knowledge [39].

This study was a replication of [9], where it was intended to test the same hypothesis with Portuguese data. Consistent results were obtained regarding four of the six determinants tested. Therefore, it was also obtained that information availability, shipping, quality, and pricing have a positive impact on customer satisfaction. The other two determinants - security and time - did not behave as theoretically expected, however, there are always some potential sources of uncertainty that affect the outcomes, e.g., either by the method of analysis, the collection of data, or even by misinterpretation of the respondents.

The limitation of this study is that it uses a convenience sample. For further research to replicate this study it is suggested a broader population to other regions or countries or to study other determinants that can impact online satisfaction such as ease of use or others of the Technology Acceptance Model Extension.

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