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Personalized e-commerce services: the role of emotions on customer behavior

by

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Abstract

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The present doctoral dissertation examines the different ways that emotions may influence customer behavior during personalized online shopping. The majority of the research in the area focuses on the examination of customers' cognitive and utilitarian motivations. Nonetheless, since customers develop different emotions when shopping online it is critical to investigate their role in the purchase process and create frameworks that will include both emotions and cognitive perceptions.

To identify the role of emotions in personalized online shopping an exploratory empirical study is performed. A research model is proposed which focuses on emotions, thus it includes both positive and negative emotions, and personalization as an antecedent of emotions and intention to purchase. The model is tested with a sample of 182 online customers, and the findings indicate that emotions should be studied together (i.e., positive and negative) and that personalization only affects positive emotions. Further, the results determine the mediating role of positive emotions on the effect of personalized on customers' intention. This exploratory study offers implications for both theory and

practice, but more importantly paves the way for the next empirical study as, among others, it suggests that emotions should be examined as a multidimensional factor.

The second empirical study takes a holistic approach on the role of emotions in personalized online shopping. The study is divided into two parts, builds on two different theories and two research models are proposed. First, the theory of complexity is applied in order to explain, through a conceptual model, the casual patterns of the factors (i.e., cognitive perceptions and emotions) that stimulate online shopping behavior. The research propositions are validated by employing a fuzzy-set qualitative comparative analysis (fsQCA) on a sample of 582 experienced online shoppers. Second, a theoretical framework is built based on the information processing theory. Following, a research model is proposed, which also includes customer persuasion as an antecedent of intention to purchase. This model is tested by applying structural equation modeling, in order to examine the effect of cognitive perceptions on customer persuasion, and the moderating effects of emotions on the effect of persuasion on intention to purchase.

The findings indicate that for customers to make a decision, cognitive perceptions are more important than emotions. However, the role of emotions may become critical when the customer do not have any other source of information (e.g., perceptions on cognitive factors are low). Furthermore, positive emotions are more decisive than negative ones as, (i) they have a high positive direct effect on intention to purchase, (ii) mediate the effect of personalization on intention to purchase, (iii) moderate the effect of persuasion on intention to purchase, and (iv) are able to lead to high intention to purchase when cognitive perceptions are low. Finally, the multidimensional examination of emotions suggests that certain types of them are likely to neutralize or dominate the others.

The present dissertation offers multiple theoretical, methodological, and practical implications. The findings extend theories and theoretical models that have been used to explain customer behavior in online shopping. These models should be reexamined in order to include affective factors and emotions. In addition, the implementation of complexity theory in the area of personalized online shopping, coupled with the application of fsQCA offers new ways on theory building in the area. Lastly, the results indicate that online retailers should consider different marketing strategies when they offer personalized services, by taking into account their emotions and how they feel when they receive such services. Managers should follow a two-step approach when designing their online personalized strategies, focusing first on the rational dimension of the purchase process, and secondly on the affective qualities that occur from the rationally-driven judgments.

Abstract (In Greek)

Η παρούσα διατριβή μελετά τον ρόλο των συναισθημάτων στην συμπεριφορά των καταναλωτών όταν πραγματοποιούν ηλεκτρονικές αγορές χρησιμοποιώντας εξατομικευμένες υπηρεσίες. Η έρευνα που πραγματοποιήθηκε στα πλαίσια της διατριβής, παρουσιάζεται στα παρακάτω επτά κεφάλαια.

Στο πρώτο κεφάλαιο γίνεται η εισαγωγή στις έννοιες και το πρόβλημα το οποίο πραγματεύεται η διατριβή. Πιο συγκεκριμένα το κεφάλαιο αυτό παρουσιάζει το κίνητρο της συγκεκριμένης διατριβής καθώς επίσης και τα ερευνητικά ερωτήματα τα οποία μελετώνται. Το κεφάλαιο αυτό κλείνει παρουσιάζοντας μια σύνοψη των υπόλοιπων κεφαλαίων της διατριβής.

Στο δεύτερο κεφάλαιο γίνεται η βιβλιογραφική ανασκόπηση του γνωστικού πεδίου των εξατομικευμένων ηλεκτρονικών αγορών με έμφαση στο πως οι συγκεκριμένου είδους αγορές επηρεάζουν την αγοραστική συμπεριφορά των καταναλωτών στο διαδίκτυο, αλλά και κατά πόσο πείθουν τους καταναλωτές να προχωρήσουν σε μια αγορά ηλεκτρονικά. Σκοπός του κεφαλαίου αυτού είναι να παρουσιάσει την έρευνα η οποία έχει γίνει στο χώρο, ώστε να παράσχει το απαραίτητο υπόβαθρο για την μετέπειτα μελέτη. Συγκεκριμένα, παρουσιάζονται βασικές θεωρίες και ερευνητικά μοντέλα που έχουν χρησιμοποιηθεί για να εξηγήσουν ή να προβλέψουν την πρόθεση των καταναλωτών να κάνουν ηλεκτρονικές αγορές χρησιμοποιώντας εξατομικευμένες υπηρεσίες. Στη συνέχεια παρουσιάζονται και αναλύονται πρόσφατες έρευνες και εμπειρικές μελέτες πάνω στις εξατομικευμένες ηλεκτρονικές αγορές.

Στο τρίτο κεφάλαιο παρουσιάζεται η σχετική βιβλιογραφία που αφορά τα συναισθήματα, δίνοντας έμφαση στη σημαντικότητα τους στις ηλεκτρονικές αγορές, αλλά και στην μελέτη τους σχετικά με τις εξατομικευμένες υπηρεσίες οι οποίες έχουν σκοπό να επηρεάσουν την συμπεριφορά των καταναλωτών. Το κεφάλαιο ξεκινάει με μια σύντομη αναφορά στους λόγους για τους οποίους πρέπει να μελετώνται τα συναισθήματα, στη συνέχεια αναφέρονται ορισμοί και εξηγείται τι είναι τα συναισθήματα. Στη συνέχεια παρουσιάζονται οι βασικές θεωρίες που έχουν χρησιμοποιηθεί στη βιβλιογραφία για την μελέτη των συναισθημάτων στο πλαίσιο των τεχνολογιών πληροφορίας και επικοινωνίας, και των κοινωνικών επιστημών. Ακολουθεί μια ανάλυση σε βάθος των προηγούμενων ερευνών που μελετούν τα συναισθήματα στο πλαίσιο των ηλεκτρονικών αγορών και των εξατομικευμένων υπηρεσιών.

Το τέταρτο κεφάλαιο είναι μια διερευνητική μελέτη με σκοπό να καταγράψει την ύπαρξη των συναισθημάτων στις εξατομικευμένες ηλεκτρονικές αγορές. Το κεφάλαιο επεκτείνει τη βιβλιογραφία που αφορά τις εξατομικευμένες υπηρεσίες σχετικά με τα συναισθήματα που νοιώθουν οι πελάτες όταν πραγματοποιούν οι ηλεκτρονικές αγορές. Παρουσιάζεται η εμπειρική μελέτη βασισμένη σε 182 χρήστες εξατομικευμένων υπηρεσιών που πραγματοποιούν μέσω αυτών ηλεκτρονικές αγορές. Τα αποτελέσματα της διερευνητικής μελέτης δείχνουν την σημαντικότητα των ποιοτικών εξατομικευμένων υπηρεσιών στις ηλεκτρονικές αγορές, οι οποίες μπορούν να δημιουργήσουν θετικά συναισθήματα στους καταναλωτές, ενώ αντίθετα δεν μειώνουν ή αυξάνουν τα αρνητικά τους συναισθήματα. Παρόλα αυτά, τα αποτελέσματα δείχνουν ότι τα συναισθήματα που δημιουργούνται κατά τη χρήση

εξατομικευμένων υπηρεσιών, αυξάνουν την πρόθεση των χρηστών όταν είναι θετικά, ή μειώνουν την πρόθεση τους όταν είναι αρνητικά. Στο κεφάλαιο παρουσιάζονται σημαντικά συμπεράσματα για ερευνητές αλλά και για τα ίδια τα ηλεκτρονικά καταστήματα, ενώ παράλληλα φαίνεται ότι τα συναισθήματα, θετικά και αρνητικά, μπορούν να συνυπάρχουν ανοίγοντας το δρόμο για την περαιτέρω έρευνα τους.

Στο πέμπτο κεφάλαιο παρουσιάζεται η συνδυαστική σχέση των συναισθημάτων και των γνωστικών χαρακτηριστικών των καταναλωτών όσον αφορά την συμπεριφορά τους όταν κάνουν ηλεκτρονικές αγορές μέσω εξατομικευμένων υπηρεσιών. Η εμπειρική μελέτη που παρουσιάζεται σε αυτό το κεφάλαιο είναι βασισμένη στη θεωρία της πολυπλοκότητας (complexity theory), και έχει ως στόχο να κατανοήσει και να εξηγήσει τα αιτιώδη μοτίβα (causal patterns) που σχηματίζονται μεταξύ των παραγόντων που επηρεάζουν την συμπεριφορά των καταναλωτών. Στο κεφάλαιο αναγνωρίζεται η σημαντικότητα των συναισθημάτων και των γνωστικών χαρακτηριστικών και προτείνεται ένα εννοιολογικό μοντέλο που εξηγεί την πρόθεση των καταναλωτών να αγοράσουν μέσω εξατομικευμένων υπηρεσιών. Το μοντέλο εξετάζεται με ένα δείγμα 582 καταναλωτών που πραγματοποιούν ηλεκτρονικές αγορές μέσω εξατομικευμένων υπηρεσιών. Τα αποτελέσματα δείχνουν ότι υπάρχουν διάφοροι συνδυασμοί (συναισθημάτων και γνωστικών χαρακτηριστικών) που μπορούν να οδηγήσουν σε υψηλή πρόθεση για αγορές. Επιπλέον, αναγνωρίζεται ότι τα γνωστικά χαρακτηριστικά είναι πιο σημαντικά από τα συναισθήματα, ενώ όταν απουσιάζουν τα πρώτα, τότε οι καταναλωτές αποφασίζουν με βάση το πως αισθάνονται. Τέλος, το κεφάλαιο κλείνει

με τη συμβολή της παρούσας εμπειρικής μελέτης στη θεωρία που αφορά τις εξατομικευμένες ηλεκτρονικές αγορές και στα καταστήματα που τις προσφέρουν.

Το έκτο κεφάλαιο έχει σκοπό να εξετάσει την διαδικασία των εξατομικευμένων ηλεκτρονικών αγορών, τον ρόλο των συναισθημάτων και των γνωστικών χαρακτηριστικών σε αυτή. Βασιζόμενοι στην θεωρία επεξεργασίας πληροφοριών προτείνεται ένα θεωρητικό μοντέλο το οποίο εξηγεί την διαδικασία μιας ηλεκτρονικής αγοράς. Σύμφωνα με το μοντέλο αυτό, τα γνωστικά χαρακτηριστικά θα πείσουν τον καταναλωτή να κάνει μια αγορά με βάση τις εξατομικευμένες υπηρεσίες, αλλά τα συναισθήματα του θα επηρεάσουν την τελική του πρόθεση να αγοράσει. Το μοντέλο εξετάζεται με το δείγμα των 582 ατόμων του κεφαλαίου 5. Τα αποτελέσματα επιβεβαιώνουν ότι τα γνωστικά χαρακτηριστικών είναι πολύ σημαντικά και μπορούν να πείσουν τους πελάτες να πραγματοποιήσουν μια αγορά. Επιπλέον, φαίνεται ότι τα θετικά συναισθήματα είναι ικανά να αυξήσουν την πρόθεση ενός καταναλωτή που έχει πεισθεί να αγοράσει, ενώ τα αρνητικά δεν την επηρεάζουν. Το κεφάλαιο κλείνει με τα συμπεράσματα τα οποία επεκτείνουν την υπάρχουσα βιβλιογραφία, και προσφέρει πολύτιμες προτάσεις για το εξατομικευμένο μάρκετινγκ στις ηλεκτρονικές αγορές.

Στο τελευταίο κεφάλαιο παρουσιάζεται η συνολική συνεισφορά της διατριβής και οι απαντήσεις οι οποίες προέκυψαν μέσα από τις εμπειρικές έρευνες. Επιπλέον παρουσιάζονται οι επιπτώσεις των αποτελεσμάτων σε θεωρητικά, μεθοδολογικά αλλά και πρακτικά θέματα. Κατόπιν, συζητούνται οι περιορισμοί οι οποίοι υπήρχαν στις εμπειρικές μελέτες αλλά και οι νέες δυνατότητες οι οποίες αναπτύχθηκαν για περαιτέρω έρευνα.

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The research of this thesis has directly or indirectly inspired the work of the following publications.

Journal Papers

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2. **Pappas, I.O.**, Kourouthanassis P.E., Papavlasopoulou, S., & Chrissikopoulos, V. (2015). Emotions in Motion: The Combined Effect of Positive and Negative Emotions on Personalized Online Shopping. *International Journal of Online Marketing*, (under review).
3. **Pappas, I.O.**, Kourouthanassis P.E., Giannakos, M.N., & Chrissikopoulos, V. (2015). Explaining online shopping behavior with fsQCA: The role of cognitive and affective perceptions. *Journal of Business Research*. [doi:10.1016/j.jbusres.2015.07.010](https://doi.org/10.1016/j.jbusres.2015.07.010) [Impact Factor 2014 = 1.480] [ABS Academic Journal Guide Ranking 2015 = 3]
4. **Pappas, I.O.**, Kourouthanassis P.E., Giannakos, M.N., & Chrissikopoulos, V. (2014). Shiny happy people buying: The role of emotions on personalized e-shopping. *Electronic Markets*, 24(3), 193-206. doi: 10.1007/s12525-014-0153-y [Impact Factor 2014 = 0.935] [ABS Academic Journal Guide Ranking 2015 = 2]

5. **Pappas, I.O.**, Pateli A., Giannakos, M.N., & Chrissikopoulos, V. (2014). Moderating effects of online shopping experience on customer satisfaction and repurchase intentions, *International Journal of Retail & Distribution Management* 42(3), 187-204. [doi:10.1108/IJRDM-03-2012-0034](https://doi.org/10.1108/IJRDM-03-2012-0034) [ABS Academic Journal Guide Ranking 2015 = 2]
6. **Pappas, I.O.**, Giannakos, M.N., & Chrissikopoulos, V. (2013). Do Privacy and Enjoyment Matter in Personalized Services? *International Journal of Digital Society (IJDS)*, 4(1-2), 705-713.

Papers in Refereed Conference Proceedings

1. **Pappas, I.O.**, Kourouthanassis P.E., & Papavlasopoulou, S. (2014). Towards emotional satisfaction in social network services use. In proceedings of the 8th Mediterranean Conference on Information Systems (MCIS 2014), Verona, 2014.
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3. **Pappas, I.O.**, Giannakos, M.N., & Chrissikopoulos, V. (2012). Personalized services in online shopping: Enjoyment and privacy. In Information Society (i-Society), 2012 IEEE International Conference on, (pp. 168-173). ISBN: 978-1-4673-0838-0
4. **Pappas, I.**, Giannakos, MN., Pateli, A., Chrissikopoulos, V. (2011). Online Purchase Intention: Investigating the Effect of the Level of Customer Perceptions on Adoption, IADIS International Conference e-Society, 456-460. ISBN: 978-972-8939-46-5

*Specially dedicated to my beloved family,
my parents Odysseas and Sofia, and my brother George.*

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Chapter 1 Introduction

This chapter provides a description of the work conducted within this research. It starts by presenting the research problem on section 1.1, followed by the research objectives on section 1.2. Next, section 1.3 presents the research questions of this research, and section 1.4 describes the research approach that was followed. Finally, section 1.5 presents the outline of the thesis and the chapter ends with a summary.

1.1 Research problem

Over the past years, in the broad field of personalization, there has been a lot of research (Kramer, 2007; Bodapati, 2008). It has focused on recommender systems (Adomavicius & Tuzhilin, 2005; Xiao & Benbasat, 2007), comparison agents (Yuan, 2003; Wan et al. 2007;), privacy concerns (Preibusch, 2005; Risch & Schubert, 2005), human-computer interfaces (Esswein et al., 2003; Kumar et al., 2004) and personalization as a marketing approach (Pal & Rangaswamy, 2003; Schubert & Koch, 2002). Nonetheless, there is limited research on the acceptance of personalized services from customers and their effect on their loyalty (Baier & Stuber, 2010). Also, there is not enough knowledge concerning the effect of personalization systems on customers' future behavior (Kwon et al., 2010). Although personalized services seem like a very good solution to the problems of too much information and too many choices, such services are not widely accepted from customers (Murray & Haubl, 2008). Personalization is mostly based on customers' personal and private data, however, gathering and using consumers' information has a downside; it may be considered as an invasion to the consumers' privacy (Nah & Davis 2002) with various effects on their overall behavior.

Research has focused on making personalization more useful in an attempt to offer more specific services, because it is clear that the more useful a technology is, the more likely is to be adopted. To this end, the majority of the studies mainly focus on examining customers' cognitive perceptions and utilitarian motivations. Various factors have been proposed and examined in the literature as antecedents of online shopping behavior based on personalized services (e.g., Lee et al., 2010; Xu et al., 2011), but only recently a framework was proposed and tested towards this direction (Ho & Bodoff, 2014), which however focuses also on customers' cognitive perceptions. Previous studies have shown that customers develop affective perceptions, emotions and feelings when shopping online (e.g., Chea & Luo, 2008), and they might be more intense when they use interactive services, such as personalized services, (e.g., Pappas et al., 2014a; 2015a). To this end, not long ago a research framework was proposed to explain the affective perceptions in the context of information and communication technology (Zhang, 2013).

The term affect is a widely used term that includes a set of concepts which are different from each other (Russell, 2003). Affect include concepts such as emotions, mood, feelings, sentiments (Zhang, 2013). Studies in IT examine emotions and also use the term affect to describe them (e.g., Beaudry & Pinsonneault, 2010), or use emotions to measure affect and hedonic values (e.g., Chiu et al., 2014) Although affect is a term much broader than emotions (Russell 2009), this research study focuses on emotions and uses the terms interchangeably. Basic affective concepts and differences among them are discussed by Zhang (2013). Nonetheless, the goal of this study is to focus on emotions in personalized online shopping rather than offer a review on affective concepts.

It is, thus, critical to examine the role of affective perceptions and emotions in personalized online shopping. Although there are studies that explore the relationship between personalization and some types of emotions (e.g. enjoyment, pleasure), few

studies have examined emotions as a whole. Customers might experience both positive and negative emotions at the same time. Consequently, these emotions need to be examined together in an attempt to explain how their effects on customer behavior differ. Positive and negative emotions are two basic, interrelated categories that include all specific emotions, although some of them might belong to both categories depending on the situation.

Cognitive and affective perceptions are critical factors in personalized online shopping, and until now, previous research examines in depth cognitive perceptions or only specific affective perceptions, rather than aiming for a more holistic view. A research framework is needed that will include both types of customers' perceptions, along with a multidimensional approach of the, rather understudied, affective perceptions.

1.2 Motivation and objectives

The motivation for this study was given by the fact that, despite the steady continuous growth of personalized online shopping, customers are still reluctant to use personalized services (Murray & Haubl, 2008). Although in the last decade many studies have tried to examine online personalization (e.g., Xiao & Benbasat, 2007; Ho & Bodoff, 2014; Tam & Ho, 2005) and predict how it may influence customers' behavior, there is limited understanding on why online personalization has low acceptance among online buyers, and how it can be managed to convince customers to proceed to purchase. *To fill this gap in the literature*, the current research sets the following objectives:

Objective 1: Identify the importance of affective perceptions in personalized online shopping through an exploratory study. Various types of affective perceptions have been examined in the literature. We aim to examine together positive and negative emotions.

Objective 2: Provide a deeper understanding of the types of emotions that influence customers' online shopping behavior. Adopt a microanalytic approach regarding their effects on customer behavior. Provide evidence regarding the multidimensional role of emotions in personalized online shopping.

Objective 3: Propose and test a theoretical framework that will explain and predict customers' online behavior in personalized online shopping. Examine how cognitive and affective perceptions relate to each other and how, together, they can help to convince customers proceed to a purchase.

Objective 4: Gain a deeper understanding on how customers perceive online personalized services. Offer insight on how current literature needs to be advanced theoretically, practically or methodologically. Provide suggestions on how managers and decision makers should develop their business strategies in order to increase customer retention and remain competitive in the global marketplace.

1.3 Research questions

Analyzing the literature in personalized online shopping, through a multidimensional scope, raises various questions. Nonetheless, the goal of this study is to explain and predict customers' behavior during personalized online shopping. Thus, this research aims to examine how customers perceive and evaluate online personalized services, and how they feel when they use them.

This work addresses the following research questions:

RQ1: What is the role of emotions in personalized online shopping? How do different types of these perceptions relate to each other? Is one type more important or do they need to be studied together?

RQ2: How do cognitive and affective perceptions regarding personalized services influence customers' online shopping behavior? Which perceptions are more critical in formulated shopping intentions? How do they relate to each other?

1.4 Research approach

This thesis follows a positivist research stance, by adopting a quantitative methodology. Specifically, we design and evaluate user surveys as a research instrument to validate the proposed hypotheses. The approach is capable of clearly reflecting the relation between theory and empirical findings. Following this approach, the study builds on theory that leads to the empirical studies, which in turn influence the theory based on their findings. The research approach follows a cycle which includes planning, executing and the reflecting phase.

The research starts with a deep literature review in personalized online shopping and specifically on the role of affective perceptions and emotions when using personalized services to make online purchases. Through the literature review, the gap in the research and the problems are identified in step 2. Also, in the same step the objectives of the study are set, followed by posing the research questions. As a final part of the planning phase, the hypotheses for the exploratory study are set, which leads the way for the executing phase.

The first part of the executive phase, comprises of an empirical study that examines the relation of personalization, and positive and negative emotions on online shopping behavior. The findings are analyzed and pave the way for the second part of the

executive phase by leading to the creation of the hypotheses and propositions of the two empirical studies that will lead to two research frameworks.

In the second part of the executive phase, an empirical study is conducted. In detail, two research frameworks are proposed and tested based (a) on the information processing theory, and (b) on the complexity and configural theory. The results from the study and the proposed frameworks are analyzed and the findings are presented.

Finally, the reflecting phase includes a discussion of the two empirical studies leading to key theoretical and practical implications. Further, future research propositions are made along with the presentation of the limitations of the study. The study concludes with a feedback on the literature on personalized online shopping.

Following, the figure 1-1 presents the research approach that was followed on this study.

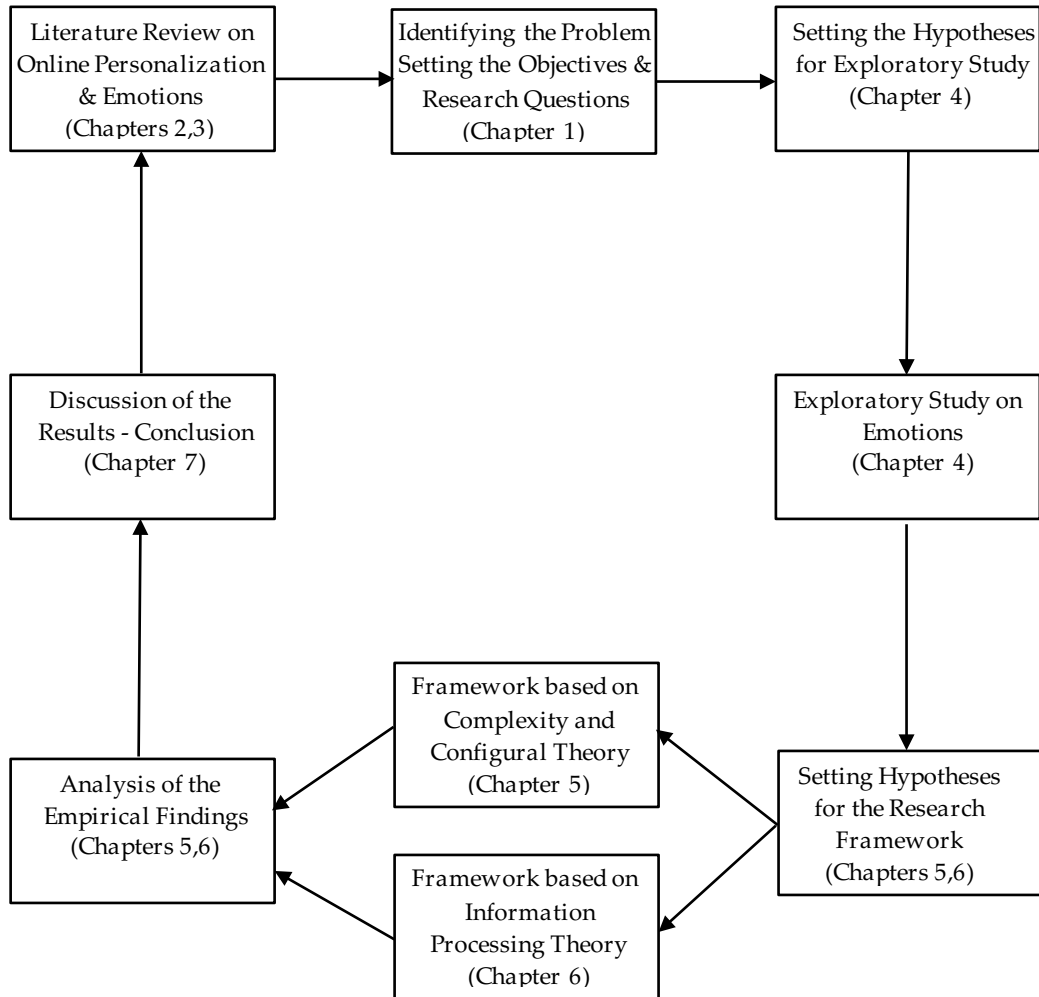


Figure 1-1 Graphical Representation of the research approach

1.5 Thesis outline

The study is organized in seven chapters and each one presents a distinct aspect of the research based on the research approach that was followed. Chapter 1 presents an introduction to the topic of personalized online shopping, followed by the identification of the problem, the objectives of the study and the research questions we aim to address.

In Chapter 2 the current situation regarding personalized online shopping is presented. The chapter starts with an introduction to the basic aspects of the study and presents definitions for personalized online shopping. Next, the background theories and models are presented, such as information processing theory, the elaboration likelihood model and the complexity and configural theory. Further, the related work on personalized online shopping is presented.

Chapter 3 presents a deep analysis regarding affective perceptions and emotions in personalized online shopping. The first part of the chapter makes an introduction to affective perceptions and emotions. Further, relevant theories used in information technologies, online shopping and social sciences are presented. Next the related work regarding emotions in personalized online shopping is evaluated leading to the need to study emotions in personalized online shopping.

Chapter 4 discusses the first empirical study. This chapter, serves as an exploratory study that examines how online personalization affects customers' positive and negative emotions, and how they influence customers' intention to purchase. This study, analyzes the importance of examining together emotions in personalized online shopping. Further, the findings suggest that a multidimensional perspective should be adopted when attempting to measure customers' emotions. Various practical implications for retailers are offered, with focus on how to shape customers' emotions.

Chapter 5 draws from the theory of complexity and configural theory, and proposes and tests a theoretical framework that predicts customers' intention to purchase. The framework includes critical cognitive perceptions as described in the literature, and takes a multidimensional approach towards affective perceptions. The study identifies asymmetric patterns of relationships, between cognitive and affective perceptions. The

results determine different combinations of the two types of perceptions that may all lead to increased intention to purchase. To this end, the study offers a different perspective on how researchers may examine customer behavior in online shopping. Among the various implications for managers, the study suggests different ways on how to interact with different types of customers based on their specific perceptions.

Chapter 6 builds on the information processing theory and proposes a theoretical framework that aims to explain customers' perceived persuasion based on their cognitive perceptions, how persuasion affects their intention to purchase and if emotions moderate this relationship. The findings indicate the importance of persuasion in online shopping, and suggest that persuaded customers will not always have high intention to purchase, but emotions are likely to play an important role. Quality of personalization, message quality and benefits of the personalization are critical antecedents of customers' persuasion. The chapter concludes with multiple implications for both academia and industry.

Chapter 7 concludes this research. A summary and a discussion of the findings from all studies is presented. Next, theoretical and practical implications are presented along with the limitations, with regard to the research problem and the contribution of the study. Finally, suggestions for future research in the area are provided.

1.6 Summary

Chapter 1 makes an introduction to the key issues of personalized online shopping. The research problem is identified, the objectives and the research questions are set. Next the research approach is presented and analyzed. The chapter ends with a step by step description of the study.

Chapter 2 Literature review of personalized online shopping

This chapter discusses current state in the area of personalized online shopping emphasizing on how personalized services affect customers' online behavior, persuasion and intention to purchase. Section 2.1 presents an introduction on personalization offered in online shopping along with its definition. Next, section 2.2 presents critical issues along with basic theories and models that have been used to explain customers' perceived persuasion and predict their intention to purchase using personalized services. Section 2.3, provides a review of the state of the art literature in personalized online shopping and presents majors findings from empirical studies. The chapter ends with a summary of the literature review.

2.1 Introduction

2.1.1 What is online shopping personalization?

Personalization refers to the ability to provide an individual with specific content and services based on knowledge about his or her preferences and behavior. It also refers to the use of technology and customer information to tailor interactions between online shops and individual customers (Adomavicius & Tuzhilin, 2005). Nowadays, personalization has an important role for e-tailers when they plan their strategies regarding the services that they offer. It is critical to create a customer relationship that will give them the chance to communicate with the customers directly and personally. Personalization's goal is to identify and satisfy a special customer or user need. E-commerce, and its transactions which involve selling and buying, is a field of application offered for using personalization methods and techniques.

Various definitions of personalization have been proposed in the literature. For example, Hanson (2000) defines personalization as “A specialized form of product differentiation, in which a solution is tailored for a specific individual” (p. 450). Imhoff et al. (2001) mention that “Personalization is the ability of a company to recognize and treat its customers as individuals through personal messaging, targeted banner ads, special offers on bills, or other personal transactions” (p. 467). Further, Wing & Rangaswamy (2001) suggest that Personalization can be initiated by the customer (e.g. customizing the look and contents of a web page) or by the firm (e.g. individualized offering, greeting customer by name etc.). This study adopts the definition of Roberts [8], who defines personalization as “the process of preparing an individualized communication for a specific person based on stated or implied preferences” (p.462).

It is clear that personalized marketing can bring benefits to both companies and customers. Nonetheless, personalization is not yet widely applied and it seems that it yet has to become as successful as its promises and expectations were (Vesanen, 2007).

2.2 Critical issues in personalized online shopping

Online shopping behavior has been extensively examined over the past decade, and has tried to explain how customers’ orientations, perceptions and beliefs influence their retail evaluations and behavior. Utilitarian attributes affect and motivate customers’ purchases, but with the increase of experience, customers tend to seek hedonic values as well (Bridges & Florsheim, 2008). Previous research has examined customers’ online shopping behavior, by focusing on intention to purchase and persuasion. Previous studies take into account several issues as antecedents of persuasion and intention to purchase, such as benefits from personalization (Yi et al., 2013) and information quality (Lee & Benbasat, 2005). However further empirical analysis is needed that will predict

online shopping behavior, by examining together critical factors of personalized online shopping, such as trust, privacy, cognitive and affective perceptions.

Several models and theories have been used to examine user behavior in online environments and to explain the various factors that affect customers' online shopping behavior. In detail, *information processing theory* (McGuire, 1968), has been successfully applied in online personalization (e.g., Tam & Ho, 2005) making it appropriate for theoretical grounding of propositions towards the prediction of customers' online behavior when using personalized services. In a similar context, The *Elaboration Likelihood Model* (Petty & Cacioppo, 1986), has been used to examine customers' behavior and to explain the persuasion process in personalized online shopping (e.g., Ho & Bodoff, 2014). Further, *regulatory fit theory* (Higgins, 2000, 2005), has been applied to examine the effectiveness of persuasive strategies that aim to affect customers' behavior (Cesario et al., 2008). Extant research (Pappas et al., 2015) has started applying *complexity and configural theory* (von Bertalanffy, 1968) to go beyond symmetrical testing in an attempt to better explain customers' online behavior.

2.2.1 Information processing theory

The information processing theory (McGuire, 1968) mainly describes the processes of human problem solving, characteristics of information system that carries out the processes and the nature of task environment in which the processes operate. The information processing theory has been developed to account for judgment changes in response to rational cues. Newell & Simon (1972) examine human problem solving and posit that in information processing theory when humans are engaged in problem solving, they are represented as information processing systems. Further, substantial *subject* differences exist among programs, that involves the differences of problem structure, method and content. Moreover, substantial *task* differences exist among programs, that

involves differences of structure and content. Finally, task environment and intelligence of problem solver determines the behavior of the problem solver, independently of the detailed internal structure of information processing system.

The theory has been successfully applied in the context of web personalization that aims to explain customers' online behavior and persuasion (e.g., Tam & Ho, 2006). Figure 2-1 presents an example of a conceptual framework built on the information processing theory, used by Tam & Ho (2006) to examine online personalization. However, in problem solving, as for example when having to make a choice based on a personalized recommendation, individuals will base their decision on affective qualities as well (DeSteno et al., 2004). Thus, a theoretical framework is needed that will explain customer behavior based on both cognitive and affective qualities.

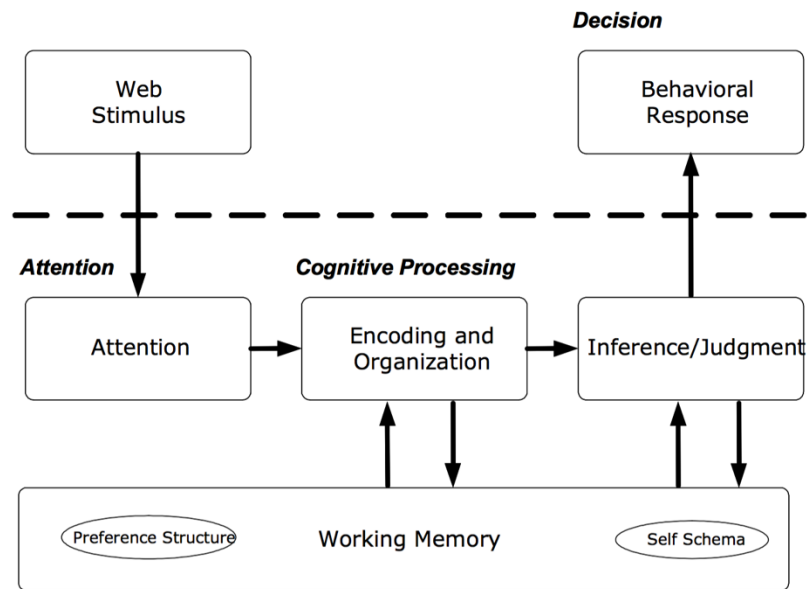


Figure 2-1 A model of human information processing (Tam & Ho, 2006)

2.2.2 Elaboration likelihood model (ELM)

The elaboration likelihood model (ELM) (Petty & Cacioppo, 1986), as a theoretical perspective, is able to explain persuasion processes in Information Technology (Bhattacharjee & Sanford, 2006). More than two decades since the initial ELM publications, further research is needed to specify a theory-based model of message (Crano & Prislin, 2006). ELM models, as presented in Figure 2-1, how a user's elaboration of individual recommendations influences his or her attitude toward the personalization agent as a whole, which in turn influences his or her decision to select a personalized recommendation as the final choice (Ho & Bodoff, 2014; Petty & Cacioppo 1986; Tam & Ho, 2005).

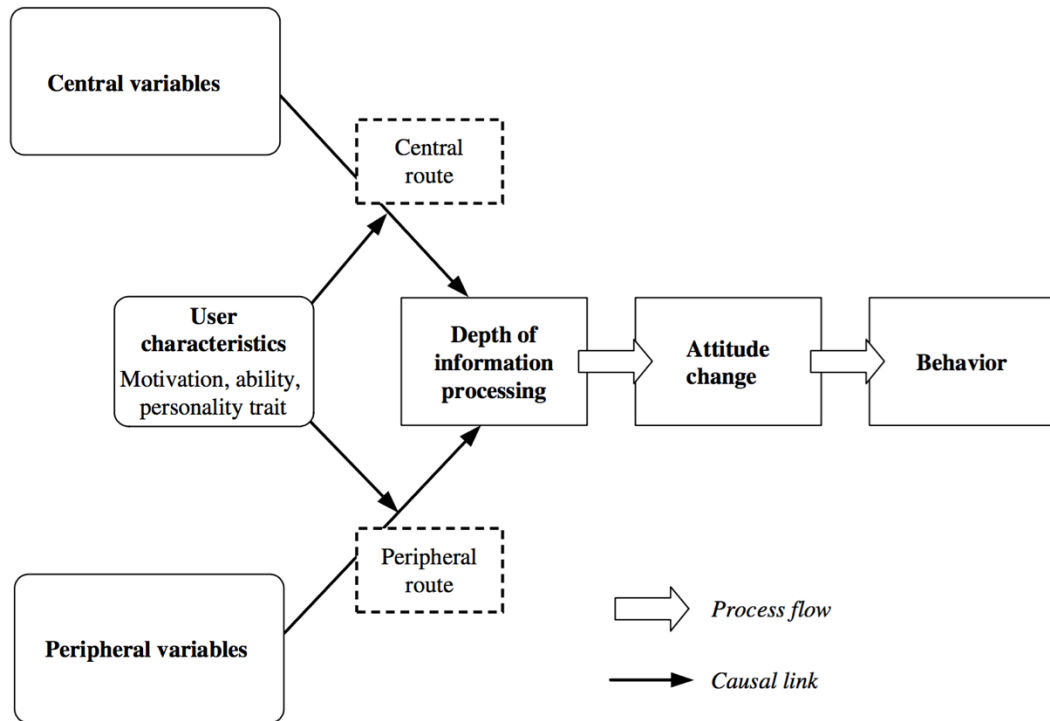


Figure 2-2 Elaboration Likelihood Model (ELM) of persuasion (Tam & Ho, 2005)

Although the ELM models how attitudes form and change, based on persuasiveness, while taking into account factors such as mood and attractiveness, it does not examine persuasion as a separate factor nor it accounts for the effects of emotions on customers' behavior. The ELM demonstrates customers' cognitive responses to recommendations from personalized services, but not their affective responses to them, which are of interest to online retailers who want to know how their customers' feel and maximize their satisfaction (Pappas et al., 2014b). To account for this, we have used regulatory focus theory (Higgins, 2000), which examines how a user behaves based on how he or she feels about a certain judgment.

2.2.3 Regulatory fit theory

Regulatory fit theory, is a widely applied and flexible method that can be used to increase the effectiveness of persuasion strategies that attempt to influence attitudes and behavior (Cesario et al., 2008). Fit is shown to influence judgments and decision making, attitude and behavior change, and task performance (Higgins, 2005). Regulatory fit theory (Higgins, 2000, 2005) is a goal-pursuit theory that places special emphasis on the relation between the motivational orientation of the actor and the manner in which that actor pursues the goal (e.g., the strategic means used by that actor). Cesario et al. (2008) present a short survey of topics that regulatory fit theory has been applied.

People experience regulatory fit when their strategies for goal pursuit match their regulatory orientation (Higgins 2006) (Figure 2-3). In detail, people with a promotion focus, experience fit when they adopt eagerness strategies to pursue their goal, whereas those with a prevention focus, experience fit when they adopt vigilance strategies. People become more engaged and feel right about their reactions when they experience regulatory fit. In turn, these subjective experiences influence their judgments (Lee et al.,

2010). As Lee & Higgins (2009) suggest, an eager strategy that focuses on attaining gains and avoid non-gains, represents regulatory fit for people with promotion focus, but regulatory nonfit for people with prevention focus. On the other hand, a vigilant strategy that focuses to avoid losses and maintain non-losses, presents a regulatory fit for people with prevention focus but a non-fit for people with promotion focus.

		<i>Reward Structure</i>	
		Gains	Losses
<i>Regulatory Focus</i>	Promotion	Regulatory Fit	Regulatory Mismatch
	Prevention	Regulatory Mismatch	Regulatory Fit

Figure 2-3 Overview of states evoking regulatory fit and mismatch (Otto et al., 2010)

Certain strategic means, behaviors, or cognitions sustain or *fit* one's current phenomenological state (e.g., one's mind-set, mood, or regulatory focus) better than others do. When a behavior, cognition, or strategic mean naturally sustains a given phenomenological state, it will not only be the dominant response tendency but will also have an additional experiential quality of *value from fit* (Higgins, 2000). Independent of valued outcomes, people experience a *regulatory fit* when they pursue a goal in a manner that sustains their regulatory orientation. Fit influences the strength of value experiences, how good or how bad one feels about something, independent of the pleasure and pain experiences that are associated with outcomes (Higgins, 2005). Persuasive messages

usually involve some goal to be attained and some means described as the way to attain it.

2.2.4 Theory of complexity and configural theory

“Complexity theory is destined to be the dominant scientific trend of the 1990's ... This revolutionary technique can explain any kind of complex system – multinational corporations, or mass extinctions, or ecosystems such as rainforests, or human consciousness. All are built on the same few rules.” (Lewin, 1992: back cover).

“Relationships between variables can be non-linear with abrupt switches occurring, so the same “cause” can, in specific circumstances produce different effects” (Urry, 2005).

Theory of complexity and configural theory both are based on the core principle of equifinality (von Bertalanffy, 1968), which states that more than possible complex configurations of antecedent conditions (may lead to the same outcome. Configural theory is also based on the principle of causal asymmetry, which states that a cause that leads to a presence of an outcome, may as well be different from the cause that leads to the absence of the same outcome (Ragin, 2008). In other words, the presence of a factor may lead to a certain outcome, but the absence of the same factor may not lead to the absence of that outcome.

Prior research on online shopping and customer behavior makes use of symmetric tests of statistical hypothesis using tools to calculate net effects on outcome conditions. Such statistical tools, as multiple regression analysis (MRA), explicitly assume a symmetrical relationship between variables, thus high values of a variable X (i.e., X can take the form of a simple continuous variable, or can be made up of an equation containing several constructs) associates with high values in a dependent variable Y, and low values of X are associated with low values of Y (Woodside et al., 2015). Thus, a symmetric predication states that high Y needs high X; and low Y needs low X as well. Woodside et al. (2015)

use Figure 2-4 to describe the various relationships that may occur among constructs. In detail, Figure 2-4A presents a rectangular distribution which indicates no significant relation, and Figure 3-4B presents a symmetrical relationship between X and Y. However, usually most relationships in real life are not symmetrical (Ragin, 2008, Woodside et al., 2015). Asymmetrical relations mean that high X is sufficient for high Y, but not necessary, since low X may also lead to high Y (Figure 2-4C). On the other hand, high values of X may be necessary but not sufficient for high Y, as high Y may occur only for high X (Figure 2-4D).

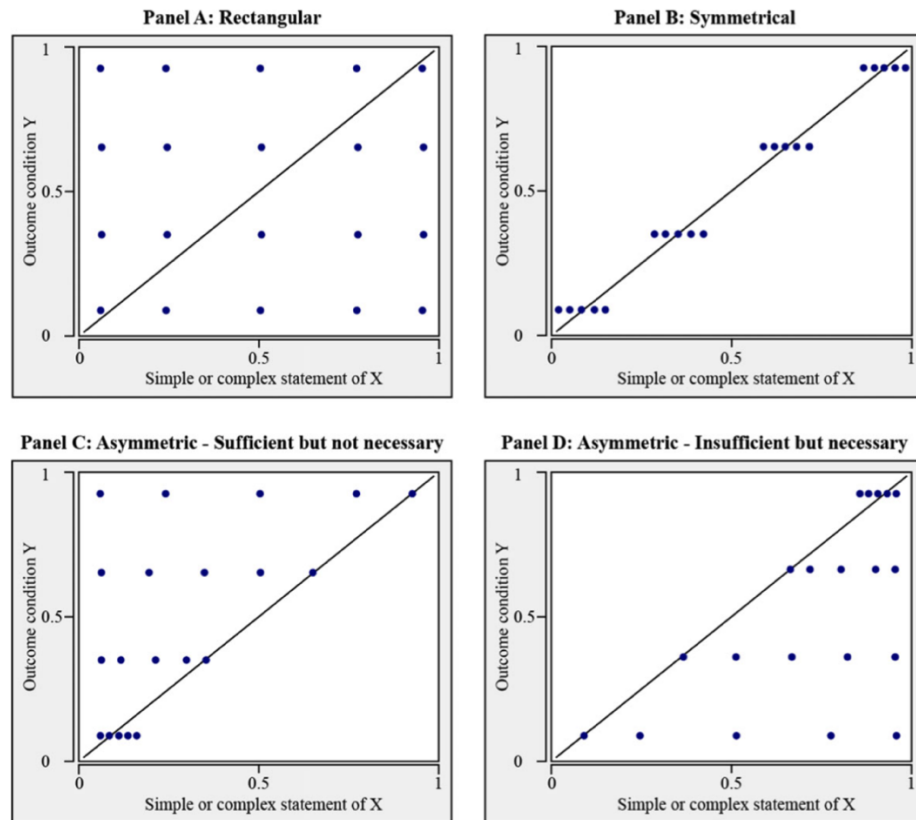


Figure 2-4 Rectangular, symmetric, and asymmetric relationships of 20 cases (Woodside et al., 2015)

2.3 Recent work on personalized online shopping

Over the past years the broad field of personalization has been studied extensively, and Adolphs and Winkelmann (2005) provide a vast overview on the subject. Previous studies show that personalization influences customers purchase intentions. Lee and Park (2009), who study online service personalization attitude, found that it has a positive effect on purchase intention. Website personalization is expected to influence the relation between information content and purchase intention, as depending on the type of information a user receives he or she might consider making a purchase online. Zhang et al. (2012) found that individualism and, by extension services based on that, have a significant influence on purchase intention. Moreover, Moon et al. (2008), try to explain customers' online purchase intention for customized products based on personalization. Their findings indicate that individualism is of major importance when it comes to online customized products and customers' intention to buy them, because such products are tailored to his needs and preferences. The more a customer uses recommendation systems the higher are his purchase intentions.

2.3.1 The role of personalization on formulating shopping behaviors

Online personalization refers to providing customers with tailored content and services based on knowledge obtained through service and user interactions (Adomavicius & Tuzhilin, 2005). Vesanen (2007) provides a list of the different types and definitions of personalization used in literature. Trying to support personalization in e-commerce means dealing with three problems: identifying the customer, gathering information about the customer, and processing data to create a customized service for the customer (e.g. recommender systems) (Adolphs & Winkelmann, 2010).

The broad field of personalization in e-commerce has been researched extensively. Zhou et al. (2007) have posited that personalized services may increase customer loyalty to a certain company, Chang and Chen (2009) have found that personalized services increase customer satisfaction with online shopping, and Adolphs and Winkelmann (2010) have provided a vast overview on the subject. In our study, we have adopted Roberts' (2003) definition of personalization as "the process of preparing an individualized communication for a specific person based on stated or implied preferences" (p.462).

The main goal of personalization is to satisfy customers based on their needs and wants. Previous studies have shown that personalization affects customers' purchase intentions. Specifically, Ha et al. (2010) have found that providing customized information to customers facilitates their behavioral intentions. Thongpapanl and Ashraf (2011), who examined the effect of information content on purchase intention, have found that it is moderated by website personalization. Zhang et al. (2012) have posited that individualism and, by extension, personalization have a significant influence on purchase intention. In addition, Moon et al. (2008) have tried to explain customers' online purchase intentions for personalized products. Their findings suggest that individualism is a major factor when it comes to personalized products and customers' intention to buy them. Dabholkar and Sheng (2011), who study recommendation systems, have concluded that the higher the use of such systems, the higher the intention to purchase.

2.3.2 Cognitive and affective perceptions

Online shopping experience research has tried to explain how customers' orientations, perceptions and beliefs influence their retail evaluations and behavior. User experience with a website consists of cognitive and affective perceptions (Cyr et al., 2009). The attitudes and evaluations of an individual can be based on cognitive and affective

experiences and they may affect their final choice (See et al., 2008; Peck & Wiggins, 2006). Cognitive perceptions are rational in nature and are induced by utilitarian or cognitive motives. Affective perceptions are emotional in nature and are induced by hedonic or affective motives (Park & Young, 1986). Previous studies demonstrated the importance of these perceptions regarding intention to use a technology (Lee, 2005) and to visit a website again (Cyr et al., 2009). Affect (e.g., emotions) and cognition (e.g., quality of personalization) are separate but partially dependent systems (Zajonc, 1984). Thus, it is essential that frameworks and research models include both of them, in order to study them together.

Utilitarian and hedonic motivation research aims to understand why people shop. Researchers have pointed out the importance of such motivations and have examined them in the context of online shopping along with their effect on online shopping experience (Close & Kukar-Kinney, 2010). Overall, hedonic and utilitarian motivations aim to incorporate the functional and pleasurable into users' experiences and keep users emotionally, cognitively and physically involved in the interaction. Chiu et al. (2012), study experienced customers' and found that both utilitarian and hedonic values influence positively their future purchase intentions. This implies that it is important to create a customer relationship, which will in turn offer service providers the opportunity to communicate with their customers on a personalized manner.

Extensive research on personalized online shopping examines primarily customers' cognitive perceptions. Tam and Ho (2005) draw from the ELM literature to examine how a company interacts with its customers using web personalization. They assess the effectiveness of web personalization by examining customers' personal disposition and need for cognition, and identify their importance in affecting customers' online shopping behavior. Further, Tam and Ho (2006), propose a research model, built

on the consumer research theories, regarding the effects of web personalization on customers' decision outcomes. Their findings indicate that cognitive processes are affected by the content of the personalized services, and that the latter may help customers reach a decision. Recently, Ho and Bodoff (2014) examine how online personalization influences customers' attitudes and behavior. In detail, they propose and test a research framework of customers' attitudes and behaviors regarding online personalization. Their research posits that customers' cognitive processes affect their attitudes towards online personalization. In the context of personalized services in online shopping, existing theories need to be expanded to take into account both the cognitive and affective perceptions leading to adoption behavior, since personalized technologies elicit, by nature, affect.

2.4 Discussion

The personalized online shopping literature has classified various important factors regarding customers' online shopping behavior. The related research along with the theories and models that have been proposed, focus on the examination of different cognitive factors, from various perspectives. To this end, affective factors have also been investigated but most of the studies choose to focus on specific emotions (e.g., happiness, arousal, anger), rather than take a holistic approach towards their role in personalized online shopping.

The information processing theory is the key theory on which many popular models have been based on (e.g., ELM) and is able to explain user behavior in online environments. Further, the theory of complexity and the configural theory are able to offer a different (i.e., asymmetrical) point of view regarding the factors that influence and predict user behavior. Hence, the adoption of these theories will pave the way into

creating a theoretical framework that will explain customers' online shopping behavior on personalized environments.

The vast majority of previous studies in personalized online shopping focus on the examination of cognitive factors that influence customers' behavior. However, focusing only on such factors provides an incomplete understanding of the online purchase process. An essential challenge is to critically study the role of emotions in online shopping, identify their effects on customer behavior, examine their interrelations and take a multidimensional approach that will go beyond the current state of the art in personalized online shopping.

2.5 Summary

This chapter offered a literature review of the theoretical and empirical aspects of personalized online shopping. The review focuses on customers' online purchase behavior when using personalized services. Critical issues that have been examined by previous research are presented along with the proposed theories and empirical studies. The goal of this chapter was to review the literature and provide the background for the empirical studies performed for this research work.

The chapter starts with an introduction on what is personalization in online shopping and provides various definitions that exist in the literature. Next, the basic theories and theoretical models that have been used in examining personalized online shopping are presented. The background theories and models are followed by an analysis of the related work in online shopping personalization. The chapter ends with a discussion on the need to go beyond the state of the art regarding personalized services in online shopping.

In conclusion, the review on personalized online shopping provides evidence on the importance of cognitive perceptions in influencing customers' behavior. Nonetheless, the literature establishes affective perceptions as antecedents of customer behavior, but a deep literature review towards this direction is missing. To this end, the next chapter reviews emotions, presents background theories, theoretical models and related studies in order to contribute to the improvement of personalized online shopping.

Chapter 3 A critical analysis of emotions

This chapter explores the current state in emotion literature, focusing on their importance in online shopping and the implementation of personalized services in order to influence customers' behavior. Section 3.1 offers a brief introduction why emotions should be studied, provides definitions and explains what emotions are. Section 3.2 present the basic theories that have been used and proposed in the literature to study emotions in ICT and social sciences. Next, section 3.3 offers a deep review of studies examining emotions in the context of online shopping and personalized services. The chapter concludes with a discussion and a summary of the literature review.

3.1 Introduction

Componential theories define emotion as a process during which several components such as physiological responses, motor expression, and cognitive representations (of both eliciting events and self-perceived response patterns) become synchronized over a limited period of time (Scherer et al., 2013). Each emotion has both, unique characteristics (e.g., signal, physiology) and similar features with other emotions (e.g., short duration, unbidden occurrence) (Ekman, 1992). These are the characteristics that separate emotions from other affective phenomena. In order to study the feeling component of emotion, psychologists rely on self-report. There is no other means but to ask the individual to report on the nature of his/her experience, since feeling is defined as a subjective cognitive representation of the emotional state which reflects a unique integration of mental and bodily changes in the context of a particular event (Scherer et al., 2013). Emotion researchers currently use various paradigms for self-report.

In the ever growing field of online shopping customers' emotional reactions are common. Hedonic motivations have been found to affect customers' shopping online experience and their future intentions (Chiu et al., 2012). The different emotions that arise from online shopping can be affected or triggered by using personalized services. However, there is limited research on the different emotional aspects that occur from online shopping (Ethier et al., 2008). In general terms customers enjoy shopping either it is done offline or online. Shopping enjoyment, and by extent enjoyment when receiving personalized services, plays an important role in customers' behavior towards online shopping (Ha & Stoel, 2009). Enjoyment, as a positive emotion, is related to many types of shopping, while the experience of the shopping procedure is defined by the customers' beliefs and affects the way they feel about it (Close & Kukar-Kinney, 2010). Some people may shop when they are in a bad mood as they enjoy the process and the result, while others maybe thrilled when they find new deals or acquire products that will make them feel popular.

Various models and theories have been used and proposed to explain the emotions of individuals in social sciences, and also in the context of online shopping. In detail, the *Geneva Emotion Wheel (GEW)* (Scherer, 2005; Scherer et al., 2013) has been created to offer a deeper understanding of emotions in the context of social sciences. The GEW is a theoretically derived and empirically tested instrument to measure emotional reactions to objects, events, and situations. The *Pleasure-Arousal-Dominance (PAD)* theory (Mehrabian & Russell, 1974) has been frequently applied in the context of online shopping to examine specific individuals' emotions (Eroglu et al., 2001; Michon et al., 2007; Wu et al., 2008). Recently, the *Affective Response Model (ARM)* (Zhang, 2013) has been proposed in order to explain the role of affective perceptions in IT. The framework is quite new creating potential for future research in the area of personalized online shopping.

3.2 Theories of emotions

3.2.1 Geneva Emotion Wheel (GEW)

The Geneva Emotion Wheel (GEW) (Scherer, 2005; Scherer et al., 2013) is a self-report measure of feelings. GEW is a theoretically derived and empirically tested instrument to measure emotional reactions to objects, events, and situations. When using GEW to measure users' emotions, the respondents are asked to indicate the emotion they experienced by choosing intensities for a single emotion or a blend of several emotions out of 20 distinct emotion families as presented in Figure 3-1. Five degrees of intensity are being proposed, represented by circles of different sizes. In addition, "no emotion felt" and "different emotion felt" options are provided.

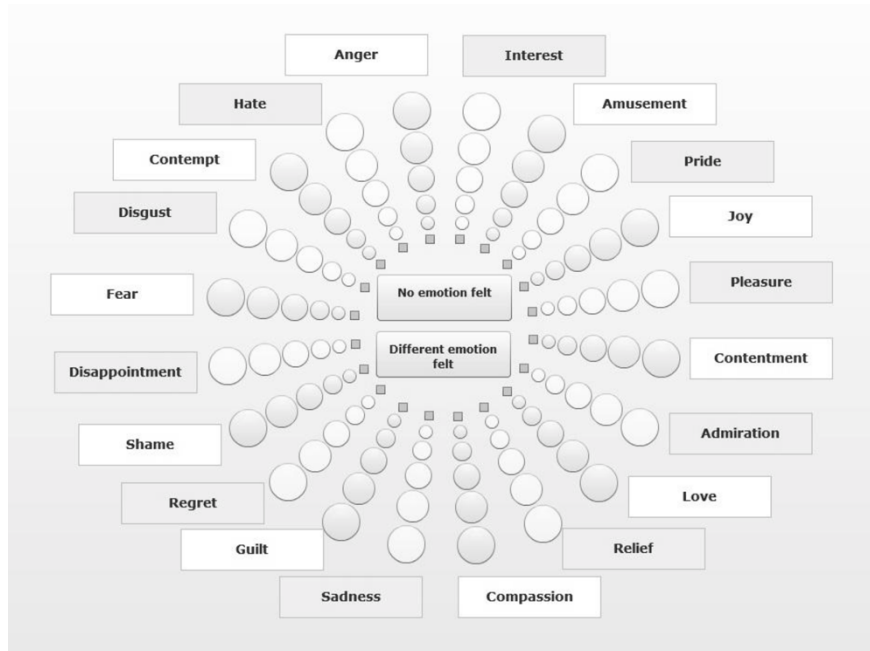


Figure 3-1 The Geneva Emotion Wheel (version 3) (Scherer et al., 2013)

The emotion families are arranged in a wheel shape with the axes being defined by two major dimensions of emotional experience as presented in Figure 3-2.

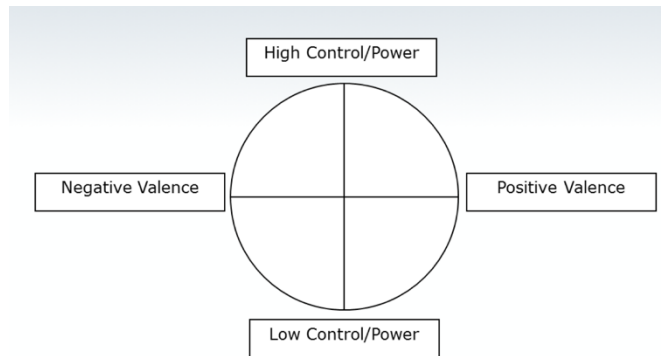


Figure 3-2 The two major dimensions of emotional experience

The GEW has been used for many years by emotion researchers in many different applications. The instrument has been used mostly in the area of social sciences (e.g., Fontaine et al., 2007; Banziger et al., 2012). Furthermore, the GEW has been applied to assess emotions at different levels on decision-making processes in management teams (Tran, 2004) to the emotional climate in a health care environment (Wittgenstein, 2008). Only recently, studies from IT (e.g., Siegert, 2011) and business (e.g., Pappas et al., 2015) have adopted GEW and used it to measure emotions. The GEW offers a combination of a dimensional and a categorical approach and provides an alternative to the dominant valence-arousal models (Scherer et al., 2013).

3.2.2 Pleasure-Arousal-Dominance (PAD) Theory

The PAD theory (Mehrabian & Russell, 1974) posits that all emotional responses to physical and social stimuli can be captured on three affective states: Pleasure, Arousal, and Dominance (PAD) (Figure 3-3). Individual positions against these emotional states may, in turn, express human affective reactions and, consequently, influence behavior formulation. PAD theory, which has been primarily used to explain consumer behavior

in marketing studies (Holbrook & Batra, 1987; Donovan et al., 2007). Recently, information systems scholars have articulated PAD as a supportive basis to explain information technology adoption, usually in conjunction with another established technology adoption theory (Kourouthanassis et al., 2015; Kulviwat et al., 2007).

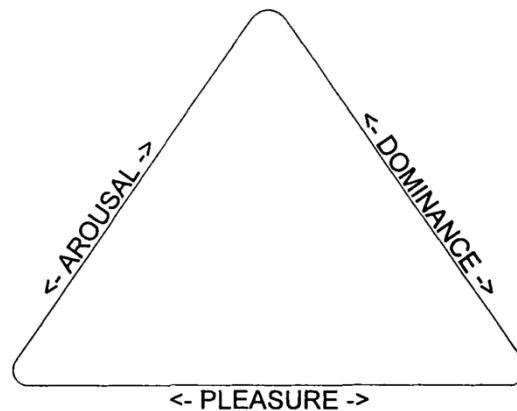


Figure 3-3 A representation of PAD (Mehrabian, 1996)

3.2.3 Affective Response Model (ARM)

The Affective Response Model (ARM) (Zhang, 2013) is a framework developed to examine affective concepts in the ICT context. In his work, Zhang (2013) after a vast overview of the literature on affective qualities, proposes a framework to address differences and similarities of the various affective concepts, and to investigate how they relate or affect each other. The ARM (Figure 3-4) offers a nomological network to explain causal relationships between the affective concepts, and provides a classification of the affective concepts into five dimensions: *the residing, the temporal, the particular/general stimulus, the object/behavior stimulus, and the process/outcome dimensions*. ARM is rather new to have been implemented, but it is able to explain most of the ICT empirical models that examine affective factors.

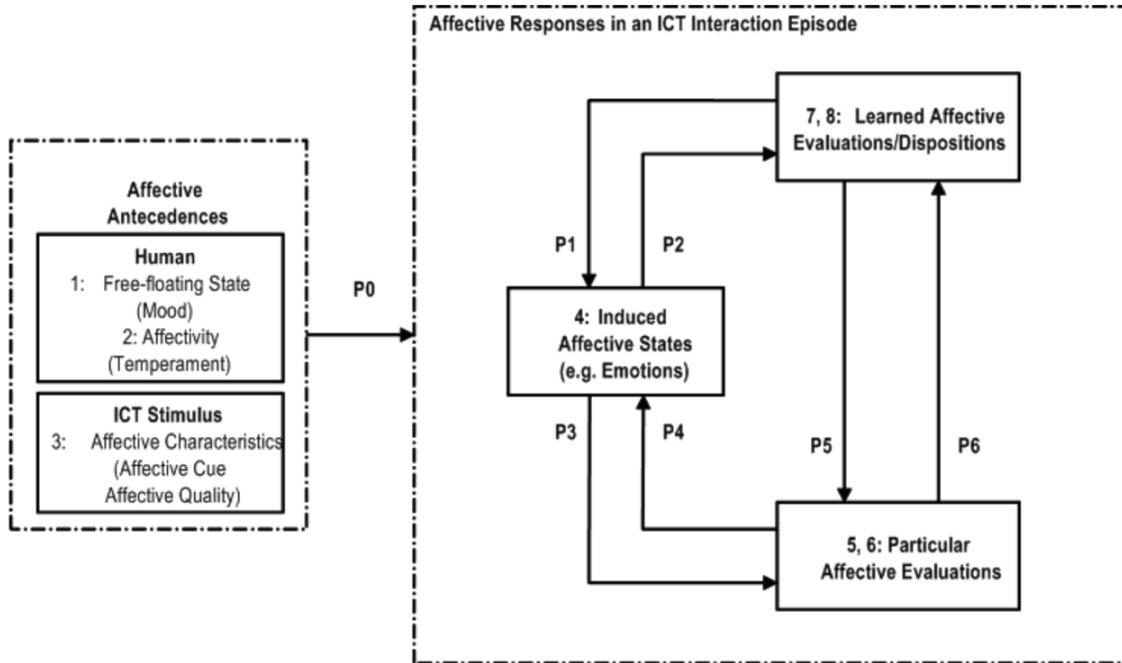


Figure 3-4 The generic Affective Response Model (ARM) (Zhang, 2013).

3.3 Recent work on emotions in personalized online shopping

3.3.1 The role of emotions on formulating shopping behaviors

Research into the online shopping experience has traditionally sought to explain how customers' orientations influence their retail evaluations and behavior (Arnold & Reynolds, 2012). Utilitarian and performance-based attributes have been reported to motivate online customer behavior (Venkatesh et al., 2012); however, as customers gain online experience they tend to seek hedonic values as well (Bridges & Florsheim, 2008). Past studies have examined these motivations in the context of online shopping and their effect on the online shopping experience. O'Brien (2010) and Mikalef et al. (2013) have posited that hedonic and utilitarian motivations impact on customers during their shopping experience. Close and Kukar-Kinney (2010) have reported that the same two motivations, in the form of informative and entertainment values, will act as antecedents

of purchase intentions. Similarly, Chiu et al. (2012) have studied customers' experiences and posit that both utilitarian and hedonic values positively affect future purchase intentions.

People are expected to avoid behaviors that create anxious feelings and prefer those that give them happiness. In the more general area of IT use, happiness has been found to affect IT use positively, but a negative effect was found on task adaptation, which refers to how the user modifies the way something is done based on the technology used (Beaudry & Pinsonneault, 2010). In other words, users are less happy when they have to change their personal preferences on how they complete a task in order to gain more benefits. On the other hand, it was found that anxious users will have reduced intentions towards IT use, but anxiety has an indirect positive effect on IT use through social support (Beaudry & Pinsonneault, 2010). This means that when users ask for help from people they personally know (i.e. family, friends), their anxiety has a lower effect on IT use. It can be inferred that when the service is offered personally to a user, while based on individual preferences and tailored to his needs, his anxiety will be reduced.

Given the high importance of emotions in marketing and consumer behavior research, several insights have been provided during the last decades. In particular, scholars have focused on affective states and their relation to customers' decisions and behaviors (Yeung & Wyer Jr, 2004). Rose et al. (2012) have found that customers' cognitive and affective responses have an effect on their intentions to purchase online. Hence, it is important to create a customer relationship, which will in turn offer service providers the opportunity to communicate with their customers in a personalized manner. Zhou et al. (2013) have examined mass personalization and posit that, by analyzing user experience, personalized services based on affective and cognitive states can be deployed to meet customers' needs.

Overall, it may be concluded that customers shopping online develop different emotions and those emotions might be affected or triggered by the use of personalized services. Personalization, mainly in the form of online recommendations, has a significant role for service providers when formulating their online shopping strategies. To date, there is limited understanding of customers' acceptance of recommendation systems and their effect on customer loyalty (Baier & Stüber, 2010). Likewise, there is not enough knowledge about either the effect of personalization systems on customer retention (Kwon et al., 2010) nor about the different emotional aspects that arise while shopping online (Éthier et al., 2008).

The environment of a store has been found to affect customer emotions for both offline and online retailers (Eroglu et al., 2003; Penz & Hogg, 2011). Atmospheric and store layout influence online customer behavior; however, the effects differ from traditional retailing (Vrechopoulos et al., 2004). Website properties, such as color, images and interactivity, impact on customers' pleasure and arousal (Eroglu et al., 2003). Arguably, emotions are a fundamental aspect of organizational life; they characterize our experiences, direct our focus and guide our attitudinal and behavioral reactions (Fineman, 1993). Emotions are mental states that occur as a result of certain events or one's own thoughts, and are divided into two dominant dimensions: positive and negative (Kuo & Wu, 2012). Positive and negative emotions are two independent dimensions that are universal across gender and age groups, and can be found in all cultures (Bagozzi et al., 1999). Positive emotions include happiness, pleasure, arousal and enjoyment, and negative emotions include sadness, confusion and anger (Laros & Steenkamp, 2005). Positive and negative feelings may occur simultaneously in customers. It is important to differentiate positive and negative emotions and study them together at the same time,

since they can have different consequences and effects on behavioral intentions (Barclay & Kiefer, 2014).

Studies have found a correlation among positive and negative emotions that, depending on the situation, may be either positive or negative (Scollon et al., 2005; Yik, 2007). Both types of emotions have an effect on how satisfied someone feels. Kuppens et al. (2008) have found that positive emotions have a much greater effect on a person's satisfaction than negative ones, contradicting the results of Chea and Luo (2008) who found that positive and negative emotions had no effect on satisfaction. This means that, although positive and negative emotions are interrelated, their relationship is not proportional and an increase in one does not imply a reduction in the other. Likewise, Miyamoto et al. (2010) posit that positive and negative emotions can co-occur, creating mixed emotions. Hence, someone might simultaneously experience both positive and negative emotions in the same situation, but for different reasons (Kuo & Wu, 2012). For example, personal factors or a specific product may induce both positive and negative emotions (Penz & Hogg, 2011).

3.3.2 The need to study the role of emotions on formulating personalized shopping behaviors

There are a large number of recent studies investigating the effect of personalization and/or emotions in IT usage behavior and online shopping. Table 3-1 summarizes a selective set of extant studies in the area overviewing the perspectives examined in this study.

Table 3-1. A review of prior studies examining personalization and emotions

Author(s)	Examined Paths	Study objectives	Main Results
Kuo & Wu (2012)	Positive emotions → Satisfaction Negative emotions → Satisfaction	Explores post-recovery satisfaction and post-purchase intentions with service recovery in online shopping from the perspectives of perceived justice and emotions.	Positive emotions increase post-recovery satisfaction and negative emotions decrease it.
Rose et al. (2012)	Affective experiential state → Online shopping satisfaction	Develops a model of the relationship between antecedents and outcomes of customer experience with online shopping, including cognitive and affective components.	Affective experiential state has a positive effect on customers' satisfaction with online shopping.
Venkatesh et al. (2012)	Hedonic motivation → Behavioral intention	Extends the unified theory of acceptance and use of technology (UTAUT) and proposed UTAUT2.	Hedonic motivation (e.g. fun, enjoyment) has a direct effect on behavioral intentions.
Ha et al. (2010)	Customized information → Attitudes	Examines the creation of customers' repurchase intentions by exploring alternative explanations, in four different models.	The direct effect of customized information on attitudes was not significant, indicating that there other factors mediate the relationship (e.g., interactivity).

<p>Verhagen & van Dolen (2011)</p>	<p>Enjoyment → Positive affect Enjoyment → Negative affect Positive affect → Urge to buy impulsively Negative affect → Urge to buy impulsively</p>	<p>Proposes and tests a model to examine how online store beliefs examine customers' online impulse buying.</p>	<p>Enjoyment may increase positive affect but has no influence on negative affect. Positive affect increases customers' urge to buy impulsively, while negative affect decreases it.</p>
<p>Beaudry and Pinsonneault (2010)</p>	<p>Happiness → IT Use Excitement → IT Use Anger → IT Use Anxiety → IT Use</p>	<p>Argues that emotions are important drivers of behavior and examines how emotions relate to IT use.</p>	<p>Happiness is positively related to IT use but excitement has no significant effect on IT use. Anxiety has a negative effect on IT use, while anger has no effect on it.</p>
<p>Koo & Ju (2010)</p>	<p>Pleasure → Intention Arousal → Intention</p>	<p>Examines the effects of atmospherics and customers' curiosity on emotions and online shopping intention.</p>	<p>Both pleasure and arousal have a positive effect on online shopping intention.</p>
<p>Chea & Luo (2008)</p>	<p>Positive affect → Satisfaction Negative affect → Satisfaction</p>	<p>Examines the effects of cognition and emotions on customers' satisfaction and post-adoption behavior.</p>	<p>Positive and negative affect have no influence on customers' satisfaction.</p>
<p>Jiang & Benbasat (2007)</p>	<p>Interactivity in product presentation → Shopping enjoyment</p>	<p>Proposes and tests a model that examines how online product presentation methods influence customers'</p>	<p>Increasing interactivity in a website has a positive effect on shopping enjoyment, which in turn increases</p>

	Shopping enjoyment → Attitudes towards shopping on a website	intentions to shop online.	customers' inclination to shop at the website.
Fiore et al. (2005)	Image interactivity as a stimulating experience → Arousal Image interactivity as a stimulating experience → Pleasure	Focuses on customer characteristics that influence hedonic values from website features, and examines the effect of hedonic values on emotion and customer responses.	Increasing interactivity of a website will have a positive effect on both arousal and pleasure.

This research sheds light on the intersection between personalization and the formulation of emotions. Indeed, there is evidence that using or receiving personalized services may affect customers' emotional state. The process of getting recommendations through personalized services might influence the emotional space of online shoppers. If personalization is properly presented to customers it might produce positive feelings, such as enjoyment (Pappas et al., 2012); however, personalized features on a website can confuse or frustrate customers, making them skeptical about using this tool. Customers who are overloaded with information are likely to develop negative emotions (Chen et al. 2009), especially if that information is based on their private data (Li et al., 2011; Pappas et al., 2013). Privacy violation is related to trust, a fundamental factor in online shopping. When referring to trust, emotions are present (Young, 2006), and while trust is related to other factors such as involvement and satisfaction (Chen & Chou, 2012; Martín et al., 2011), it is a distinct factor that may affect emotions both positively and negatively (Éthier et al., 2006). Having to choose between a great number of options may create the fear of not being able to control one's behavior, or even regret for the products that were not

eventually selected (Harrison et al., 2006). When customers do not have any particular goals for evaluation, they are dependent upon their emotions in order to make a decision (Koo & Ju, 2010).

At the same time, researchers take a myopic approach to emotions and their effects on customer behavior. In effect, they define emotions by adopting a unidimensional perspective that emphasizes on a particular type of emotion. Happiness has been found to have a positive effect on IT use, while excitement has no effect on it (Beaudry & Pinsonneault, 2010). Furthermore, Beaudry and Pinsonneault (2010) examined anger and anxiety separately and found that only anxiety affects (negatively) IT use. Likewise, enjoyment has been found to increase customers' inclination to shop online (Jiang & Benbasat, 2007). Enjoyment and pleasure may be induced by increasing interactivity on a website (Fiore et al., 2005; Jiang & Benbasat, 2007), which can be achieved by implementing personalized services.

As presented above, previous studies have found contradicting results regarding the effect of emotions on customers' online shopping behavior (Beaudry & Pinsonneault, 2010; Kim et al., 2007; Koo & Ju, 2010; Pappas et al., 2013; Verhagen & van Dolen, 2011). The mixed results suggest that the relation between types of emotions, personalization and customers' behavior may not always be linear and symmetric. However, as described in the theory of complexity in the previous chapter, the relation between two factors may as well be non linear and asymmetric. This suggests that, besides the holistic and multidimensional approach towards emotions, a different method should be implemented along with the traditional ones (e.g., multiple regression analysis) presented in the literature. Examining the non linear relation between emotions is likely to explain the contradicting results of past studies.

3.4 Discussion

Emotion literature in personalized online shopping has examined various types of emotions and affective perceptions in order to explain customers' behavior. Most of the studies choose to examine (the same) emotions, and they follow a unidimensional approach. Emotions theories have been successfully applied on various sectors, such as social sciences and psychology, but further work is need in the areas of IT and online shopping.

The GEW is a valuable tool that goes beyond the basic emotions, as they were proposed by Ekman (1992) and adopted by a majority of studies until now. The implementation of GEW in personalized online shopping will offer the researchers a holistic approach, aid them in measure with higher accuracy the emotions of customers, thus leading to implications of high quality. Nonetheless, the literature suggests that the two basic types of emotions (i.e., positive and negative) should be examined together since they may occur simultaneously and on occasion neutralized each other.

In this study, we argue that it is crucial to go beyond examining specific types of emotions, to an overall analysis of their relationship with personalization and their effect on customers' intention to purchase. To achieve this goal, we take into account the effect of personalized services on customers' behavior, their increasing growth over the past few years, and the direct effect of emotions on customers' attitudes and behavior. Furthermore, it is important to study personalization alongside positive and negative emotions, since isolating each set of emotions and personalization enables the differentiation of the effects of personalized services.

The findings from previous studies suggest that emotions need a more detailed and in depth examination in order to identify their role in personalized online shopping.

This research study builds on related theories and empirical work, and as presented in the following chapters, examines emotions with three different ways. First, their direct and mediating effects on customer behavior are examined. Next, the non linear effects of different types of emotions, combined with each other, are investigated along with their prediction level of customers' online shopping behavior. Finally, positive and negative emotions are examined as moderators in the personalized online shopping process.

3.5 Summary

This chapter provided a deep literature review on emotions in the area of online shopping and personalized services. The chapter analyzed theoretical and empirical findings from previous studies in the area. The purpose of this chapter was to present the different ways that emotions are examined in the literature, and pave the way for the holistic and multidimensional approach that will be followed on the empirical studies in this research work.

The chapter starts with an introduction on what are emotions and presents definitions that have been used in the literature. Further, theories of emotions and related theoretical models are presented by discussing on how they are used in the context of online shopping, as well as in the broader area of ICT. Next, the related work regarding emotions and online shopping and personalization is analyzed. The chapter concludes with a discussion on why we should study emotions in personalized environments and why we need to take a multidimensional approach.

To summarize, the review on emotion literature identifies two critical issues regarding online shopping. First, emotions should be taken into account when examining personalized online services and second, emotions should be studied as a multidimensional construct with both positive and negative valences taken into account.

Based on these findings, the next chapter performs an exploratory study, the first empirical study of this research work, which aims to study together their positive and negative emotions and their relation with personalization and customer behavior.

Chapter 4 Documenting the presence of emotions on personalized online shopping: An exploratory study

This chapter extends personalization literature into the area of emotions related to intention to purchase and into the context of online shopping. Responses from 182 online shoppers were used to examine the impact of personalization on customer emotions and intention to purchase. The results show that there is a direct positive association between personalization and purchase intentions. In addition, provision of personalization features in e-shops may evoke positive emotions to online shoppers but does not evoke nor mitigate negative ones. Finally, our study reports that emotions influence online shopping behavior either positively, through the formulation of positive emotions, or negatively, through negative emotions. These findings indicate that positive emotions mediate the relationship between personalization and purchase intentions. Our study concludes with a critical appraisal of our findings and a discussion of prospective theoretical and managerial implications for e-shop practitioners.

4.1 Introduction

Interactive marketing uses personalization systems to communicate with customers on a different level, where all collected data may be used to offer customer-tailored services. Using transactional, demographic and behavioral data enables the provision of personalized services for every customer. Online personalization has been found to positively affect customers' reactions to different online marketing methods (Postma & Brokke, 2002), making it a reliable means of encouraging them to increase online transactions. Personalized online environments may positively affect customers' experiences and increase their loyalty (Zhou et al., 2007)

Few studies have been conducted into the intersection of customer behavior and its evolution while using recommendations and customizable products (Coker & Nagpal, 2013). In their study of customization, Franke et al. (2009) acknowledge that processes that do not require much information from the customer (e.g. personalization) need further study. Personalized services may help companies to build strong relations with their customers, although the effect of personalization on customer retention and repurchase behavior has been under-studied (Kwon et al., 2010). Keeping customers happy by satisfying their needs increases their intention to purchase again (Giannakos et al., 2011; Liao et al., 2006). Nevertheless, past studies have revealed that personalization may not always lead to customer retention since other factors may weaken or transform this relationship (Chen & Hitt, 2002). Customers receiving personalized online services may experience different feelings, which, in turn, may be conveyed to others through positive or negative word of mouth. Consequently, such behavior has an impact on other customers, the service provider and the company profits. In effect, the emotional space of individuals has been positively associated with online purchase behavior (Koo & Ju, 2010). Additionally, emotions may have a positive or negative influence on customers' attitudes and behavior (Penz & Hogg, 2011).

In the context of online shopping behavior, scholars have investigated the influential role of emotions through the lens of virtual store atmospherics (Eroglu et al., 2003; Mummalaneni, 2005). Specifically, Eroglu et al. (2003) posit that the influence of online store environments (atmospherics) on customers' attitudes is mediated by emotions. Likewise, Mummalaneni (2005) suggests that emotional factors, such as pleasure and arousal, mediate the influence of store environment characteristics on shopping outcomes and behavior. We posit that emotions may also be evoked through the process of personalizing the content and services of the online store to user

requirements and likings. Personalization is considered to be an important online store characteristic and its importance is emphasized by previous studies (Kwon et al., 2010; Lee & Park, 2009). Therefore, an examination of the mediating role of emotions between personalization and intention to purchase is of particular interest.

This study investigates the role of personalized services in online shopping and provides evidence about how they affect customers' emotions and their intention to shop online. It is interesting to study personalization because it may alleviate the problem of choice; customers shopping online have a vast number of products to choose from. Although personalization technologies have been adopted in electronic commerce over the years (Ho, 2006), the roles of personalization and emotions together in online shopping have been largely under-studied. Ergo, this research seeks to explore the *relationships between personalization, emotions and customer intention to purchase online*. Our research model examines the relations between personalization and the two types of emotions (positive and negative), and how these factors influence customers' intentions.

We argue that it is essential to study the relationship between personalized services and emotions. Hence, before examining specific emotions, the effects of the two basic categories should be explained. Therefore, our research aims to address the following research questions:

RQ1: How does personalization affect online customers' emotional states?

RQ2: How do positive and negative emotions, induced by personalized services, influence online shopping behavior?

In this study, we define positive emotions as *the extent to which a person feels happy, valued, and has a warm feeling*. Negative emotions refer to *the extent to which a person feels irritated, in a bad mood and upset*. The terms used here to define emotions have been shown

to be global in consumption settings such as online shopping (Éthier et al., 2008) that may evoke both types of emotions. Penz and Hogg (2011) have confirmed that the online shopping experience generates mixed emotions in customers that, in turn, might influence their purchase behavior. In effect, positive emotions may lead to impulse purchases (Parboteeah et al., 2009; Verhagen & van Dolen, 2011), while negative emotions are likely to distance customers from the service provider, cause regret and trigger the intention to switch provider (Lu et al., 2012).

The remainder of the chapter is organized as follows. Since the existing literature on personalization, positive and negative emotions, and intention to purchase has been already presented on chapters 2 and 3 of this study, we proceed directly to section 4.2, which presents the theoretical foundation of the research model. In section 4.3 we set out the methodology and the measures applied for collecting data on online shopping behavior. Section 4.4 presents the empirical results derived, while in the final section of the chapter we discuss the findings and draw conclusions highlighting theoretical and practical implications.

4.2 Hypotheses and model development

The aim of our study is twofold. On the one hand, we investigate the direct effects between personalization and emotions (positive-negative) and intention to purchase; on the other hand, we assess the indirect effects of emotions on the relationship between personalization and intention to purchase.

4.2.1 Effects of personalization on emotional states

Research has shown that personalization is important for customers with an ultimate goal of creating a relationship with an online vendor (Ligas, 2004). Personalized services aim to aid customers' online decision-making process by recommending

products or services. Consumers develop positive feelings when they are treated as valuable customers and their personal needs are taken care of. Zhang (2013) has proposed that an interaction episode with information and communication technology (ICT), and the quality of the ICT, triggers affective states and evaluations. Personalized services may be used to increase customers' interactivity with a website, and they have been found to enhance customers' pleasure, arousal (Fiore et al., 2005) and enjoyment (Jiang & Benbasat, 2007). Regarding service quality in general, Smith and Reynolds (2009) have found that the impact of the different quality dimensions is more consistent on positive emotions than on negative ones. In cases of diminishing levels of service quality from online vendors, customers will experience feelings of betrayal and regret that may ultimately lead them to switch to another vendor. These feelings are stronger when a high quality relationship exists between customers and online vendors (Grégoire et al., 2009). Complex and novel environments are responsible for creating feelings of enjoyment in terms of recommendations (Penz & Hogg, 2011), and if users feel that the personalized service offered is novel they will enjoy using it (Ho, 2012). Wang et al. (2011), who – among others – provide strategies in personalizing web aesthetics, found that websites may simultaneously create both positive and negative affective responses. Since personalization is based on private information, it is expected to affect customers' privacy issues, which in turn are found to be highly related to emotions (Li et al., 2011). However, Xu et al. (2011) posit that the use of personalized services may override customers' privacy concerns. Ultimately, embedding personalized elements in an online service might increase customer satisfaction (Chang & Chen, 2009). For example, customers might feel good if a product recommendation has predicted one of their needs. At the same time trust issues might decrease since an online vendor takes care of their needs personally. Based on the above, we formulate the following research hypotheses:

H1a: Personalization will make shoppers' positive emotions stronger.

H1b: Personalization will make shoppers' negative emotions weaker.

4.2.2 Effects of personalization on intention to purchase

Recommendation agents with higher personalization can offer better services to online shoppers because they utilize user preferences more effectively (Komiak & Benbasat, 2006). Offering customers, the ability to express their preferences when shopping online has a positive effect on their intention to purchase (Franke et al., 2009). Likewise, offering personalized recommendations influences users' decisions (Awad & Krishnan, 2006; Tam & Ho, 2006). When users are intrinsically motivated (e.g. they enjoy the activity) by personalized services their intentions to use such services are increased (Ho, 2012). Marketers can increase customers' interactivity and facilitate their behavioral intentions by providing customized information that will keep them personally involved and optimize the purchase process (Ha et al., 2010). Customers' interactivity and the relevance of the information received to customers' personal concerns have an effect on their enjoyment (Jiang & Benbasat, 2007) and purchase behaviors (Song & Zinkhan, 2008). Online shoppers who increasingly use recommendation systems and personalized services tend to be more receptive to making online purchases (Dabholakar & Sheng, 2011). Zhang et al. (2012) have found that the dimension of individualism (i.e. focus on the person) in online shopping has a significant effect on purchasing intentions. In addition, Kwon and Kim (2012) have posited that using personalized services may increase customer loyalty. For instance, when the recommendations are based on browsing history and customers are able to make a purchase with just a few clicks, they are more likely to complete that purchase. Nevertheless, the effect of personalized services on customers' intention to purchase under the presence of emotions as a whole has not been properly examined. Hence, we formulate the following research hypothesis:

H2: Personalization will make shoppers' intention to proceed to online purchases stronger.

4.2.3 Effects of emotions on purchase intentions

Customer emotions arise during consumption and affect behavior. Promotion and prevention emotions that occur from product consumption have been found to directly affect customers' repurchase intentions (Chitturi et al., 2008). Kim et al. (2007) have found that pleasure and arousal with internet services has a positive effect on users' attitude to the use of the services. Furthermore, Beaudry and Pinsonneault (2010) have found a positive association of happiness with IT use. Likewise, in online shopping, positive emotions such as pleasure and arousal are important because they affect customers' future behavior (Menon & Kahn, 2002). Pleasure positively affects customer behavior, increasing the chances of a successful purchase (Eroglu et al., 2003). The pleasure that customers feel when shopping online will positively impact their attitude to online shopping. Similarly, shopping enjoyment has a positive influence on a customer's attitude towards shopping at a website (Jiang & Benbasat, 2007). Nevertheless, Penz and Hogg (2011) mention that arousal, depending on how it occurs, may act as an emotion with either positive or negative effects on customers' behavior. Wang et al. (2011) confirmed this finding as they found that arousal might have either negative or positive effects on purchasing depending on customers' reasons for engaging in the process (i.e. purchase task). In addition, negative emotions have been found to have different effects on IT use; anxiety reduces IT use but anger has no effect on it (Beaudry & Pinsonneault, 2010). Nevertheless, customers may develop either positive or negative emotions while using online services (Kuo & Wu, 2012). Furthermore, previous studies have showed that positive emotions have a strong positive effect on customers' intentions (Koo & Ju, 2010). It is essential to examine emotions at the same time, but as two different factors, because they may have different effects on customers' behavior.

Positive feelings are expected to rise when individual needs are taken care of and customers feel more valued. Information overload during the shopping process disrupts customers' emotional state and their intention to shop again in the future (Rose et al., 2012). However, using personalized services may prevent this by helping them make a decision regarding product selection (Tam & Ho, 2006). Penz and Hogg (2011) have found that specific types of emotions, which in general could be positive or negative, might act as mediators that influence customers' intention to purchase. Additionally, Valenzuela et al. (2009) have found that negative emotions that occur from product customization weaken customers' willingness to purchase a product, but such negative emotions might be reduced with self-customization, that is "the process by which customers customize offerings to their own preferences" (p.754). When customers develop positive or negative emotions while receiving or using personalized services, they tend to give them more or less weight respectively. In turn, this may strengthen or weaken their intention to purchase. For example, a customer who feels happy and satisfied with a recommendation is more likely to complete a purchase than a customer who feels anxious or uncertain about it. Based on the above we formulate the following hypotheses.

H3a: Shoppers' positive emotions will make their intention to proceed to online purchases stronger.

H3b: Shoppers' negative emotions will make their intention to proceed to online purchases weaker.

Figure 4-1 presents the proposed research model.

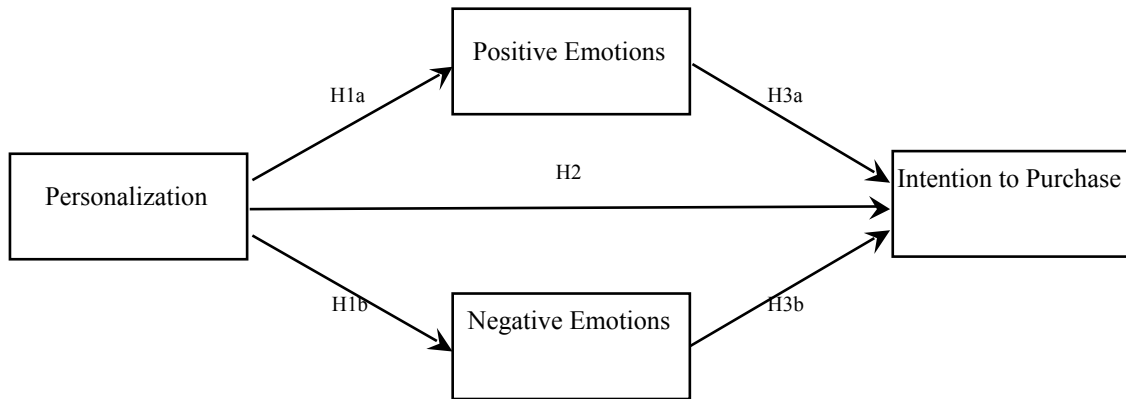


Figure 4-1. Research Model

4.3 Methodology

4.3.1 Sampling

Our research methodology included a survey conducted through the delivery and collection of individual questionnaires. It was made clear that there was no reward for the respondents and that participation was voluntary. The survey was executed in June and July 2012. We opted for 600 (Greek) users of online retailers, of which 182 finally responded.

As Table 4-1 shows, the sample of respondents was composed almost equally of men (53.8 percent) and women (46.2 percent). In terms of age, the majority of the respondents (30.8 percent) were between 25 and 29 years old, 25.3 percent were between 18 and 24, and 24.2 percent were between 30 and 39. The vast majority of respondents (86.8 percent) were graduates or post-graduate students. The sample consisted of experienced online shoppers who have used online personalization services in the past. In the clarification letter accompanying the questionnaire, following a description of personalization, the respondents were asked to answer the questions based on their

experiences of using the personalized services of both international and Greek online vendors. Respondents had made an average of 13.3 online purchases in the past six months (S.D. 29.3).

Table 4-1 Users' demographic profile

Demographic Profile	No (%)	Demographic Profile	No (%)
Gender		Marital Status	
Male	98 (53.8%)	Single	132 (72.5%)
Female	84 (46.2%)	Married	45 (24.8%)
Age		Divorced	5 (2.7%)
<24	52 (28.5%)	Education	
25-29	56 (30.8%)	Middle School	2 (1.1%)
30-39	44 (24.2%)	High School	22 (12.1%)
40-49	20 (11%)	University	78 (42.8%)
50+	10 (5.5%)	Post Graduate	80 (44%)
Online Purchases the past six months			
Mean (SD)	13.3 (29.3)		

4.3.2 Measures

The questionnaire was divided into two parts. The first part included questions about the demographics of the sample (age, gender, education). The second part included measures of the various constructs identified in the literature review section. Table 4-2 lists the operational definitions of the constructs in this theoretical model as well as the studies from which the measures were adopted. The appendix lists the questionnaire items used to measure each construct, along with descriptive statistics and loadings. We employed a 7-point Likert scale anchored from 1 ("completely disagree") to 7 ("completely agree").

Table 4-2. Construct definition and instrument development

Construct	Operational Definition	Source
Personalization (PER)	Tailoring content and services to match the buyer's personal interests or preferences.	Xu et al. (2011)
Positive Emotions (POS)	Measuring the customer's positive emotions when using personalized services.	Kuo & Wu (2012)
Negative Emotions (NEG)	Measuring the customer's negative emotions when using personalized services.	Kuo & Wu (2012)
Intention to Purchase (INT)	The consumer's intention to shop online based on personalized services.	Chen & Chou (2012); Lu et al. (2011)

4.4 Data analysis

Structural equation modeling was conducted using AMOS version 18.0 software, based on Byrne (2009). At first, a measurement model was created based on a confirmatory factor analysis, and then the structural model was built in order to test the hypothesized relationships.

4.4.1 Reliability and validity

The constructs used in this research were first evaluated for reliability using the Cronbach alpha indicator, which needs to be higher than 0.7 for every factor. Then validity was examined, which requires that average variance extracted (AVE) should be greater than 0.50 (Fornell & Larcker, 1981), the correlation between the different variables in the confirmatory models should not exceed 0.8 points as this would suggest low discrimination, and the square root of each factor's AVE should be larger than its correlations with other factors (Fornell & Larcker, 1981; Lee et al., 2009). To test how well

the model fits its data, several goodness of fit indices were used. Root mean square error of approximation (RMSEA), normed fit index (NFI), comparative fit index (CFI) and χ^2/df ratio were all used to evaluate model-data fit (Byrne, 2009). RMSEA less than 0.05 suggests good model-data fit and between 0.05 and 0.08 suggests reasonable model-data fit. NFI indices greater than 0.95 and CFI indices greater than 0.90 suggest good model-data fit. A χ^2/df ratio less than 3 is acceptable.

4.5 Findings

First, an analysis of reliability and validity was carried out. Reliability testing, based on the Cronbach alpha indicator, shows acceptable indices of internal consistency since all constructs exceed the cut-off threshold of 0.70. The AVE for all constructs ranges between 0.681 and 0.805, exceeding the cut-off threshold of 0.50. Finally, all correlations are lower than 0.80, and square root AVEs for all constructs are larger than their correlations. Our findings are illustrated in Table 4-3.

Table 4-3. Descriptive statistics and correlations of latent variables

					Construct			
Construct	Mean	SD	CR	AVE	PER	POS	NEG	INT
PER	4.67	1.60	0.921	0.799	0.893			
POS	3.97	1.71	0.923	0.805	0.548**	0.897		
NEG	2.53	1.70	0.933	0.681	-0.131*	-0.301**	0.825	
INT	4.05	1.67	0.939	0.694	0.531**	0.751**	-0.314**	0.833

Note: Diagonal elements (in bold) are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs (all correlations are significant, **p<0.01; *p<0.05). For discriminant validity, diagonal elements should be larger than off-diagonal elements. PER, Personalization; POS, Positive Emotions; NEG, Negative Emotions; INT, Intention to Purchase.

The fit indices of the research model are presented in Table 4-4. All values are within the recommended range. Specifically, $\chi^2/df = 1.55$, NFI = 0.96, CFI = 0.98 and RMSEA = 0.06.

Table 4-4. Overall model fit indices for the structural model

Model fit indices	Results	Recommended value
χ^2/df	1.78 ($\chi^2 = 87.2$; $df = 49$)	≤ 3
NFI	0.96	≥ 0.9
CFI	0.98	≥ 0.9
RMSEA	0.06	≤ 0.08

The estimated path coefficients of the structural model were examined in order to evaluate our hypotheses. Figure 4-2 presents the analysis of the research model. Personalization has a significant effect on positive emotions but no significant effect on negative emotions. Our findings support H1a but reject H1b. Moreover, personalization has a positive effect on intention to purchase, supporting H2. Regarding emotions, they both have a significant effect on intention to purchase. Specifically, positive emotions have a positive effect on intention to purchase, supporting H3a, while negative emotions have a negative significant effect on intention to purchase, supporting H3b. Square multiple correlations (R^2) are presented in Figure 4-2 as well. The R^2 for positive emotions was 0.34, for negative emotions 0.13, and for intention to purchase was 0.65. Values higher than 0.26 imply high effect of the predictors of positive emotions and intention to purchase respectively.

Regarding mediating effects of emotions on the relation between personalization and intention to purchase, the bootstrap estimation procedure in AMOS was used. This method is the most accurate for computing confidence intervals for indirect effects (MacKinnon et al., 2004). The indirect effect of personalization on intention to purchase was estimated to be 0.40 ($p < 0.05$). The lower and upper bounds of the estimate are 0.30 and 0.52, with 95 percent confidence respectively. Since, there is no overlap with zero in the 95 percent confidence interval, the indirect effect is significant at $p < 0.05$. Because the effect of personalization on negative emotions is not significant, only positive emotions act as a mediator on the effect of personalization on intention to purchase.

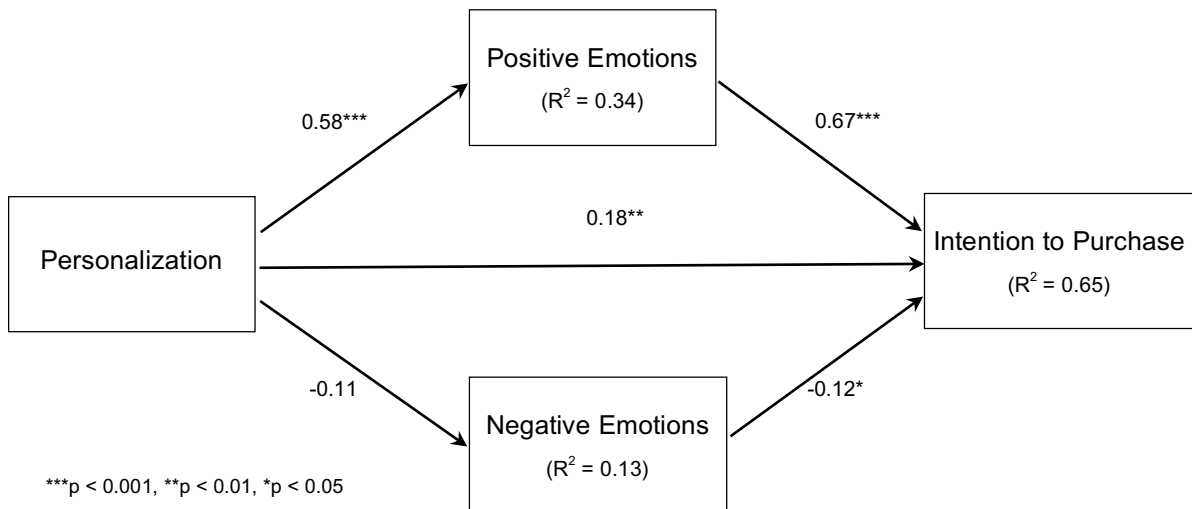


Figure 4-2. SEM Analysis of the research model

4.6 Discussion and conclusions

4.6.1 Summary of contribution

This study is one of the first to differentiate emotions into two separate categories (positive and negative) and examine them through the lens of personalized services. In

particular, it identifies the importance of positive emotions over negative emotions in affecting customers' intentions to purchase based on personalized services. It provides evidence for the statement that using recommendations and personalized services do not frustrate customers or negatively affect their purchase intentions. On the contrary, such services enhance customers' positive emotions. In view of this, we provide evidence that using personalization as an online marketing tool will help practitioners to keep their customers happy, which may eventually lead to them spending more money and making more purchases.

In order to understand customers' intentions towards online shopping we explored the relations between personalization, formulation of positive and negative emotions during online shopping, and purchase intention. Our findings indicate that personalized services partially affect customers' emotions. In particular, personalization influences positive emotions but does not affect negative ones. Additionally, the results suggest that personalization remains a predictor of online purchase intentions. We also found that positive emotions mediate the relationship between personalization and intention to purchase. In effect, personalization features of e-shops may evoke positive emotions that, in turn, might increase purchase intentions.

Our study revealed that there is no association between personalization and negative emotions, partially corresponding to Smith and Reynolds (2009), who found that the impact of different service quality dimensions, such as personalization, is more consistent on positive emotions than on negative ones. However, the proposed negative effect was marginally rejected. This may be due to the level of experience of the customer, so they might behave differently when they receive personalized services; therefore, the effect on negative emotions is not significant. Specifically, in the case of an unsuccessful personalized offer, users' negative emotions might not be affected because experienced

users are able to find the product they need without assistance. In addition, this result can be attributed to the existence of other factors that have a stronger effect on emotion formulation, such as presentation timing, recommendation type (Ho et al., 2011), or trust and anxiety (Pappas et al., 2013). Our findings do not verify Valenzuela et al. (2009), who found that self-customization might reduce the negative feelings that result from product customization.

In congruence with other studies (e.g. Lee & Park, 2009), it was found that personalization will raise customers' intention to shop online because it answers their needs by providing the right services or products. Among emotions, positive emotions significantly affect intention to purchase; the better customers feel about online shopping and the personalized services they receive, the more likely they are to make purchases. This is consistent with the findings of Koo and Ju (2010) that positive emotions (i.e. pleasure and arousal) have a positive effect on online shopping intention. Similarly, it was confirmed that negative emotions decrease customers' intentions to purchase online; the worse customers feel about online shopping and personalized services, the less likely they are to make a purchase.

The study also revealed the mediating role of positive emotions, which enhance the relationship between personalization and intention to purchase. The current finding indicates that individuals who develop positive emotions are more likely to shop online in the future when using personalized services. The difference between the direct and indirect effect of personalization on intention indicates the important role of emotions in online shopping, since the indirect effect is stronger. Nevertheless, the mediating effect of negative emotions could not be confirmed as the negative effect of personalization on negative emotions was not significant. Our findings are partially consistent with Penz and Hogg (2011), who found that both types of emotions may act as mediators.

4.6.2 Theoretical implications

Information systems and marketing literature have studied personalization and recommendation agents extensively. Studies include different types of emotions (e.g. enjoyment, happiness, anxiety, anger) examined alongside traditional Information System factors on existing models. Nonetheless, emotions as a whole have not been examined and an overall view of their effects on customers' behavior when receiving personalization is necessary. Although we found that negative emotions are less significant than positive emotions, our study verifies the importance of emotions as a whole. Indeed, formulation of emotions may lead to impulse purchases (Parboteeah et al., 2009), a behavior which has recently been described as "emotionalized buying" (Xiao & Nicholson, 2012). There is not sufficient research in that area, and this study is a first step towards the understanding of emotions in personalized online shopping, leading researchers to focus on both positive and negative emotions.

With respect to the aforementioned direction, our study contributes to the literature on personalization and user-oriented services by providing an integrated picture of emotions. By revealing the importance of emotions it is made clear that affective factors are of equal importance to cognitive factors, adding to the statement that IT research should be concerned with affective factors. Only recently, an Affective Response Model has been proposed by Zhang (2013). Additionally, the fact that positive and negative emotions together affect customer behavior is a hint that new models are needed that include more than just "some" emotions (e.g. arousal, pleasure). These models should also include aesthetics, which have been found to directly affect emotions (Wang et al., 2011). However, our findings indicate that affective factors should be studied as mediators for the effect of cognitive and aesthetic factors on behavior.

Since emotions comprise a multidimensional concept, future research might delve into the specific interactions between distinct online customers' emotional states and corresponding behavior formulation. For example, Mehrabian and Russell (1974) developed the PAD framework, which distinguishes between three types of emotional states: pleasure, arousal, and dominance; each state is measured by multiple values. The framework has been employed to explain emotion formulation and shopping behavior in e-commerce (Huang, 2003). Nevertheless, such models do not provide a clear distinction between positive and negative emotions. Emotional states are captured in an aggregated manner, consolidating responses from multiple variables, each measuring a unique state. An attempt to label different emotional states as positive or negative has been proposed by Roseman (1996) and may be used by scholars to expand and concretize our proposed model.

Our empirical research has addressed several shortcomings of previous studies in the area. Specifically, Kuo and Wu (2012) reveal that customers might have positive or negative emotions during online shopping or while using the different services provided. Hence, their results do not examine the relation with personalized services and customers' intention to purchase. Likewise, Penz and Hogg (2011) state that emotions might have a positive or negative influence on customers' attitudes and behavior. Nevertheless, they treat emotions in a unidimensional manner. Furthermore, Koo and Ju (2010) focus on the effect of positive emotions on online shopping intention without taking into account the effect of negative emotions. Lee and Park (2009) study the influence of online service personalization on purchase intentions, taking into account the effects of subjective norms on customers' attitudes. We complement their findings by confirming the mediating role of emotions on the relationship between personalization and purchase intention.

4.6.3 Practical implications

Our study is one of the few so far to include personalization as a predictor variable. The results suggest that personalization is an important factor in the development of customers' emotions. Hence, providing personalization helps to increase positive emotions in online shopping, but it was not confirmed whether it could also mitigate the formulation of negative emotions. Likewise, emotions have been found to significantly affect online shopping behavior: positive emotions will likely increase online purchases while negative emotions will have an opposite effect. Our findings advocate that positive emotions are more important than negative ones, and a rise in negative emotions might not have a great effect on customers' intentions if their positive emotions rise as well. Hence, e-shop interaction designers may manipulate the emotional state of online shoppers by giving them the expectation of purchasing desirable items or services in order to increase customer loyalty and overall online sales. Likewise, designers should stimulate customers so they perceive personalized services as an opportunity to gain additional rewarding benefits.

In addition, web designers should implement personalization tools (e.g. product recommendations, social login, behavioral targeting) on their websites in order to evoke positive emotions. Personalization, when offered to customers in the right way, is expected to increase positive emotions and decrease negative ones. Consequently, when offered inadequately it might produce negative emotions. Furthermore, using personalized services has been found to increase the perception of invasion of privacy, which in turn increases negative emotions, but our study found no effect of personalization on negative emotions. It is interesting that personalization has no effect on negative emotions. Our results indicate that customers are generally satisfied with personalized services, hence the strong effect on positive emotions. This conclusion is

enhanced by the fact that they have no effect on negative emotions. This might be related to the kinds of products customers purchase using personalized services, and there might be a trade-off between functional and hedonic content towards the latter, since hedonic options are most likely related to positive emotions (Chitturi et al., 2007). Additionally, customers with more experience know what to expect from personalized services and how to use them for their own benefit.

The formulation of positive or negative emotions during personalized online shopping might influence customers' perceptions of important vendor-related criteria, such as the quality of the relationship between vendor and customer, and the degree of trust in and trustworthiness of the vendor. Indeed, past research (Sanchez-Franco & Rondan-Cataluna, 2010; Hwang & Kim, 2007) shows that customers who evoke positive emotions through their interactions with a website might consider the online service safe, therefore their need to trust the service before engaging in any interaction will become less significant. Conversely, negative emotions will likely develop feelings of threat and pessimism, which might lead to increased perceptions of risk regarding the outcome of the online transaction. Hence, trust will become more important in order to alleviate these concerns. In the same spirit, positive emotions might reinforce feelings of satisfaction and loyalty with the online service provider, which in turn might strengthen the relationship quality between the customer and the online vendor (Sanchez-Franco & Rondan-Cataluna, 2010).

4.6.4 Future research and limitations

As with any empirical study, there are some limitations. First, our sample included mostly Greek online shopping customers. Additionally, the subjects were highly experienced in online shopping and highly educated, so this may limit the generalization of the findings somewhat. Second, the findings are based on self-reported data; other

methods such as in-depth interviews and observations could provide a complementary picture of the findings. Third, in the present study we only investigate positive and negative emotions, while other aspects of individual emotions – such as anxiety, anger or happiness – that have been proven to affect behavior (Giannakos et al., 2012) were not included. Future research on these aspects would be a valuable contribution to the understanding of customers' emotions using personalized services. In addition, it would be interesting to see how privacy and trust issues would differentiate the results by examining how customers' emotions are influenced when they have to sacrifice their privacy to receive personalized services, and how their trust in the online vendor differentiates their decisions.

4.7 Summary

The chapter presented an empirical study that aimed to explore the role of emotions on personalized online shopping. The goal of this chapter was to examine positive and negative emotions together in order to identify how they influence customer behavior, as well as how they are influenced by personalization. The study presented in this chapter, proposes and tests a research model that addresses the aforementioned aim. The findings suggest that positive and negative emotions co-exist and are likely to occur at the same time during online shopping through personalized services. Both types of emotions affect customer behavior, while only positive emotions mediate the effect of personalization on behavior. The findings suggest that emotions should be examined as a multi dimensional factor in this context, because although they coexist, some emotions are more important than the others and certain types of emotions may dominate or neutralize them. The chapter concludes with suggestions for future research and propositions for practitioners and online retailers.

Chapter 5 The interplay of emotions and cognitive perceptions on intention to purchase

This chapter uses complexity theory to explain and better understand the causal patterns of factors stimulating online shopping behavior in personalized e-commerce environments. To this end, it identifies cognitive and affective perceptions as essential factors in online shopping behavior, proposes a conceptual model along with research propositions. To test its propositions, it employs fuzzy-set qualitative comparative analysis (fsQCA) on a sample of 582 experienced online shoppers. Findings indicate nine configurations of cognitive and affective perceptions that explain high intention to purchase. This study, contributes to the literature 1) by offering new insights into the relation among the predictors of online shopping behavior and 2) advancing the theoretical ground of how customers' cognitive and affective perceptions combine to better explain high purchase intentions. The findings support the need for online shopping environments to be more interactive in order to target customers' cognitive and affective perceptions, and increase their intention to purchase.

5.1 Introduction

Online personalization offers retailers the opportunity to offer custom tailored messages and implement strategies based on customers' preferences, in an attempt to convince the latter to select a certain product or service (Ho & Bodoff, 2014). Such strategies are more efficient than one-size-fits-all marketing strategies (Noar et al., 2007). Attitudes, evaluations and ultimately decisions of an individual can be based on cognitive and affective experiences (Chiu et al., 2014). Thus, in order to increase receptivity, retailers use messages that may be based on cognitive or affective qualities, depending on the

needs of the individual (Haddock et al., 2008). Cognitive messages trigger the rational dimension of the decision making process on purchasing a product or service; affective messages initiate emotional responses, which, in turn, influence the purchase behavior.

Marketers use interactive technologies in order to modify individuals' behavior (Cyr et al., 2009; Kaptein and Eckles, 2012), and employ strategies that include rational persuasion, inspirational appeal and consultation (Fu et al., 2004). In other words, businesses in order to convince their customers to purchase, they may recruit logical arguments, make emotional appeals, or request input and feedback from them. Extant studies in the area of personalized online shopping primarily focus on the cognitive perceptions that affect customer behavior (Tam & Ho, 2005; Tam & Ho, 2006; Ho & Bodoff, 2014). In detail, they build on the information processing theory to propose models that examine individuals' attention, cognitive processing, decision and evaluation. On the other hand, previous studies identify the importance of affective responses (Barclay & Kiefer, 2014; Pappas et al., 2014), and posit that the latter may be triggered by interactive messages and eventually influence behavior (Hsieh et al., 2014; Van Noort et al., 2012). Such messages may be used to induce positive feelings to customers, however they may end up creating negative ones (e.g., irritation, anger) (Holzwarth et al., 2006).

Prior studies contribute to the importance of both cognitive and affective perceptions in the area of online shopping (Bosnjak et al., 2007; Park et al., 2008; Shen, 2012; Van der Heijden, 2004), and stress their significance when examining interactive services that offer personalization and user-centric customization (Cyr et al., 2009; Kamis et al., 2008; Zhou et al., 2013). It is evident that customers' consider both cognitive and affective factors before making a purchase, suggesting that they coexist and are likely to be interrelated. However, it is less clear which cognitive and affective factors drive customers to purchase online using personalized services, and more importantly how

their combinations better explain online shopping behavior. Existing studies on the antecedents of customers' online shopping behaviors either focus on the main effects of specific predictors (e.g., perceived benefits, perceived enjoyment) on intention to purchase, or fail to examine the combined effects of cognitive and affective perceptions on intention to purchase.

This study builds on complexity theory and aims to explore the causal patterns of factors that stimulate online shopping behavior in personalized online environments. In particular, this study attempts to *elucidate on how customers' cognitive and affective perceptions combine to form constellations that lead to increased purchase intentions*. Instead of focusing on the main effects between intention to purchase and its antecedents, the goal of this study is to detect configurations that explain online shopping behavior. Thus, the study addresses the following research question:

What configurations of cognitive and affective perceptions lead to high purchase intentions?

Identifying these configurations should help online retailers to specify detailed patterns of factors stimulating shopping behavior and allow them to create more efficient personalization strategies. The clarification of the research question is achieved by employing fuzzy-set qualitative comparative analysis (fsQCA) (Ragin, 2008). fsQCA has received increased attention during the last years in various fields, because when it is applied together with complexity theory, researchers have the opportunity to gain a deeper and richer perspective on the data (Leischnig & Braurer, 2015; Mikalef et al., 2014; Ordanini et al., 2014; Woodside, 2014; Wu et al., 2014).

The remainder of the chapter is organized as follows. In section 5.2 existing literature on cognitive and affective perceptions, and online shopping behavior is revised.

Also, the same section develops and presents the propositions to be examined in this study. Section 5.3 presents the measures applied for collecting data on online shopping behavior. Next, section 5.4 describes the research methodology that was followed. Section 5.5 presents the empirical results derived, and the final section of the chapter includes discussion of the findings and conclusions highlighting theoretical and practical implications.

5.2 Conceptual model and research propositions

5.2.1 Cognitive perceptions

During online shopping, personalized services offer tailored information to different customers (Shang et al., 2005). Thus, it is quite likely for customers to perceive that the transferred information are of high quality and important for them. Messages that are targeted and based on customers' personality traits may be more effective and lead to more successful personalization strategies (Hirsh et al., 2012). Focus should be given on quality factors in online personalized shopping, which are expected to influence purchase intentions, such as message quality and benefits of personalization, because customers prefer quality over quantity when receiving recommendations from personalized services (Lee & Kwon, 2008). Customers also prefer the interaction with familiar objects or parties, favoring information quality (Mun et al., 2013). This suggests that high quality personalized services, which include increased benefits, will be more efficient in convincing customers to purchase and are likely to provide gains for both customers and retailers. In line with these notions, cognitive perceptions comprise of three dimensions; *quality of personalization, message quality, and benefits of personalization.*

Quality of personalization refers to how well and efficiently are perceived the offered services, to fulfill customers' needs. Extant research examines quality of personalization

along with other cognitive factors and verifies its importance on customers' behavior in online shopping (Ho & Bodoff, 2014). Personalization aims to convince users to perform a certain task, and past research focuses on examining this task through the investigation of behavior and intention to purchase (Ha et al., 2010; Tam & Ho, 2005). Personalized services give exclusive treatment to their users; through the uniqueness of the offered information they make the target group feel "closer" to the provided services (Kim & Ammeter, 2014). Employing specific techniques to make online shopping more personal may have various effects on customers' attitude and behavior. In detail, it may lead to increased satisfaction with the retailer, a more positive attitude toward the product, and a greater purchase intention (Holzwarth et al., 2006).

Message quality refers to customers' general perception of the accuracy and completeness of website information as it relates to products and transactions, when using personalized services, and may be used interchangeably with the term information quality that also appears in the literature of online shopping (Mun et al., 2013). Acquiring information of high quality is crucial for decision makers, including potential buyers (Miranda & Saunders, 2003). In the context of online services, information quality is an important antecedent of customers' overall evaluation of such services and of customers' online behavior (Setia et al., 2013), although this importance is not verified by all studies examining online shopping intentions (Hong & Kim, 2012). The third dimension, *benefits of personalization* refer to beliefs about the extent to which customers will become better off from the online transaction with a certain website, when using personalized services. Online shopping benefits are customers' perception of gains and advantages (Forsythe et al., 2006). Thus, it is essential to determine what benefits to offer to customers and how to correspond them (Lee et al., 2010). Customers are likely to prefer online shopping due to its benefits, such as convenience, time and cost savings. Personalization is efficient when

such services are built on customers' needs, interests, online activity and time of the day (Xu et al., 2011). Previous research has found that perceived benefits from using online services will positively affect attitudes and intentions (Lee, 2009). The competence to obtain more value from shopping when it is done online is an important reason for customers to prefer it (Forsythe et al., 2006), suggesting that the increased value, which derives from perceived benefits, will in turn affect customers' behavior.

5.2.2 Affective perceptions

Shopping via online vendors creates diverse emotions to customers, which affect their purchase behavior. In the absence of clear information that will help in making a choice, individuals turn to their emotions as a source of information (DeSteno et al., 2004). The relation between types of emotions (e.g., anger, pleasure) and intention to purchase has been studied in the past (Kamis et al., 2008; Koo & Ju, 2010; Kuo & Wu, 2012; Verhagen & Dolen, 2011), however the majority of studies treat emotions univocally, that is, assigning only a particular emotional valence and control. In effect, recent studies argue that emotions consist of a multi-dimensional concept that includes together distinct affective qualities of both positive and negative valence and control (Scherer et al., 2013). The two main types of emotions (positive and negative) are correlated (Chang et al., 2014) and are likely to exist simultaneously in online shoppers. However, although positive and negative emotions are interrelated, their relationship is not proportional and an increase in one does not imply a reduction of the other. Previous research has demonstrated the relationship between customers' emotions and their purchase behavior when using personalized services (Pappas et al., 2014). In detail, positive emotions increase intention to purchase while negative emotions decrease it. Additionally, positive emotions mediate the effect of personalized services on intention to purchase.

Interestingly, shoppers may simultaneously experience both positive and negative emotions in the same situation, but for different reasons (Kuo & Wu, 2012). For example, Penz & Hogg (2011) posit that mixed emotions may occur on customers depending on the product, the purchase process as well as various personal factors. To this end, negative emotions may occur when retailers happen to offer low quality or unattractive services. However, at the same time customers may feel positively towards the retailer because of a high store image, or because trust has been established from successful previous transactions. Ergo, positive and negative emotions may co-occur making essential a more comprehensive assessment of customers' situation.

This study aims to examine customers' online behavior by presenting configurations of causally interrelated structures of sets of factors. Building on relevant literature (e.g., Kamis et al., 2008) and using complexity theory, as analyzed by Woodside (2014), this study suggests that customers' cognitive and affective perceptions are important antecedents of online shopping behavior. It further examines how various combinations of the aforementioned perceptions are able to better explain customers' behavior.

A Venn diagram presents the proposed model (Figure 5-1), illustrating three sets of constructs and their intersections. The three sets of constructs reflect the outcome of interest (dependent variable) of this study and two sets of causal conditions to predict the outcome (independent variables). In detail, the outcome of interest is customers' online shopping behavior (i.e., intention to purchase), and the two sets of causal conditions are cognitive perceptions towards personalization (i.e., quality of personalization, message quality, benefits of personalization) and affective perceptions (i.e., strongly positive emotions, weakly positive emotions, strongly negative emotions, weakly negative

emotions). The intersections represent factor configurations, which are higher level interactions.

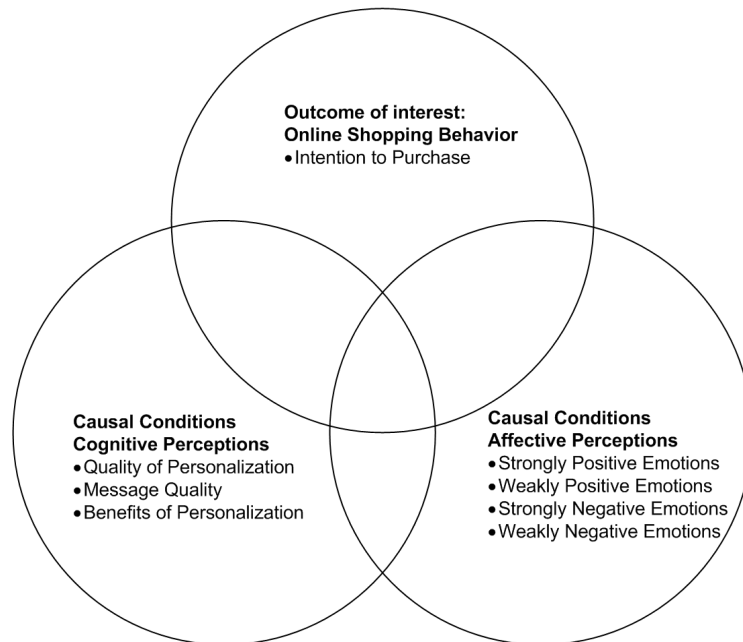


Figure 5-1 Conceptual Model

5.3 Research propositions

Extant research in the area of online shopping has stressed the importance of both cognitive and affective perceptions as well as various subjective measures which have proven their value on examining customers' experience (e.g., Kamis et al., 2008; Van der Heijden, 2004). Previous studies indicate mixed effects of customers' cognitive perceptions towards online shopping (Ha et al., 2010; Hartmann & Apaolaza-Ibáñez, 2012; Hong & Kim, 2012;) and contradictory results regarding the effect of affective perceptions in online shopping (Beaudry & Pinsonneault, 2010; Kim et al., 2007; Koo & Ju, 2010;

Pappas et al., 2014; Verhagen & van Dolen, 2011). To this end, in order to explain and better understand customers' behavior in online shopping, a configural analysis of factors is more appropriate than an examination of individual causal factors. As presented in Figure 5-1, this perspective leads to more complex causal patterns and higher-level interactions between the constructs.

Complexity theory incorporates the principle of *equifinality*, based on which the outcome of interest can equally be explained by alternative sets of causal conditions that combine in sufficient configurations for the outcome (Fiss, 2011; Woodside, 2014). Cognitive and affective perceptions are essential causal conditions to understand customers' behavior in personalized online environments, and may be combined in different configurations in order to explain it. For example, Shen (2012) posit that both cognitive (i.e., perceived usefulness) and affective (i.e., perceived enjoyment) perceptions influence positively behavioral intentions when shopping online. However, Pappas et al. (2014) suggest that quality of personalization and positive emotions affect customers' online behavior, but negative emotions have no significant effect on it. Further, Verhagen & van Dolen (2011) find significant effects on online behavior from both positive and negative affective. Hence, configurations may include combinations of cognitive affective perceptions, leading to the following proposition:

Proposition 1. *No single best configuration of customers' cognitive and affective perceptions leads to high intention to purchase, but there exist multiple, equally effective configurations of causal factors.*

Complexity theory further proposes the occurrence of causal asymmetry. Causal asymmetry means that, for an outcome to occur, the presence and absence of a causal condition depends on how this causal condition combines with one or more other causal conditions (Leischnig & Braurer, 2015; Woodside, 2014). For example, since negative

emotions have mixed effects on customers' online behavior (e.g., Pappas et al., 2014; Verhagen & van Dolen, 2011), high intention to purchase might be achieved for customers with high negative emotions and for those with low negative emotions, depending on how they combine with the rest of emotions and cognitive perceptions. Furthermore, alternative configurations of intention to purchase may include either a cognitive or an affective perception. Previous studies show that customers need an incentive to make a purchase (e.g., Kamis et al., 2008), and such incentives might be either external (e.g., personalized services) or internal (e.g., emotions). Customers' are likely to make a choice bases on their emotions, when other sources of information (e.g., message quality) are not available (DeSteno et al., 2004). Thus, this study puts forth the following propositions:

Proposition 2. Single causal conditions may be present or absent within configurations for customers' high intention to purchase, depending on how they combine with other causal conditions.

Proposition 3. Configurations that lead to high intention to purchase will require the presence of at least one cognitive or affective causal condition.

5.4 Research method

5.4.1 Data collection

The survey was conducted in March-April 2014. A snowball sampling methodology was used to recruit participants. This method may be used to access a representative sample with an interconnected network of people. This method is suitable due to the low adoption of online shopping in Greece, since it gives the opportunity to contact customers with previous experience in personalized online shopping. E-commerce adoption in Greece is among the lowest in EU member states deviating by 24% from the EU average (Eurostat, 2014). The research instrument controls the prospective

participants for their experience with both online shopping and personalized information services. The researchers contacted people with established experience in online shopping and personalized services (e.g., e-business consultants, personal contact list, graduates, etc.). Similarly, the latter turned to their personal or business contacts (e.g., friends, relatives, colleagues etc.) with established online experience. The participants were asked to answer based on evaluations created after using or receiving personalized services in online shopping industry. It was made clear that there was no reward for the respondents, the participation was voluntary and that the study was confidential. Data were collected by means of an online questionnaire. First, a few examples of personalized online services were presented, followed by questions regarding their experience with personalized services and online shopping. Respondents with no previous experience with personalized services and online shopping were excluded from participating in the remain of the study. Finally, 723 responses were collected out of which 582 had previous experience with online shopping and personalized services.

5.4.2 Respondents

The sample of respondents consists of about equally men (45.7%) and women (54.3%). The vast majority of the respondents (77.3%) were holders of a bachelor or a higher education degree. Furthermore, over 60% of our sample belonged to the age group 22-34. According to the latest study from the Hellenic Statistical Authority (2014) that profiles Greek shoppers conducting online purchases, almost half of users that actively use the Internet to purchase products and services belong to the age group of 16-34. Our sample approximates this distribution, although we acknowledge a minor skew towards younger ages. Finally, almost 25% of the sample were 35 years old or older. Hence, we consider our sample as representative of the Greek e-commerce users population.

5.4.3 Survey instrument

The questionnaire consists of two parts; several questions on the demographics of the sample followed by measures of the various constructs identified in the literature review section. To test the propositions, the survey includes reflective scales for the constructs of the conceptual model. Table 5-1 lists the operational definitions of the constructs in this theoretical model as well as the studies from which the measures were adopted. A 7-point Likert scale anchored from 1 (“completely disagree”) to 7 (“completely agree”) is employed.

Table 5-1 Construct Definition

Construct	Operational Definition	Source
Quality of Personalization	How well and efficiently are perceived the offered services, to fulfill customers’ needs	Pappas et al., 2014
Message Quality	Customer’s general perception of the accuracy and completeness of Website information as it relates to products and transactions, when using personalized services.	Kim et al., 2008
Benefits of Personalization	Customer’s belief about the extent to which he or she will become better off from the online transaction with a certain Website, when using personalized services.	Kim et al., 2008
Emotions	Measuring customer’s emotions, based on valence and control, when using personalized services.	Scherer et al., 2013
Intention to Purchase	Customer’s intention to shop online based on personalized services.	Pappas et al., 2014

Regarding emotions, the work of Scherer et al. (2013) is adopted, who attempt to understand emotions semantics. In this study emotions are divided based on valence and

power/control, following the work of Scherer et al. (2013) and verified with an exploratory factor analysis, into four types of emotions, that is, strongly positive, weakly positive, strongly negative, and weakly negative. Appendix 1 lists the questionnaire items used to measure each construct, along with descriptive statistics and loadings.

5.5 Analysis

5.5.1 Contrarian case analysis

Focusing on the main relations between two variables and stating that a variable affects positively or negatively an outcome means that most cases in a sample verify this relationship. However, opposite relationships occur for some cases and the data should be tested for such contrarian cases (Woodside, 2014). In plain words, two variables may relate positively, negatively and not all in the same set of data, regardless of the main effect of one on the other. Consequently, by performing contrarian case analysis such relations are identified among the variables and the findings support the necessity to implement configural analysis for their explanation (Woodside, 2014). