Study of consumer satisfaction over electronic commerce during the COVID-19 pandemic

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I hereby declare that the work submitted is mine and that where I have made use of another’s work, I have attributed the source(s) according to the Regulations set in the Student’s Handbook.

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Abstract

This dissertation was written as a part of the MSc in e-Business & Digital Marketing at the International Hellenic University, and the aim is to study consumer satisfaction over electronic commerce during the COVID-19 pandemic.

First, some research questions that help identify factors that influence the behavior and satisfaction of e-consumers and are related to the general use of the internet and other individual characteristics and perceptions of participants are examined. Additionally, as found in the existing literature, variables such as website design, services provided, customer service, and trust of e-commercial websites are related to the satisfaction of e-consumers. These correlations were also confirmed by the findings of the present study on participants' satisfaction with their online shopping during the COVID-19 pandemic period. Furthermore, the investigation of the differentiation between the perceived satisfaction of the respondents from the expected one they had during the execution of their purchases from online stores was considered to have led to encouraging results. Finally, it should be noted that all participants in the research were residents of Greece, and the data collected were examined through descriptive and statistical analysis to draw accurate results and conclusions.

I would like to express my gratitude to the supervisor of my diploma thesis, Dr. Konstantinos Assimakopoulos, who was always willing to guide me and effectively answer any of my questions and concerns. I would also like to thank my family and friends who encouraged me and were by my side the whole time I was writing my dissertation. Without the support of all the above, the result would not be the desired one.

Keywords: Electronic consumer satisfaction, Perceived consumer satisfaction, Online purchasing satisfaction, Electronic purchasing behavior, COVID-19 impact on e-commerce

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Preface

As the COVID-19 pandemic has made e-commercial websites the first option for consumers to make purchases, investigating the topic of "Study of consumer satisfaction over electronic commerce during the COVID-19 pandemic" to complete the MSc in e-Business & Digital Marketing at the International Hellenic University has been a matter of great interest to me. The writing period of the present dissertation was from July 2019 until January 2020 and the continuous support of my supervising professor, Dr. Konstantinos Assimakopoulos, as well as our excellent cooperation, was crucial for the successful completion of my diploma thesis.

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1. Introduction

The COVID-19 pandemic and its impact on people’s lives is an issue that has been of particular concern to the public in recent months worldwide. In Greece, the outbreak of this pandemic crisis was considered more intense since February 2020, and its effects gradually became increasingly perceived. As it is an unprecedented phenomenon, it is expected to cause significant consequences in social and economic life as well as in the general psychology and behavior of people. Consumer behavior, in particular, is a topic that will always be of major importance because it is vital for the market and consequently for the global economy. The rapid growth of e-commerce in recent years has brought about notable changes in the buying and selling process and has also diversified consumer habits and created new needs. It is therefore extremely interesting to discover the effect that a pandemic can have on consumer satisfaction from the ever-evolving field of e-commerce. For this investigation, it is necessary to study certain parameters that have been found to play a catalytic role in the satisfaction of electronic consumers, but also in differentiating the perceived from the expected satisfaction regarding the purchases through commercial websites.

According to the literature review, it was found that many papers provide empirical evidence that claims that consumer satisfaction is crucial and affects the repurchase and loyalty intentions. Directly related to the degree of consumer satisfaction and its consequences is the ECT (Expectancy Confirmation Theory). More specifically, “Expectancy theory is based on the relationship among an individual’s effort, the individual’s performance, and the desirability of outcomes associated with a high performance” (Daft and Marcic, 2008). Furthermore, some studies have focused on the switching costs that consumers incur when moving from one online store to another, in cases where either they were not satisfied with the first one or other factors led them to this change. Also important is the research that has been carried out on the management of customer complaints as well as the Process Recovery Communication (PRC) within the framework of a commercial website. Additionally, some researchers examined the extension of the understanding of customer satisfaction determinants in high-risk online environments as perceived by consumers. Other authors have studied
the quality of e-service in online stores and therefore, it is argued that it is a parameter related to user satisfaction. Although many studies have examined the impact of e-service quality on customer satisfaction in B2C and B2B commerce, the literature is poor in the case of transactional services under severe social conditions. The present study uses a satisfaction measure based on the aforementioned Expectancy Confirmation Theory which is mainly determined by the gap between perceived performance and expectations or desires of the consumer.

The discrepancies that users experience between the perceived and expected performance concerning the online service are reflected in many quality dimensions of the electronic services. Indicatively, Parasuraman, Zeithaml, and Malhotra (2005) developed the E-S-QUAL and E-RecS-QUAL scales that aim to measure the quality of the e-service provided by the commercial websites used by customers to make their online purchases. As found the E-RecS-QUAL scale is an extension of the E-S-QUAL and is used in cases where problems have arisen with the use of the website while clients made their purchases. In addition, Bauer, Falk and Hammerschmidt (2006) proposed the eTransQual scale which measures the quality of transactional processes within B2C services. As the research in the existing literature has shown, there is a large volume of studies that have as their object the impact of the e-service quality on the B2C transactions. However, regarding this issue concerning the C2C transactions, it was found that there are deficiencies in the bibliography, and this is probably due to the complexity and the completely impersonal form of these relationships between the two participants in the buying and selling process. It is therefore important to conduct more studies to draw clear conclusions about the impact of e-service quality on confirmation of expectations and satisfaction in C2C commerce. Based on all the above, a modified model is proposed, which is thoroughly analyzed in the second part of this diploma thesis, in the literature review chapter.

As a continuation of the above findings, it should be added that the constant increase of available sources of information in recent years has strengthened the uncertainty and the perceived risk of online consumers when they are about to make a purchasing decision. These concerns are related to information asymmetries between consumers and retailers, the security systems available on websites and the extent to which
they protect the privacy and personal information, the low-quality legal protection mechanisms that can even lead to fraud, and the inability to adequately test products or services before buying them (Lee, Im and Lee, 2000; Miyazaki and Fernandez, 2001). In many cases, the success of e-businesses is based on the use of reliable transaction processes that create an environment that makes customers feel safe and confident to proceed with online transactions (Grabosky, 2001). According to Kim, Xu and Gupta (2012), trust is the main precondition for creating customer satisfaction and ensuring long-term relationships in the context of e-commerce. Additionally, consumers who browse a user-friendly website feel that as the company invests in the usability and functionality of its website, it can also successfully manage online transactions (Schlosser, White and Lloyd, 2006). As Oh et al. (2008) found, the design of an e-commerce website affects the perceived quality of the e-store and also consumers are more likely to consider it as a safe and delightful place to shop when it contains more images than one that relies primarily on text. The quality of the services provided by e-commerce websites also plays a key role in user satisfaction. To be precise, the high quality of provided services contributes to the increase of business profits whose customers have felt the maximum satisfaction from their shopping experience and they will continue to prefer it for their future purchases (Fang and Holsapple, 2007). Providing the information that clients need to know about the product or service they intend to acquire, strengthens their loyalty to this specific online business, too (Bart et al., 2005). Furthermore, to enhance their reputation and customer satisfaction, many e-businesses are strategically handling the services they provide concerning the process of shipping and delivering their products to consumers (Yao and Zhang, 2012). Another recommended technique for online stores would be to customize their services to the individual needs of their customers based on previous purchases and other personal information they have provided on the website (Srinivasan, Anderson and Ponnavolu, 2002). In terms of customer service of an e-company, Bougie, Pieters and Zeelenberg (2003) found that clients are more likely to feel negative emotions when they are waiting to be served or being served by rude representatives. For that reason, proper customer management is now a prerequisite for the successful operation of e-businesses, as there is a lot of competition between online service providers (Kim et al., 2003). Weintraub (2000) suggested also
that customer service should include, first, tracking of pre-sales prospects, then ordering and shipping products properly, and finally customer support after the purchase. As Gillies, Rigby and Reichheld (2002) noted, more and more European companies decide to invest in customer relationship management (CRM) strategies to reach higher levels of sales and provide upgraded customer service. This perception is being verified at a rapid pace even today.

Many factors could influence and shape the overall satisfaction of e-consumers. Since those who make online purchases cannot easily test the products or services they want to acquire, it makes sense to be possessed by some doubts. Also, the lack of interpersonal contact with the seller/supplier during a purchase causes insecurity about the transactions. Online stores need to create a climate of trust around customer relationships to gain the appreciation of potential consumers. Although trust is no longer built solely on face-to-face relationships, commercial websites need to succeed in being considered trustworthy by visitors even through the anonymous provision of services and the sale of products. It is also essential for e-companies to know what leads to security and therefore to the satisfaction of the possible clients, as in that way they feel more comfortable sharing personal information and shopping online. Furthermore, the ease of use of the website by consumers contributes to that, too, as when it is simpler to operate, they feel more familiar and secure to proceed in e-transactions. Another necessary part for the satisfaction of consumers is the quality of the services provided by online stores. The immediate finding of the information that the customers are looking for about the product or service that they intend to buy, is likely to shape their final purchasing decision. In many cases, the time-consuming process of making a purchase in combination with the insufficient provision of services may lead the potential customer to an opponent e-company. It is therefore important for online businesses to constantly monitor the needs of the audience and to create the required services. Additionally, proper customer service reflects the whole company. E-clients should feel that there is always an available company representative to serve them and solve their potential problems. It creates a sense of security and relief for consumers during their browsing in an online store and consequently in the implementation of their purchases. In conclusion, all e-businesses need to be often informed about the latest
trends and needs in the market, to modernize their operation and provide fast and secure purchase processes as all these factors are related to their success. Constant monitoring of the competition contributes to the improvement of the business and leads it one step ahead of it. All these findings were discovered through extensive research in the literature and will be analyzed in detail in the next chapter.

The main aim of this study is to find out if the variables selected for further investigation (i.e., website design, services provided, customer service, trust) affect e-consumer satisfaction, initially in each of the dimensions of the model proposed in the second chapter of the present dissertation (Figure 1), and then whether they also affect overall e-consumer satisfaction. More specifically, as observed in the literature review, these variables have a special effect on purchasing decisions and overall consumer satisfaction. In combination with some other parameters, such as the general consumer relationship with the internet and its use for e-shopping, some of their individual characteristics and perceptions, as well as the impact of the COVID-19 pandemic, the main objectives of this research are defined as follows:

- To investigate whether consumer satisfaction from e-commerce is affected by the design of the e-commercial website
- To investigate whether consumer satisfaction from e-commerce is affected by the services provided by the e-commercial website
- To investigate whether consumer satisfaction from e-commerce is affected by the customer’s services of the e-commercial website
- To investigate whether consumer satisfaction from e-commerce is affected by the trust of the e-commercial website

For each of the above objectives, a set of questions was created with the aim of a deeper investigation. The purpose of all four categories of questions is to reach clear conclusions about the factors that affect the overall perceived satisfaction of consumers and to what extent. Also, some further research questions will be answered in this study. It will first be investigated whether the hours of internet use by the survey participants are related to the frequency with which they made online purchases before the COVID-19 pandemic as well as the frequency with which they made purchases dur-
ing the pandemic. The results will help to assess the parameter of the daily hours of internet use and the influence it has or not on the creation of buying desires in e-consumers. The relationship between the frequency of online purchases made by respondents before and during the COVID-19 pandemic could not be overlooked. It is of particular interest to find out if a pandemic crisis is capable of influencing consumer buying needs and especially in the current era that, due to the widespread use of the internet, they can make their purchases through commercial websites from anywhere and without time-consuming procedures to be required. A more in-depth question worth answering is that of the relationship between the amount of money spent by participants in the period February 2019 - August 2019, i.e., before the COVID-19 pandemic, and for the corresponding period February 2020 - August 2020, during the pandemic. One last issue to consider is the relationship between the payment method consumers choose when making their purchases from commercial websites and their risk perception of online transactions. At the end of this study, the differentiation between perceived and expected satisfaction of the research participants will be investigated, based on the effect of the above variables during the pandemic.

Afterward, in the second chapter of the dissertation, there is a review of the literature on issues related to the topic of this study. Findings related to e-commerce and factors that affect it, as well as factors that shape e-consumer satisfaction are thoroughly analyzed. Additionally, some important measuring e-scales that have been developed in recent years and are related to e-commerce and e-transactions are presented. In the third chapter, there is a detailed description of the followed methodology regarding the decision for the research sample and its size. Moreover, the sampling method, the way of collecting primary data as well as a preview of the data analysis are analyzed. In the fourth chapter, the results of the primary data collected through the questionnaire are extracted, using the statistical program PSPP, and the proper statistical tests are performed. Also, a comparison is made between the findings of the literature review and the results of the present research, and their commentary follows. The conclusions drawn from the analysis of the results are presented in the fifth chapter, while in the sixth the references on which this research was based are listed. Finally, in the "Appendix" chapter, the questionnaire used for the data collection is available.
2. Literature Review

E-commerce has been identified in the existing literature by a variety of concepts, each focusing on a different dimension. The connection of this term with new communication technologies is very frequent. These technologies contribute to all stages of the commercialization of a product, starting from its marketing, its order from the customers, the money transaction process but also the management of the supply chain (Garrett and Skevington, 1999). The daily use of computers by the largest proportion of the population has also played an important role in the spectacular growth of e-commerce. Low computer acquisition prices, and their increasingly user-friendly interface, are encouraging potential consumers to make more online purchases. Creating a sense of familiarity and security are key market factors. What gives computers so much value is the widespread use of the internet. This is what created and consolidated the e-commerce network so dynamically. Affordable internet access, as well as reduction of the cost of the tools needed to create online stores and e-services, have given all businesses, regardless of their size, the opportunity to join this global market network (Garrett and Skevington, 1999).

Within this network, the communication that develops between the consumers themselves is also important. According to Kim and Kim (2004), a positive review can motivate the interest of many consumers to try a new product or service. However, the opposite is also true and, in many cases, can be detrimental to a company's reputation. This process reflects the value of customer satisfaction and how it affects the formation of their opinion and therefore the consolidation of a company in this competitive internet-based industry.

This ease of entry into e-commerce sector by anyone has also raised some issues. Although many online stores have been set up, their quality in some cases lags. That is because creating an e-business requires fewer financial resources but more knowledge than setting up a physical store. Thus, potential new entrepreneurs are constantly entering this market, creating websites with incomprehensible content that does not encourage consumers to browse and make purchases while, in many cases, they abandon the online store from the first seconds (Varela et al., 2017).
The impact of ease of access to information while navigating online stores and how it relates to customer attraction, acquisition, and retention, in relation to overall consumer behavior was also examined. Unlike traditional commerce, in e-commerce, there is increased competition due to the existence of multiple simultaneous purchase options, which leads to reduced customer loyalty. The findings of this research were that, in e-commerce, customer attraction, trust, security, satisfaction, and maintenance are crucial issues (Salehi et al., 2012).

Consequently, there are still many opportunities for improvement in this modern buying and selling sector. Many factors cause satisfaction or dissatisfaction in customers of online stores which are inextricably linked to the parameters mentioned above and are vital for such kinds of businesses. A negative review of other users, an issue that may arise during the payment process, mishandling of a problem when returning/changing a product, a website with a complicated structure, are some of the reasons that could repel a consumer. On the contrary, when clients feel that browsing in a familiar and trustworthy environment which creates a sense of security at all dimensions, it is more likely to proceed in an electronic transaction.

2.1 Customer Satisfaction, E-Loyalty & Repurchase Intention

Customer satisfaction is a great advantage for a company in order to be competitive as it motivates clients to repurchase and gain their loyalty. Based on Chen et al. (2007) research, the cost of maintaining the level of consumer satisfaction of online stores is lower than that of traditional stores, as there is a tendency for customers to exchange messages and reviews with each other, without the involvement of the company itself. Additionally, satisfied e-customers are more likely to buy again than traditional ones which once more confirms the need for businesses to keep up with this modern form of commerce to remain competitive and profitable (Wang et al., 2018).

Many definitions have been written in the literature on customer loyalty, each time focusing on another variable. Oliver (1999) defined as loyalty the consumers’ desire to buy the same product or brand again, whether it is traditional or electronic commerce. Gillespie et al. (1999) largely agreed with the previous perception but added to the loyalty of e-consumers, the frequency of visits to an online store, as well as their duration of stay in it and the extent of the searches they make. Srinivasan, Anderson
and Ponnavolu (2002), however, defined e-loyalty as the attitude of customers towards the e-provider, and from that arises the tendency to repurchase or not.

According to the findings of the literature, loyalty is divided into two categories: behavior and attitude (Jacoby, Chestnut and Fisher, 1978). Behavioral loyalty requires more customer engagement compared to attitudinal loyalty while attitudinal loyalty alone does not always mean that it results in repurchase behavior (Pan, Sheng and Xie, 2012). Nevertheless, attitudinal loyalty depends on the degree of psychological attachment of clients to the firm (Rauyruen and Miller, 2007), or their generally positive predisposition towards repurchasing (Gremler and Brown, 1996). Liao, Wang and Yeh (2014) argued that unlike attitudinal loyalty, behavioral loyalty focuses on repurchasing times by an online company.

Customer satisfaction has been shown to be associated with repurchase intention (Qureshi et al., 2009), however, it is not always enough to lead to a higher such intention (Pavlou, 2003) as several other factors influence this tendency. An adjusted expectations analysis has been used repeatedly for the post-consumption study. This analysis also contributes significantly to the assessment of future customer satisfaction when repurchasing a product or service (Ha, Janda and Muthaly, 2010). When their performance is higher than what consumers expected, the result is an even higher satisfaction in the context of traditional commerce. In the field of e-commerce, there are still doubts about whether and how repurchase intentions and adjusted expectations, when purchasing from a commercial website, are related (Lin and Lekhawipat, 2014).

