



Understanding the Impact of Personalized
Recommendations on Customer Satisfaction,
Likelihood to Recommend and Repurchase
Intentions

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Dissertation written under the supervision of Daniela Langaro

Dissertation submitted in partial fulfilment of requirements for the
International MSc in Management with a major in Marketing, at the
Universidade Católica Portuguesa, January 2021.

Abstract

The present dissertation aims to study the impact of personalized recommendations components' and customers perceptions towards it on customer satisfaction with recommendations. These include explanation of the suggested items, fit with the customer, and privacy concerns, and trust in the retailer issuing the recommendation, respectively. Then, the influence of satisfaction with recommendations on customer satisfaction with product choice is analysed. Additionally, the effect of these two constructs on the likelihood to recommend the retailer and repurchase intentions is studied. This thesis employed an online survey to conduct the mentioned analysis. The questionnaire asked respondents to recall the last time they received a personalized recommendation and purchased the suggested product. Results show that explanation, fit, and trust positively influence satisfaction with recommendations, whereas privacy concerns negatively impact the latter. Satisfaction with recommendations proved to positively influence customer satisfaction with the product choice, consequently leading to a higher likelihood to recommend the retailer and later generating increased repurchase intentions. An additional analysis focused on the difference in behaviour between the models of low and high involvement products. In general, the latter had a higher explanatory power than the former. Concluding, the findings reveal the importance of the personalized recommendations' attributes on satisfaction with these suggestions, affecting customer satisfaction, and customer loyalty, relevant measures of customer feedback for firms. Thus, retailers should provide users with personalized options on their digital platforms to boost their relationship with customers. The stated options should focus on satisfying users regarding the recommendations' components and customer perceptions.

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Keywords: Artificial Intelligence, Big Data, Machine Learning, Personalized Recommendations, Customer Satisfaction, Likelihood to Recommend, Repurchase Intentions

Resumo

A presente dissertação pretende estudar o impacto dos componentes das recomendações personalizadas e as suas perceções no consumidor na satisfação do cliente com estas recomendações. Estes incluem explicação dos itens sugeridos, adequação ao consumidor, preocupações com a privacidade e confiança no retalhista. Analisa-se também a influência da satisfação com as recomendações na satisfação com o produto escolhido. Adicionalmente, estuda-se o efeito destas duas variáveis na probabilidade de recomendar o retalhista e intenções de recompra. Esta tese aplica um questionário *online*, que pede aos participantes que se recordem da última vez que receberam uma recomendação personalizada e compraram o produto sugerido. Os resultados mostram que a explicação, adequação, e confiança influenciam positivamente a satisfação com as recomendações, enquanto que preocupações com a privacidade a impactam negativamente. Esta influencia positivamente a satisfação do consumidor com o produto escolhido, aumentando a probabilidade de recomendação do retalhista e, posteriormente, as intenções de recompra. Uma análise adicional focou-se na diferença de comportamento entre o modelo de produtos de baixo e o de produtos de elevado envolvimento. No geral, o último registou um poder explicativo superior ao primeiro. Em conclusão, o estudo revela a importância dos componentes das recomendações personalizadas na satisfação com as mesmas, afetando a satisfação e lealdade do consumidor, medidas de *feedback* relevantes para as empresas. Assim, os retalhistas devem oferecer opções personalizadas aos consumidores nas suas plataformas digitais para fortalecer a sua relação com os mesmos. Estas opções deveriam focar-se em satisfazê-los relativamente aos componentes das recomendações e às perceções do usuário.

Título: Compreensão do Impacto das Recomendações Personalizadas na Satisfação do Consumidor, Probabilidade de Recomendação e Intenções de Recompra

Autor: Joana Rodrigues

Palavras-Chave: Inteligência Artificial, *Big Data*, *Machine Learning*, Recomendações Personalizadas, Satisfação do Consumidor, Probabilidade de Recomendação, Intenções de Recompra

Acknowledgements

First and foremost, I would like to thank my thesis advisor, Daniela Langaro, for all the dedication employed throughout the entire process exhibited in the constant provision of thorough feedback. The latter allowed me to enhance my work, challenge myself, and achieve a better result in the end.

Additionally, I desire to express my tremendous gratitude to Vodafone Portugal, where I had the opportunity to participate in an internship during this process, and while I undertook two courses. More specifically, I appreciate the encouragement of my mentor, Maria Madalena Mendes, who was always very supportive and gave me the flexibility to fully dedicate myself to my studies, which were considered a priority.

I would also like to thank my friends and family, especially my parents and brothers, who always supported my studies and stood by me during difficult times where everything seemed impossible. Their belief in my effort allowed me to never give up in the face of tough challenges.

Furthermore, I am thankful to my thesis colleagues, especially Mariana Carvalho, Mariana Cruz, Marília Santos, Inês Pereira and Carolina Barbosa, who provided me a much-needed help and without which this process would not have been the same.

A very special thank you to all of you who believed in me.

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1. Introduction

1.1. Problem Definition and Relevance

The world is increasingly facing numerous critical technological advancements that are strongly impacting diverse dimensions of human lives (Rai, 2020). Thus, the different fields need to react to these advancements by incorporating the arising technologies in their daily activities to improve their performance (Huang & Rust, 2017). A technological innovation revolutionizing numerous fields, including education, business, engineering (Ma & Sun, 2020), health, leisure, and law, is Artificial Intelligence (Rai, 2020).

Artificial Intelligence is composed of automated systems functioning in a human-like manner through machine learning algorithms responsible for analysing big data (Ma & Sun, 2020). Big data comprises high-speed, large-volume data, that can lead to valuable insights by leveraging both structured and unstructured data (Balducci & Marinova, 2018; De Luca et al., 2020). In the company sphere, Artificial Intelligence is increasingly being applied to enhance marketing strategies, subsequently leading to the establishment of personalized relationships between customers and the company. The enhancement of these relationships becomes attainable to firms considering big data technologies analyse customer data, consequently inferring valuable non-obvious customer insights (Huang & Rust, 2017).

Additionally, a marketing practice benefiting from the understanding of the inferred customer insights is the provision of recommendations. Firms are increasingly providing personalized recommendations to customers offering suggestions for the right products to them according to their needs and interests (Ma & Sun, 2020). The stated recommendations, generated by automated recommender systems employing machine learning algorithms (Gai & Klesse, 2019), are then used by companies to satisfy customers' needs. Indeed, the latter are becoming progressively more present in the digital platforms of companies (Köcher et al., 2019).

The relevance of personalized product recommendations arises when an analysis is conducted on the customer responses they might generate. Personalized recommendations facilitate customers' product choices since recommendations suggest items intended to match customers' needs and interests. In this way, customers achieve higher quality decisions (Diehl et al., 2003; Häubl & Trifts, 2000; Tsekouras et al., 2020; Xiao & Benbasat, 2007), thus leading to enhanced customer satisfaction and loyalty (Liang et al., 2006; Tsekouras et al., 2020), valuable customer responses to firms. Therefore, the present dissertation aims to understand the impact of personalized product recommendations on customer satisfaction and loyalty.

Moreover, personalized recommendations become relevant since various authors mention the significance of studying the impact of their various attributes and customer perceptions on customer satisfaction (Dellaert & Häubl, 2012). This study conducts the stated analysis, examining the influence of privacy concerns, explanations, fit, and trust of these personalized suggestions on customer satisfaction.

Furthermore, previous research has debated the value of understanding customers' perceptions regarding customer satisfaction and customer loyalty, considering these may differ from what firms believe (Hult et al., 2017). Therefore, asserting the relevance of studying customer satisfaction and customer loyalty.

Although several studies analyse the impact of specific attributes of personalized product recommendations on customer satisfaction (Tsekouras et al., 2020), there is a gap in research. Indeed, the bridge of satisfaction with recommendations, between the components of personalized recommendations and customer satisfaction with the product choice, is lacking. The present dissertation further analyses the connection between the two dimensions.

Additionally, several articles have conducted a profound analysis of the customer satisfaction-customer loyalty link (Chandrashekar et al., 2007; Chiou & Droge, 2006; Morgan & Rego, 2006). However, the connection between the attributes and customer perceptions of personalized recommendations and the latter link is missing. The present dissertation examines the influence of the components of personalized suggestions on both customer satisfaction and customer loyalty.

1.2. Objective and Research Questions

The following research questions aim to study the connections between the stated dimensions. The first research question seeks to understand the impact of privacy concerns, explanations, fit, and trust of personalized product recommendations on satisfaction with recommendations.

RQ1: To what extent do privacy concerns, explanations regarding the recommendations, fit of products recommended with the customer, and trust in the organization providing the personalized product recommendations influence consumers' satisfaction with the latter?

The next three research questions aim to study the mentioned impact of satisfaction with personalized product recommendations (Tsekouras et al., 2020) on the variables of customer satisfaction and customer loyalty (Chandrashekar et al., 2007; Chiou & Droge, 2006; Morgan & Rego, 2006). Thus, aiming to pose on the relation between personalized product

recommendations and satisfaction with recommendations boosting customer satisfaction and customer loyalty (Tsekouras et al., 2020).

The second research question intends to explore the relationship between satisfaction with the recommendation provided and customer satisfaction with the product choice (*American Customer Satisfaction Index*, 2008; Hult et al., 2017).

RQ 2: How does satisfaction with personalized product recommendations influence customer satisfaction with the product choice?

The third research question proposes to analyse the influence of satisfaction with personalized product recommendations on customer loyalty, more specifically behavioural loyalty. Thus, analysing the impact on its two main components, repurchase intentions and likelihood to recommend (Jin & Su, 2009).

RQ 3: How does satisfaction with personalized product recommendations influence customer loyalty?

Additionally, the fourth research question focuses on how customer satisfaction with the product choice after receiving personalized product recommendations influences customer loyalty (Chandrashekar et al., 2007; Chiou & Droge, 2006; Morgan & Rego, 2006), composed of repurchase intentions and likelihood to recommend (Morgan & Rego, 2006).

RQ 4: What is the impact of customer satisfaction on customer loyalty?

1.3. Structure

The present dissertation is composed of the following structure. Firstly, the initial chapter dedicates to the introduction of the study. This chapter includes the problem definition and relevance, the objective and research questions, and the structure of the dissertation. The second chapter conducts a profound examination of previous literature, having as main topics technological trends, personalized product recommendations, its attributes and customer perceptions, satisfaction with these suggestions, and measures of customer feedback. The third chapter is devoted to the hypotheses and conceptual framework. Then, the fourth chapter is about methodology, including the research approach and design, and the method employed. The fifth chapter undertakes an analysis of results, involving the sample characterization, construct validity and reliability, hypothesis testing, and further analysis. The sixth brings conclusions to light, as well as theoretical and managerial implications, limitations, and suggestions for future research.

2. Literature Review

2.1. Technological trends

More and more technological trends (Davenport et al., 2020) are revolutionizing the way companies view marketing (Rust, 2020). Among these, Artificial Intelligence, big data (Rust, 2020), and machine learning constitute vital trends. Therefore, companies should invest in digitalizing and adapting to these new realities to deliver an improved service to their customers (Grewal et al., 2020).

2.1.1. Artificial Intelligence

2.1.1.1. Definition

Artificial Intelligence is related to intelligent machines, and algorithms that allow companies to analyse big data. These are special because they apply human intelligence (Ma & Sun, 2020) and have skills and characteristics that were previously unique to humans (Rust, 2020). Additionally, these machines work as automated systems responsible for reaching fast and sustained decisions based on machine learning algorithms. Moreover, the stated technologies are applied to deliver tasks that traditional quantitative methods lack capabilities for (Ma & Sun, 2020).

2.1.1.2. Benefits for business

Artificial Intelligence increasingly and positively influences the way to conduct activities in firms, more specifically, their marketing efforts and business models but also customer behaviours. Artificial Intelligence allows business models to become more automated while needing almost no intervention from humans. It can also provide customer insights to firms based on big data and allow companies to improve customer engagement both before and after a purchase (Davenport et al., 2020).

2.1.1.3. Applications

Moreover, Artificial Intelligence has impacted many different spheres, including science with more technical fields such as engineering, as well as fields studying both animal and human lives such as biology (Ma & Sun, 2020), healthcare, and hospitality. It also has applications in construction, education, law, as well as the news and entertainment industry. Also, the most relevant application to this study is business including the areas of finance (Ma & Sun, 2020), logistics, manufacturing (Rai, 2020), and marketing (Ma & Sun, 2020).

2.1.1.4. Applications in Marketing

Furthermore, developments of Artificial Intelligence in marketing are arising with the increasing customer demand for more personalized interactions with the companies. These have increasingly invested in machine learning algorithms, which deliver accurate predictions through the analysis of big data. Thus, contributing to better marketing decisions and consequently increased performance of companies (Ma & Sun, 2020).

The mentioned technologies result in marketing applications that affect marketing mix decisions of companies ranging from pricing decisions to personalization of ads. Customer engagement is also impacted through technologies enabling personalized assistance, augmented reality, virtual fitting rooms, virtual influencers, virtual assistants, and chatbots that can respond to customers and answer to questions they might have (Ma & Sun, 2020).

Moreover, recommendation also utilizes Artificial Intelligence through recommender systems that provide personalized product recommendations to customers (Ma & Sun, 2020). To keep updating customer insights firms leverage big data to contribute to quality of the personalized recommendations provided by artificial intelligence (Grewal et al., 2020).

2.1.2. Big Data

2.1.2.1. Definition

Big data is data that comes in a large volume, varied in form and sources, and performs at a high speed. Big data processes involve the acquisition and recording; extraction, cleaning and annotation; integration, aggregation and representation of data (De Luca et al., 2020; Gandomi & Haider, 2015). Subsequently, through the latter processes big data acquires value through the provision of precious customer insights that a company can use to improve the customer buying experience and, consequently, its profits (De Luca et al., 2020). Fulfilling these tasks requires big data analytics to make use of technologies such as machine learning to analyse massive and varied volumes of data discovering valuable customer preferences enabling companies to make informed decisions about its customers (Huang & Rust, 2017).

2.1.2.2. 5 V's of Big Data

Big data is characterized by its 3V's, which are Volume, Variety, and Velocity (Bradlow et al., 2017). Some authors even consider big data to be composed of 5V's, which add Veracity, and Value (Dekimpe, 2020) to the 3V's. Volume is about the enormous quantities of data analysed (Bradlow et al., 2017), that can go from terabytes to exabytes (Dekimpe, 2020). Variety is about the many forms data can assume, considering data can be both structured and unstructured

(Dekimpe, 2020). Structured data is data that is collected, interpreted, and utilized according to previously predefined structures and techniques (De Luca et al., 2020). Unstructured data arrives in different forms, including text, multimedia (Dekimpe, 2020), images, and audio-visual records (Bradlow et al., 2017). Velocity is related to the fast movement of data that takes between milliseconds and seconds to respond (Dekimpe, 2020) and become updated (Bradlow et al., 2017). Then, the two additional V's are Veracity and Value. Veracity is a characteristic related to the uncertainty associated with data. Lastly, The Value characteristic is about the value big data can bring when accurately analysed, which can create monetary value (Dekimpe, 2020).

2.1.2.3. Sources

Furthermore, big data available to retailers can come from diverse sources. The sources include traditional systems of retailers that provide data of sales and inventory, as well as data from the customer englobing loyalty cards. Data also comes from customer's presence on the internet comprising the retailer's website, from mobile and app usage generating customers' social and profiling data, and data related from habit patterns and the customers' subconscious. Additionally, it also arises from the retailer's store, the environment, and the location of the store (Bradlow et al., 2017).

2.1.2.4. Benefits vs. challenges for business

Moreover, big data can provide many benefits to companies. Being able to analyse big data is of high value for businesses considering they can infer customer insights and personalize offerings to customers accordingly (Huang & Rust, 2017). Nevertheless, although big data can potentially provide benefits to retailers (Dekimpe, 2020), as well as increased levels of performance, sometimes these are difficult to achieve (De Luca et al., 2020). A possible reason is that companies do not invest, or when they attain a sufficient investment level, customer insights are difficult to retrieve from the available data (Dekimpe, 2020). In this way, investments in big data do not always translate into the superior performance of the company (De Luca et al., 2020).

2.1.3. Machine Learning

2.1.3.1. Definition

Machine learning composes the algorithms behind Artificial Intelligence that allow it to operate and generate valuable customer insights (Ma & Sun, 2020). Machine learning algorithms enable Artificial Intelligence to make decisions (Rai, 2020).

2.1.3.2. Methods

There are two main types of machine learning methods. Firstly, machine learning algorithms associated with interpretable models that provide transparency and clarity to understand the decisions made by Artificial Intelligence. These are Bayesian classifiers, decision trees, sparse linear models, and additive models. Additionally, there are other types of models, deep learning algorithms, that have a higher prediction accuracy due to lower transparency and interpretability in understanding how the mentioned innovation reaches decisions (Rai, 2020). This method is one of the most applied machine learning methods in marketing, mostly used to analyse data in the form of text and image (Ma & Sun, 2020). These constitute a few of the most used methods in machine learning.

2.1.3.3. Strengths

Machine learning has some worth enhancing strengths that contribute to the accuracy and effectiveness of its predictions. These strengths include the capability to analyse both structured and unstructured data, data coming from different sources, formats and in complex structures, and high volumes of data. Additionally, machine learning is characterized by its flexibility when analysing data possible to attain through the composition of its model (Ma & Sun, 2020).

2.1.3.4. Limitations

On the one hand, machine learning leads to benefits, as previously mentioned. On the other hand, machine learning has several limitations that cannot be understated. Among these limitations is the difficulty of interpretation originated in the lack of model transparency and complexity. Thus, harming the understanding of the connection between variables. Another constraint is the type of correlation it leads to, which is often correlational instead of causal. Additionally, this technology has yet to prove its ability to analyse heterogeneity and shifting trends at the individual level (Ma & Sun, 2020).

2.2. Personalized Product Recommendations

After conducting a profound analysis of the technologies employed by companies to infer customer insights from data to provide personalized product recommendations, this section describes them in more detail.

2.2.1. Personalization

Personalization is a customer-centred marketing strategy that companies apply in their business practices. It allows firms to provide the right information to the right customer in the best possible moment in time (Aguirre et al., 2015; Tam & Ho, 2006). Personalization is

characterized by the process of analysing customer data to personalize the offering provided by the company according to their preferences (Chung et al., 2009, 2016; Heim & Shina, 2005; Huang & Rust, 2017; Murthi & Sarkar, 2003; Wedel & Kannan, 2016).

2.2.2. Personalized Recommendations

Therefore, recommendations apply personalization to predict individuals' interests and needs by suggesting customers to engage in certain attractive actions (Rai, 2020). Personalized recommendations are relevant to businesses because they allow companies to offer the right products and services to customers since these are tailored to their needs and interests (Ma & Sun, 2020).

2.2.3. Recommender systems

Indeed, the aforementioned suggestions are generated by automated systems functioning through algorithms that work with data to satisfy customers' needs (Gai & Klesse, 2019), as well as to help them reach purchase decisions easily by identifying their tastes and matching them with appropriate recommendations (Köcher et al., 2019). Moreover, recommender systems analyse previous purchase behaviour of customers attempting to uncover what the customer would want to buy (Bodapati, 2008).

Thus, recommender systems aim to provide recommendations of the best adequate item to a specific user based on information gathered about the products or services, customers, and the interface between them. Consequently, leading to recommendations of movies, songs, books, touristic locations, among many others. These have applications in eight principal spheres. These include generating electronic recommendations for governments, businesses (including B2C and B2B), online shopping, digital libraries, educational institutions, tourism, content referring to tags, television programs, webpages, documents, videos, and movies, as well as group activities receiving group suggestions, respectively (Lu et al., 2015).

2.2.4. Techniques

The most used techniques by recommender systems are collaborative-filtering, content-based, knowledge-based, and hybrid methods, composing the traditional methods. Additionally, there are other recently developed techniques. Each one of these techniques having its advantages, as well as its limitations, that should be considered when deciding which one to employ in the recommender system (Lu et al., 2015).

Concerning traditional recommendation techniques, content-based recommendations offer suggestions that resemble items formerly chosen by the user. Collaborative filtering-based

methods are related to recommending items to a user founded on other users with similar interests. Knowledge-based methods suggest items based on established knowledge acquired about users, products, or services, and the existing relationship between them. Hybrid methods combine the more accurate characteristics of two or more recommendation techniques, creating the mentioned hybrid technique (Lu et al., 2015).

Regarding the most recent recommendation techniques, computational intelligence methods are relevant to mention. These include fuzzy set-based offers which are a well-composed range of methodologies to handle non-stochastic uncertainty. Social network-based is about enhancing user experience by leading users to participate in social interfaces with other users. Context awareness-based technique works by integrating contextual information in the creation of recommendations to make them timely. Group recommendation methods are dedicated to the development of suggestions for groups trying to fit the general interests of its members (Lu et al., 2015).

2.2.5. Use cases

Furthermore, diverse companies from different industries provide recommendations to customers employing recommender systems. Some of the most-mentioned are Netflix, Amazon, and The New York Times (Gai & Klesse, 2019).

For instance, Netflix provides personalized recommendations of movies to its users (Gai & Klesse, 2019). To attain them the firm collects and interprets big data about customers' streaming habits, understands their preferences, and generates personalized suggestions (Huang & Rust, 2017). Amazon also recommends products that customers might be interested in (Gai & Klesse, 2019) using its predictive capabilities from analytics that allow the company to sustain the high quality of its recommender system (Grewal et al., 2020). The recommendations provided by Amazon are item-based, which means the systems support its analysis on customer's previous actions, as well as other users' experience (Huang & Rust, 2017). The New York Times provides recommendations of new articles that fit each user (Gai & Klesse, 2019).

2.3. Customer Perceptions and Attributes of Personalized Product Recommendations

Personalized product recommendations propose to reduce information overload by providing the most relevant suggestions to users according to their interests, thus simplifying their unique search process (Lu et al., 2015). In this way, customers are better capable of choosing a satisfactory product or service among the potential options. Consequently, leading to customer

satisfaction with the product choice, as well as increased customer loyalty, more specifically, higher purchase intentions (Weng & Liu, 2004).

Moreover, personalized recommendations are composed of attributes and customer perceptions that impact customer satisfaction and customer loyalty. Indeed, privacy concerns of consumers and trust in the organization are customer perceptions towards recommendations. Additionally, explanations provided to users and fit of the suggestions with the user compose the recommendations' attributes contributing to the mentioned outcomes.

2.3.1. Privacy concerns

2.3.1.1. Definition

Preserving privacy is related to having an appropriate flow of personal information. Additionally, privacy is a concept related to the application of integrity-based practices in different contexts. The meaning of the stated term fits in between secrecy and control of one's data (Bleier et al., 2020).

Having issues regarding this topic leads customers to have privacy concerns, which are increasingly emerging due to the growing technological development that allows companies to collect and analyse data from customers in a less costly way (Bleier et al., 2020; Goldfarb & Tucker, 2019). These privacy concerns arise from the need to collect and analyse personal data of customers to provide personalized recommendations (Rai, 2020). Moreover, privacy concerns surge from firms using the data collected to applications other than the initially proposed (Aguirre et al., 2015; Bleier & Eisenbeiss, 2015; Rapp et al., 2009).

2.3.1.2. Benefits vs. challenges to firms

On the one hand, firms can personalize recommendations with more quality that better target customers' preferences because they have access to new types of data. On the other hand, this increasing trend also leads to more privacy concerns (Bleier et al., 2020) and puts users in a vulnerable situation when a privacy intrusion occurs. Thus, leading to a loss of control of customers regarding their personal data (Bleier & Eisenbeiss, 2015).

Furthermore, the personalization-privacy paradox (Grewal et al., 2020) arises considering customers compare the benefits they gain from personalized recommendations (Hult et al., 2017) with the personal data they must share with companies to attain suggestions that fit their unique needs, which creates privacy concerns (Rust, 2020).

In this way, privacy concerns negatively affect satisfaction with personalized product recommendations since users value not having these concerns. Therefore, these can potentially harm the positive outcomes of personalization, thus reducing customer satisfaction and loyalty (Aguirre et al., 2015).

2.3.2. Explanation of recommendations

2.3.2.1. Definition

The explanation of recommendations is related to a justification presented to customers that allows them to understand the reasoning behind recommendations offered. Explaining product recommendations is valued by consumers considering they are more convinced when they are mindful of their creation process (Aguirre et al., 2015). Indeed, personalization is less effective when explanations about the use of customers' personal data are not provided (Grewal et al., 2020). Moreover, it is expected that people trust personalized recommendations, thus explaining where they come from is essential (Gai & Klesse, 2019).

2.3.2.2. Benefits vs. challenges to firms

On the one hand, providing explanations is valuable to customers considering it will increase the trust they deploy in the recommendation system, lead to more perceived usefulness of recommendations, and will have an impact on customers' actions. On the other hand, highly complex explanations may also negatively influence customers' actions since these may decrease customers' attention and lead to information overload and frustration. In this way, a simple justification is sufficient to lead to the benefits of providing explanations to the customer without tiring them (Marchand & Marx, 2020).

It is also relevant to consider that providing this reasoning depends on the algorithms supporting the recommender systems. These can offer detailed and appropriate explanations to customers regarding recommendations' origin, increasing users' trust in companies. Subsequently, enhancing customer satisfaction with the recommendations (Köcher et al., 2019).

2.3.3. Fit of recommendations with the customer

2.3.3.1. Definition

The fit of the recommendation with the customer is another important attribute related to the alignment of recommendations with customers' needs and interests. It is proven that provisions aligned with customer preferences (Tsekouras et al., 2020) and product attractiveness lead to different levels of consumer response (Bleier & Eisenbeiss, 2015). Moreover, personalization depth is the closeness in which suggestions reveal customers' interests and preferences. When

the personalization has a higher depth, the information being provided to customers has a better fit with their needs and desires and is therefore more useful to them (Marchand & Marx, 2020).

2.3.3.2. Benefits vs. challenges to firms

Consumers prefer to only receive personalized product recommendations when these have a fit with their needs and interests, providing recommended options to choose from facilitating the choice, but still providing some autonomy. Providing different recommendations according to user preferences also increases the accuracy of the recommender system (Bleier & Eisenbeiss, 2015).

When personalized product recommendations are relevant to customers, they decrease the complexity of the product choice and result in a higher confidence with the product choice and higher customer satisfaction with it (Bleier et al., 2020).

2.3.4. Trust in the retailer

2.3.4.1. Definition

Trust is the foundation of every relationship and it is about the confidence one has on the other party (Bleier & Eisenbeiss, 2015), which also applies to the relationship formed between firms providing recommendations and customers. Trust can be defined as the inclination to count on the other party due to existence of confidence in that party (Chiou & Droge, 2006; J. B. Smith, 1997). Trust is also based on previous experiences that customers might have had with the brand. It is also related with the dimensions of honesty/ integrity, reliability/ dependability, responsibility, competence, judgment and motives/ intentions (Chiou & Droge, 2006; J. B. Smith, 1997).

2.3.4.2. Benefits vs. challenges to firms

On the one hand, when the organization providing the recommendations is not trustworthy this leads to increased vulnerability therefore lower trust, generating a negative response in the customer leading to lower click-through intentions. On the other hand, when firms inform their customers about the usage of their personal data customers trust more in the organization conducting to fewer negative reactions of customers regarding data collection (Bleier & Eisenbeiss, 2015). When customers trust the organization providing the personalized recommendations, they tend to have less privacy concerns, as they believe their personal data is protected by the organization (Bleier & Eisenbeiss, 2015).

Trust is relevant since it works as a moderator between retargeting and consumer responses. Additionally, on the internet trust between the company and the customer becomes even more

fundamental, considering customer's research and purchase decisions are influenced by this factor when there is a lack of information about the company (Tsekouras et al., 2020).

2.4. Customer Satisfaction with recommendations

Recommendation systems select products for the consumer with the intent to facilitate its search process (Häubl & Trifts, 2000; Hostler et al., 2005; Köcher et al., 2019; Swaminathan, 2003; Vijayarathy & Jones, 2001) by assisting the customer in finding a match with its preferences more rapidly and straightforwardly (Häubl & Trifts, 2000; Li & Karahanna, 2015; Tsekouras et al., 2020). As a result, customers reach better outcomes regarding their choice, and incur in higher quality decisions (Dellaert & Häubl, 2012). Moreover, the quality of customer decision is proven to be considerably higher for customers receiving recommendations in comparison to others that did not receive such help (Liang et al., 2006; Tsekouras et al., 2020). Thus, the satisfaction with recommendations influences customer satisfaction and customer loyalty (Tsekouras et al., 2020). Therefore, studying the response of customers to the provision of personalized recommendations is imperative (Morgan & Rego, 2006).

2.5. Measures of customer feedback

Measuring customer feedback allows companies to examine customer responses, which is vital since it affects business performance (Morgan & Rego, 2006). Therefore, when analysing personalized recommendations effectiveness, it is essential to assess customer feedback.

When companies intend to assess feedback, they mainly focus on customer satisfaction with the product choice and customer loyalty (Hult et al., 2017). Moreover, these are relevant to study, considering companies' ideas about their drivers lack alignment with what customers think (Tsekouras et al., 2020).

2.5.1. Customer Satisfaction

Personalized product recommendations provided by companies help customers deciding on a product choice among the presented alternatives and reduce the effort when searching, this leads to increased satisfaction of the customer's decision regarding the chosen product (Ansari et al., 2000; Häubl & Trifts, 2000; Köcher et al., 2019; Pathak et al., 2010; Xiao & Benbasat, 2007). Furthermore, recommender systems create a pre-selection of items to be recommended to a user that increases customer satisfaction with the product choice, considering it reduces the effort and uncertainty with the choice (Köcher et al., 2019). Accurate product recommendations lead to increased levels of customer satisfaction (Aguirre et al., 2015) as firms can better serve their

customers (de Bellis et al., 2019). Therefore, tailoring offerings that fulfil customers' needs and interests leads to higher levels of customer satisfaction (Bleier et al., 2020).

Furthermore, previous review of the literature shows that customer satisfaction is negatively influenced by arising privacy concerns (Marchand & Marx, 2020), and positively influenced by explanations about the recommendations being offered (Bleier & Eisenbeiss, 2015), recommendations that have a fit with customers' needs and interests (Aguirre et al., 2015), and trust in the company providing the recommendations (Dellaert & Häubl, 2012). The mentioned attributes and customer perceptions related with product recommendations influence their quality (Chiou & Droge, 2006) and perceived value, thus impacting customer satisfaction.

2.5.2. Customer Loyalty

Customer loyalty is related to repurchase or support provided to a product or service translated in a future commitment towards it or the brand. Customer loyalty can be both behavioural and attitudinal. Behavioural loyalty is related to repurchase, whereas attitudinal loyalty is more about the customer's commitment to the brand (Morgan & Rego, 2006). Within customer loyalty firms mainly focus on behavioural loyalty incorporating repurchase intentions and likelihood to recommend (Jin & Su, 2009). Some authors consider these to be the most relevant components of customer loyalty (Morgan & Rego, 2006).

In this study, the focus will be on behavioural loyalty, considering it incorporates repurchase intentions and the likelihood to make recommendations to other customers (Jin & Su, 2009), the variables that will be analysed.

2.5.3. Influence of Customer Satisfaction on Customer Loyalty

Customer satisfaction is considered the best predictor of customer loyalty (Chandrashekar et al., 2007). This relationship is referred to in the literature as the satisfaction-loyalty link (Chiou & Droge, 2006). The strengthening of the link is crucial for a company to enhance its profitability since, the cost of gaining one more customer is superior to investing in an already existing one. Therefore, customer loyalty is vital for firms to invest in (Jin & Su, 2009).

Moreover, within customer loyalty, it is relevant to analyse the influence of customer satisfaction on both dimensions of customer loyalty, considering the stated impact on the mentioned dimensions is not the same. The effect of customer satisfaction on repurchase intentions is related to intentions customers have that influence their buying behaviour. Additionally, customer satisfaction positively influences both repurchase intentions and recommendations, the latter to a greater extent than the former. An explanation for the superior

influence of customer satisfaction in recommendation likelihood, when compared to repurchase intentions, is that repurchase intentions involve a monetary transaction, and recommendation is more about complimenting and suggesting products to other people (Jin & Su, 2009).

Thus, this chapter explains the technological advancements responsible for generating personalized product recommendations on which the present dissertation focuses. Additionally, it studies the main attributes and customer perceptions related with recommendations, understanding their impact on customer satisfaction with these suggestions, and the subsequent influence on customer satisfaction with the product choice and customer loyalty. The next chapters thoroughly examine the stated links.

3. Hypotheses & Conceptual Framework

3.1. Hypotheses

Furthermore, the hypotheses constructed are revealed to answer the research questions previously defined in the introduction chapter. Furthermore, the present chapter explains the reasoning behind their creation and how these answer the before stated research questions.

First and foremost, regarding the initial research question, that studies the extent to which the attributes and customer perceptions associated with personalized product recommendations influence consumers' satisfaction with recommendations, five hypotheses are presented.

Firstly, considering personalized product recommendations, these imply a trade-off between personalization and privacy. Customers value personalization, but it comes to the expense of privacy. Thus, consumers prefer and are satisfied with personalization, since the present marketing practise responds to their needs, however if possible, while protecting their personal information (Rust, 2020).

H1: Privacy concerns regarding recommendations negatively influence customer satisfaction with personalized product recommendations.

Furthermore, providing an explanation for the reasoning behind personalized product recommendations is also relevant, as it increases the usefulness of the recommendation being provided. Possibly enhancing the satisfaction with the recommendations, having a more powerful impact on customers' actions (Rai, 2020).

H2: The explanation of recommendations positively influences customer satisfaction with personalized product recommendations.

Additionally, consumers favour being offered personalized recommendations in cases where these have a fit with their needs and interests (Marchand & Marx, 2020). When this occurs, the recommendations become pertinent to customers, reducing the choice effort and complexity. Thus, resulting in satisfaction with the recommendations provided (Bleier & Eisenbeiss, 2015).

H3: The fit of recommendations with the customer positively influences customer satisfaction with personalized product recommendations.

Nonetheless, trust in the organization providing the recommendations is also relevant. Indeed, customers attribute more importance to recommendations when they trust the organization offering the latter, since they believe they can rely on its expertise, leading to a higher

acceptance of recommendations and subsequent satisfaction with these (Bleier & Eisenbeiss, 2015).

H4: Trust in the organization providing recommendations positively influences customer satisfaction with personalized product recommendations.

Moreover, in the literature review an interesting interaction between two customer perceptions associated with personalized product recommendations was found. Indeed, when customers have a higher trust in the organization providing recommendations, they feel safe regarding sharing personal data, which consequently leads to fewer privacy concerns. Then, this might conduct to higher satisfaction levels with the recommendations (Bleier & Eisenbeiss, 2015).

H5: The effect of trust in the organization providing recommendations on customer satisfaction with personalized product recommendations is mediated by privacy concerns.

Considering the second research question, intending to analyse the relation between satisfaction with personalized product recommendations and customer satisfaction with the product choice, one hypothesis is formulated.

With the provision of such recommendations, customers can attain better results regarding their choice, thus experiencing higher quality decisions. This is expected to lead to increased satisfaction with the recommendations, resulting in greater customer satisfaction with the product choice (Tsekouras et al., 2020).

H6: Customer satisfaction with personalized product recommendations positively influences customer satisfaction with product choice.

Then, intended to answer the third research question, which aims to research the influence of satisfaction with personalized suggestions on customer loyalty, two hypotheses are created.

Customers have a better resulting choice when they receive personalized recommendations. Conducting to positive responses from the customers, possibly expanding customer loyalty (Tsekouras et al., 2020). Thus, influencing repurchase intentions and the likelihood to recommend (Jin & Su, 2009).

H7: Customer satisfaction with personalized product recommendations positively influences the likelihood to recommend.

H8: Customer satisfaction with personalized product recommendations positively influences repurchase intentions.

Additionally, to analyse research question four, which proposes to investigate the impact of customer satisfaction on customer loyalty, six hypotheses are presented.

As it was previously mentioned, satisfaction of personalized product recommendations is expected to impact positively satisfaction with the customer choice (Tsekouras et al., 2020). Furthermore, it is also interesting to analyse how this leads to increased customer loyalty, potentially resulting in higher repurchase intentions and higher likelihood to recommend the product to other people (Morgan & Rego, 2006).

H9: Customer satisfaction with product choice positively influences the likelihood to recommend.

H10: Customer satisfaction with product choice positively influences repurchase intentions.

H11: The positive effect of customer satisfaction with personalized product recommendations on the likelihood to recommend is mediated by customer satisfaction with product choice.

H12: The positive effect of customer satisfaction with personalized product recommendations on repurchase intentions is mediated by customer satisfaction with product choice.

Moreover, an interesting relationship arises between the likelihood to recommend and repurchase intentions. Suggesting that the former might positively influence the latter. This is because contentment with recommendations, which is expected to augment satisfaction with the product chosen is anticipated to first lead to the likelihood to recommend the retailer, since this action is related to complementing and saying positive things about the latter. And only after is the stated chain of events likely to lead to the creation of higher repurchase intentions, which are more difficult to attain, considering they involve the transaction of money (Jin & Su, 2009).

H13: The likelihood of consumers to recommend the retailer to other people positively influences their repurchase intentions.

H14: The positive effect of customer satisfaction with personalized product recommendations on repurchase intentions is mediated by the positive effect of customer satisfaction with product choice on the likelihood to recommend.

3.2. Conceptual Framework

The present thesis proposes to respond to the stated four research questions. In this way, a conceptual framework was constructed where the dependent and independent variables are represented. Explanation of recommendations, fit of recommendations with the customer, trust in the organization providing the recommendations and privacy concerns regarding recommendations are independent variables. Satisfaction with recommendations, customer satisfaction with product choice, and the likelihood to recommend can be both dependent and independent variables, differing on the distinct hypotheses. Moreover, satisfaction with product choice is a mediator in three hypotheses, and privacy concerns and the likelihood to recommend in one. Repurchase intentions always constitute a dependent variable.

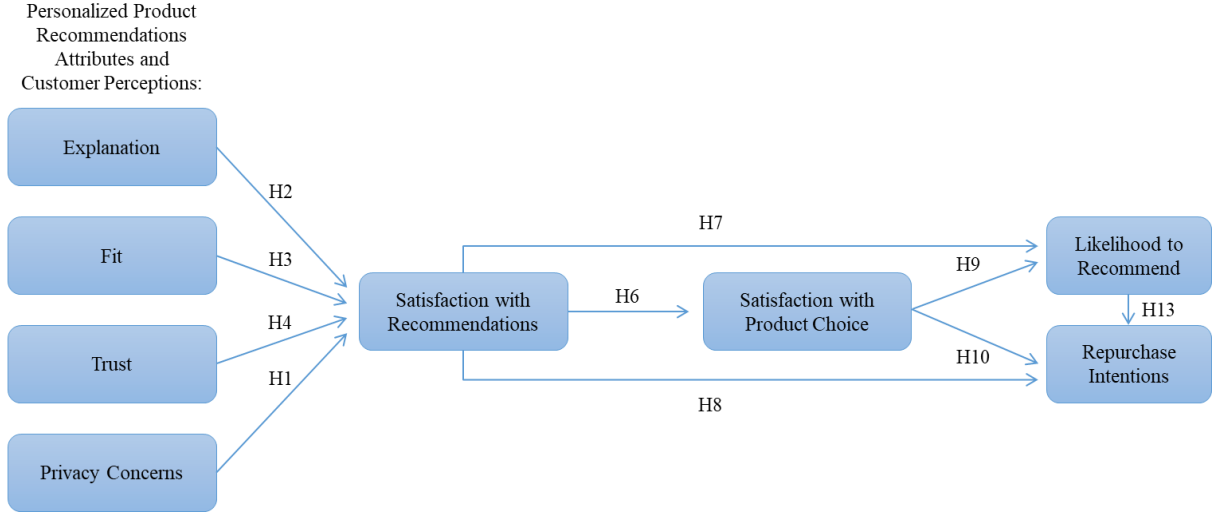


Figure 1: Conceptual Framework. Only the direct effects are reported.

4. Methodology

4.1. Research Approach & Design

In the present chapter, the research methodology is thoroughly explained. A quantitative research method is utilized to study the fourteen hypotheses. The purpose is to understand the impact of personalized product recommendations on customer satisfaction and customer loyalty. This understanding is reached by answering the stated research questions. The latter intend to measure the extent to which privacy concerns, explanations regarding the recommendations, fit of products recommended with the customer, and trust in the organization providing the personalized product recommendations influence consumers' satisfaction with these suggestions. Also, the research questions study the influence of satisfaction with personalized recommendations on customer satisfaction with the product choice, as well as on customer loyalty. Lastly, they aim to explore the impact of customer satisfaction on customer loyalty.

The research methodology used in the present thesis is an online survey, conducted both in English and Portuguese. To perform the online survey, the Qualtrics platform was employed. Afterwards, an analysis of the collected responses was undertaken using SPSS.

4.2. Method

4.2.1. Measures

The variables analysed in the present thesis are entirely studied using a 7-point Likert scale, from “1 = Strongly Disagree” to “7 = Strongly Agree”, an accurate scale to apply (Dawes, 2008). Although other measurements are used in previous literature to examine some variables, the present study employs the mentioned scale in questions regarding the constructs under analysis for coherence purposes. Moreover, this scale is applied in previous literature to examine the variables of fit of the recommendations with the customer, and privacy concerns (Bleier & Eisenbeiss, 2015), also explored in the present thesis.

The variables analysed in the survey to study the hypothesis are trust in the retailer providing the recommendation, privacy concerns, explanation of the recommendation, fit of the recommendation with the user, satisfaction with the personalized product recommendation, satisfaction with the product choice, repurchase intentions, and likelihood to recommend the retailer.

Regarding trust in the retailer providing the recommendation, this variable is measured using six items. These are honesty/integrity (e.g.: The retailer which provided the recommendation(s)

is very honest.), reliability/dependability, responsibility, judgment, competence, and motives/intentions retrieved from a previously used trust scale (Chiou & Droge, 2006; J. B. Smith, 1997).

Concerning privacy concerns that may arise from providing users with personalized product recommendations, the variable is analysed with four items. These are retailer tracking of personal information (e.g.: It bothers me that the retailer is able to track information about me.), retailer possession of personal information, retailer access to personal information, and retailer additional uses of personal information retrieved from previous literature (Bleier & Eisenbeiss, 2015; Dinev & Hart, 2004; Sheng et al., 2008; H. J. Smith et al., 1996).

Additionally, the importance of providing explanations of the reasoning behind personalized product recommendations is analysed using three items created by the thesis author based on an article mentioning recommendations (Köcher et al., 2019). The stated items involve providing a convincing explanation, explanation understanding, and transparency of the retailer (e.g.: The retailer was transparent about why the product/service was recommended to me.).

Then, the last component of personalized product recommendations examined in the present thesis is fit of the recommendation provided with the user, with three items. These include the recommendation targets unique individuals (e.g.: The recommendation targeted me as a unique individual.), personalization according to individual needs (Bleier & Eisenbeiss, 2015; Kalyanaraman & Sundar, 2006), and recommendation tailored to individuals. The author of the present dissertation created the latter item, inspired on the first two stated items extracted from the referenced studies.

To study satisfaction with the personalized product recommendations, as well as customer satisfaction with the product choice, a satisfaction scale for the two variables is adapted from the *American Customer Satisfaction Index*. Concerning customer satisfaction with recommendations five items are analysed. The latter are overall quality, quality as a customization, overall satisfaction (e.g.: I am satisfied with the recommendation I received.), confirmation of expectations, and comparison to ideal. Regarding customer satisfaction with the product choice, six items are employed. These are the same five items previously mentioned adapted to satisfaction with product choice, and an additional item about price given quality (e.g.: Given the quality of the product/service, the price offered by the retailer is good.). This item is added since the price of the product chosen by the user is also important to consider

when exploring satisfaction with the product choice (*American Customer Satisfaction Index*, 2008; Hult et al., 2017; Morgan & Rego, 2006).

Then, likelihood to recommend the retailer is explored with three items adapted from an article regarding positive word-of-mouth which composes likelihood to recommend (Burnham & Leary, 2018). The items are recommendation (e.g.: I am very likely to recommend this retailer to a friend or colleague.), suggestion, and say positive things about the retailer (*American Customer Satisfaction Index*, 2008; Burnham & Leary, 2018; Morgan & Rego, 2006).

Lastly, to assess repurchase intentions three items retrieved from a study measuring purchase intentions are adapted (Spears & Singh, 2004). These are the extent to which it is unlikely/likely (e.g.: I will very likely buy a product/service from this retailer again.), impossible/possible, that users will buy a product from the retailer again, and definitely do not intend to buy/definitely intend to buy (*American Customer Satisfaction Index*, 2008; Hult et al., 2017; Morgan & Rego, 2006; Spears & Singh, 2004).

The previously mentioned variables and corresponding items, as well as their references can be found in detail in *Appendix 1* in the Appendices section of the present thesis.

4.2.2. Procedure

The virtual inquiry form starts with a small introduction describing that the purpose of the study is to gather information for a master thesis, assuring the survey is voluntary and anonymous, as well as providing appreciation for the participants' contribution and stating its importance (*Appendix 2*).

Then, the questions start by asking participants if they know what a personalized product recommendation is, followed by an explanation and examples of suggestions offered as recommendations for a product, in this case a sofa, that a user could search for. In previous literature, the provision of recommendations examples is also utilized (Köcher et al., 2019). Likewise, recommendations offered for a product are presented in the online survey to familiarize the participants with the concept of personalized product recommendations (*Appendix 2*).

Subsequently, respondents answer two screening questions. The first asks if they have ever received a personalized recommendation. The second asks participants to think about the last time they received a recommendation and purchased an item and questions if they remember both the retailer who offered such suggestion and the item for which the recommendation was

provided. The survey continues only for respondents that provide a positive answer to the two questions. The exclusion of participants who have not had this experience in the past or do not accurately recall it is needed, considering the basis for the rest of the questionnaire is the recall of this moment. In this way, the sample of the online survey is only composed of individuals who have previously received a personalized recommendation before and remember the retailer that provided it and the product or service for which the suggestion was made (*Appendix 2*).

Then, the online survey continues by asking participants to evaluate the extent to which they agree with the presented statements measuring the variables mentioned on the *Measures* subchapter using a 7-point Likert scale, from “1 = Strongly Disagree” to “7 = Strongly Agree” (*Appendix 2*).

To conclude the survey, several questions are made regarding the participant’s demographic characteristics. More specifically, asking respondent’s information about their gender, age, marital status, income, occupation, as well as nationality. To finalize, the survey ends with a thank you message to show appreciation for the respondent’s participation in the survey (*Appendix 2*).

5. Results

5.1. Sample Characterization

During the data collection period, 725 responses to the online survey were gathered. Of these, when asked about their knowledge of the personalized product recommendation concept, most individuals, 74.5%, knew the meaning of this concept before receiving an explanation, whereas 25.5% did not (*Appendix 3*). These were then cleaned to attain the valid sample of the online survey. The sample was initially proposed to be characterized by people who have previously received a personalized product or service recommendation and recall the product and retailer involved in this experience. In this way, 81 responses were excluded from the sample, since they answered “No” to the first screening question, asking if respondents have received a personalized product or service recommendation before (*Appendix 4*). Then, an additional 193 participants were also excluded from the sample, considering they responded “No” to the second screening question, which asked individuals if they remembered both the name of the retailer which provided the personalized recommendation and the product or service for which they received the recommendation (*Appendix 4*). Moreover, data cleansing was also undertaken to exclude some respondents who answered “Do not remember” in the space to write the name of the retailer or in the space to write the product or service, leading to the elimination of an additional 34 responses. In this way, the resulting valid sample is composed by 417 participants (*Appendix 5*).

Now an analysis of the recall of the valid sample, composed of participants who received a personalized product or service recommendation and recall the product and retailer involved in this experience, is conducted. The eight products more recalled by the 417 participants were, in this order, a clothing item (23.5%), a book (17.0%), furniture (16.1%), others (14.9%), a pair of shoes (9.6%), an electronic gadget (8.4%), accessories (4.1%), home wear (3.8%), and food (2.6%). Then, the eight retailers more mentioned by the 417 respondents were, in this order, others (42.9%), Amazon (17.5%), IKEA (14.4%), Zara (8.6%), Fnac (5.0%), Worten (3.1%), Nike (3.1%), Mango (2.9%), and Wook (2.4%) (*Appendix 6*).

Proceeding to the characterization of the valid sample, regarding gender, 30.0% of respondents are males, the majority, 69.3%, are females, and 0.7% prefer not to say. Concerning age, 5.0% of participants are less than 18 years old, 38.1% are between 18 and 24 years old, 8.2% are between 25 and 34 years old, 12.0% are between 35 and 44 years old, 25.4% are between 45 and 54 years old, 6.5% are between 55 and 64 years old, and the remaining 4.8% are older than 64 years old. Then, analysing the marital status of the 417 respondents, most of them, 54.2%,

are single, 34.8% are married, 9.6% are divorced or separated, and 1.4% are widowed. About the monthly household income, 4.3% of respondents register a value lower than 500€, 7.2% between 501€ and 1000€, 8.2% between 1001€ and 1500€, 15.3% between 1501€ and 2000€, 8.2% between 2001€ and 2500€, 5.5% between 2501€ and 3000€, 31.2% receive more than 3000€, and 20.1% prefer not to say. About occupation, by 37.4% of the valid sample are students, 44.6% are employed, 11.0% are self-employed, 1.4% are unemployed, and 5.5% are retired. Then, considering country of origin, the big majority of participants, 95.2%, are from Portugal, followed by 1.2% from Brazil, 0.7% from Germany, 0.5% from Cape Verde, 0.5% from Belgium, 0.5% from France, and the remaining 1.4% from other countries (*Appendix 7*).

5.2. Construct Validity and Reliability

Most of the scales used in the present dissertation are adapted from previous literature (*Appendix 1*). Nonetheless, the Cronbach's Alpha was employed to assess the internal consistency of the constructs. To conduct the stated reliability analysis, the threshold of 0.7 for the Cronbach's Alpha was employed to measure internal consistency. In the present study, the constructs used for the analysis registered a value for the Cronbach's Alpha between 0.7 and 0.8, in the case of fit of the recommendations, between 0.8 and 0.9, for trust in the retailer providing the recommendation, explanation of the latter, satisfaction with the recommendation received, and satisfaction with the product choice, and between 0.9 and 1, for privacy concerns, repurchase intentions and the likelihood to recommend. Thus, indicating high levels of internal consistency in general (*Table 1*).

Table 1: Reliability Analysis

Scale	Number of items	Cronbach's alpha
Trust	6	.861
Privacy Concerns	4	.909
Explanation	3	.831
Fit	3	.748
Satisfaction with Recommendation	5	.870
Satisfaction with Product Choice	6	.869
Repurchase Intentions	3	.918
Likelihood to Recommend	3	.938

5.3. Hypothesis Testing

To measure the first four hypothesis in the present thesis, a multiple regression was undertaken, to analyse the relationship between four independent variables, privacy concerns, explanation of the recommendation provided, fit of the recommendation with the customer and trust in the organization providing the suggestion, and a dependent variable, satisfaction with personalized product recommendations. Where the multiple regression (Satisfaction with Recommendations = $.757 - .046$ Privacy Concerns + $.140$ Explanation + $.303$ Fit + $.424$ Trust) proved to be statistically significant ($F(4, 413) = 117.014, p = .000, R\text{ Square} = .532$) (*Table 2*).

The first hypothesis analysed in the present dissertation states “H1: Privacy concerns regarding recommendation negatively influence customer satisfaction with personalized product recommendations.”. Indeed, privacy concerns negatively influence satisfaction with personalized product recommendations ($\beta = -.046, t(413) = -2.017, p = .044$). Considering the second hypothesis, it suggests that “H2: The explanation of recommendations positively influences customer satisfaction with personalized product recommendations.”. Indicating a positive relationship between the explanation of recommendations and satisfaction with personalized product recommendations ($\beta = .140, t(413) = 4.809, p = .000$) (*Table 2*).

Then, the third hypothesis mentions that “H3: The fit of recommendations with the customer positively influences customer satisfaction with personalized product recommendations.”. The positive influence of recommendation fit on satisfaction with the latter is in fact confirmed ($\beta = .303, t(413) = 8.844, p = .000$). Lastly, the fourth hypothesis is about the fact that “H4: Trust in the organization providing recommendations positively influences customer satisfaction with personalized product recommendations.”. Indeed, the existence of a positive relationship between customers’ trust in the retailer providing the recommendation and their satisfaction with it is validated ($\beta = .424, t(413) = 9.683, p = .000$). Thus, the first four hypothesis asserted in the present thesis are supported by the results of the online survey (*Table 2*).

To measure the fifth hypothesis, “H5: The effect of trust in the organization providing recommendations on customer satisfaction with personalized product recommendations is mediated by privacy concerns.”, a simple mediation was undertaken. All the mediations in the present thesis were conducted using the Process Macro for SPSS v3.5 by Andrew F. Hayes (Hayes, 2013). The hypothesis is confirmed, since privacy concerns are measured as the mediator of the effect of trust on satisfaction with personalized product recommendations ($\beta = -.1030, p = .0095$), with the stated indirect effect tested using a bootstrapping procedure of

5,000 samples being significant, considering 95% confidence intervals did not include zero (95% CI [.0033, .0405]) (Figure 2).

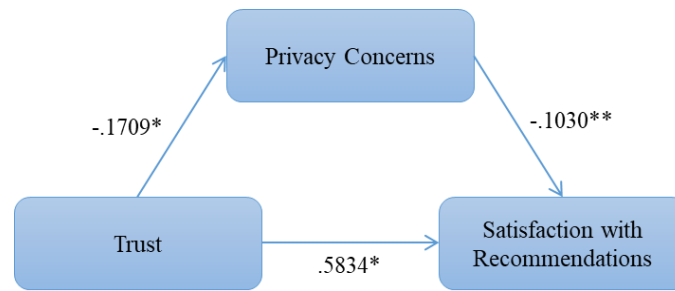


Figure 2: Simple mediation model with Privacy Concerns as the mediator of the effect of Trust on Satisfaction with Recommendations. Standardized coefficients are reported.

*denotes $p < .001$ and **denotes $p < .05$

To test the sixth hypothesis, “H6: Customer satisfaction with personalized product recommendations positively influences customer satisfaction with product choice”, a linear regression was conducted. The stated statistical test between customer satisfaction with personalized product recommendations and with product choice proved to be statistically significant ($F(1, 416) = 483.178, p = .000, R\text{ Square} = .538$). This indicates that customer satisfaction with personalized recommendations positively influences its satisfaction with product choice ($\beta = .639, t(416) = 21.981, p = .000$). Validating this hypothesis (Table 2).

Concerning the seventh hypothesis, “H7: Customer satisfaction with personalized product recommendations positively influences the likelihood to recommend.”, a linear regression was also undertaken between customer satisfaction with personalized product recommendations and the likelihood to recommend. This demonstrated to be statistically significant ($F(1, 416) = 150.262, p = .000, R\text{ Square} = .266$), indicating that customer satisfaction with personalized product recommendations positively impacts customers’ likelihood to recommend ($\beta = .471, t(416) = 12.258, p = .000$). Thus, corroborating the seventh hypothesis (Table 2).

To analyse the eighth hypothesis, “H8: Customer satisfaction with personalized product recommendations positively influences repurchase intentions.”, a linear regression was undertaken. The statistical test conducted between customer satisfaction with personalized product recommendations and repurchase intentions proved to be statistically significant ($F(1, 416) = 123.098, p = .000, R\text{ Square} = .229$). Revealing a positive influence of customer satisfaction with personalized product recommendations on its repurchase intentions ($\beta = .441, t(416) = 11.095, p = .000$). In this way, supporting the above-mentioned hypothesis (Table 2).

Regarding the ninth hypothesis, “H9: Customer satisfaction with product choice positively influences the likelihood to recommend.”, the statistical test employed was also a linear regression. The stated test, conducted between customer satisfaction with product choice and likelihood to recommend, was statistically significant ($F(1, 416) = 195.578, p = .000, R\text{ Square} = .320$). Demonstrating that customer satisfaction with product choice has a positive impact on likelihood to recommend the retailer to other people ($\beta = .711, t(416) = 13.985, p = .000$). Consequently, supporting the ninth hypothesis (*Table 2*).

With the purpose of studying the tenth hypothesis, “H10: Customer satisfaction with product choice positively influences repurchase intentions.”, a linear regression between the two variables, customer satisfaction with product choice and repurchase intentions, was undertaken. The test was statistically significant ($F(1, 416) = 223.357, p = .000, R\text{ Square} = .350$), showing that customer satisfaction with product choice positively leads to repurchase intentions ($\beta = .736, t(416) = 14.945, p = .000$). Thus, validating the indicated hypothesis (*Table 2*).

The eleventh hypothesis, “H11: The positive effect of customer satisfaction with personalized product recommendations on the likelihood to recommend is mediated by customer satisfaction with product choice.”, was also analysed with a simple mediation. The hypothesis is validated, considering customer satisfaction with product choice is the mediator of the effect of customer satisfaction with recommendations on the likelihood to recommend the retailer to other people ($\beta = .4065, p = .0000$). Its indirect effect was measured using a bootstrap procedure of 5.000 samples, which proved to be significant, since 95% confidence intervals did not include zero (95% CI [.2100, .3989]) (*Figure 3*).

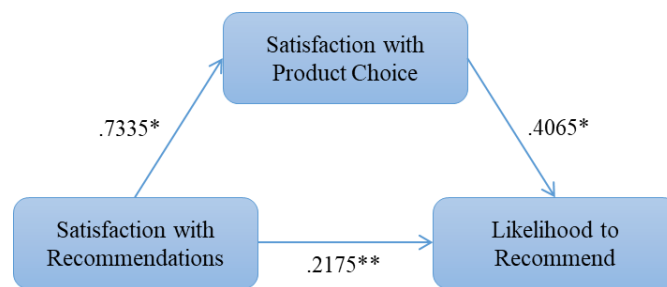


Figure 3: Simple mediation model with Satisfaction with Product Choice as the mediator of the effect of Satisfaction with Recommendations on Likelihood to Recommend. Standardized coefficients are reported.

*denotes $p < .001$ and **denotes $p < .05$

Concerning the twelfth hypothesis, “H12: The positive effect of customer satisfaction with personalized product recommendations on repurchase intentions is mediated by customer satisfaction with product choice.”, a simple mediation was conducted. The hypothesis is supported, as satisfaction with product choice mediates the effect of satisfaction with recommendations on repurchase intentions ($\beta = .5210$, $p = .0000$). The previously stated indirect effect was tested using a bootstrapping procedure of 5.000 samples, which proved to be significant, considering 95% confidence intervals did not include zero (95% CI [.2849, .4769]) (Figure 4).

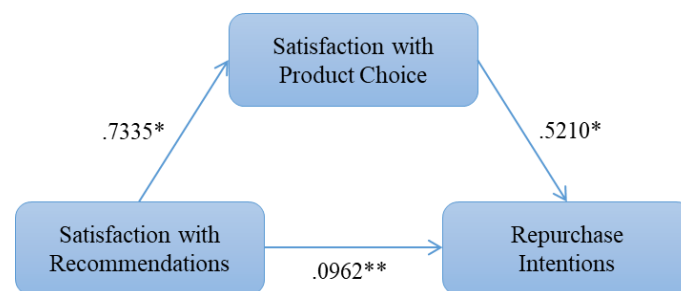


Figure 4: Simple mediation model with Satisfaction with Product Choice as the mediator of the effect of Satisfaction with Recommendations on Repurchase Intentions. Standardized coefficients are reported.

*denotes $p < .001$ and **denotes $p < .05$

Regarding the last hypothesis under analysis in the present dissertation, which is hypothesis thirteenth, “H13: The likelihood of consumers to recommend the retailer to other people positively influences their repurchase intentions.”, was analysed employing a linear regression between the likelihood to recommend and repurchase intentions. This was statistically significant ($F(1, 416) = 483.563$, $p = .000$, $R\text{ Square} = .538$), leading to the positive effect of the likelihood to recommend the retailer to other people on repurchase intentions ($\beta = .741$, $t(416) = 21.990$, $p = .000$). In this way, validating this hypothesis (Table 2).

Lastly, the fourteenth hypothesis, “H14: The positive effect of customer satisfaction with personalized product recommendations on repurchase intentions is mediated by the positive effect of customer satisfaction with product choice on the likelihood to recommend.”, was analysed employing a serial path mediation model with satisfaction with product choice and likelihood to recommend as the mediators of the effect of satisfaction with recommendations on repurchase intentions. The hypothesis is supported ($\beta = .5916$, $p = .0000$), as their indirect

effect tested using a bootstrapping procedure of 5.000 samples, proved to be significant, considering 95% confidence intervals did not include zero (95% CI [.1184, .2412]) (Figure 5).

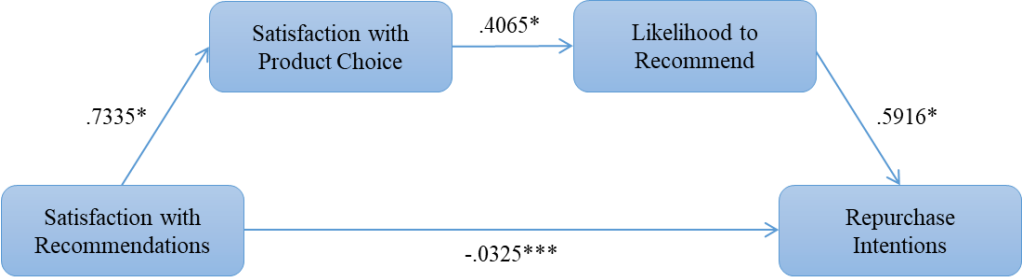


Figure 5: Serial path mediation model with Satisfaction with Product Choice and Likelihood to Recommend as the mediators of the effect of Satisfaction with Recommendations on Repurchase Intentions. Standardized coefficients are reported.

*denotes $p < .001$ and ***denotes $p > .05$

Thus, all the hypotheses of the present dissertation are supported (Appendix 8).

Table 2: Multiple & Linear Regressions

Independent Variable	Dependent Variable	Model Summary & ANOVA				Coefficient		
		R Square	F	df	Sig.	β	t	Sig.
Privacy Concerns	Satisfaction with Recommendations	.532	117.014	4	.000	-.046	-2.017	.044
Explanation						.140	4.809	.000
Fit						.303	8.844	.000
Trust						.424	9.683	.000
Satisfaction with Recommendations	Satisfaction with Product Choice	.538	483.178	1	.000	.639	21.981	.000
Satisfaction with Recommendations	Likelihood to Recommend	.266	150.262	1	.000	.471	12.258	.000
Satisfaction with Recommendations	Repurchase Intentions	.229	123.098	1	.000	.441	11.095	.000
Satisfaction with Product Choice	Likelihood to Recommend	.320	195.578	1	.000	.711	13.985	.000
Satisfaction with Product Choice	Repurchase Intentions	.350	223.357	1	.000	.736	14.945	.000
Likelihood to Recommend	Repurchase Intentions	.538	483.563	1	.000	.741	21.990	.000

5.4. Further Analysis

A further analysis became relevant as it is interesting to make a comparison between two groups: low involvement and high involvement products, regarding several hypotheses tested. To conduct the mentioned analysis a dummy variable was created, where “0” was attributed to participants who recalled a low involvement product and “1” to respondents who recalled a high involvement product. Moreover, the definitions of the two concepts are presented for clarification purposes. Low involvement products are products to which individuals assign a low level of importance and high involvement products are the ones to which individuals associate a high level of importance (Stewart et al., 2019).

Additionally, the decision of which products to place in each level of involvement was based on previous literature. Thus, products belonging to the category of food and several products belonging to the category of others, like hair-care and body-care products, were considered low involvement products. Also, products belonging to the categories of books, furniture, pair of shoes, electronic gadgets, accessories, and home wear, as well as some products belonging to the category of others were considered high involvement products (Trivedi et al., 2020; Zhao et al., 2019). As a result, of the 417 participants, 51 recalled low involvement products, whereas 366 recalled high involvement items (*Appendix 9*).

To compare the two groups, H1, H2, H3, H4, H6, H7, and H8 were tested with the purpose of understanding the behaviour of the two groups regarding personalized product recommendations. To analyse the first four hypotheses in this thesis, a multiple regression was conducted for the low (Satisfaction with Recommendations = 1.619 - .032 Privacy Concerns + .153 Explanation + .200 Fit + .355 Trust) and high (Satisfaction with Recommendations = .641 - .045 Privacy Concerns + .137 Explanation + .312 Fit + .436 Trust) involvement product groups. Where the relationship between the independent variables and the dependent variable proved to be statistically significant for both the low involvement ($F(4, 413) = 6.255, p = .000, R^2 = .352$) and high involvement product groups ($F(4, 413) = 112.180, p = .000, R^2 = .554$). Meaning that, for the latter group, the dependent variable is more explained by the independent variables than for the former (Hair et al., 2011) (*Table 3*).

The first hypothesis analysed in the present dissertation is “H1: Privacy concerns regarding recommendation negatively influence customer satisfaction with personalized product recommendations.”. Privacy concerns have a significant impact on satisfaction with personalized product recommendations for high involvement ($\beta = -.045, t(413) = -1.861, p =$

.064) but not for low involvement products ($\beta = -.032$, $t(413) = -0.493$, $p = .625$). As this is a study in the social sciences' field, for high involvement products, a p-value lower than 0.1 will be considered sufficient to support the hypothesis, according to previous literature (Gai & Klesse, 2019). Considering the second hypothesis, it suggests that “H2: The explanation of recommendations positively influences customer satisfaction with personalized product recommendations.”. Indicating a positive relationship between the explanation of recommendations and satisfaction with personalized product recommendations, which is supported for the high involvement group ($\beta = .137$, $t(413) = 4.452$, $p = .000$), but not for the low involvement ($\beta = .153$, $t(413) = 1.634$, $p = .109$). Thus, the two groups differ since, for high involvement products, the two latter hypotheses are supported, however for low involvement they are not (*Table 3*).

Then, the third hypothesis mentions that “H3: The fit of recommendations with the customer positively influences customer satisfaction with personalized product recommendations.”. The positive impact of fit on satisfaction with the recommendation is confirmed for the high involvement group ($\beta = .312$, $t(413) = 8.639$, $p = .000$), and for the low one ($\beta = .200$, $t(413) = 1.776$, $p = .082$), considering a p-value lower than 0.1 (Gai & Klesse, 2019). Lastly, the fourth hypothesis is “H4: Trust in the organization providing recommendations positively influences customer satisfaction with personalized product recommendations.”. Indeed, trust in the retailer offering the recommendation leads to a higher satisfaction with this suggestion for both low ($\beta = .355$, $t(413) = 3.035$, $p = .004$) and high involvement products ($\beta = .436$, $t(413) = 9.095$, $p = .000$). Thus, these two hypotheses are supported for both groups (*Table 3*).

To study the sixth hypothesis, “H6: Customer satisfaction with personalized product recommendations positively influences customer satisfaction with product choice.”, a linear regression was undertaken, between customer satisfaction with personalized product recommendations and with product choice. This relationship proved to be statistically significant for both low involvement ($F(1, 416) = 23.689$, $p = .000$, $R\text{ Square} = .326$) and high involvement items ($F(1, 416) = 469.255$, $p = .000$, $R\text{ Square} = .563$). The model for high involvement has a higher proportion of the variance for satisfaction with product choice explained by satisfaction with recommendations than the model for low involvement items (Hair et al., 2011). Moreover, customer satisfaction with personalized product recommendations has a positive influence on its satisfaction with product choice again for both the former ($\beta = .658$, $t(416) = 21.662$, $p = .000$) and the latter groups ($\beta = .466$, $t(416) = 4.867$, $p = .000$). Thus, confirming the above-mentioned hypothesis for both groups (*Table 3*).

To test the seventh hypothesis, “H7: Customer satisfaction with personalized product recommendations positively influences the likelihood to recommend.”, a linear regression was utilized. The stated test, conducted between customer satisfaction with recommendations and likelihood to recommend, proved to be statistically significant for both low involvement ($F(1, 416) = 16.275, p = .000, R\text{ Square} = .249$) and high involvement goods ($F(1, 416) = 135.564, p = .000, R\text{ Square} = .271$). Thus, the model for the former group registers a lower proportion of the variance of likelihood to recommend explained by satisfaction with recommendations than the latter (Hair et al., 2011). Customer satisfaction with recommendations positively influences likelihood to recommend the retailer for both the first ($\beta = .689, t(416) = 4.034, p = .000$) and second mentioned groups ($\beta = .551, t(416) = 11.643, p = .000$). Consequently, supporting the seventh hypothesis for both types of products (*Table 3*).

Concerning the eighth hypothesis, “H8: Customer satisfaction with personalized product recommendations positively influences repurchase intentions.”, a linear regression between customer satisfaction with recommendations and repurchase intentions, was conducted. The test was statistically significant for both low ($F(1, 416) = 10.004, p = .003, R\text{ Square} = .170$) and high involvement purchases ($F(1, 416) = 113.519, p = .000, R\text{ Square} = .238$). Showing that the model has a similar explanatory level for the two groups (Hair et al., 2011). Also, customer satisfaction with recommendations positively impacts repurchase intentions for low ($\beta = .349, t(416) = 3.163, p = .003$) and high involvement products ($\beta = .522, t(416) = 10.655, p = .000$). Thus, validating the indicated hypothesis for both types of products (*Table 3*).

Table 3: Multiple & Linear Regressions - Further Analysis

Group	Independent Variable	Dependent Variable	Model Summary & ANOVA				Coefficient		
			R Square	F	df	Sig.	β	t	Sig.
Low Involvement	Privacy Concerns	Satisfaction with Recommendations	.352	6.255	4	.000	-.032	-.493	.625
	Explanation						.153	1.634	.109
	Fit						.200	1.776	.082
	Trust						.355	3.035	.004
High Involvement	Privacy Concerns	Satisfaction with Recommendations	.554	112.180	4	.000	-.045	-1.861	.064
	Explanation						.137	4.452	.000
	Fit						.312	8.639	.000
	Trust						.436	9.095	.000
Low Involvement	Satisfaction with Recommendations	Satisfaction with Product Choice	.326	23.689	1	.000	.466	4.867	.000
High Involvement	Satisfaction with Recommendations	Satisfaction with Product Choice	.563	469.255	1	.000	.658	21.662	.000
Low Involvement	Satisfaction with Recommendations	Likelihood to Recommend	.249	16.275	1	.000	.689	4.034	.000
High Involvement	Satisfaction with Recommendations	Likelihood to Recommend	.271	135.564	1	.000	.551	11.643	.000
Low Involvement	Satisfaction with Recommendations	Repurchase Intentions	.170	10.004	1	.003	.349	3.163	.003
High Involvement	Satisfaction with Recommendations	Repurchase Intentions	.238	113.519	1	.000	.522	10.655	.000

6. Conclusions

6.1. General Discussion

The present dissertation aims to explore customer responses to the attributes and customer perceptions associated with personalized recommendations and customers' satisfaction with them. To conduct this analysis, the first step is to infer the influence of each of these components and customer perceptions (privacy concerns, explanation, fit, and trust) on customer satisfaction with the recommendations provided by retailers (RQ1). Indeed, the findings of the present dissertation support the five hypotheses formulated to answer the previous research question.

On the one hand, having more privacy concerns negatively impacts customer satisfaction with recommendations since customers value personalization while having the assurance that their personal information is protected (Rust, 2020). On the other hand, the provision of an explanation leads to higher satisfaction with these suggestions. Like the fit of the recommendation with the customer and trust in the retailer both also do. Firstly, receiving an explanation of why retailers provide recommendations enhances the sense of relevance and usefulness of these suggestions. Thus, boosting the enjoyment with the latter (Rai, 2020). Likewise, the fit of the recommendation with the users' interests reduces the effort applied in the choice process, leading to more satisfaction since the suggestions presented are pertinent (Bleier & Eisenbeiss, 2015). Also, trust in the retailer allows users to assign an enhanced level of importance to the proposed product or services, leading to a higher level of acceptance and consequent contentment (Bleier & Eisenbeiss, 2015). Additionally, trust in the retailer diminishes privacy concerns, which in turn will contribute to a greater level of customer satisfaction with the recommendation. The justification for this reasoning is that trust in the organization providing the proposed item creates a feeling of safety in consumers, enhancing their willingness to share personal information with the retailer, which contributes to increased levels of satisfaction with the provided suggestions (Bleier & Eisenbeiss, 2015).

Then, the relationship between satisfaction with recommendations and customer satisfaction with the product choice is measured (RQ2). To better address this issue, a hypothesis was developed, further analysed, and supported. Indeed, higher customer satisfaction with recommendations has a positive impact on customer satisfaction with the product choice. There was the expectation of this relationship, since by receiving satisfying item suggestions', users reach better choice results, causing higher quality decisions. Consequently, enhancing customer satisfaction with product choice (Tsekouras et al., 2020).

Furthermore, an analysis also takes place to comprehend the influence of satisfaction with personalized product recommendations on customer loyalty (RQ3), more specifically on the likelihood to recommend the retailer and repurchase intentions. The two hypotheses tackling this issue were confirmed in the findings, each measuring one of the two mentioned aspects of customer loyalty. Indeed, customer satisfaction with personalized product recommendations positively influences the likelihood to recommend, as well as repurchase intentions. The reason explaining why this happens is that by receiving a satisfying proposal of a product or service, users have a higher willingness to recommend the retailer to other people and repurchase from that retailer again (Tsekouras et al., 2020).

In the same way, the study intends to grasp the impact of customer satisfaction in general on customer loyalty (RQ4). So, the present thesis unties the stated research question into six distinct hypotheses, all confirmed with the results of the present study. The effect of customer satisfaction with the product choice on both the likelihood to recommend the retailer to other people and repurchase intentions proves to be positive. Thus, confirming the findings of previous literature determining that customer satisfaction is considered the most accurate predictor of customer loyalty (Chandrashekar et al., 2007). Several authors refer to the stated relationship as the satisfaction-loyalty link (Chiou & Droge, 2006).

Following the same reasoning, satisfaction with recommendations positively influences customer satisfaction with the product choice, which in turn leads to a higher likelihood to recommend the retailer to other people, and more repurchase intentions, according to this study's findings. Thus, corroborating the reasoning formulated through the analysis of previous articles, which suggested that recommendations keeping customers satisfied lead to higher satisfaction with the product chosen (Tsekouras et al., 2020), thus enriching customer loyalty (Morgan & Rego, 2006).

Furthermore, a higher likelihood to recommend the retailer by suggesting it to other individuals demonstrated to increase the intentions of repurchase. Thus, higher contentment with the suggestions provided generates an increased satisfaction with the product choice, leading to a greater likelihood to recommend the retailer, which in turn incentivizes the customers to acquire another item from the same seller. Therefore, validating previous findings showing that the probability to suggest the retailer to other people surges as the first consequence of customer satisfaction, leading to higher intentions to repeat the buying process, which appear as a second

consequence. The justification is that the first consequence involves sharing a positive experience with the retailer, whereas the second requires a loss of money (Jin & Su, 2009).

Moreover, further analysis was conducted to study the differences regarding personalized recommendations among low and high involvement products. Regarding low involvement products, neither the explanation of the recommendations nor privacy concerns significantly impact customer satisfaction with these suggestions. Whereas for high involvement products, they do. In general, the model for high involvement products is more explicative than the model for low involvement products (Hair et al., 2011). The latter occurs in the impact of personalized recommendations' components and customer perceptions on customer satisfaction with recommendations. It also happens in the effect of the previously mentioned construct on two variables. These are the satisfaction with the product choice and the likelihood to recommend the retailer. This might be happening considering high involvement products require a greater effort from the consumer as these have more personal importance than low involvement products. Thus, high involvement purchases entail a more informed decision-making process, leading to a higher explanation of positive responses from online purchases containing more information that diminishes customer effort, like personalized recommendations (Stewart et al., 2019). Furthermore, regarding the impact of customer satisfaction with the recommendations on repurchase intentions, the two models have similar explanatory power (Hair et al., 2011). This might happen because for both groups higher repurchase intentions require a loss of money (Jin & Su, 2009).

6.2. Theoretical Implications

The analysis conducted in this paper contributes to the literature in three main ways. Firstly, previous studies have debated about the customer responses to fit of a recommendation, trust in the retailer providing it (Bleier & Eisenbeiss, 2015), its explanation (Rai, 2020) and privacy concerns (Rust, 2020). Nevertheless, the four components together were not previously analysed in the same study regarding personalized recommendations to measure their impact on customer satisfaction with these suggestions. Additionally, in the current research, these four elements demonstrated their combined significant influence on satisfaction with personalized recommendations. Also, the model adds the connection between the latter constructs and the previously studied model where customer satisfaction influences customer loyalty (Chandrashekar et al., 2007; Chiou & Droge, 2006). In this way, a strengthening of the before-mentioned model is possible to attain, by finding factors which influence customer satisfaction with the product choice, and further customer loyalty.

Secondly, another relevant addition to the literature addressed in this thesis is the construct of satisfaction with personalized recommendations. Indeed, customer satisfaction is a topic that was previously studied, focusing on the contentment with the product, the price, the retailer, and other aspects (Hult et al., 2017). However, little to no analysis focused on customer satisfaction with recommendations as a different element from customer satisfaction with the product chosen, which are two diverse constructs.

Lastly, the present thesis adds to the literature, as additional analysis, the variance of the model among low and high involvement products. Where the model for high versus low involvement products is in general more explicative. The purchase of the former involves an increased consumer's effort and information search, thus attributing more importance to personalized recommendations.

6.3. Managerial Implications

The present dissertation offers marketers valuable insights concerning customer responses to specific attributes and customer perceptions of personalized product recommendations. These attributes include how customers receive explanations of these suggestions, their fit with these individuals, the privacy concerns they attach to this experience, and the trust they have in the retailer. Showing that to enhance satisfaction with personalized proposed items, retailers need to focus on these aspects. The suggested product or service needs to have a fit with the customers' interests. The retailer should provide a clear explanation of the reasoning behind this offering. Also, it should preferentially be trustworthy in the eyes of consumers, and privacy concerns avoided by assuring personal data is protected.

Furthermore, the findings of this study prove the relevance of personalized recommendations. Considering these demonstrate that satisfaction with the suggestions received on a retailer's digital platform has a substantial positive influence on the satisfaction with the product chosen. Thus, leading to higher customer loyalty, which translates in a greater likelihood to recommend the seller to other individuals, and further generating more repurchase intentions. In this way, retailers in general, who do not provide users with personalized recommendations should thoroughly contemplate employing the asserted feature on their digital platforms. Considering the significant effect that these have on the company's performance since positive customer reactions arise in response.

In this way, retailers should consider employing personalized proposed items in their digital platforms while guaranteeing the mentioned factors please customers' needs. Thus, enhancing

the profitability existing customers provide to retailers, considering these individuals are less costly to maintain when compared to the investment needed to acquire new ones (Jin & Su, 2009).

6.4. Limitations and Future Research

Concerning limitations, the research undertaken has a few worth mentioning. Firstly, the valid sample for low involvement products from the online survey is not very high (51). Future research should study the comparison between low and high involvement products regarding their responses to the components and customer perceptions of personalized recommendations.

Additionally, by asking participants to recall an experience receiving a recommendation in the online survey, there was a loss of several valid answers. Indeed, there was a significant number of respondents excluded who completed the survey because they did not recall the experience of receiving a personalized recommendation. In this way, studies in the future should consider employing other methods of analysis, like experiments. For instance, future research studying personalized suggestions could conduct an experimental study where participants receive a real recommendation from a website and their actions on the digital platform are recorded to withdraw conclusions.

Moreover, an additional constraint of the present dissertation's model is that even though the components of personalized recommendations explain a considerable part of customers' satisfaction with these recommendations, they do not explain it entirely. Therefore, future research about this topic could add to the model recommendations' components or customer perceptions to explain to a greater extent customer satisfaction with the suggested items, thus improving the model's accuracy. Examples of these additions could be previous experiences with the retailer (Bleier & Eisenbeiss, 2015), the quality of the suggestions provided, and user familiarity with recommender systems (Gai & Klesse, 2019).

Moreover, an additional constraint of the online survey is that it took place at one specific moment in time. The issue with this is that it measures satisfaction with recommendations, which is more relevant to measure when consumers have just received these suggestions, satisfaction with the product choice, that a person only evaluates later with the usage of the product, and customer loyalty, which comes subsequently after using the product. In this way, upcoming studies could measure these customer responses over time to capture more accurately customers' opinions regarding their experience in the moment where they best remember its details.

7. References

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Appendices

Appendix 1: Variables & Items Overview

Variables	Item	Scale	Survey Statement	References
Trust	Honesty/ Integrity	1 = Strongly Disagree to 7 = Strongly Agree	The retailer which provided the recommendations is very honest.	(Chiou & Droge, 2006; Smith, 1997)
Trust	Reliability/ Dependability	1 = Strongly Disagree to 7 = Strongly Agree	The retailer which provided the recommendations is very reliable.	(Chiou & Droge, 2006; Smith, 1997)
Trust	Responsibility	1 = Strongly Disagree to 7 = Strongly Agree	The retailer is responsible.	(Chiou & Droge, 2006; Smith, 1997)
Trust	Judgment	1 = Strongly Disagree to 7 = Strongly Agree	The retailer understands consumers.	(Chiou & Droge, 2006; Smith, 1997)
Trust	Competence	1 = Strongly Disagree to 7 = Strongly Agree	The retailer is always professional.	(Chiou & Droge, 2006; Smith, 1997)
Trust	Motives/intentions	1 = Strongly Disagree to 7 = Strongly Agree	The retailer acts with good intentions.	(Chiou & Droge, 2006; Smith, 1997)
Privacy Concerns	Retailer tracking of personal information	1 = Strongly Disagree to 7 = Strongly Agree	It bothers me that the retailer is able to track information about me.	(Bleier & Eisenbeiss, 2015; Dinev & Hart, 2004; Sheng et al., 2008; H. J. Smith et al., 1996)
Privacy Concerns	Retailer possession of personal information	1 = Strongly Disagree to 7 = Strongly Agree	I am concerned that the retailer has too much information about me.	(Bleier & Eisenbeiss, 2015; Dinev & Hart, 2004; Sheng et al., 2008; H. J. Smith et al., 1996)
Privacy Concerns	Retailer access to personal information	1 = Strongly Disagree to 7 = Strongly Agree	It bothers me that the retailer is able to access information about me.	(Bleier & Eisenbeiss, 2015; Dinev & Hart, 2004; Sheng et al., 2008; H. J. Smith et al., 1996)
Privacy Concerns	Retailer additional uses of personal information	1 = Strongly Disagree to 7 = Strongly Agree	I am concerned that my information could be used in ways I could not foresee.	(Bleier & Eisenbeiss, 2015; Dinev & Hart, 2004; Sheng et al., 2008; H. J. Smith et al., 1996)

Explanation	Convincing explanation	1 = Strongly Disagree to 7 = Strongly Agree	I believe I received a convincing explanation for why the product/service was recommended to me.	(Köcher et al., 2019)
Explanation	Explanation understanding	1 = Strongly Disagree to 7 = Strongly Agree	I clearly understood why the product/service was recommended to me.	(Köcher et al., 2019)
Explanation	Transparency of the retailer	1 = Strongly Disagree to 7 = Strongly Agree	The retailer was transparent about why the product/service was recommended to me.	(Köcher et al., 2019)
Fit	Targets unique individuals	1 = Strongly Disagree to 7 = Strongly Agree	The recommendation targeted me as a unique individual.	(Bleier & Eisenbeiss, 2015; Kalyanaraman & Sundar, 2006)
Fit	Personalization according to individual needs	1 = Strongly Disagree to 7 = Strongly Agree	The recommendation I received was "personalized" according to my interests.	(Bleier & Eisenbeiss, 2015; Kalyanaraman & Sundar, 2006)
Fit	Tailored to individuals	1 = Strongly Disagree to 7 = Strongly Agree	The recommendation was tailored to me.	(Bleier & Eisenbeiss, 2015; Kalyanaraman & Sundar, 2006)
Satisfaction with Recommendations	Overall Quality	1 = Strongly Disagree to 7 = Strongly Agree	I believe that this is a good-quality recommendation.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Satisfaction with Recommendations	Quality as Customization	1 = Strongly Disagree to 7 = Strongly Agree	The recommendation provided met my personal requirements.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Satisfaction with Recommendations	Overall Satisfaction	1 = Strongly Disagree to 7 = Strongly Agree	I am satisfied with the recommendation I received.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Satisfaction with Recommendations	Confirmation of Expectations	1 = Strongly Disagree to 7 = Strongly Agree	The recommendation I received exceeded my expectations with the retailer.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Satisfaction with Recommendations	Comparison to Ideal	1 = Strongly Disagree to 7 = Strongly Agree	The product/service I chose after receiving the recommendation perfectly meets the ideal product/service I imagined.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Customer Satisfaction with Product Choice	Overall Quality	1 = Strongly Disagree to 7 = Strongly Agree	I believe that this is a good-quality product/service.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)

Customer Satisfaction with Product Choice	Quality as Customization	1 = Strongly Disagree to 7 = Strongly Agree	The product/service met my personal requirements.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Customer Satisfaction with Product Choice	Price given Quality	1 = Strongly Disagree to 7 = Strongly Agree	Given the quality of the product/service, the price offered by the retailer is good.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Customer Satisfaction with Product Choice	Overall Satisfaction	1 = Strongly Disagree to 7 = Strongly Agree	I am satisfied with the product/service I chose.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Customer Satisfaction with Product Choice	Confirmation of Expectations	1 = Strongly Disagree to 7 = Strongly Agree	The product/service I chose exceeded my expectations.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Customer Satisfaction with Product Choice	Comparison to Ideal	1 = Strongly Disagree to 7 = Strongly Agree	The product/service I chose perfectly meets the ideal product/service I imagined.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006)
Repurchase Intentions	Unlikely/Likely	1 = Strongly Disagree to 7 = Strongly Agree	I will very likely buy a product/service from this retailer again.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006; Spears & Singh, 2004)
Repurchase Intentions	Impossible/Possible	1 = Strongly Disagree to 7 = Strongly Agree	I will possibly buy a product/service from this retailer again.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006; Spears & Singh, 2004)
Repurchase Intentions	Definitely do not intend to buy/Definitely intend to buy	1 = Strongly Disagree to 7 = Strongly Agree	I definitely intend to buy a product/service from this retailer again.	(<i>American Customer Satisfaction Index</i> , 2008; Hult et al., 2017; Morgan & Rego, 2006; Spears & Singh, 2004)
Likelihood to Recommend	Recommendation	1 = Strongly Disagree to 7 = Strongly Agree	I am very likely to recommend this retailer to a friend or colleague.	(<i>American Customer Satisfaction Index</i> , 2008; Burnham & Leary, 2018; Morgan & Rego, 2006)
Likelihood to Recommend	Suggestion	1 = Strongly Disagree to 7 = Strongly Agree	I am very likely to suggest this retailer to a friend or colleague.	(<i>American Customer Satisfaction Index</i> , 2008; Burnham & Leary, 2018; Morgan & Rego, 2006)
Likelihood to Recommend	Say positive things about the retailer	1 = Strongly Disagree to 7 = Strongly Agree	I am very likely to say something good about the retailer to a friend or colleague.	(<i>American Customer Satisfaction Index</i> , 2008; Burnham & Leary, 2018; Morgan & Rego, 2006)

Appendix 2: Online Survey

Start of Block: Default Question Block

Introduction: This survey is being conducted by a master student for the thesis purpose. The survey is expected to take about 8 minutes to complete. Your participation is entirely voluntary. PLEASE SELECT THE LANGUAGE FOR THE SURVEY: ENGLISH OR PORTUGUESE. The survey is anonymous, and the data collected is strictly confidential and will only be used for the purpose of the thesis.

Your response to this survey is relevant and very useful for the study! If you wish to continue to the survey, please press the button.

Thank you in advance for your participation!

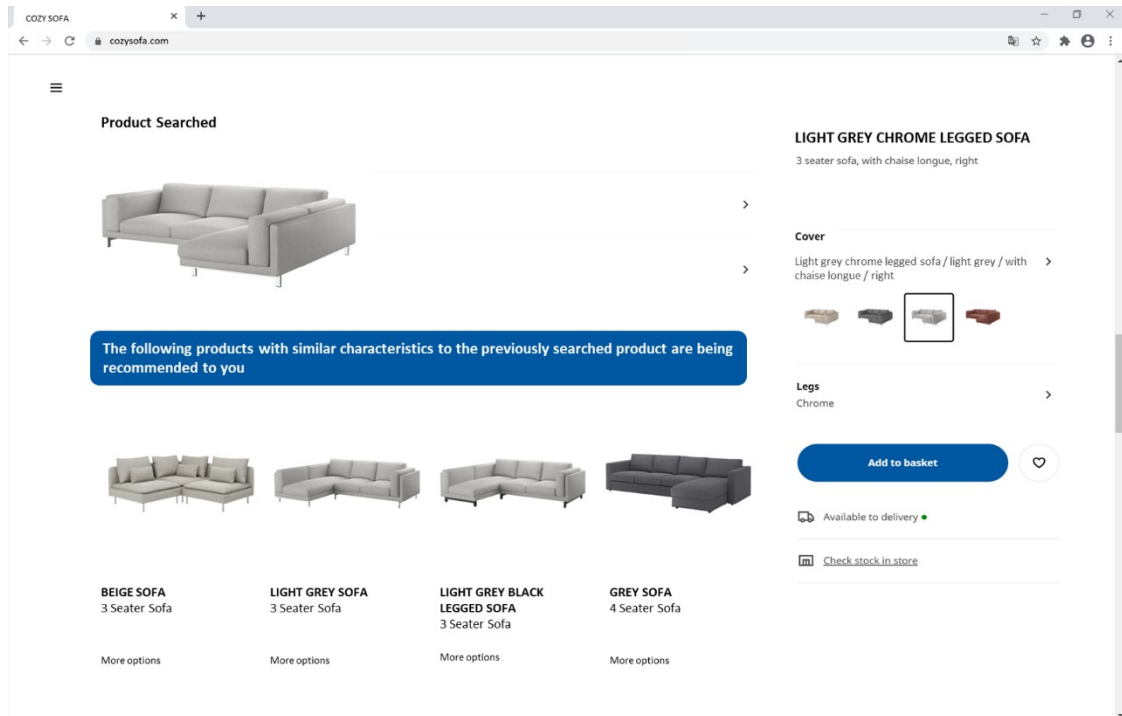
Page Break

Q1: Do you know what a personalized product recommendation is?

- No
- Yes

Page Break

Definition A personalized product recommendation is a suggestion that a company can provide to a user who is searching a product in a company's digital platform. The intent of a recommendation is to predict individuals' interests and needs by providing a related product(s) that are expected to be of interest to the customer. Below there is one example of a product being searched by a customer and examples of possible recommendations related to the product. Please look at the example to guarantee you fully understand what personalized product recommendations are and then press the button to continue.



Page Break

Q2: Have you ever received a personalized product/service recommendation before (e.g.: a recommendation tailored to you like a book, a piece of clothing, a pair of shoes, or another product/service)?

- No
- Yes

Skip To: End of Survey If Have you ever received a personalized product/service recommendation before (e.g.: a recommendati... = No

Page Break

Recall: Think about the last time you received a personalized product/service recommendation from a retailer and acquired a product/service from that same retailer. Please answer the questions of the rest of the survey **BASED ON THIS EXPERIENCE**.

Q3: Do you remember the name of the RETAILER (e.g.: Amazon, Zara, Ikea, Nike) which provided you the personalized recommendation and the PRODUCT/SERVICE (e.g.: book, piece of clothing, furniture, sneakers) for which you received the recommendation?

- No
- Yes

Skip To: End of Survey If Do you remember the name of the RETAILER (e.g.: Amazon, Zara, Ikea, Nike) which provided you the... = No

Page Break

Q4: What is the name of the RETAILER which provided you the personalized product/service recommendation?

Q5: What PRODUCT/SERVICE was the personalized product recommendation about?

Page Break

Q6: Please evaluate the extent to which you agree with the following statement CONCERNING YOUR EXPERIENCE in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

The retailer which provided the recommendation is...

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
Very honest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very reliable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responsible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understands consumers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Always professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Well-intentioned in its actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q7: Please evaluate the extent to which you agree with the following statement CONCERNING YOUR EXPERIENCE in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
It bothers me that the retailer is able to track information about me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am concerned that the retailer has too much information about me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It bothers me that the retailer is able to access information about me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am concerned that my information could be used in ways I could not foresee.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q8: Please evaluate the extent to which you agree with the following statement CONCERNING YOUR EXPERIENCE in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
I believe I received a convincing explanation for why the product/service was recommended to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I clearly understood why the product/service was recommended to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The retailer was transparent about why the product/service was recommended to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Page Break _____

Q9: Please evaluate the extent to which you agree with the following statement CONCERNING YOUR EXPERIENCE in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
The recommendation targeted me as a unique individual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The recommendation I received was "personalized" according to my interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The recommendation was tailored to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q10: Please evaluate the extent to which you agree with the following statements REGARDING THE PERSONALIZED PRODUCT RECOMMENDATION YOU RECEIVED in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
I believe that this is a good-quality recommendation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The recommendation provided met my personal requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the recommendation I received.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The recommendation I received exceeded my expectations with the retailer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The product/service I chose after receiving the recommendation perfectly meets the ideal product/service I imagined.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q11: Please evaluate the extent to which you agree with the following statements REGARDING THE PRODUCT YOU BOUGHT in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
I believe that this is a good-quality product/service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The product/service met my personal requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Given the quality of the product/service, the price offered by the retailer is good.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the product/service I chose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The product/service I chose exceeded my expectations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The product/service I chose perfectly meets the ideal product/service I imagined.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q12: Please evaluate the extent to which you agree with the following statement CONCERNING YOUR EXPERIENCE in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
I will very likely buy a product/service from this retailer again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will possibly buy a product/service from this retailer again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I definitely intend to buy a product/service from this retailer again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q13: Please evaluate the extent to which you agree with the following statement CONCERNING YOUR EXPERIENCE in a scale from “1 = Strongly Disagree” to “7 = Strongly Agree”.

	1 - Strongly Disagree	2 - Disagree	3 - Somewhat Disagree	4 - Neither Agree nor Disagree	5 - Somewhat Agree	6 - Agree	7 - Strongly Agree
I am very likely to recommend this retailer to a friend or colleague.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am very likely to suggest this retailer to a friend or colleague.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am very likely to say something good about the retailer to a friend or colleague.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Page Break _____

Q14: What is your gender?

- Male
 - Female
 - Prefer not to say
-

Q15: How old are you?

- Less than 18
 - 18-24
 - 25-34
 - 35-44
 - 45-54
 - 55-64
 - Over 64
-

Q16: What is your marital status?

- Single
 - Married
 - Divorced/ Separated
 - Widowed
-

Q17: What is the combined monthly income of your household after the deduction of tax?

- Less than 500€
 - 501€-1000€
 - 1001€-1500€
 - 1501€-2000€
 - 2001€-2500€
 - 2501€-3000€
 - More than 3000€
 - Prefer not to say
-

Q18: What is your current occupation?

- Student
 - Employed
 - Self-employed
 - Unemployed
 - Retired
-

Q19 What is your country of origin?

Nationality: (1)

▼ Afghanistan (1) ... Zimbabwe (191)

Page Break

End of Block: Default Question Block

Appendix 3: Prior Knowledge of the Personalized Product Recommendation Concept

Prior Knowledge of the Personalized Product Recommendation Concept	N	%
No	185	25.5%
Yes	540	74.5%
Total	725	100.0%

Appendix 4: Screening Questions

Screening Question 1 – Received Personalized Product Recommendation before	N	%
No	81	11.2%
Yes	644	88.8%
Total	725	100.0%

Screening Question 2 – Remember Product and Retailer	N	%
No	193	30.0%
Yes	451	70.0%
Total	644	100.0%

Appendix 5: Sample

Sample	N	%
Screening Question 1	81	11.2%
Screening Question 2	193	26.6%
Data Cleansing	34	4.7%
Valid Sample	417	57.5%
Total	725	100.0%

Appendix 6: Product & Retailer Recall

Product Recall	N	%
Clothing item	98	23.5%
Book	71	17.0%
Furniture	67	16.1%
Pair of shoes	40	9.6%
Electronic gadget	35	8.4%
Accessories	17	4.1%
Home wear	16	3.8%
Food	11	2.6%
Others	62	14.9%
Total	417	100.0%

Retailer Recall	N	%
Amazon	73	17.5%
IKEA	60	14.4%
Zara	36	8.6%
Fnac	21	5.0%
Worten	13	3.1%
Nike	13	3.1%
Mango	12	2.9%
Wook	10	2.4%
Others	179	42.9%
Total	417	100.0%

Appendix 7: Demographics

Gender	N	%
Male	125	30.0%
Female	289	69.3%
Prefer not to say	3	0.7%
Total	417	100.0%

Age	N	%
Less than 18	21	5.0%
18-24	159	38.1%
25-34	34	8.2%
35-44	50	12.0%
45-54	106	25.4%
55-64	27	6.5%
Over 64	20	4.8%
Total	417	100.0%

Marital Status	N	%
Single	226	54.2%
Married	145	34.8%
Divorced/Separated	40	9.6%
Widowed	6	1.4%
Total	417	100.0%

Monthly Household Income	N	%
Less than 500€	18	4.3%
501€-1000€	30	7.2%
1001€-1500€	34	8.2%
1501€-2000€	64	15.3%
2001€-2500€	34	8.2%
2501€-3000€	23	5.5%
More than 3000€	130	31.2%
Prefer not to say	84	20.1%
Total	417	100.0%

Occupation	N	%
Student	156	37.4%
Employed	186	44.6%
Self-employed	46	11.0%
Unemployed	6	1.4%
Retired	23	5.5%
Total	417	100.0%

Country of origin	N	%
Portugal	397	95.2%
Brazil	5	1.2%
Germany	3	0.7%
Cape Verde	2	0.5%
Belgium	2	0.5%
France	2	0.5%
Others	6	1.4%
Total	417	100.0%

Appendix 8: Hypotheses Status

Hypotheses	Status
H1: Privacy concerns regarding recommendations negatively influence customer satisfaction with personalized product recommendations.	Supported
H2: The explanation of recommendations positively influences customer satisfaction with personalized product recommendations.	Supported
H3: The fit of recommendations with the customer positively influences customer satisfaction with personalized product recommendations.	Supported
H4: Trust in the organization providing recommendations positively influences customer satisfaction with personalized product recommendations.	Supported
H5: The effect of trust in the organization providing recommendations on customer satisfaction with personalized product recommendations is mediated by privacy concerns.	Supported
H6: Customer satisfaction with personalized product recommendations positively influences customer satisfaction with product choice.	Supported
H7: Customer satisfaction with personalized product recommendations positively influences the likelihood to recommend.	Supported
H8: Customer satisfaction with personalized product recommendations positively influences repurchase intentions.	Supported
H9: Customer satisfaction with product choice positively influences the likelihood to recommend.	Supported
H10: Customer satisfaction with product choice positively influences repurchase intentions.	Supported
H11: The positive effect of customer satisfaction with personalized product recommendations on the likelihood to recommend is mediated by customer satisfaction with product choice.	Supported
H12: The positive effect of customer satisfaction with personalized product recommendations on repurchase intentions is mediated by customer satisfaction with product choice.	Supported
H13: The likelihood of consumers to recommend the retailer to other people positively influences their repurchase intentions.	Supported
H14: The positive effect of customer satisfaction with personalized product recommendations on repurchase intentions is mediated by the positive effect of customer satisfaction with product choice on the likelihood to recommend.	Supported

Appendix 9: Product Involvement

Product Involvement	N	%
Low Involvement Products	51	12.2%
High Involvement Products	366	87.8%
Total	417	100.0%