According to Li, Browne and Wetherbe (2007), satisfaction is the determining factor that leads to the distinction between "switchers" and "stayers" of an e-commerce website. It is noteworthy that although it has been discovered that a customer’s attitude towards the retailer is different, in many cases, from his/her attitude towards the company, however, it has been shown that customer satisfaction with retailers has a strong effect on trust and loyalty intention (Johnson, Herrmann and Huber, 2006). Devaraj, Fan and Kohli (2002) argued that customers need to feel continuously satisfied with their purchases from an online store to build a loyalty relationship.

Based on the meta-analysis carried out by Liu et al. (2018), the effect of customer satisfaction on customer loyalty was confirmed. Initially, through the trust that develops
from the individual perception of each consumer, emerges satisfaction with a product or service and this is enough to increase the purchases without taking into account the recommendations of other users and environmental factors. In addition, the word-of-mouth (WOM) technique for calculating customer satisfaction is an essential tool for all businesses as it is easily accessible to all (Ert, Fleischer and Magen, 2016) and creates a sense of transparency and honesty in terms of internet security. It is important to keep in mind that recommendations can also be affected by many external factors, such as personal characteristics, psychological conditions, etc. (Xu, Peak and Prybutok, 2015; Wang et al., 2018). Therefore, the conclusion is that the repurchase intention is inextricably linked to customer satisfaction. As for the switching intention, which depends on customer satisfaction and is shaped by parameters such as the desire for variety, curiosity, prices, and change in demand, they increase the switching intention of the clients (Shoemaker and Lewis, 1999) and should be given special emphasis. Consequently, in order for a company to keep its customers attached, without easily creating them the intention to abandon and turn to a competitor, it is necessary to consider this factor of constant satisfaction of their needs and the creation of long-term relationships of trust.

2.2 Expectancy Confirmation Theory

A measurement tool used to calculate customer satisfaction is the ECT (Expectancy Confirmation Theory). It was formulated by Oliver (1980) and defined post-purchase consumer satisfaction as determined by the combination of pre-purchase expectation and confirmation of that expectation. Essentially this theory states that the tendency of customers to repurchase products or continue to use services depends primarily on the satisfaction they received or not from the previous experience of using this product or service. Therefore, customer satisfaction is a function of expectation and expectancy confirmation/non-confirmation. More specifically, the expectation is defined as a benchmark used by consumers to make a comparison once they have purchased the product or service (Oliver, 2014). Thus, confirmation/non-confirmation of expectations refers to the judgments or evaluations that an individual makes about a product or service, compared to this individual's initial expectations. As defined, there are three levels of confirmation/non-confirmation of customer expectations. According to the first level, a product or service exceeds a person's initial expectations, and the confirmation/non-
confirmation is positive and so it increases post-purchase satisfaction. Then, at the second level, a product or service does not meet the individual's initial expectations and the confirmation/non-confirmation is negative and consequently, it reduces the post-purchase satisfaction (i.e., increase dissatisfaction) (Oliver, 1996). Finally, at the third level, a product or service identifies with consumer expectations and there is a confirmation of expectation, which is positive for maintaining post-purchase satisfaction. It is worth noting that the value of disconfirmation can range from "negative disconfirmation" to "positive disconfirmation" with "confirmation" in the middle (Bhattacherjee, 2001b; Chea and Luo, 2008).

In the context of ECT, the only reference is made to customers' satisfaction and their post-purchase behavior without, however, investigating other factors that affect them. In many cases, clients may show a high level of satisfaction, but this does not necessarily mean that the business has completely gained their loyalty or that they will not switch to another opponent company (Blut et al., 2014). That is because when planning to repurchase, customers are not simply influenced by the evaluation of a business but make ongoing decisions that are affected by the existence of many other similar companies that can provide the products or services they desire to acquire. Nevertheless, there is the case that repurchase is simply a habit of the consumer and not a conscious decision. That means that the customer after some time performs a repurchase as an automated process, without being influenced by any external factor (Verplanken and Aarts, 1999). However, it is almost unlikely that purchases of expensive and luxurious products, such as precious jewelry and houses, will turn into habit purchases. These types of purchasing decisions require high levels of thinking and elaboration as well as to take into account the value of expectation in order for customers to proceed to the purchase. In general, customers experience certain pre-purchase stages for needs identification, information retrieval, and alternative evaluation and then end up with positive or negative effects from their decisions (Petty and Cacioppo, 1986).

### 2.3 Switching Costs

One terminology that is interesting to clarify is that of switching costs (SC). SC are mainly defined as “the costs (time, money, and effort) involved in switching from one provider to another” (Burnham, Frels and Mahajan, 2003). Pick and Eisend (2014) examined the
direct consequences that these costs have on the transition, taking into account different industries. What they have shown is that SC reduce the probability of switching and significantly affect consumer repurchase behavior.

Two main types of SC have been identified. According to the first, the "lock-in effect" of SC, a reduction in the degree of satisfaction does not necessarily mean reduced purchases if SC are high, as customers would incur additional costs when leaving the company that preferred until then (Bell, 2005; Harrison et al., 2012). That means that a satisfactory alternative can lose ground due to increased costs and thus there is a possibility of weakening between the relationship of satisfaction and repurchase (Bansal and Taylor, 2002). Otherwise, SC are low, consumers change companies more easily as there are no significant financial barriers. As it is understood there is easier movement and a lower probability of repurchase when satisfaction is at a low level (Jones, Mothersbaugh and Beatty, 2000). According to the second type of SC, the "amplifying effect" of SC, it is considered that these costs will positively moderate the satisfaction-repurchase behavior relationship. In essence, the "amplifying effect" states that increasing SC enhance the effect of satisfaction on repurchase behavior, and this sense of satisfaction has a higher probability to lead to repurchase a product or service as SC increase (Lee, Lee and Feick, 2001; Chang and Chen, 2009). Customers who stay focused on a company for some time, not only have to think about SC but also the costs of staying (Seetharaman and Che, 2009), such as lack of variety, saturation, curiosity, and these could make them proceed to unexpected decisions and purchases (Sajeesh and Raju, 2010). What would be logical is that when there is a low SC, the decision to repurchase depends mainly on the accumulated customer satisfaction based on previous purchases. Customers who face staying costs are indeed more likely to change providers to reduce those costs, i.e., staying costs, even in cases where they may be quite satisfied with their current provider (Seetharaman and Che, 2009; Zeithammer and Thomadsen, 2013).

2.4 Complain Management – Process Recovery Communication

Managing customer complaints by a company contribute significantly to their overall satisfaction. Customers are led to complain about a failure that occurred while using or purchasing a product or service. Providers should take these complaints into account to
prevent such failures in the future (Johnston and Michel, 2008). More specifically, Process Recovery Communication (PRC) is the process of communicating with customers to express their complaints and receive feedback that they will be resolved. Considering the effectiveness of explanations after failures during the provision of the service, two main types of feedback prevail: prospective, and retrospective explanations (Gelbrich, 2010). Prospective excuses are for explaining poor performance in the future, as opposed to retrospective excuses for explanations about poor performance that just happened (Mattila, 2006). Also, a third type of feedback could be considered the credibility feedback and refers to the actions the company takes to avoid potential issues (Davidow, 2003).

Worth mentioning are the findings of the research conducted by Van Vaerenbergh, Larivière and Vermeir (2012). First, it was found that PRC increases the level of customer satisfaction and the repurchase intention, but also the word-of-mouth (WOM) tendency, due to the relationship and its fair treatment that clients feel has developed. In addition, PRC to customers who have complained has a crucial effect in avoiding the undesirable effects due to some event that left them dissatisfied. As not all companies are able to fully recover from a failure, a satisfactory customer recovery (CR) can have extremely positive consequences on their overall satisfaction. Determinant in that is the interval between the PRC and the CR process. More specifically, when clients have encountered a recent inadequate service and received a satisfying CR, PRC is a less efficient procedure. However, if the unpleasant experience and CR were in the distant past, PRC greatly improves customer outcomes. Despite the positive effects of PRC to the complaining customers, a satisfactory CR is even more important. Finally, for customers who have not expressed a complaint about facing a failure regarding a product or service, it turned out that PRC does not play a particularly significant role. However, if non-complaining customers encounter a potential issue, it has been shown that a PRC can mitigate a large volume of the negative effects that resulted from that failure.

2.5 Perceived Risk in E-Commerce

Perceived risk is a sentiment that cannot be measured, and a common definition has not been given to it. According to Bauer (1967), the risk is a mixture of uncertainty and seriousness about the result of a situation. Peter and Ryan (1976) argued that risk is the
expectation of purchase-related losses that creates constraints on consumers' buying behavior. Perceived risk is the main reason for potential customers to abandon the shopping cart in electronic transactions (Rajamma, Paswan and Hossain, 2009) and also creates hesitation in providing information and consequently complete their e-purchases (Soto-Acosta et al., 2014). It is also inversely related to trust, online purchasing attitude, and customer loyalty (Featherman and Pavlou, 2003), and its combination with switching costs affects customer commitment to acquisition and retention (Yen, 2010). A distinction of perceived risk is made between one related to goods and one related to services. It has been shown that purchasing services create a greater sense of risk than purchasing products and especially when they are in the intangible form it causes even more stress to consumers. The concept of intangibles refers to the complete ignorance of the consumer about the characteristics of the service before testing it (Flipo, 1988).

One of the findings of the study conducted by Zeithaml, Parasaruraman and Malhotra (2002), is that websites allow customers to imagine, to some extent, the quality of the product and thus evaluate its functionality and design. Nevertheless, the opinion they form through the website may not be as accurate as it would be if they had seen the item in a physical store. One phenomenon that has been explored in recent years is the growing number of transactions that take place via the internet and the internet trust, i.e., the sense of security that consumers feel towards the websites they use to conduct commercial transactions. Yoon (2002) identified, also, four factors that determine internet trust: transaction security, website property, navigation functionality (e.g., helpfulness of support functions), and personal characteristics (e.g., familiarity with e-commerce).

Therefore, in order to reduce, as much as possible, the perceived risk experienced by potential customers while browsing a commercial website, it is essential to form the appropriate conditions that create almost the same feeling as a physical store. The security that they feel while navigating it is very likely to increase the chances of showing trust in the specific website and prefer it to conduct online transactions.

2.6 E-Service Quality

As Santos (2003) defined, the quality of e-service arises from the overall assessment and judgment of clients about the quality of e-service provided by the internet marketplace.
Long and McMellon (2004) pointed out that consumers tend to evaluate the e-service quality, having initially considered the specific features of the website interface due to the restricted human interaction with that service.

It has been proven that the satisfaction that website visitors receive from the use of a specific e-service is influenced by their individual level of electronic skills concerning the specific technology. That is because e-customers, unlike the traditional ones, use the service based only on their own abilities (Kim, Chun and Song, 2009). As Rowley (2006) found, enhancing customer knowledge and skills with a service process is a competitive advantage in managing a website's customer satisfaction. Furthermore, the same study supports the need for companies, in addition to the good design of their website, to provide clear instructions to their online visitors about the use of the service tools to help them feel more familiar with that. The style of learning processes should be tailored to the needs of various levels of users who have different inclinations and knowledge among them. Shih (2004) stated that it is easier for a highly skilled internet user to deal with the difficulties of using a website and therefore to proceed with a positive evaluation of the online service.

Akinci, Atilgan-Inan and Aksoy (2009) and Ding, Hu and Sheng (2011) about the quality of e-services argued that, while business-to-consumer (B2C) work was quite limited, business-to-business (B2B) studies were even fewer than the previous ones. In the continuation of this diploma thesis, some electronic models of service provision will be investigated, focusing mainly on the dimensions and quality of the provision of electronic services.

2.6.1 E-Service – B2B E-Commerce
As found in the literature, the sectors of B2B e-commerce that consist of value-added activities and are based on transactional processes and also can be coded and scaled, have a greater chance of success compared to those that do not have such features (Boyer, Hallowell and Roth, 2002; Oliveira, Roth and Gilland, 2002). In general, product-based sectors are relatively low dependent on the provision of information, in contrast to the service-oriented sectors, which are in dire need of the provision of electronic in-
formation services. For these processes to work properly within the B2B sector, company staff and business partners need to work in a coordinated way to provide highly experienced online services (Chen, Chen and Capistrano, 2013).

According to DeLone and McLean (2004) in the context of B2B transactions, the quality of online services is shaped by the effectiveness of web features provided by commercial websites and customer support techniques. That means that the reviews and ratings of the users of a particular online service are formed by the overall satisfaction they receive from the above parameters. Additionally, B2B customers who visit a website know what information and services they are looking for and want to find them simply and promptly. As Zeithaml, Parasuraman and Malhotra (2002) stated, the ability to easily navigate a company’s website is crucial, due to the ever-increasing complexity of products and services provided by a B2B environment. That is why many B2B companies design homepages for instant access to information about products and services that customers are likely to seek or e-services that may be of interest to them.

2.6.2 E-Service – B2C E-Commerce
As found by Deitel and Steinbuhler (2001), a common technique that companies often use nowadays is that of a personalized website. Thus, customers are allowed to see products or services and details about them, depending on their interests. Monitoring and analyzing this information about each customer’s individual preferences contribute to upgrading the quality of the online customer service provided. According to the same authors (Deitel and Steinbuhler, 2001), personalization is important for digital marketing, as it is part of the development and management of B2C relationships and helps enhance customer loyalty. As they stated, utilizing the findings related to customer searches to achieve personalization, makes them feel more comfortable and that they have more control over the e-commerce website they are browsing.

An additional service that contributes to customer satisfaction is the existence of an online text chat that allows real-time communication between clients and e-business representatives. Customers can contact via that service directly with an employee who will answer their questions and solve their problems (Deitel and Steinbuhler, 2001). Such tools help to attract new customers but also to gain their loyalty, as the provision
of online support is one of the requirements of consumers from the various e-stores (Singh, 2002).

As stated by Bhattacherjee (2001a), customer satisfaction in B2C e-commerce faces more challenges than the traditional form of commerce. Consumers have higher demands and want their needs to be met immediately, with no extra charge, and in the best possible way. Consequently, online businesses operating in the B2C field need to know the expectations of their customers to achieve their maximum degree of satisfaction through the online services they offer.

Field, Heim and Sinha (2009) found that service quality is shaped by the support provided by the service provider, and this in turn affects customer satisfaction (Cao, Zhang and Seydel, 2005). In case the customers are not satisfied with the services provided by a commercial website, it is likely to prefer a competitor to make their online purchases or avoid developing closer, long-term, and loyal business relationships (Anderson and Srinivasan, 2003). Therefore, a key factor in achieving a high degree of loyalty in B2B relationships is that consumers should be able to find pleasure in using the e-services (Chen, Chen and Capistrano, 2013).

2.7 E-Scales for E-Service Measurement

In terms of marketing, Shankar, Smith and Rangaswamy (2003) claimed that the satisfaction that customers receive affects their overall attitude and retention. According to Liu and Khalifa (2003), customer satisfaction in online shopping results from system features in conjunction with product features. It has also been shown that the priorities of corporate buyers (B2B) are different from those of individual buyers (B2C) and so service providers should perceive the e-service differently for each of the two cases (Turban et al., 2006; Field, Heim and Sinha, 2009). Additionally, the quality of the online service varies depending on whether it is a B2B or B2C website (Field, Heim and Sinha, 2009). Dowling (2002) defined that the B2C is more complex than the B2B sector, as B2C is directly related to end-consumers and includes individual "people's attitudes", as they are, according to Turban et al., (2006), gender, age, level of education, marital status, lifestyle, and other variables related to social and cultural issues. Thus, all these parameters, influence and shape the individual's purchasing decisions. In the case of the B2B sector, on the contrary, these decisions are made by a set of partners and they evaluate
the services or products they will purchase based on criteria different from those of individuals (Stiakakis and Georgiadis, 2009).

This dissertation analyzes the following scales for measuring the quality of electronic services. Parasuraman, Zeithaml and Malhotra (2005) developed the E-S-QUAL scale and the E-RecS-QUAL scale for evaluating the quality of website e-service during consumers’ purchases. Then, eTransQual is presented, which is a scale based on the transaction process for measuring the quality of B2C services and was developed by Bauer, Falk and Hammerschmidt (2006).

2.7.1 E-S-Qual & E-RecS-Qual Scales
The traditional Service Quality (SQ) describes the quality of all the physical interactions and experiences of customers and not those that result from online companies (Parasuraman, Zeithaml and Malhotra, 2005). The initial approaches to SQ (Gronroos, 1982; Lehtinen and Lehtinen, 1982; Lewis and Booms, 1983; Parasuraman, Zeithaml and Berry, 1985) considered that to be the comparison between what customers expect from a company with the real performance of the company’s services.

Part of the bibliographic approach of Parasuraman, Zeithaml and Malhotra (2005), was based on the study of previous works on the quality of e-service. According to a study by Parasuraman (2000), It has been shown that the acceptance of new technologies by e-customers depends on whether they have feelings of acceptance or non-acceptance around their perceptions of technology. Also, similar differences were found in the assessment procedures used to evaluate e-service quality. That means that depending on their individual characteristics, customers have requirements for different features provided by a website to consider e-service quality performance to be high (Parasuraman, Zeithaml and Malhotra, 2005).

The development of scales for the evaluation of websites has also been an issue of academic interest. Although several alternative approaches to the subject have been presented, they seemed to have gaps in their measurement techniques. Some used one-sided approaches, such as WebQual proposed by Loiacono, Watson and Goodhue (2002), focusing primarily on creating information for web designers rather than customer satisfaction while browsing. Then Barnes and Vidgen (2002) developed a new alternative scale to evaluate an organization’s e-commerce offering and adopted the same
name, WebQual. However, this scale could be answered even by users who had not made a purchase and therefore was an assessment of a specific function of a website and not an overall evaluation of the quality of services provided by that (Parasuraman, Zeithaml and Malhotra, 2005). Wolfinbarger and Gilly (2003) developed the eTailQ scale which was a more comprehensive approach and aimed to measure customer perceptions of e-tailing quality. The issues that arose at this scale were related to the conceptual content of the variables selected for the survey to evaluate the quality of the website's services.

Based on research conducted by Zeithaml, Parasuraman and Malhotra (2000), it was found that e-customers assess the quality of an e-commercial website based on the experience they had during its use in combination with other aspects of the service after its use, such as return management. Thus, e-service quality encompasses all stages of a customer's interactions with a website: the usability of the website for an effective shopping experience, buying process, and delivery. After analyzing the findings of this scale, it turned out that recovery was an important parameter of the service. Consequently, specific data related to the issue of recovery was chosen to be investigated separately to develop a new scale of e-recovery service. At the same time, with the use of the other findings of the research, further analysis was performed to create an e-core service quality scale (E-S-QUAL).

Parasuraman, Zeithaml and Malhotra (2005) produced a multi-component scale, the E-S-QUAL, which measures the quality of service provided by e-commercial websites. That scale consists of the following four dimensions: efficiency, fulfillment, system availability, and privacy. The participants of the research, which was conducted using the E-S-QUAL scale, who answered positively to the question whether they encountered a problem or need help while browsing the website, proceeded to the next part of the survey, related to the recovery, with the use of the E-RecS-QUAL scale. Thus, the E-RecS-QUAL scale has been defined, which is only visible to customers who have had unusual encounters with commercial websites, and has the following three dimensions: response, compensation, and contact. In the third part of the research, the participants answered multiple-item questions regarding the perceived value and loyalty intentions,
which were used in the continuation of the analysis to evaluate the validity of the two previous scales.

After analyzing the data collected from the research responses conducted by Parasuraman, Zeithaml and Malhotra (2005), it turned out that the four dimensions of the E-S-QUAL scale have consistently strong and positive correlations with perceived value and customer loyalty intentions, which confirming the intended validity of E-S-QUAL. For the correlations of the three dimensions of the E-RecS-QUAL scale with perceived value and customer loyalty intentions, there were not sufficient and thorough results, and this is probably due to the insufficient sample of participants who took part in completing the questions developed in the context of that specific scale. That means that additional research is needed to evaluate the E-RecS-QUAL model, and particularly on websites that have been found to have frequent problems with their services.

In the continuation of their research, Parasuraman, Zeithaml and Malhotra (2005) discovered similarities in the results after a comparison they made between their scale and the eTailQ scale of Wolfinbarger and Gilly (2003). More specifically, they initially found that the design and fulfillment/reliability of a website has a significant impact on its overall quality, satisfaction, and customer loyalty intentions. They then found that security/privacy had also significant impact, while customer service had significant, but not particularly strong, effects on quality and consumer loyalty intentions but had no effect on their satisfaction.

Closing their study, Parasuraman, Zeithaml and Malhotra (2005) explored the managerial implications of these two scales. First, efficiency and fulfillment were observed to be the most catalytic parameters of the quality of e-commercial websites that lead to overall perceptions of quality, but also to perceived values and loyalty intentions. The system availability of the websites also contributes to that, which reflects the extent to which companies control their performance. The sense of privacy in the E-S-QUAL scale study was found to be consistently of great importance for the evaluation of a website by customers globally. For that reason, the value of continuous confirmation by commercial websites to their customers regarding privacy and security was emphasized. It was then observed that the responsiveness, compensation, and contact procedures, which are those contained in the recovery service, are consistent with the traditional
service quality (e.g., direct access to business representatives, customer service and problem-solving service, etc.). It follows, therefore, that even though e-businesses provide a large volume of their services with little or no human resources and achieve high-quality service, in the matter of recovery, human presence is considered necessary for the superiority of the specific service. Finally, the parallel use of the E-S-QUAL and E-RecS-QUAL scales by commercial websites is recommended to draw more accurate conclusions about customers' perceptions of e-service quality and to proceed to the proper solution of problems when they arise.

2.7.2 eTransQual Scale
The eTransQual scale developed by Bauer, Falk and Hammerschmidt (2006) is a comprehensive conceptual framework that includes all aspects of e-transaction quality services, as until then, there were only approaches related to measuring the quality of e-service. According to Bauer, Hammerschmidt and Falk (2005) on the transaction process, traditional offline transactions can be divided into four phases. Initially, consumers examine and compare offers. Then follow the negotiations between the counterparties and, possibly, reach an agreement. The third phase involves the acquisition of products or services. At the end of this procedure, the importance of the activities related to the relationship between the two parties is examined. For the provision of services to be considered successful, all four stages must be completed. This approach contributes to the collection of diagnostic information that leads to the upgrade of the service quality.

Bauer, Falk and Hammerschmidt (2006) continued to describe these phases by adding more details to identify specific aspects of service quality in the e-transaction processes. More precisely, in the initial stage, clients browse the website and look for what information and functions that specific online service offers, such as prices, reviews, delivery time, etc. Then they do their general evaluation and formulate their buying decision. That process also happens when customers visit a physical store, with the difference that on the internet they have the chance and the tools to make more extensive and substantial comparisons. In the second phase, that of the agreement, the terms of the transaction between the counterparties are defined. In the context of that stage, the highest quality results from the provision of tools that help in the contact between users and the online provider as well as among the users. Next, in the third stage, the
negotiation that took place in the previous stage is implemented, i.e., the products or services selected by the consumer are shipped and paid for. Also, the evaluation of the quality by the customers is shaped by how effortlessly they complete the desired order using the provided system (Wolfinbarger and Gilly, 2003; Parasuraman, Zeithaml and Malhotra, 2005). Service errors and failures must not occur for transaction processes to be successful. A positive feature is the provision of order confirmation as well as its monitoring during delivery. The on-time and in perfect condition delivery of the product or service by the provider is necessary, too (Meuter et al., 2000). In the final stage, quality is measured by customer service and interest after the transaction to build loyal customer relationships. Services that need to be provided for the highest rating of the quality of the electronic transactions are the immediate responses to troubleshooting and resolving post-purchase customer complaints (Parasuraman, Zeithaml and Malhotra, 2005).

The eTransQual scale compared to the E-S-Qual established by Parasuraman, Zeithaml and Malhotra (2005), includes aspects of hedonistic quality resulting from inner market motivations. These motivations have a significant effect as they create emotions that contribute to improving perceived quality and perceived value. In addition, the feeling of enjoyment and excitement arises from the nature of the multimedia technologies available on the websites, which leads to the suspension of dissatisfaction but not necessarily to the satisfaction of users. Also, the concept of responsiveness in the same study is not limited to addressing users' problems as in the case of Parasuraman, Zeithaml and Malhotra (2005). More specifically, in the context of the present study, a positive correlation was found between the responsiveness and all the other dimensions, i.e., with reliability, enjoyment, functionality/design, and process. Therefore, it was realized that consumers take into account the recovery services of a website before using it and problems occur. The study also showed that users strongly correlate the aesthetics and design of the website with its functionality and usability. A particularly important dimension for the best possible marketing management is the factor of reliability as it contributes significantly to the prediction of perceived value and customer satisfaction. Issues related to the punctuality of order delivery, the availability of up-to-date information, and the offers of products and services it is essential to give them
emphasis. On the financial side, the dimensions of enjoyment and responsiveness were determinant factors in increasing the website's revenue from customers.

It is worth noting that the research analyzed concerned only a sample of people who have real experiences from online shopping, which leads to the exclusion of users who may have browsed the website but did not make a purchase from that. The website may be abandoned either due to poor design, or due to process failures, or due to other reasons. Therefore, the findings of this survey are more accurate, but because of the limited sample, they cannot be generalized to the whole population.

2.8 Proposed Model Description

In the context of this dissertation, the following model for measuring the quality of e-service provided by e-commercial websites will be studied (Figure 1). The goal is to measure the satisfaction of e-consumers in each dimension of this model, i.e., design of the commercial website, services provided, customer service, and trust, but also the overall satisfaction from their online purchases. More specifically, for each of these variables, some attributes have been defined, the investigation of which will lead to results and conclusions related to the research topic. Also, the audience that the research will focus on are residents of Greece who are internet users, and it will be observed how the satisfaction of e-consumers from e-commerce was affected during the COVID-19 pandemic in this country.

![Proposed Model Description](image)
2.8.1 Design of e-commerce website and consumer satisfaction
The design of a commercial website is the first stimulus that consumers receive when they start doing market research or making a purchase online. It is necessary to be simple to use and to create in the users the feeling of a familiar and non-stressful environment so that they feel the convenience of making transactions through it.

Tsai and Huang (2007) argued that online shopping behavior can be divided into two levels. At the first level is the encouragement of users to make online purchases, while at the second level is their encouragement to repurchase. This second stage is considered a strong competitive advantage for online stores that succeed, as it takes more time and effort to attract and acquire new customers than it takes to retain existing ones.

According to Flavián, Guinalíu and Gurrea (2006) the usability of a website can be evaluated taking into account the following five parameters: the ease of understanding its overall structure including its operations, interface, and content; the users' convenience during its initial use; the rapidity with which users discover what they are searching; the ease of navigating the website concerning the time and actions required to achieve the desired outcome; at any time to feel that they know where they are and what they are doing. Additionally, the study by Maditinos and Theodoridis (2010) confirmed the fact that the quality of the interface and the information provided to consumers have a great impact on customer satisfaction. When customers browse a commercial website, they want to easily and speedily discover the search, selection, payment, and post-purchase actions to have a satisfying shopping experience. More specifically, a usable website contains good links and navigation mechanisms for customers to effortlessly perform the actions they desire and thus achieve their maximum degree of satisfaction (Shankar, Smith and Rangaswamy, 2003). This was, also, confirmed by a more recent study by Belanche, Casaló and Guinalíu (2012), who concluded that usability is vital to overall customer satisfaction.

Agosto (2002) in his research noted that, in terms of content, customers prefer websites with attention-grabbing content, such as graphics and multimedia, as feel that this interactivity contributes to their harmonization with this specific website. Perceived
interactivity, e.g., managing customer complaints, shapes their satisfaction with a commercial website. Also, Yoo, Lee and Park (2010) confirmed that the interactivity that develops between customers and online companies benefits both parties in terms of decision making and the proper functioning of marketing relationships.

Regarding the quality of a website, Ahn, Ryu and Han (2007) argued that it is a multidimensional construct consisting of information quality, system quality, and service quality. Hernández, Jiménez and Martín (2009), based on existing evidence in the literature on the quality of a website, concluded that these three parameters are the determinants of commercial website design and, according to Liang and Chen (2009), allow users to evaluate their expectations and perceptions of its quality. Lin (2007) defined the interpretations of the previous factors. First, the quality of information is a measure of the value that customers perceive from the result given by a website. Then, the quality of the system is derived from the overall performance of a website and is calculated from how familiar the customers feel when they make their online purchases. Finally, the perceived quality of the services is shaped by the overall evaluations of the customers regarding the quality of the provided website services.

Consequently, users need to gain trust from the browsing environment and to be able to instantly discover anything they are looking for as well as to carry out their actions straightforwardly. E-commerce marketers should always keep in mind that e-shop replaces a physical store. That means that they should take care through the design of their website, to create in customers a similar experience which will not allow second thoughts about its usability. Failure to design a functional website according to the needs of each customer may lead an e-business out of competition, which would have disastrous consequences for its viability.

2.8.2 Services provided and consumer satisfaction
The services provided by an online store to consumers play a crucial role in satisfying them during the browsing and shopping procedure. The process of creating an account and processing transactions, as well as the possibility of issuing an invoice/receipt and choosing the payment/shipping method of the order are determinant factors for the satisfactory completion of an online purchase.
According to Wolfinbarger and Gilly (2001), the availability of information is of paramount importance in online shopping. Additionally, it was found that e-customers have the privilege of discovering the information they are looking for in a product or service on their own without the need to contact an online store employee, unlike what happens in physical stores (Zeithaml, Parasuraman and Malhotra, 2002). Nevertheless, Yang and Jun (2002) argued that the lack of real-time interaction can act as a deterrent for buyers to make an online purchase. The solution to this hesitation is personalization that includes individualized attention, personal thanks from the online store upon completion of the order, and the ability to send messages for questions, comments, and customer complaints (Yang, 2001). It is safe to support that any information customers may seek when navigating the commercial website should always be easy to find to be satisfied with their online visit.

Meuter et al. (2000) investigated consumer reactions to a variety of self-service technologies and applications, such as e-shopping services, pay-at-the-pump terminals, telephone terminals, voice response systems, automated hotel checkout systems, and package monitoring. During the survey participants were asked to report an unforgettable experience with such technologies. The results showed that the level of consumer satisfaction with the system was higher in cases where it was not time-consuming (30%), operated reliably (21%), was easy to use (16%), successfully encountered a problem (11%), and allowed complete control and access 24/7 (8%). However, many of the technological experiences of self-service did not satisfy the participants, mainly due to technological failure (43%), process failure (17%), or low design quality (17%).

Research conducted by Burke (2002), brought the following results related to online shopping. The highest percentage of the survey participants wanted to know the prices of the products when making online purchases, and most of them also wanted to know the corresponding prices at the nearest retail shop. Customers also showed particular interest in having access to product features, usage instructions, warranty information, and products that have a discount at that time. Another service that seemed to be desired by e-visitors was the ability to pay for their purchases by entering their credit card number on a secure website. After the payment, they would like to receive an email confirming that the e-commerce website has received their order, and then that it is in
the shipping process. Finally, it was important for buyers to be able to track the progress of their shipment online as soon as they receive it. In addition, the largest percentage of clients seemed to prefer to take their orders at home or in the workplace. The process of returning unsatisfactory or defective products to the store proved to be a very basic precondition for deciding a purchase from an online store, too. One last useful service, as consumers stated, was to be able to seek help in an online store when needed. The best option as revealed was the ability to contact the customer service department and talk to a service representative, either by phone or via email, but at no charge to the customer.

In the next phase of the same survey, conducted by Burke (2002), consumers also felt that an online store should provide certain functions that contribute to the convenience of shopping. Some of them are, saving the customers' shipping and billing information so that they can make future purchases without having to fill them in again, creating a list of previous purchases, with the aim of proving purchase as a guarantee for repair if needed in the future, the notification via e-mail for discount products, and the ability to pick up and return online purchases at the nearest physical store. Additionally, a significant percentage of customers wanted to have the option to place their electronic orders over the phone and free of charge, have shipping costs charged to the online store, and be able to ask a company employee to go to their location and pick up the items they want to return.

As emerged from the previous findings, key customer demand is to be able to have immediate access to all the services they may need during their e-shopping. Of particular importance is the provision of information related to the ordering and payment process of the purchase and also the communication part. This last part is crucial because it is related to the need for clients to feel secure that they can contact a store representative to resolve a possible issue or to answer a question or to undertake the change/return of a product that they purchased.

2.8.3 Customer service and consumer satisfaction
Customer service in an online store is of paramount significance. The constant availability of an employee to support the users of the commercial website if they encounter difficulties evokes a sense of trust as emerged earlier in the research of the required
services. That can be achieved either through physical representatives of the company or using automated mechanisms.

Proper customer service has been shown to be inextricably linked to the successful operation of an e-commerce website (Zeithaml, Parasuraman and Malhotra, 2002). E-customers want to execute their transactions without any problems throughout the process and to receive the necessary attention. Another wish is to get their order within a predetermined period, to receive prompt replies to their emails, and to immediately find the information they are looking for. Every commercial website should provide these amenities to its customers to successfully meet their expectations (Cristobal, Flavián and Guinalíu, 2007). All these requirements together constitute customer service. More specifically, it has been shown that some of the most important factors that define the degree of satisfaction with customer service are the reliability of the service, the sensitivity to the clients, the provision of personalized services, and the instant response to customer complaints (Wolfinbarger and Gilly, 2003). According to Kassim and Abdullah (2010), the perceived quality of customer service shapes customer satisfaction and therefore determines the future intention of clients to purchase. Reibstein (2002) argued that post-purchase customer service is crucial to their satisfaction, too.

Based on the research of Montano (2004), judging from a business point of view, customer service reviews are essential for any website that interacts with a customer, either directly or indirectly. According to the same research, the main conclusions are the following. Often evaluating a customer’s experience with an employee can affect the customer’s desire to repurchase from that store. In many cases, the companies themselves ask customers to evaluate the staff of the customer service department to maintain their services at a high-quality level and consequently customer satisfaction. Some companies choose to publish these reviews to enhance their credibility and prove to the consumers that they have a qualified customer service department. However, due to the anonymity of the internet, there have been many cases of malicious comments, either false or negative, from people who have never purchased from that commercial website and just want to defame it. But even people who have bought from that
online store are more likely to post a negative review than a positive one. These comments cannot be deleted once they are posted, and many times can have devastating consequences for the reputation and credibility of an e-business.

Therefore, a basic requirement of customers when shopping from a commercial website is the sense of having well-trained staff who can intervene and serve them when necessary. They also want to make sure that they have successfully completed their order and payment process without any problems. In addition, the immediate response of the customer service department, whether by phone or email, is a competitive advantage for a company as well as the positive reviews that customers make after a satisfactory service they received. Satisfying these consumer desires enhances the reputation of online stores and attracts new potential customers.

2.8.4 Trust and consumer satisfaction
The sense of trust is an essential emotion that e-commercial websites should create in their users. Prerequisites for the proper and reliable operation of online stores is the security of personal data and other information provided by customers and not to jeopardize the transactions that take place.

In the e-commerce sector, online transactions require building a relationship of trust between buyer and seller. This kind of relationship arises when consumers believe that the website with which they make the transactions will behave reliably even though they are still exposed to some risks (Hong and Cho, 2011). Nevertheless, every customer has a different perception of the concept of trust and different demands to show online trust (Shankar, Urban and Sultan, 2002). When deciding on an online purchase, it was found that a seller's perceived reputation significantly affects consumer trust in him/her (Teo and Liu, 2007).

Internet trust is considered as the dependence of consumers on a particular company and is based primarily on their trust in the business activities that take place, mainly, on that company's website (Shankar, Urban and Sultan, 2002). Chen and Dhillon (2003) set out in their research the following dimensions of trust in an online business: competence, integrity, and benevolence. The concept of competence means the ability of a business to meet the expectations it creates in consumers. Integrity implies that a business operates consistently, reliably, and honestly. Finally, benevolence is the ability
of a company to support the interests of consumers more than its own and to care about their needs. These three characteristics combine to shape overall consumer trust.

As Tomlinson and Mryer (2009) found, a positive sentiment created by an e-store to consumers strengthens the tendency for trust, while the opposite happens when users have negative feelings. Furthermore, the sense of not being deceived refers to the consumers' perception that the website will not mislead them into making a purchase (Limbu, Wolf and Lunsford, 2011). Also, Vasalou, Hopfensitz and Pitt (2008) stated that what leads to a loss of trust is the fact that clients take insincere behavior more seriously than a positive one. Research conducted by Román (2010) showed that when consumers feel that they are not exposed to high risks in terms of security, privacy, fraud, and reliability, their satisfaction increases, and consequently, increases more their tendency to repurchase from these commercial websites.

Trust management is a huge advantage for commercial websites that succeed, as loyal e-customers bring high financial benefits (Arjoon, Rambocas and Student, 2011). According to Kim, Xu and Gupta (2012), trust is a key factor in achieving consumer satisfaction and strengthening long-term e-commerce relationships.

In cases where an issue of mistrust has arisen, to rebuild trust between customers and the store, reconciliation needs to be achieved first (Tomlinson, Dineen and Lewicki, 2004). Reconciliation has sometimes been identified with the concept of forgiveness (Aquino, Tripp and Bies, 2001), although the latter is not always associated with a long-term relationship of trust (Freedman, 1998). Lewicki and Tomlinson (2003) suggested about rebuilding trust that the perpetrator should take the initiative to reconcile. Choi and Nazareth (2005) argued that for the relationships that develop in e-commerce transactions, reconciliation takes a different form. In cases where customer fraud happens by mistake, the online business may not be aware that it has happened. That means that the approach will be made by the client-victim. The representative of the online store then acknowledges the violation that has occurred and apologizes, while taking care to offer the appropriate remedial solution that will determine the degree to which the customer can be reconciled. The potential failure to rebuild relationships leads the customer to other opponent companies. Also, a partial agreement may be
reached regarding the reconciliation of the two parties, but the customer has downgraded the trust in that online store.

Although the concepts of trust and risk are different for each consumer, the good reputation of an e-business, as well as the perception that there is no risk of deception, are essential to convincing customers to make a purchase. Provoking negative emotions due to an event of fraud from a commercial website, which in many cases happens unintentionally to the store itself, results in a lack of trust. In any case, whether the commercial website is responsible for the issue or not, reconciliation steps should be taken by the online store to rebuild customer trust to the extent that this is possible.

2.9 Formulation of Research Hypothesis

Taking into account the objectives set out in the introductory chapter, the hypotheses to be examined were formulated. More specifically, these objectives were based on the four dimensions of the model proposed for study, i.e., e-commercial website design, services provided, customer service, and trust, which, as observed in previous research, affect customers' satisfaction in their online shopping. The aim of this study is to find out if these specific variables affect the satisfaction of the e-consumers who live in Greece and made their purchases from commercial websites during the COVID-19 pandemic.

As a continuation of the extensive review of the literature, the following hypotheses have been identified for consideration. These hypotheses were mainly based on existing research findings and statements, and the aim is to confirm them according to the data collected through the questionnaire.

Initially, as customer needs tend to become more complex and the market more competitive, the quality of the online stores themselves should evolve and improve accordingly. As it turned out, the quality of the website is positively correlated with the possibility of customers visiting it and making transactions (Liang and Chen, 2009). This proves the necessity for constant updating of the commercial websites to keep pace with the needs and preferences of customers. Mismanagement of this may turn con-
sumers directly to a competing online store. Therefore, the purpose of the first hypothesis is to evaluate the effect of e-commerce website design on e-consumer satisfaction during the COVID-19 pandemic. (Hypothesis 1)

According to a survey conducted by Burke (2002), consumers responded that when making online purchases they wanted to know accurate information about the products and their prices and to be able to place their order easily and safely. Order tracking, reliable delivery, and instant access to customer service, when necessary, are some additional services that need to be provided by an online store. As a general conclusion, it could be argued that it is particularly important for consumers to have the ability to rapidly find information about the product or service they want to acquire as well as information that concerns them after placing the items in the shopping cart, such as the payment and shipping process of the order, return in case of error or defective product, warranty when a problem occurs, but also customer support department free of charge. The effect of services provided by e-commercial websites on e-consumer satisfaction during the COVID-19 pandemic is the second hypothesis to be considered. (Hypothesis 2)

Additionally, Fang and Holsapple (2007) argued that customers who have received high-quality services tend to visit that online store frequently so that the financial success of this company will be enhanced. Therefore, the customers of commercial websites should be aware that at any time there is an employee in charge to serve their needs. The same need still exists after the end of the purchase. Every online store must take care to maintain the quality of its customer service department at levels above the competition. Thus, the next hypothesis will assess the effect of customer services of the e-commercial websites on e-consumer satisfaction during the COVID-19 pandemic. (Hypothesis 3)

Finally, Beldad, de Jong and Steehouder (2010) stated that online trust is defined as an individual’s attitude of confidence about a risky online situation in which someone’s vulnerability will not be exploited. The study by Kim, Ferrin and Rao (2008) which investigated the effect of trust and risk on online purchasing decisions, found that consumer attitude in trust, privacy issues, security issues, information quality of website and company reputation significantly affect the overall consumer trust on the website.
For e-vendors, it is a prerequisite to be able to build a climate of trust to turn a simple e-shop observer into a client who intends to transact through that website (McKinney, Yoon and Zahedi, 2002). The potential consumers seek security in the protection of their sensitive personal data, as a negative feeling that would create them the sense that they could become victims of deception would be a deterrent to the continuation of their purchases. The development of trustworthy relationships between buyers and the e-company creates the customers' tendency for repurchase, while at the same time increasing the reputation and profits of the e-retailer. In the end, the fourth hypothesis will examine the effect of the e-commercial websites trust on e-consumer satisfaction during the COVID-19 pandemic. (Hypothesis 4)

2.9.1 Problem Statement
Considering the fact that the number of online purchases has increased during the COVID-19 pandemic, it is interesting to study the changes that have taken place to e-commerce websites and how they have affected e-consumer satisfaction. That will be achieved by concentrating on specific variables that have been found to determine the perceived satisfaction of commercial website users. To consider the operation of online stores successful, consumers’ perceived satisfaction must exceed the expectations they had before making their electronic purchases. That ensures their overall satisfaction from their purchasing experience and, therefore, strengthens the e-commerce industry.
3. Methodology

To collect the necessary sample that would shape the results of this dissertation, the research population, and sampling method had to be selected and a data collection instrument set up. For this reason, a questionnaire was used, and the data collected through it were analyzed to reveal the results.

3.1 Research Sample

To achieve accurate results in the context of this research, it was determined that the sampling unit would consist of people who are internet users and therefore make purchases from online stores. Thus, at the beginning of the questionnaire, participants were asked to answer general questions about their overall use of the internet and then about their shopping behavior and consumer habits through e-commerce websites. More specifically, the surveyed population was the Greek population that experiences the COVID-19 pandemic which has an impact on its electronic transactions.

3.1.1 Description of Participants

The final sample of the present study was formed by 192 participants. A common feature of them was their stay in Greece and the fact that they were internet users. As can be seen from the pie charts, 65% of the respondents were female, while 35% were male (Table 1). Also, the largest percentage of them belong to the following age groups: 25-31 (38%), 18-24 (28%), and 32-38 (16%) (Table 2). Regarding their level of education, in the first place appeared those who have a master’s degree (40%), followed by those who have a bachelor’s degree (30%), and those who were students in higher education (17%) (Table 3). Finally, in terms of their professional status, it was found that the highest percentage of the participants work in the private sector (43%), followed by students (20%) and then the self-employed/freelancers (14%) (Table 4).
Table 1: Gender of participants

![Gender Pie Chart]

Table 2: Age of participants

![Age Pie Chart]

Table 3: Educational level of participants

![Educational Level Pie Chart]

Table 4: Professional status of participants

![Professional Status Pie Chart]
3.2 Sampling Method

The sampling method used is a non-probability sampling (non-random), as strict data collection rules were not followed. Thus, it relied on the convenience type of sampling to facilitate the research process. The main reason for choosing this method was the fact that there was no access to any available sampling frame (such as in a database that contains details of communication with Greek consumers of commercial websites, categorized by a certain criterion, e.g., based on age group, income criteria, etc.). Anyone who is a resident of Greece could participate in the research and in that way a complete and more representative sample of the examined subject was formed. After all, the present study aimed to investigate the effect of the four variables selected (i.e., commercial website design, services provided, customer service, trust) on the satisfaction of electronic consumers during the COVID-19 pandemic, without focusing on a sample with specific demographic characteristics.

3.3 Data Collection

For this study, an anonymous web-based questionnaire was created through Google Forms, after an extensive search in the literature and the web, composed of the appropriate variables to meet the needs of the research. In order to test the reliability of this survey instrument, a Cronbach's alpha test was performed, as will be described in the results chapter. After its reliability was confirmed, it was distributed through social networks to "digital friends" and after a few days, a group message was sent via the university email. More specifically, the email was sent to students and alumni of all departments of the International Hellenic University who attended postgraduate programs during the years 2015, 2016, 2017, 2018, and 2019. The data collection process started on 12 September 2020 and was completed on 17 October 2020. The questionnaire distributed to the participants was in Greek to make it easier for them to complete and to avoid any misunderstandings. It was then translated into English and its full form can be found in the "Appendix" chapter.
3.3.1 Questionnaire Description
At the beginning of the survey instrument, there is a description of the context in which this questionnaire was created and confirmation of the anonymity and confidentiality of the answers that participants will give to create a climate of security and encourage them to answer honestly. Then, the eight sections of the questionnaire follow as described below.

The first two sections include more general questions. The first part consists of questions related to the general use of the internet, such as the hours of use per day, where participants connect to the internet, and why they use it. In the first question, participants had to choose a single answer from a list of multiple-choice options, while in the other two questions they could choose more than one of the offered choices.

The second part includes questions related to the internet and the purchases made by e-consumers through it. There are initially two multiple-choice questions about the frequency of online shopping before and during the COVID-19 pandemic and participants must choose one of the answers offered. Then, they were allowed to note themselves (open-ended question) from which online stores they mainly make their purchases, while then they chose from a list of options, more than one answer, if they wished, about what kind of products they preferred to buy before the pandemic, and what kind during it. Additionally, the following are questions regarding the approximate estimate of the participants for the amount of money they spent on e-purchases during the period from February 2019 to August 2019, compared to the amount they spent during the corresponding period of this year, i.e., during the pandemic, from February 2020 to August 2020. Closing this section, respondents chose from a list of options the payment method they mainly prefer when shopping online and evaluated the security of online transactions. These last four questions are multiple-choice, and they could only select one answer.

The following four sections are based entirely on the main research topic of this diploma thesis. That means that a section has been created for each of the four dimensions selected for exploration in order to measure consumer satisfaction. In these four sections, the questions are "Likert scale" type. Participants evaluated their degree of satisfaction with each of the examined parameters and selected one choice from the following scale: "Very dissatisfied", "Dissatisfied", "Neither dissatisfied nor satisfied", "Satisfied", "Very satisfied".
"Satisfied" and "Very satisfied". More specifically, the third section concerns consumers' satisfaction with the design of commercial websites, the fourth section measures their satisfaction with the services provided by commercial websites, the fifth evaluates consumers' satisfaction with customer service that exists in the context of commercial websites and the sixth assesses the degree of satisfaction of the consumers from the trust they feel when browsing commercial websites.

In the seventh section, participants evaluated the perceived experience they had during their transactions with the commercial websites but also the experience they expected to have before proceeding to the purchase. The type of questions in this section is the same as in the previous four, i.e., "Likert scale" type, and had the same possible answers.

In the eighth and final section, participants were asked to fill in their demographic characteristics and the answers are multiple-choice, so they could give a single answer to each question. Specifically, they defined their gender, age, educational level, and professional status.

### 3.4 Data Analysis

As quantitative research will be conducted in the next chapter to extract results, there must be a statistical approach to the collected sample. Specifically, descriptive and statistical data analysis will be performed using PSPP statistical analysis software.

Initially, through frequency tables, a descriptive commentary on some research findings will be performed. To be precise, some questions were considered to be more informative to analyze in percentages to draw some conclusions than to relate them with others. This category includes those questions about where the respondents prefer to connect to the internet from, for what reasons they mainly use the internet, and which commercial websites they usually choose for their electronic purchases. In the same way, the answers collected from the questions about what kind of products the respondents chose to buy online before the COVID-19 pandemic and what during it will be examined, and the products that will show a large deviation in the percentages accumulated between these two periods will be compared.

Statistical tests will then be conducted to assess more in-depth research questions. The first step is to define the hypotheses that will be examined in each case but
also the type of variables that will be investigated each time to select the appropriate statistical test. Through the execution of these statistical tests, it will be shown whether there are statistically significant correlations between the variables that will be examined. Executing this process each time, the following research questions will be investigated to form a clearer conclusion about what affects or not general consumer behavior. First, the Chi-square test will investigate the relationship between the hours of internet use and the frequency with which consumers made online purchases before the outbreak of the COVID-19 pandemic, as well as the relationship between the hours of internet use and the frequency of online shopping through e-commerce websites during the pandemic. By performing the same statistical test, the relationship between the frequency of purchases made by e-consumers from online stores before and during the COVID-19 pandemic will be studied as well as the relationship between the amount of money spent by respondents on e-commerce websites before and during the pandemic period. Finally, through the performance of the ANOVA test, the relationship between the choice of payment method for online shopping and the perception of security for e-transactions that electronic consumers have will also be examined.

In the next subsection of the results, the main hypotheses set out for evaluation in the context of this research will be investigated. To form the final variables that will be examined (i.e., commercial website design, services provided, customer service, and trust in relation to consumer satisfaction with online shopping from commercial websites), a reliability test of these variables will be performed through the Cronbach’s Alpha test. Then, once it is found that there is reliability, the hypotheses will be defined to investigate the satisfaction of e-consumers from each dimension of the proposed model separately. As, in all four cases, all the constructed variables involved are of interval type, the relationships, the statistical significances but also the strength between the correlations will be examined through the Pearson test.

After completing the previous phase, the same procedure will be followed, but this time the relationship that exists between these four constructed variables and the overall perceived satisfaction of e-consumers when making their purchases from e-commerce websites will be investigated. In this case, too, the results will be extracted using the Pearson test.
Closing with the results chapter two Paired-Samples t-Test will be performed. Specifically, these tests will be based on the differentiation of perceived satisfaction that e-consumers stated they had during their online shopping and the expected one they had before proceeding to their purchases. This process will be executed for each dimension that is examined in this research separately but also for the overall perceived and expected satisfaction of the participants.

Many of the final conclusions of this diploma thesis as well as suggestions for further improvement of commercial websites and therefore the entire e-commerce sector will be based on the results that will be extracted from the analysis of the data as described.
4. Results

After the data collection process was completed, their analysis followed to extract the necessary results that will lead to the formation of the conclusions of this research. Some data were analyzed by descriptive analysis based on frequency tables, while others by statistical analysis.

4.1 Descriptive Analysis

In the initial sections of the questionnaire, respondents were asked to answer some more general questions about the use of the internet and the purchases they make through it. Some of these questions allowed them to select more than one answer or to note their own response. At this point in the research, a broader commentary of this type of findings is made to identify some key characteristics of the sample. In the following sections, a more in-depth approach to the collected data follows.

4.1.1 Frequency Analysis

Starting the analysis of the data, the location from which participants prefer to connect to the internet was investigated. As shown below (Table 5) with a great difference was found in the first place the choice of home (95%), and then from mobile phone on the go (86%), while in the third place of the preferences was the workplace (47%). Schools/universities (15%) and internet cafés (3%) had low rates of preference. The first three options were expected to collect the highest percentages as they are the locations where people spend most of their daily time.

<table>
<thead>
<tr>
<th>Where do you connect to the internet from?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>from your home</td>
<td>95%</td>
</tr>
<tr>
<td>from your workplace</td>
<td>47%</td>
</tr>
<tr>
<td>from school/university</td>
<td>15%</td>
</tr>
<tr>
<td>from internet café</td>
<td>3%</td>
</tr>
<tr>
<td>from your mobile (on the go during the day)</td>
<td>86%</td>
</tr>
</tbody>
</table>

Regarding the reason for which the respondents use the internet (Table 6) the largest percentages were collected by the answers related to communication either through chat applications (88%) or e-mails (79%). As more and more applications are created to serve this need, a large proportion of people prefers them over the traditional
way of communication. It is a timeless and accessible option from wherever they are, as long as their device has an internet connection. The additional features these applications have, such as the ability to video call, send files, group chat, have made them essential even in the business sector. The need for information on daily issues, such as news and weather were also calculated at high levels of preference (87%). Extremely encouraging for the needs of the present study are the percentages of responses related to the market and information research about products and services that participants are interested in buying (79%), as well as the use of the internet to proceed to the purchase of these products or services from commercial websites (73%). These findings confirm that there is a prospect of further growth in the e-commerce sector as consumers seemed to make extensive use of the internet to meet their shopping needs. Afterward followed the use of the internet for entertainment, games, and online music (64%), which proves that many people spend their free time or relax by choosing an online activity. The scientific and educational reasons (60%) that followed in the ranking of options do not make an impression considering that most of the respondents have a high educational level. Furthermore, the rate of access to web-banking (55%) reveals the fact that more than half of the research participants show confidence in managing their financial issues online. That is a positive step forward and proves that there are favorable conditions for the greater use of electronic transactions. Additionally, it is obvious that for a significant percentage of people booking accommodation, whether for holidays or business trips (45%) and tickets for public transport (37%) through the internet is a common choice. That is likely to result from the possibility that they can see the options available to meet their booking needs and compare prices and services provided (Meuter et al., 2000; Burke, 2002; Bauer, Falk and Hammerschmidt, 2006). An important role is played by the fact that they can carry out this process immediately and effortlessly wherever they are, even from their route, without necessarily requiring interpersonal communication. The answers related to "downloading" music and movies (24%) and dealing with the bourse (9%) via the internet came last in the responses of the participants as they are not activities that are current trends like in the past.

Table 6: Reasons for using the internet

<table>
<thead>
<tr>
<th>For which of the following reasons do you use the internet?</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information (e.g., news, weather, etc.)</td>
<td>87%</td>
</tr>
</tbody>
</table>
In the following question, the purpose of which was the detection of the commercial website that the respondents mainly prefer for making their purchases (Table 7), Skroutz.gr (50%) was found in the first place, without, however, specifying the name of the store they select through that website. More specifically, Skroutz.gr includes stores from all over Greece that sell all kinds of products, such as clothing/footwear, technological/electronic products, personal care products, and anything else consumable. This finding confirms the need for consumers to compare stores through simple and concise procedures during their market research, which may involve price comparison, order delivery time, shipping costs, extra charges for purchases that will be paid by cash on delivery, etc. (Meuter et al., 2000; Zeithaml, Parasuraman and Malhotra, 2000; Burke, 2002; Parasuraman, Zeithaml and Malhotra, 2005; Bauer, Falk and Hammerschmidt, 2006). An additional feature of that website is the ability to post reviews from users who have already purchased the desired products and largely shape the final consumer buying decision. They can also evaluate the store they preferred for their purchases and describe their shopping experience to inform other potential customers (Montano, 2004; Chen et al., 2007). In addition, at Skroutz.gr there is a description available for each product that includes all the necessary information that its e-visitors may seek. All these services provided by that website contribute to the creation of an environment that is very similar to physical retail stores, and in fact, is a less time-consuming process, which enhances customer favor (Wolfinbarger and Gilly, 2001; Bart et al., 2005; Salehi et al., 2012). It is therefore expected to create a sense of security and familiarity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>communication via email</td>
<td>79%</td>
</tr>
<tr>
<td>communication through chat applications</td>
<td>88%</td>
</tr>
<tr>
<td>(e.g., Skype, Messenger, Viber, Instagram, etc.)</td>
<td></td>
</tr>
<tr>
<td>booking tickets for public transport</td>
<td>37%</td>
</tr>
<tr>
<td>booking accommodation for holidays / business trips</td>
<td>45%</td>
</tr>
<tr>
<td>scientific / educational reasons (articles, course materials, etc.)</td>
<td>60%</td>
</tr>
<tr>
<td>&quot;downloading&quot; music and movies</td>
<td>24%</td>
</tr>
<tr>
<td>entertainment, online music, games</td>
<td>64%</td>
</tr>
<tr>
<td>bourse</td>
<td>9%</td>
</tr>
<tr>
<td>web-banking</td>
<td>55%</td>
</tr>
<tr>
<td>market and information research for services and products</td>
<td>79%</td>
</tr>
<tr>
<td>purchase of services and/or products</td>
<td>73%</td>
</tr>
</tbody>
</table>
and be the first option of users. Next in the preference of respondents were found stores for buying clothes/shoes and accessories, technological/electronic products, books, etc. Indicatively, higher percentages among the other answers were gathered by Zara.com, Public.gr, and Amazon.com with percentages, however, equal, or lower than 7%. Also, 7.3% of the participants answered that they do not prefer a specific online store, or they just did not want to reveal it in the context of the survey.

Table 7: Most preferred websites for online shopping

<table>
<thead>
<tr>
<th>Which website do you usually use for your internet purchases?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Skroutz.gr</td>
<td>50%</td>
</tr>
<tr>
<td>Zara.com</td>
<td>7%</td>
</tr>
<tr>
<td>Public.gr</td>
<td>5%</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>5%</td>
</tr>
<tr>
<td>not from a specific online store</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

The next two tables present the results collected from the questions about what products participants used to buy online before the pandemic (Table 8) and what they chose during the pandemic period (Table 9). In both cases, the purchase of clothing and footwear was in the first place of the preferences of electronic consumers. In fact, during the pandemic, there was an increase in that rate from 67% to 75%. A relative increase was also found in the purchase of personal care products, such as cosmetics, as before the COVID-19 pandemic 43% chose to buy such items while during this period 47% of respondents gave that answer. It was also shown that many people turned to read books when they found a little more free time in their daily lives, and this is confirmed by the fact that before the pandemic, 29% of them stated that they bought books online, while during that period the percentage increased to 35%. There was a significant increase in the buying of pharmacy items, too. Specifically, only 32% of participants claimed that they used to make orders from online pharmacies before that crisis but during the pandemic, this percentage reached 51%. It makes sense, given that consumers' needs for protection products, such as various drugs, antiseptics, hygiene products, etc., have increased significantly due to the COVID-19 pandemic.

Regardless of the comparison between the two periods, it can be easily observed that many participants use the internet to acquire fixed and mobile telephony, electronic devices, computers/hardware, and other consumables. Among items found to
have their demand reduced during the pandemic compared to pre-pandemic levels, it would not be safe to claim that it was affected by the current situation because the question did not clearly define a specific pre-pandemic period but was asked in a more general and long-term context (Table 8; Table 9).

Table 8: Most preferred products before the COVID-19 pandemic

<table>
<thead>
<tr>
<th>What kind of products did you usually prefer for online shopping before the pandemic?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers/Hardware</td>
<td>28%</td>
</tr>
<tr>
<td>Software packages</td>
<td>6%</td>
</tr>
<tr>
<td>DVD Movies/Music</td>
<td>6%</td>
</tr>
<tr>
<td>Cameras</td>
<td>4%</td>
</tr>
<tr>
<td>Books</td>
<td>29%</td>
</tr>
<tr>
<td>Design/office supplies</td>
<td>9%</td>
</tr>
<tr>
<td>Consumables</td>
<td>23%</td>
</tr>
<tr>
<td>Electronic games</td>
<td>9%</td>
</tr>
<tr>
<td>Fixed &amp; mobile telephony</td>
<td>36%</td>
</tr>
<tr>
<td>Electronic devices</td>
<td>36%</td>
</tr>
<tr>
<td>Clothing/footwear</td>
<td>67%</td>
</tr>
<tr>
<td>Care items (cosmetics, etc.)</td>
<td>43%</td>
</tr>
<tr>
<td>Pharmacy items</td>
<td>32%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
<tr>
<td>Nothing</td>
<td>1%</td>
</tr>
</tbody>
</table>

Table 9: Most preferred products during the COVID-19 pandemic

<table>
<thead>
<tr>
<th>What kind of products do you usually prefer for online shopping during the pandemic?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers/Hardware</td>
<td>18%</td>
</tr>
<tr>
<td>Software packages</td>
<td>8%</td>
</tr>
<tr>
<td>DVD Movies/Music</td>
<td>5%</td>
</tr>
<tr>
<td>Cameras</td>
<td>4%</td>
</tr>
<tr>
<td>Books</td>
<td>35%</td>
</tr>
<tr>
<td>Design/office supplies</td>
<td>11%</td>
</tr>
<tr>
<td>Consumables</td>
<td>24%</td>
</tr>
<tr>
<td>Electronic games</td>
<td>9%</td>
</tr>
<tr>
<td>Fixed &amp; mobile telephony</td>
<td>27%</td>
</tr>
<tr>
<td>Electronic devices</td>
<td>29%</td>
</tr>
<tr>
<td>Clothing/footwear</td>
<td>75%</td>
</tr>
<tr>
<td>Care items (cosmetics, etc.)</td>
<td>47%</td>
</tr>
<tr>
<td>Pharmacy items</td>
<td>51%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
<tr>
<td>Nothing</td>
<td>0.5%</td>
</tr>
</tbody>
</table>
As a general conclusion, it could be argued that people nowadays often prefer to make their purchases from online stores instead of visiting physical stores, as it saves time and allows them to find what they are interested in acquiring by making a comparison among many e-stores (Wolfinbarger and Gilly, 2001; Zeithaml, Parasuraman and Malhotra, 2002; Bart et al., 2005; Bauer, Falk and Hammerschmidt, 2006; Salehi et al., 2012). The situation that has prevailed with the COVID-19 pandemic promotes this option even more, as they do not need to come into personal contact with other people and get involved in the crowded stores and risk their health. It would not be surprising if in the near future e-commerce replaces the traditional one to an even greater degree, without this meaning that it could replace it completely.

4.2 Statistical Data Analysis

Starting the statistical analysis of the collected data using the PSPP statistical analysis software, it should be noted that for this study all variables were considered to follow the normal distribution. More specifically, according to the Central Limit Theorem, as the sample size increases, the sampling distribution of the sample means approaches a normal distribution (Glen, 2014a). As this theorem is valid for a sample larger than 30, it was considered safe for the sample of the present study, which is equal to 192, to assume normality and therefore to use parametric tests. Furthermore, the significance level was set for all hypotheses as $\alpha=5\%$ ($\alpha=0.05$).

4.2.1 Research Questions Investigation

To form a more complete view of the participants' perceptions about the internet and its use, as well as their shopping behavior and habits related to it, conducting statistical tests help to extract valid results. Thus, integral answers will be given to the research questions posed in the introductory chapter of this diploma thesis.

The first research question to be explored in this study was the relationship between the hours users use the internet per day and the frequency with which they shopped online before the COVID-19 pandemic.

Hypotheses Formulation

- $H_0$: There is no relationship between hours that users use the internet per day and the frequency with which they shopped online before the pandemic.
• H1: There is a relationship between hours that users use the internet per day and the frequency with which they shopped online before the pandemic

As both variables that form the hypothesis are ordinal, the Chi-Square test was conducted.

Regarding the Pearson Correlation Coefficient, it has been found that it is equal to 0,021 (Table 10), lower than the defined significance level=0,05 (p=0,021<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between hours that users use the internet per day and the frequency with which they shopped online before the pandemic and, consequently, there is statistical significance.

Table 10: Chi-squared test (hours that users use the internet daily - frequency with which they shopped online before the pandemic)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
<th>DF</th>
<th>ASYMP. SIG (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>34,81</td>
<td>20</td>
<td>0,021</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>28,21</td>
<td>20</td>
<td>0,105</td>
</tr>
<tr>
<td>Linear-by-linear association</td>
<td>0,41</td>
<td>1</td>
<td>0,521</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>192</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As expected, the more time users spent browsing the internet, the more they are tempted to make online purchases, even unplanned ones. The continuous display of advertisements, which now exists on all websites and social media applications promoting various types of products and services, greatly contributes to the strengthening of that desire. According to Weibacher (2003), successful advertising is gaining the attention of consumers and creating a tendency for them to make purchases or at least positively evaluate a product or business. This was confirmed by Suh and Youjae (2006) who argued that the individual perception of customers around the advertisements has a decisive effect on their attitude towards brands while also determining their intention to buy. Furthermore, as found, the familiarity of users with the modern technologies significantly forms their overall satisfaction. Specifically, the more they use the internet, the more confident they feel when navigating commercial websites and, consequently, the more likely they are to choose this electronic way to make their purchases instead of visiting a physical store (Shih, 2004; Kim, Chun and Song, 2009).
The second research question examined was the relationship between the hours users use the internet per day and the frequency with which they make online purchases during the COVID-19 pandemic.

Hypotheses Formulation

- H0: There is no relationship between hours that users use the internet per day and the frequency with which they shopped online during the pandemic
- H1: There is a relationship between hours that users use the internet per day and the frequency with which they shopped online during the pandemic

As both variables that form the hypothesis are ordinal, the Chi-Square test was conducted.

Regarding the Pearson Correlation Coefficient, it has been found that it is equal to 0,137 (Table 11), higher than the defined significance level=0,05 (p=0,137>α=0,05). The H0 cannot be rejected, as the sample does not provide us with enough evidence to accept the H1. So, the H1 is rejected, that there is a relationship between hours that users use the internet per day and the frequency with which they shopped online during the pandemic and, consequently, there is not statistical significance. However, this result cannot be generalized to this population as there is a possibility that if the research sample grows, this result will change.

Table 11: Chi-squared test (hours that users use the internet daily - frequency with which they shopped online during the pandemic)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
<th>DF</th>
<th>ASYMP. SIG (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>26,94</td>
<td>20</td>
<td>,137</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>28,07</td>
<td>20</td>
<td>,108</td>
</tr>
<tr>
<td>Linear-by-linear association</td>
<td>4,53</td>
<td>1</td>
<td>,033</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>192</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In that case, even though the relationship between internet usage hours and the frequency of online shopping during the pandemic crisis has not been confirmed, it would not be safe to claim that there is absolutely no relationship between them. A logical explanation for this result could be that internet use may have increased during the pandemic, probably due to the existence of more free time, but this does not necessarily mean that respondents could make purchases more often because, for instance,
their salary did not increase, or they did not need products or services that they would use in their normal daily lives. After all, there is a possibility that several respondents were faced with unemployment or even feared the financial consequences that the continuous and reckless online purchases would have. However, in order to find a clear answer to this question, it is necessary to investigate in a larger research sample.

Another research question that was of interest was the relationship between the frequency with which participants made online purchases prior to the COVID-19 pandemic and the frequency with which they did so during it.

Hypotheses Formulation

- H0: There is no relationship between the frequency with which participants made online purchases prior to the COVID-19 pandemic and the frequency with which they did so during it
- H1: There is a relationship between the frequency with which participants made online purchases prior to the COVID-19 pandemic and the frequency with which they did so during it

As both variables that form the hypothesis are ordinal, the Chi-Square test was conducted.

Regarding the Pearson Correlation Coefficient, it has been found that it is equal to 0,000 (Table 12), lower than the defined significance level=0,05 (p=0,000<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between the frequency with which participants made online purchases prior to the COVID-19 pandemic and the frequency with which they did so during it and, consequently, there is statistical significance.

Table 12: Chi-squared test (frequency with which participants made online purchases prior to the pandemic - frequency with which they made online purchases during the pandemic)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
<th>DF</th>
<th>ASYMP. SIG (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>168,31</td>
<td>16</td>
<td>0,000</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>118,06</td>
<td>16</td>
<td>0,000</td>
</tr>
<tr>
<td>Linear-by-linear association</td>
<td>57,85</td>
<td>1</td>
<td>0,000</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>192</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on this finding, it was revealed that consumers remained faithful to the frequency of their online shopping, unaffected by the pandemic crisis. That is probably because there are people who have consistently for years preferred to make their purchases through commercial websites. Especially the fans of that trend may follow this process because they want to proceed in purchases after comparing products and prices between many online stores (Meuter et al., 2000; Zeithaml, Parasuraman and Malhotra, 2000; Burke, 2002; Parasuraman, Zeithaml and Malhotra, 2005; Bauer, Falk and Hammerschmidt, 2006) and in many cases from stores abroad, which would be impossible to obtain otherwise due to the distance. Additionally, there is the other proportion of people who remain reluctant in online shopping and, especially when it comes to high-cost orders (Petty and Cacioppo, 1986). This doubt is likely to be alleviated when the website is well known or has positive user reviews and thus be persuaded to make purchases easier (Montano, 2004). It is possible that the type of product or service they are going to acquire also plays a role in shaping the purchasing decision and proceeding with the order. Theoretically, it is more common to trust an online store to buy an item that does not have such a high probability of defect, i.e., it is easier to buy a book than an electronic device that they would prefer to see and try in a physical store (Flipo, 1988; Zeithaml, Parasuraman and Malhotra, 2002; Montano, 2004). Therefore, the frequency with which each consumer chooses to make an online purchase is influenced by personal factors (Yoon, 2002) and not so much by external factors as that of the COVID-19 pandemic.

Also, interesting to investigate was the relationship between the amounts of money spent by consumers for online purchases during the period from February 2019 to August 2019, before the pandemic, and during the corresponding period, February 2020 to August 2020, during the pandemic.

Hypotheses Formulation

- H0: There is no relationship between the amounts of money spent by consumers for online purchases before the pandemic and during the pandemic
- H1: There is a relationship between the amounts of money spent by consumers for online purchases before the pandemic and during the pandemic

As both variables that form the hypothesis are ordinal, the Chi-Square test was conducted.
Regarding the Pearson Correlation Coefficient, it has been found that it is equal to 0.000 (Table 13), lower than the defined significance level=0.05 (p=0.000<α=0.05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between the amounts of money spent by consumers for online purchases before the pandemic and during the pandemic and, consequently, there is statistical significance.

Table 13: Chi-squared test (amounts of money spent by consumers before the pandemic - amounts of money spent by consumers during the pandemic)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
<th>DF</th>
<th>ASYMP. SIG (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>162.84</td>
<td>16</td>
<td>0.000</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>143.53</td>
<td>16</td>
<td>0.000</td>
</tr>
<tr>
<td>Linear-by-linear association</td>
<td>96.05</td>
<td>1</td>
<td>0.000</td>
</tr>
<tr>
<td>N of valid cases</td>
<td>192</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finding a relationship between the amount of money spent by respondents before the pandemic compared to the amount spent during the same time period, but during the pandemic, it was proved that they remained stable in the amounts allocated, without being particularly affected by that crisis. However, as analyzed in the above sub-section of descriptive analysis, the needs for what kind of products they preferred before the COVID-19 pandemic and what during it, may have some differentiations (Table 8; Table 9). For example, someone could claim that he/she has a steady budget of spending 400 euros on online purchases over a period of seven months. However, before the pandemic, he/she could have chosen to invest that amount of money in hardware and electronic devices, while during the pandemic in pharmacy items and more clothes/shoes and books.

The next research question that concerned the present study was the existence of a relationship between the method of payment chosen mainly by consumers for their online purchases and the perception of security of electronic transactions.

Hypotheses Formulation

- H0: There is no relationship between the payment method chosen mainly for electronic purchases and the perception of security of electronic transactions
- H1: There is a relationship between the payment method chosen mainly for electronic purchases and the perception of security of electronic transactions
As the first variable (payment method) is nominal and the second one (perception of security) is interval, the ANOVA test was conducted. As dependent variable was set the interval (perception of security) and as factor the nominal one (payment method).

Regarding the Statistical Significance, it has been found that it is equal to 0,000 (Table 14), lower than the defined significance level=0,05 (p=0,000<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between the payment method chosen mainly for electronic purchases and the perception of security of electronic transactions and, consequently, there is statistical significance. That means, that the independent variable (payment method) seems to affect the dependent one (perception of security).

Table 14: ANOVA (payment method chosen mainly for electronic purchases - the perception of security of electronic transactions)

<table>
<thead>
<tr>
<th>Perception of e-transactions security</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>27,66</td>
<td>4</td>
<td>6,92</td>
<td>14,48</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>89,32</td>
<td>187</td>
<td>.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>116,98</td>
<td>191</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In that case, the findings agreed with those found in the study by Yoon (2002) on the factors that shape the consumers’ sense of confidence in online transactions. The existence of that relationship stems from the fact that participants who do not feel safe sharing personal and other information with a commercial website are expected to choose traditional payment methods (Soto-Acosta et al., 2014). For example, cash on delivery upon receipt of their order could be the most common solution for that share of people. In addition to the sense of security they feel regarding the protection of their personal data, they also have the opportunity, when delivering the parcel at their place, to check that they have received the right one and that the product is not defective and is close to what saw on the website (Miyazaki and Fernandez, 2001; Soto-Acosta et al., 2014). In case of error, they can simply refuse to receive the order and not pay. On the other hand, those who are more familiar with the use of e-commerce and are more confident in the protection that commercial websites offer to the data they provide
them may tend to choose electronic payment methods, such as web-banking and debit/prepaid or credit card (Burke, 2002). These contactless payment methods, which are made at the end of the online ordering process, allow consumers to "get rid" of payment upon delivery and when the order arrives, they simply receive it.

As shown below (Table 15) the first preferred payment method for online shopping was found to be that of pay on delivery (43%) while in the second place followed the payment using debit/prepaid card (35%). After all, these both methods are always available in all online stores, while one of the other three suggested methods could be missing as an option. The pay on delivery option is likely to reflect the lack of security that consumers feel by providing sensitive personal data on commercial websites, while the use of debit/prepaid cards is an immediate solution for those who feel trust. Additionally, the pay on delivery method is usually accompanied by an additional charge upon receipt of the order, which does not apply to the option found in the second place of preference, i.e., debit/prepaid card. Even this could be a deterrent for some e-customers and lead them to some kind of electronic payment in order to avoid further charging.

Table 15: Preferred payment method for online purchasing

<table>
<thead>
<tr>
<th>Selected Payment Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay on delivery</td>
<td>43%</td>
</tr>
<tr>
<td>Debit/prepaid card</td>
<td>35%</td>
</tr>
<tr>
<td>Credit card</td>
<td>8%</td>
</tr>
<tr>
<td>Bank transfer (web-banking)</td>
<td>3%</td>
</tr>
<tr>
<td>Deposit to account</td>
<td>11%</td>
</tr>
</tbody>
</table>

4.2.2 Reliability Analysis
To proceed with the hypotheses testing it was important to do some reliability tests. More specifically, to examine the coherence of the items that make up each of the four variables that are to be investigated (commercial website design, services provided, customer service, trust) for the evaluation of consumer satisfaction, the Cronbach’s Alpha reliability test was performed, for each of the these separately.
The results, as shown in the following tables (Table 16; Table 17; Table 18; Table 19), proved that this coefficient ranges between 0.83 to 0.91 (the recommended levels are from 0.7 to 1 according to Glen (2014b)) in all four cases and is therefore considered to be reliable.

**Table 16: Reliability Statistics (Commercial website design and Consumer satisfaction)**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.86</td>
<td>4</td>
</tr>
</tbody>
</table>

**Table 17: Reliability Statistics (Services provided and Consumer satisfaction)**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.91</td>
<td>10</td>
</tr>
</tbody>
</table>

**Table 18: Reliability Statistics (Customer service and Consumer satisfaction)**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.83</td>
<td>3</td>
</tr>
</tbody>
</table>

**Table 19: Reliability Statistics (Trust and Consumer satisfaction)**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.86</td>
<td>3</td>
</tr>
</tbody>
</table>

After finding the reliability among the items of each variable that was for investigation, it was considered safe to compute them to form officially the new constructed variables that will be used in the context of this research. More specifically, the scores were created from the individual answers to the sub-questions of each of the four variables ("Very Satisfied"=5, "Satisfied"=4, "Neither Dissatisfied nor Satisfied"=3, "Dissatisfied"=2, "Very Dissatisfied"=1) and thus the new ones were formed.

4.2.3 E-Consumer Satisfaction in Each Dimension of the Proposed Model

As mentioned at the beginning of this study, its main objective was to confirm findings from the existing literature related to e-consumer satisfaction with e-commerce websites. More specifically, the further investigation of variables that have been shown to contribute to the formation of consumer satisfaction and cause differentiation between the satisfaction they had from the one they expected to have will be examined through statistical analysis of the collected data.
In all the following sets of hypotheses tests (Hypothesis 1.a - Hypothesis 4.d) that will be presented, the result tables were shaped by the constructed variable studied each time in relation to the perceived satisfaction of e-consumers concerning that specific dimension of the proposed model during the COVID-19 pandemic.

Hypothesis 1.a

The first variable to be explored was that of the design and functionality of e-commerce websites and how this affected perceived consumer satisfaction concerning this dimension of the proposed model.

Hypotheses Formulation

- **H0**: There is no relationship between commercial website design and perceived consumer satisfaction concerning this dimension
- **H1**: There is a relationship between commercial website design and perceived consumer satisfaction concerning this dimension

As both variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0,000 (Table 20), lower than the defined significance level=0,05 (p=0,000<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between commercial website design and perceived consumer satisfaction concerning that dimension and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0,74 (Table 20). That means that the two variables are proportional, and there is also a strong positive correlation between them.

### Table 20: Correlations (Commercial website design)

<table>
<thead>
<tr>
<th>Commercial website design and consumer satisfaction</th>
<th>Pearson Correlation</th>
<th>How satisfied are you with the design - functionality of e-commerce websites in relation to the experience you had during the Covid-19 pandemic?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>1,00</td>
<td>,74</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td></td>
<td>,000</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>192</td>
<td>192</td>
</tr>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>,74</td>
<td>1,00</td>
</tr>
</tbody>
</table>
How satisfied are you with the design - functionality of e-commerce websites in relation to the experience you had during the Covid-19 pandemic?

<table>
<thead>
<tr>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>.000</td>
<td>192</td>
</tr>
</tbody>
</table>

The results of the statistical test confirmed the impact that the design and functionality of commercial websites have on consumer satisfaction (Wolfinbarger and Gilly, 2003; Rowley, 2006; Oh et al., 2008). From the answers given it seems that the most important factor that enhanced this satisfaction during the COVID-19 pandemic was the ease of use of the e-commerce websites, as 76% of the respondents were found to be satisfied or very satisfied with it. The simplified design that in many cases helps users to find everything they are looking for immediately and without the need to have specialized knowledge and familiarity with the use of modern technologies predisposes them to proceed to online shopping (Shih, 2004; Kim, Chun and Song, 2009). It was then found that the structure of that information had a positive effect on e-consumers who participated in the survey at a rate of 64%. A well-designed menu contributes to the ease and speed of finding products or services and information about them which is one of the most basic requirements when browsing (Shih, 2004; Flavián, Guinalíu and Gurrea, 2006). In general, an online store with a perfect structure contributes to its overall ease of navigation (Shankar, Smith and Rangaswamy, 2003; Maditinos and Theodoridis, 2010; Belanche, Casaló and Guinaliu, 2012). Another parameter that played a positive role in the satisfaction of 64% of users was the aesthetic improvement of the commercial websites during the COVID-19 pandemic. As the largest volume of shopping during that crisis took place online, it was important for e-stores to enhance the attractiveness of their overall image to gain more clients. Creating interactive content, using stunning graphics, images, and videos, encourages potential customers to visit the respective website and prefer it for their purchases (Agosto, 2002). Furthermore, the frequency of updating the information on commercial websites was found to be particularly positive in 72% of the participants that took part in the survey. The constant depletion of stocks, due to the increased demand caused by the current situation, and the receipt of new ones, contributed to the continuous updating of the content and its related information. This
proved the readiness of the e-stores to respond to that pressure and not leaving the needs of their clients unsatisfied.

The ability of e-commercial websites to predict the aesthetics that will most attract their potential customers brings them to the forefront of the competition. After all, every online store should shape its image according to the audience that prefers it but also based on its content, i.e., depending on the products and services it promotes. The cognitive level of its customers should always be taken into consideration, and the purchasing process should be simplified as much as possible. This could be a competitive advantage for online stores over physical ones and could help maintain the consumers’ preference for online shopping even after the end of the pandemic crisis.

Hypothesis 2.a

The second variable that was evaluated in the context of the research was that of the services provided by e-commerce websites and how they affected perceived consumer satisfaction concerning that dimension of the proposed model.

Hypotheses Formulation

- H0: There is no relationship between services provided and perceived consumer satisfaction concerning that dimension
- H1: There is a relationship between services provided and perceived consumer satisfaction concerning that dimension

As both variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0,000 (Table 21), lower than the defined significance level=0,05 (p=0,000<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between services provided and perceived consumer satisfaction concerning that dimension and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0,70 (Table 21). That means that the two variables are proportional, and there is also a strong positive correlation between them.

Table 21: Correlations (Services provided)
After the statistical test was performed, the relationship between the services provided and perceived customer satisfaction was confirmed, as was also found by the literature review (Fang and Holsapple, 2007). The respondents were asked to assess their experience of using specific services and performing certain procedures while browsing commercial websites and making purchases during the COVID-19 pandemic. First, 88% of them were found to be satisfied or very satisfied with the general buying process through online stores. That is an element that most internet users are now sufficiently familiar with the functions of the internet to perform such processes. Related to that is the ease with which 63% of the sample stated that they managed to create a user account on the e-commercial websites they preferred for their online purchases. Regarding the way of displaying the terms of use of the respective commercial website, 61% of the respondents were found to be in the levels of satisfied and very satisfied, while 31% stated that they are neither dissatisfied nor satisfied. This second category is likely to include people who have not paid attention to this parameter and therefore chose the most neutral answer, thus raising this specific percentage. The results concerning the evaluation of the processing time of electronic transactions in online shopping were also found to be very positive, as 67% of the users who took part in the survey stated that they were at least satisfied with it, in contrast to a percentage of 8% who were dissatisfied with that duration. The large deviation between these two percentages allows the complacency that this waiting period is not worrying. Moreover, the percentage of 45% who expressed satisfaction with their ability to ensure their personal data
and money on commercial websites seemed alarmingly low, while 14% clearly stated that they were dissatisfied or very dissatisfied with it. The rest of the respondents chose the most neutral answer offered, which is likely to prove their reluctance to take a stand on such an important issue that deals with the protection of sensitive personal data. Concerning the electronic transaction monitoring service/money transfer to e-commerce websites, 57% of the sample gave a response that corresponds to satisfaction from that service. Also, 35% of them stated that they were neither dissatisfied nor satisfied with that service, while the rest were dissatisfied. It is quite common when it comes to financial issues for users to show less confidence compared to other parameters. Once again in the context of this study, the need to create a secure climate around the protection of personal data and other information disclosed by electronic consumers during the process of their electronic transactions is confirmed (Lee, Im and Lee, 2000; Miyazaki and Fernandez, 2001). Then, concerning the completion of the transaction process, i.e., the checkout, 64% were placed at the two offered levels of satisfaction. The fact that only 3% maintained a negative attitude, confirms one more time the fact that such processes have become entrenched in the buying habits of the e-consumers and that most have become accustomed to the process of e-transactions. Furthermore, 62% of the respondents were also placed in a level of satisfaction regarding the process of issuing a receipt or invoice at the end of the online shopping and only 6% of them were on the opposite side. Therefore, this is also a service that does not create significant problems for electronic consumers. Interesting is the finding of the billing process on e-commerce websites. Specifically, only 53% stated being satisfied or very satisfied, while 43% stated that they are neither satisfied nor dissatisfied. In that case, too, it is possible that a large percentage of the neutral responses were concentrated as that procedure does not address the entire sample. As there are only a few who need to obtain that document, there is a possibility that the other respondents who have not used that service to select the neutral answer because of ignorance and not of dissatisfaction. Regarding the process of receiving products ordered from commercial websites, 73% of the respondents were found to be satisfied or very satisfied. This high percentage collected by that question reflects the great convenience that consumers enjoy when they choose to make their purchases electronically and consequently to receive their order in the place that they wish, for example at home, at the workplace, etc. (Burke,
In many cases, they are also allowed to give specific instructions about their order, such as that of the selected time of delivery.

Every commercial website depending on the products or services it sells needs to have the corresponding services provided for its customers. Whatever is related to clients' security, and especially when it comes to their personal data and payment issues, these services need to operate in the best possible way to gain the trust of potential buyers. As it turned out, these were the most important hesitations that the participants of the research encountered while navigating the online stores. Additionally, it would be beneficial to make efforts to simplify and improve the services related to the issuance of documents, so that they can be handled effortlessly and without worries even by those users who are not so familiar with these electronic systems. Also, continuous control of the services provided to assess whether everything is working properly and efficiently in order to immediately solve problems, or upgrade them, is always a good practice on the part of e-businesses.

Hypothesis 3.a

The next variable that was studied was that of the customer service provided by e-commerce websites and how it affected perceived consumer satisfaction concerning that dimension of the proposed model.

Hypotheses Formulation

- H0: There is no relationship between customer service and perceived consumer satisfaction concerning that dimension
- H1: There is a relationship between customer service and perceived consumer satisfaction concerning that dimension

As both variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0.000 (Table 22), lower than the defined significance level=0.05 (p=0.000<α=0.05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between customer service and perceived consumer satisfaction concerning that dimension and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found
that it is equal to 0.69 (Table 22). That means that the two variables are proportional, and there is also a strong positive correlation between them.

Table 22: Correlations (Customer service)

<table>
<thead>
<tr>
<th>Customer service and consumer satisfaction</th>
<th>Customer service and consumer satisfaction</th>
<th>How satisfied are you with the e-commerce customer service in relation to the experience you had during the Covid-19 pandemic?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer service and consumer satisfaction</strong></td>
<td><strong>Pearson Correlation</strong></td>
<td><strong>Sig. (2-tailed)</strong></td>
</tr>
<tr>
<td></td>
<td>1.00</td>
<td>,69</td>
</tr>
<tr>
<td></td>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td><strong>N</strong></td>
<td>192</td>
</tr>
<tr>
<td><strong>How satisfied are you with the e-commerce customer service in relation to the experience you had during the Covid-19 pandemic?</strong></td>
<td><strong>Pearson Correlation</strong></td>
<td><strong>Sig. (2-tailed)</strong></td>
</tr>
<tr>
<td></td>
<td>,69</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td><strong>N</strong></td>
<td>192</td>
</tr>
</tbody>
</table>

The investigation of this dimension showed that the customer service of the commercial websites significantly determined the perceived satisfaction of the consumers during the COVID-19 pandemic period. The results regarding the existence of an online customer service that aims to answer their questions promptly and solve possible problems were found to be particularly positive as had been found in the literature review, too (Zeithaml, Parasuraman and Malhotra, 2002). To be precise, 59% of the respondents claimed to be satisfied or very satisfied with that service in the online stores. Most e-businesses now choose to have this communication service, in which an automated message from the website usually first appears and then a representative of the company takes over the communication, either immediately or after a short wait. The provision of modern customer service tools that can be handled by users of different cognitive levels creates convenience and alleviates customer stress (Deitel and Steinbuhler, 2001; Singh, 2002; Cristobal, Flavián and Guinaliu, 2007). Concerning the matter of customer support when emerged a problem with their online account, 53% were found to be satisfied or very satisfied. It is important to note that 39% of the participants gave a neutral answer, which may mean that they were neither satisfied nor dissatisfied with this type of service, or that they chose this answer because they did not use it and
thus had no opinion about it. The same applies to the answers collected from the question, regarding the degree of users' satisfaction from the response time to their emails that had to clarify questions and expression of complaints. Satisfied to very satisfied with this was found to be 51%, while a neutral attitude was held by 35% of the participants. However, the percentage of 14% that appeared to be from dissatisfied to very dissatisfied with the waiting time of responding to emails should not be unnoticed in that case. That means that these users who used this type of service did not receive a response within a reasonable time. The long wait for a response or rude service are deterrents to online customer satisfaction (Bougie, Pieters and Zeelenberg, 2003; Wolfinbarger and Gilly, 2003). Especially for issues related to money transactions or defective/error products, consumers are always more impatient and want to receive the answer they are waiting for as soon as possible.

The possibility of direct communication and service by a representative of the online store enhances the feeling of satisfaction of the online consumers, as it causes them a sense of intimacy like they are shopping from a physical store. E-businesses need to have a sufficient workforce that can respond instantly to the demands of the clients and serve them properly. Additionally, having customer service 24-hours a day is a competitive advantage of the e-commercial websites. Furthermore, many e-consumers prefer to make online purchases during non-working hours of stores, for example late at night. However, they need to know that even in such hours they will receive the necessary help in case any problem or question arises while navigating the website or in the purchasing process.

Hypothesis 4.a

The last variable examined in the research was the sense of trust created in customers by e-commerce websites and how it affected perceived consumer satisfaction concerning that dimension of the proposed model.

Hypotheses Formulation

- H0: There is no relationship between trust and perceived consumer satisfaction concerning that dimension
- H1: There is a relationship between trust and perceived consumer satisfaction concerning that dimension
As both variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0.000 (Table 23), lower than the defined significance level=0.05 (p=0.000<α=0.05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between trust and perceived consumer satisfaction concerning that dimension and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0.80 (Table 23). That means that the two variables are proportional, and there is also a strong positive correlation between them.

Table 23: Correlations (Trust)

<table>
<thead>
<tr>
<th></th>
<th>Trust and consumer satisfaction</th>
<th>How satisfied are you with the payment options and the security of e-commerce in relation to the experience you had during the Covid-19 pandemic?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>1.00</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>192</td>
<td>192</td>
</tr>
</tbody>
</table>

The test performed concerning the trust provided by e-commerce websites to e-consumers confirmed the satisfaction they received from this dimension during the COVID-19 pandemic. Based on the responses collected, users still seemed to be cautious, not necessarily negative, and not feeling completely confident about providing personal information on commercial websites. The same hesitation was also observed regarding online payments. In particular, 15% of respondents were found to be dissatisfied or very dissatisfied with the privacy of transactions on e-commerce websites. Also, in many cases, the sensitive personal customer data and contact information provided
by customers on a particular website are shared with other companies, as part of mar-
keting strategies (Sharma, Kurien and Pandey, 2017). Customers do not want to feel that
the information they share is not protected or that the terms of use with which they
have agreed are violated. A logical consequence then was the suspicion of the respond-
ents regarding the security of their electronic transactions and in fact, 8% stated a neg-
ative attitude towards it, as many cases of fraud have been detected so far when making
electronic payments (Sharma, Kurien and Pandey, 2017). Due to the open market that
has been created on the internet, anyone can log in and pretend to be a professional
without actually being credible (Varela et al., 2017). The results concerning the satisfac-
tion of e-consumers from how the detailed payment and security terms of the commer-
cial websites are displayed were found to be negative in a percentage of 11% of the total
participants in the survey. In general, the findings from the variable about "trust" were
the least encouraging, as the mistrust of a significant part of the sample regarding elec-
tronic transactions and their security was confirmed. However, there was a large per-
centage of people who were found to be satisfied or very satisfied with these three
aforementioned factors, i.e., the privacy of e-transactions, security of e-transactions,
display of detailed payment and security terms, related to trust, at 37%, 52%, and 52%
respectively, while the rest of the respondents held a more neutral attitude towards
these issues.

Commercial websites should create a sense of trust in their customer relation-
ships. Even if they have succeeded in all other fields, it would not be strange for potential
e-customers to abandon their shopping cart one step before completing the purchase
process due to security hesitations. Ensuring personal confidentiality and the careful
handling of personal data provided by customers in conjunction with the clear display,
and in a conspicuous place, of the terms of use and payment, greatly wins over users'
preference. Especially in periods when there is a significant increase in online shopping,
such as that of the COVID-19 pandemic, a safe navigation environment is an essential
feature of each online store.

4.2.4 Overall E-Consumer Satisfaction
At this point in the research, the extent to which each of the four dimensions of the
proposed model affected the overall perceived satisfaction of e-consumers with their
online shopping during the COVID-19 pandemic period will be assessed. The hypotheses discussed below (Hypothesis 1.b - Hypothesis 4.b) are the corresponding ones of the previous section, but this time the relationship of each constructed variable with the overall perceived satisfaction of consumers with their purchases through commercial websites will be investigated. Therefore, the evaluation process that will be followed is the same as the previous one and the hypotheses are formulated accordingly.

Hypothesis 1.b

Hypotheses Formulation

- **H0**: There is no relationship between commercial website design and overall perceived consumer satisfaction
- **H1**: There is a relationship between commercial website design and overall perceived consumer satisfaction

As all the variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0.000 (Table 24), lower than the defined significance level=0.05 (p=0.000<α=0.05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between commercial website design and overall perceived consumer satisfaction and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0.43 (Table 24). That means that the two variables are proportional, and there is also a moderate positive correlation between them.

<table>
<thead>
<tr>
<th>Table 24: Correlations (Commercial website design)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial website design and consumer satisfaction</strong></td>
</tr>
<tr>
<td><strong>Pearson Correlation</strong></td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
</tr>
<tr>
<td><strong>N</strong></td>
</tr>
</tbody>
</table>

-67-
Hypothesis 2.b

Hypotheses Formulation

- H0: There is no relationship between services provided and overall perceived consumer satisfaction
- H1: There is a relationship between services provided and overall perceived consumer satisfaction

As all the variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0,000 (Table 25), lower than the defined significance level=0,05 (p=0,000<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between services provided and overall perceived consumer satisfaction and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0,54 (Table 25). That means that the two variables are proportional, and there is also a moderate positive correlation between them.

Table 25: Correlations (Services provided)

<table>
<thead>
<tr>
<th>Services provided and consumer satisfaction</th>
<th>Overall perceived consumer satisfaction from processing e-commerce transactions during the COVID-19 pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>1,00</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>,54</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>192</td>
</tr>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>.54</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>,000</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>192</td>
</tr>
</tbody>
</table>

Hypothesis 3.b

Hypotheses Formulation
• H0: There is no relationship between customer service and overall perceived consumer satisfaction.

• H1: There is a relationship between customer service and overall perceived consumer satisfaction.

As all the variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0,000 (Table 26), lower than the defined significance level $=0,05$ ($p=0,000<\alpha=0,05$). So, the H0 is rejected and the H1 is accepted, that there is a relationship between customer service and overall perceived consumer satisfaction and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0,39 (Table 26). That means that the two variables are proportional, and there is also a moderate positive correlation between them.

Table 26: Correlations (Customer service)

<table>
<thead>
<tr>
<th></th>
<th>Customer service and consumer satisfaction</th>
<th>Overall perceived consumer satisfaction from processing e-commerce transactions during the COVID-19 pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer service and consumer satisfaction</td>
<td>Pearson Correlation: 1,00</td>
<td>,39</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed): 0,000</td>
<td>,000</td>
</tr>
<tr>
<td>N</td>
<td>192</td>
<td>192</td>
</tr>
<tr>
<td>Overall perceived consumer satisfaction from processing e-commerce transactions during the COVID-19 pandemic</td>
<td>Pearson Correlation: ,39</td>
<td>1,00</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed): 0,000</td>
<td>,000</td>
</tr>
<tr>
<td>N</td>
<td>192</td>
<td>192</td>
</tr>
</tbody>
</table>

Hypothesis 4.b

Hypotheses Formulation

• H0: There is no relationship between trust and overall perceived consumer satisfaction.

• H1: There is a relationship between trust and overall perceived consumer satisfaction.
As all the variables involved are interval (as they are Likert-scale questions), the Pearson test was conducted.

Regarding the Statistical Significance, it has been found that it is equal to 0,000 (Table 27), lower than the defined significance level=0,05 (p=0,000<α=0,05). So, the H0 is rejected and the H1 is accepted, that there is a relationship between trust and overall perceived consumer satisfaction and, consequently, there is statistical significance. Concerning the Pearson Correlation, it has been found that it is equal to 0,54 (Table 27). That means that the two variables are proportional, and there is also a moderate positive correlation between them.

Table 27: Correlations (Trust)

<table>
<thead>
<tr>
<th></th>
<th>Trust and consumer satisfaction</th>
<th>Overall perceived consumer satisfaction from processing e-commerce transactions during the COVID-19 pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust and consumer satisfaction</td>
<td>Pearson Correlation 1,00</td>
<td>,54</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>,000</td>
</tr>
<tr>
<td></td>
<td>N 192</td>
<td>192</td>
</tr>
<tr>
<td>Overall perceived consumer satisfaction from processing e-commerce transactions during the COVID-19 pandemic</td>
<td>Pearson Correlation ,54</td>
<td>1,00</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>,000</td>
</tr>
<tr>
<td></td>
<td>N 192</td>
<td>192</td>
</tr>
</tbody>
</table>

The results of all four of these tables were found to coincide, in general, with the results obtained from the previous hypotheses investigation. Statistical significance was observed in all hypothesis testing, however, the correlations between the examined pairs of variables, although positive in every case, were clearly weaker. The moderate correlation that emerged in all these hypotheses leads to the conclusion that each constructed variable affected a part of the overall perceived satisfaction that e-consumers appeared to have with their online shopping during the COVID-19 pandemic. One more explanation for the weaker correlation found between the four dimensions of the proposed model and overall perceived consumer satisfaction could be that the overall satisfaction question was the last one asked by the participants, taking into account the
answers they had given earlier. It is logical, then, that some of their views were expressed more strongly and consciously when they were in each category of questions separately, but when they reached the end of the research, some information had escaped their minds, thus giving a 'milder' answer as concerning their overall perceived degree of satisfaction. An additional important observation is that the dimension of trust was found to be in the first place in terms of the intensity of the correlation in both cases (Hypothesis 4.a, Hypothesis 4.b). Therefore, once again, the need for commercial websites to enhance the performance of these four dimensions (i.e., commercial website design, services provided, customer service, trust) was confirmed, starting mainly with the strengthening of the sense of trust, as this is what creates favorable conditions for users to continue browsing the e-commerce website and increase their online transactions.

4.2.5 Perceived and Expected Satisfaction Differentiation of E-Consumers

One more topic of research interest that was deemed necessary to be explored is the difference between the perceived and the expected satisfaction of the respondents, in each dimension of the proposed model, judging by their e-shopping experiences during the COVID-19 pandemic.

The four pairs that appear to have been created in the following tables, each resulted from the setting as 'variable 1' the perceived consumer satisfaction and as 'variable 2' the expected consumer satisfaction (i.e., perceived satisfaction minus the expected consumer satisfaction) from each of the four dimensions of the proposed model investigated in this study.

Hypotheses Formulation

- H0: The mean of the perceived satisfaction is equal to the mean of the expected satisfaction (i.e., \( \mu_p = \mu_e \))
- H1: The mean of the perceived satisfaction is higher than the mean of the expected satisfaction (i.e., \( \mu_p - \mu_e > 0 \))

In Table 28 it appears that the means of perceived and expected satisfaction of each pair have a very small difference between them. Additionally, in each case the mean of perceived satisfaction is slightly higher than the mean of the expected one.
### Table 28: Paired Samples Statistics

<table>
<thead>
<tr>
<th>Pair</th>
<th>Perceived satisfaction with the design-functionality of e-commerce</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expected satisfaction with the design-functionality of e-commerce</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 1</td>
<td>3,80</td>
<td>192</td>
<td>.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,73</td>
<td>192</td>
<td>.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 2</td>
<td>Perceived satisfaction with the services provided by e-commerce</td>
<td>3,69</td>
<td>192</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected satisfaction with the services provided by e-commerce</td>
<td>3,67</td>
<td>192</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>Pair 3</td>
<td>Perceived satisfaction with the e-commerce customer service</td>
<td>3,50</td>
<td>192</td>
<td>.76</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected satisfaction with the e-commerce customer service</td>
<td>3,49</td>
<td>192</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>Pair 4</td>
<td>Perceived satisfaction with the payment options and the security of e-commerce</td>
<td>3,50</td>
<td>192</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected satisfaction with the payment options and the security of e-commerce</td>
<td>3,47</td>
<td>192</td>
<td>.77</td>
<td></td>
</tr>
</tbody>
</table>

Concerning the Correlations between all pairs of variables, they have been found to be higher than 0.7 (ranging from 0.71 to 0.90) (Table 29). That means that the two
variables are proportional, and there are also strong positive correlations between them in each case. In fact, these correlations were found to be stronger in pairs involving perceived and expected consumer satisfaction with customer service (r=0.85) and trust (r=0.90) (Table 29).

Table 29: Paired Samples Correlations

<table>
<thead>
<tr>
<th>Pair</th>
<th>Description</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perceived satisfaction with the design - functionality of e-commerce &amp; Expected satisfaction with the design - functionality of e-commerce</td>
<td>192</td>
<td>0.76</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Perceived satisfaction with the services provided by e-commerce &amp; Expected satisfaction with the services provided by e-commerce</td>
<td>192</td>
<td>0.71</td>
<td>0.000</td>
</tr>
<tr>
<td>3</td>
<td>Perceived satisfaction with the e-commerce customer service &amp; Expected satisfaction with the e-commerce customer service</td>
<td>192</td>
<td>0.85</td>
<td>0.000</td>
</tr>
<tr>
<td>4</td>
<td>Perceived satisfaction with the payment options and the security of e-commerce &amp; Expected satisfaction with the payment options and the security of e-commerce</td>
<td>192</td>
<td>0.90</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 30 shows that Statistical Significance in all cases is much higher than the defined significance level=0.05 (p ranges from 0.122 to 0.870>α=0.05). So, the H1 is rejected, that the mean of the perceived satisfaction is higher than this of the expected
satisfaction and, consequently, there is not a statistical significance. However, it is not safe to claim that the H0 is accepted, that the mean of the perceived satisfaction is equal to the mean of the expected satisfaction. It is possible that the lack of statistical significance occurred due to a limited sample. Therefore, the H0 cannot be rejected and this result cannot be generalized to this population as if the research sample grows, the H1 may be confirmed.

Table 30: Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>95% Confidence Interval of the Difference</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>Lower</th>
<th>Upper</th>
<th>t</th>
<th>Df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>Perceived satisfaction with the design - functionality of e-commerce – Expected satisfaction with the design - functionality of e-commerce</td>
<td>,06</td>
<td>,56</td>
<td>,04</td>
<td>,02</td>
<td>,14</td>
<td>1,55</td>
<td>191</td>
<td>,122</td>
</tr>
<tr>
<td>Pair 2</td>
<td>Perceived satisfaction with the services provided by e-commerce – Expected satisfaction with the services provided by e-commerce</td>
<td>,02</td>
<td>,57</td>
<td>,04</td>
<td>,06</td>
<td>,10</td>
<td>,51</td>
<td>191</td>
<td>,613</td>
</tr>
<tr>
<td>Pair 3</td>
<td>Perceived satisfaction with the e-commerce customer service – Expected satisfaction with the e-commerce customer service</td>
<td>,01</td>
<td>,44</td>
<td>,03</td>
<td>,06</td>
<td>,07</td>
<td>,16</td>
<td>191</td>
<td>,870</td>
</tr>
<tr>
<td>Pair 4</td>
<td>Perceived satisfaction with the payment options and the security of e-commerce</td>
<td>,03</td>
<td>,34</td>
<td>,02</td>
<td>,02</td>
<td>,08</td>
<td>1,28</td>
<td>191</td>
<td>,202</td>
</tr>
</tbody>
</table>
4.2.6 Overall Perceived and Expected Satisfaction Differentiation of E-Consumers

Concluding the results chapter, the differentiation of the overall perceived consumer satisfaction in relation to the expected one was examined judging by the e-purchases made during the COVID-19 pandemic.

The pair that was put for evaluation and shown in the table below resulted from the setting as 'variable 1' the overall perceived consumer satisfaction and as 'variable 2' the overall expected consumer satisfaction (i.e., perceived satisfaction minus the expected consumer satisfaction).

Hypotheses Formulation

- H0: The mean of the overall perceived satisfaction is equal to the mean of the overall expected satisfaction (i.e., \( \mu_p = \mu_e \))
- H1: The mean of the overall perceived satisfaction is higher than the mean of the overall expected satisfaction (i.e., \( \mu_p - \mu_e > 0 \))

In Table 31 it appears that the mean of the overall perceived and overall expected satisfaction, have a very small difference between them. More specifically, the mean of perceived satisfaction is slightly higher than the mean of the expected one.

<table>
<thead>
<tr>
<th>Table 31: Paired Samples Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Pair 1</td>
</tr>
<tr>
<td>Overall perceived satisfaction</td>
</tr>
<tr>
<td>from e-commerce</td>
</tr>
<tr>
<td>Overall expected satisfaction</td>
</tr>
<tr>
<td>from e-commerce</td>
</tr>
</tbody>
</table>
Concerning the Correlation, it has been found that it is equal to 0.76 (Table 32). That means that the two variables are proportional, and there is also a strong positive correlation between them.

Table 32: Paired Samples Correlations

<table>
<thead>
<tr>
<th>Pair 1</th>
<th>Overall perceived satisfaction from e-commerce &amp; Overall expected satisfaction from e-commerce</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>192</td>
<td>0.76</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Regarding the Statistical Significance, it has been found that it is equal to 0.308 (Table 33), much higher than the defined significance level=0.05 (p=0.308>α=0.05). So, the H1 is rejected, that the mean of the overall perceived satisfaction is higher than the mean of the overall expected satisfaction and, consequently, there is not a statistical significance. However, it is not safe to claim that the H0 is accepted, that the mean of the perceived satisfaction is equal to the mean of the expected satisfaction. In this case, it is also possible that the lack of statistical significance is due to a limited sample. Therefore, the H0 cannot be rejected and this result cannot be generalized again in this population as if the research sample grows, H1 may be confirmed.

Table 33: Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>95% Confidence Interval of the Difference</th>
<th>Paired Differences</th>
<th>95% Confidence Interval of the Difference</th>
<th>Paired Differences</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
<td>Lower</td>
<td>Upper</td>
<td>t</td>
</tr>
<tr>
<td>Pair 1</td>
<td>Overall perceived satisfaction from e-commerce – Overall expected satisfaction from e-commerce</td>
<td>0.04</td>
<td>0.49</td>
<td>0.04</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

5. Conclusions

Exploring e-consumer satisfaction is by definition a very complex issue, as many factors can affect it and therefore shape it. Especially when the impact of a pandemic crisis is added to this study, the consideration should be even more careful. In concluding this research, it is worth presenting the conclusions that emerged from the analysis of the data collected and some observations made on them.

5.1 Findings and Discussion

As the pandemic crisis is an issue that concerns all people but also the business sector, investigating its effects is of significant research interest. The findings of the literature review seemed to be largely confirmed even during the COVID-19 pandemic.

The widespread use of the internet, which as it turned out most connections are made mainly from home or via mobile on the go, in combination with the various actions that the user can perform through it, have created extremely favorable conditions for the enhancement of digital reality. The participants in the research confirmed this fact as it was found that almost 75%, and more in some cases, of them, choose the internet for the purpose of information, communication and market research or purchase of products and services, but also to execute other procedures, such as entertainment activities, closing of tickets/accommodation, web banking, etc., but at lower rates. Another interesting finding is the fact that half of the e-consumers who completed the questionnaire stated that they choose the Skroutz.gr website to do market research or proceed with their purchases, rather than visiting separate websites. That seems logical as on this website there are many contracted online stores with all kinds of products and from all regions of Greece, which allows users to directly compare prices/method of payment/shipping charges. In that way, consumers waste less time and shape their purchasing decision more easily, as they immediately locate the information they are looking for. In terms of the products that consumers prefer to buy from online stores, clothing and footwear were in the first place, both before and during the COVID-19 pandemic, but showed an increase during the pandemic, while similarly was found to be affected the online shopping for personal care products, such as cosmetics. However, the most significant increase in online shopping during the pandemic was observed in
the online purchase of books and pharmacy products. This was to be expected as physical stores remained closed for a long time, but even for those that remained open, such as pharmacies, participants seemed to prefer to procure the desired items electronically, either for convenience or for pandemic protection or even after a price comparison among many online stores.

Continuing this diploma thesis, the research questions raised at the beginning were investigated and the following conclusions emerged. First, the relationship between the hours of daily internet use and the frequency with which online purchases were made by participants before the pandemic was confirmed. However, the relationship between the hours of daily internet use and the frequency of online shopping during the pandemic was not confirmed. As the time frame before the COVID-19 pandemic is wider, without being limited to a specific time period or influenced by any particular event, it makes sense that the more they use the internet, the more shopping needs arise and therefore lead to online purchases. During the pandemic crisis, however, surfing the internet may have become even more prevalent in the lives of consumers but this cannot be related to the increase in online shopping, as this does not necessarily mean that they wanted to make more purchases, or they had this financial capacity. Additionally, the relationship between the frequency with which consumers made online purchases before the pandemic and the frequency with which they did so during that, was confirmed. This finding proves the constant buying needs that consumers want to meet and that they are not affected by the external factor of the pandemic. Another relationship that was confirmed was that between the amount of money spent by respondents before the pandemic, between February - August 2019, and the corresponding period, February - August 2020, during the pandemic. This shows that despite the general economic impact of the pandemic crisis, e-consumers remained unchanged in the amount of money they chose to invest in e-purchases, regardless of whether the type of products they preferred to buy during the pandemic changed. The last research question confirmed the relationship between the payment method mainly chosen by electronic consumers and their perceived security for electronic transactions. It would be safe, therefore, to argue that it is more likely that people who perceive risk in electronic transactions would prefer to pay by cash on delivery when receiving their order,
while those who trust them are more likely to select to pay electronically, for example by using a debit/prepaid/credit card or web-banking.

In the next part of the study, the hypotheses set for investigation were examined. In the first stage, the four selected variables were examined in relation to how the satisfaction of e-consumers from their online shopping during the COVID-19 pandemic was affected in each of these dimensions of the proposed model. More specifically, the respondents answered each of the four categories of questions that were created to explore each of the variables, i.e., the design of the commercial websites, the services provided, the customer service, and the trust. After each one section, they answered the question of how satisfied they felt but focusing only on the respective variable and not on their overall satisfaction. In all four cases, the correlations between the variables examined each time were confirmed, and consequently, the literature findings that considered these variables to be crucial to the satisfaction of e-consumers were confirmed, too. The same hypotheses were then investigated but this time relating each of the four variables to the overall perceived consumer satisfaction from the online purchases they made during the pandemic crisis. In that case, too, all the correlations between each variable studied and the overall perceived satisfaction of the respondents were confirmed, as was also expected from the literature review. The general conclusion that emerged from the study of the above hypotheses is that all four variables proved to affect consumer satisfaction, however in both categories of hypotheses examined, the factor of trust was found to be the most important in terms of greater intensity between itself and the satisfaction variables. Every commercial website, therefore, must pay attention to these variables to ensure its successful and competitive operation.

At the end of the results chapter of this study, an investigation was made between the perceived and expected satisfaction of electronic consumers, from their purchases through commercial websites during the COVID-19 pandemic period. Initially, that differentiation was examined between the perceived and expected satisfaction of the participants from each dimension of the studied model separately. Next, the differentiation between overall perceived and expected satisfaction was considered. In any case, the mean of the perceived satisfaction was found to be higher than that of the expected one. Also, all the correlations, either between the pairs that considered the
differentiation of satisfaction for each dimension or the pair that examined the differentia-
tion in the context of the overall satisfaction of e-consumers, were found to be strong positive ones. Nevertheless, there was an inability to confirm the statistical sig-
nificance for all cases, and therefore the fact that the mean of the perceived consumer satisfaction is higher than that of the expected satisfaction was not accepted. One pos-
sible explanation for that is that the research sample is limited and, if enlarged, the re-
sult may change. However, the existing result cannot be generalized at this time in that research population.

Summarizing the findings of the present study, it is worth mentioning once again the necessity that now exists to reinforce the four variables that were evaluated. The simple and functional design of commercial websites, the provision of easy and innovative service tools, the immediate and proper customer service, and especially the creation of a climate of trust in transactions and personal information, are decisive factors for online satisfaction. Based on the Expectancy Confirmation Theory, every commercial website needs to emphasize these parameters to maintain the perceived satisfaction of its customers to a higher degree than that of the expected satisfaction. In that way, it will be able to establish and maintain long-term trust relationships and therefore survive in the competitive environment that has been created in the e-commerce sector.

5.2 Research Limitations
Regarding the research part of the present study, one limitation was identified in the fact that only residents of Greece participated in the survey and the sample was based on convenience sampling. Nevertheless, the results for Greece were accurate and con-
firmed what was expected based on the findings of the literature review, concerning the correlation of the four dimensions of the proposed model and the perceived satisfaction of e-consumers by commercial websites during the COVID-19 pandemic. Also, the ina-
bility to prove statistical significance between perceived and expected satisfaction of e-
consumers is likely to have emerged from the limited research sample. Additionally, alt-
ough the questions in each subsection of the questionnaire were targeted, the exist-
ence of even more could lead to a greater depth of the issue under consideration. How-
ever, further extension of an already enlarged questionnaire is likely to tire and detune participants and thus spoil the accuracy of the data collected and consequently degrade
the quality of the results. Another key limitation of this research was that there was no corresponding case study on a pandemic to compare the results and draw conclusions. More specifically, as humanity did not experience any other pandemic in the 21st century, at a time when e-commerce was becoming more active, it was impossible to investigate whether another pandemic crisis had affected e-consumer behavior and satisfaction in the past.

5.3 Future Work
A proposal for a future study for further development of the proposed model, which formulated by the four dimensions (i.e., design of e-commerce websites, customer service, services provided, and trust), is the addition of extra variables that could affect the satisfaction and the general psychology of e-consumers and shape their purchasing decisions. For example, the reputation of a well-known online store brand when consumers want to shop from commercial websites could be considered, either before or during the COVID-19 pandemic. It would be interesting to investigate whether people tend to choose during a pandemic the same online stores they prefer in the normal periods of their lives, or whether having more free time combined with the increased use of the internet leads them to search more and therefore select a different company to make their purchases.

It would also be interesting to use the model studied in this dissertation to study the same subject after the end of the COVID-19 pandemic and then to compare the results that will be obtained with those found in the present research. The severe pandemic period humanity is currently experiencing is almost certain to be a point of reference for the e-commerce industry, as it has inevitably entered the lives of consumers. The comparison, therefore, between the pandemic and the post-pandemic period is expected to reveal extremely important findings for all e-businesses and consequently for the whole e-commerce sector.
6. Bibliography


Demographic-Sharma-Kurien/95fbd1f9d1ca6a07627ec8426ef1c60b4ce4c37e (Accessed: 26 December 2020).


Appendix

Below is the questionnaire that was distributed to collect the necessary data for the needs of this research.

This questionnaire is part of the academic research in the framework of the dissertation of the MSc program in “e-Business & Digital Marketing” at the International Hellenic University. The subject of this research is the "Study of consumer satisfaction over electronic commerce during the COVID-19 pandemic".

The only condition for completing the questionnaire is that you are a resident of Greece and an internet user. All information is collected anonymously and confidentially and will be used solely to extract reliable research results. The time required to complete the questionnaire is 8-10 minutes.

For any questions, please contact me at k.dimitriadou@ihu.edu.gr.

Thank you very much for your participation!

Sincerely, Kyriaki Dimitriadou
MSc in e-Business & Digital Marketing, International Hellenic University

A. Internet Use
1. How many hours do you use the internet per day? (approximately)
   <1 hour/day
   1-3 hours/day
   3-5 hours/day
   5-7 hours/day
   7-9 hours/day
   > 9 hours/day

2. Where do you connect to the internet from? (you can note more than one answer)
   From your home
   From your workplace
   From school/university
   From internet café
   From your mobile (on the go during the day)
   Other... (fill in your answer)

3. For which of the following reasons do you use the internet? (you can note more than one answer)
   Information (e.g., news, weather, etc.)
   Communication via email
Communication through chat applications (e.g., Skype, Messenger, Viber, Instagram, etc.)
Booking tickets for public transport
Booking accommodation for holidays/business trips
Scientific/Educational reasons (articles, course materials, etc.)
"Downloading" music and movies
Entertainment, Online music, Games
Bourse
Web-banking
Market and information research for services and products
Purchase of services and/or products
Other... (fill in your answer)

B. Internet and Purchases
4. How often did you buy products from online stores before COVID-19 pandemic?
   1-2 times a week
   more than 2 times a week
   1-2 times a month
   more rarely
   I did not buy at all

5. How often do you buy products from online stores during the COVID-19 pandemic?
   1-2 times a week
   more than 2 times a week
   1-2 times a month
   more rarely
   I do not buy at all

6. Which website do you usually use for your internet purchases (define the name of the e-shop)?
   ...

7. What kind of products did you usually prefer for online shopping before the pandemic? (you can note more than one answer)
   Computers/Hardware
   Software packages
   DVD Movies/Music
   Cameras
   Books
   Design/Office supplies
   Consumables
   Electronic games
   Fixed & Mobile telephony
   Electronic devices
   Clothing/Footwear
   Care items (cosmetics, etc.)
8. What kind of products do you usually prefer for online shopping during the pandemic? (you can note more than one answer)
Computers/Hardware
Software packages
DVD Movies/Music
Cameras
Books
Design/Office supplies
Consumables
Electronic games
Fixed & Mobile telephony
Electronic devices
Clothing/Footwear
Care items (cosmetics, etc.)
Pharmacy items
Other... (fill in your answer)

9. Approximately how much did you spend on e-shopping during the previous year (February 2019 - August 2019)?
<100 €
100-400 €
400-700 €
700-1000 €
>1000 €

10. Approximately how much did you spend on e-shopping during the current year (February 2020 - August 2020)?
<100 €
100-400 €
400-700 €
700-1000 €
>1000 €

11. Which payment method do you most often choose for your online transactions?
Pay on delivery
Credit card
Deposit to account
Bank transfer (web-banking)
Debit/Prepaid card
Other... (fill in your answer)

12. How secure do you think your internet transactions are?
They are very safe
They are safe
Neither safe nor unsafe
They are unsafe
They are not safe at all

C. Commercial Website Design and Consumer Satisfaction

13. How satisfied are you with:

<table>
<thead>
<tr>
<th></th>
<th>Very Dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither Dissatisfied nor Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
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<tbody>
<tr>
<td>the aesthetic improvement of e-commerce websites during the COVID-19 pandemic</td>
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<td>the structure of the information provided by the various e-commerce websites during the COVID-19 pandemic</td>
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<td>the frequency of updating information on e-commerce websites during the COVID-19 pandemic</td>
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</table>

14. Considering the previous answers, how satisfied are you with the design - functionality of e-commerce in relation to...

<table>
<thead>
<tr>
<th></th>
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<th>Dissatisfied</th>
<th>Neither Dissatisfied nor Satisfied</th>
<th>Satisfied</th>
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<tr>
<td>...the experience you had during the COVID-19 pandemic</td>
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<td>...the experience you expected to have during the COVID-19 pandemic</td>
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D. Services provided and Consumer Satisfaction

15. How satisfied are you with:
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<td>how to create an account on e-commerce websites during the COVID-19 pandemic</td>
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<td>the transaction time on e-commerce websites during the COVID-19 pandemic</td>
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<td>the invoicing/receipt process on e-commerce websites during the COVID-19 pandemic</td>
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</table>
the process of receiving products from e-commerce websites during the COVID-19 pandemic

16. Considering your previous answers, how satisfied are you with the services provided by e-commerce in relation to...

<table>
<thead>
<tr>
<th></th>
<th>Very Dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither Dissatisfied nor Satisfied</th>
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<td>...the experience you expected to have during the COVID-19 pandemic</td>
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E. Customer Service and Consumer Satisfaction

17. How satisfied are you with:

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<tr>
<th></th>
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<th>Dissatisfied</th>
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<td>the existence of online customer service, with the aim of sending instant messages and resolving your questions during the COVID-19 pandemic</td>
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18. Considering your previous answers, how satisfied are you with the e-commerce customer service in relation to...

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F. Trust and Consumer Satisfaction

19. How satisfied are you with:

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<th></th>
<th>Very Dissatisfied</th>
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<td>the way detailed payment and security terms are displayed on e-commerce websites during the COVID-19 pandemic</td>
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20. Considering your previous answers, how satisfied are you with the payment options and the security of e-commerce in relation to...

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during the COVID-19 pandemic

G. Overall consumer satisfaction
21. Considering the general sense of your e-commerce experience and the answers you have given so far, how satisfied you are with your overall experience in relation to...

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<th></th>
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Demographics
22. Gender
Male
Female

23. Age
<18
18-24
25-31
32-38
39-45
46-52
>52

24. Educational level
Elementary school
High school
Lyceum
Higher education student
Technical education
Bachelor’s degree
Master’s degree
PhD

25. Professional status
Freelancer
Businessman/woman
Private employee
Civil servant
Retired
Unemployed
Student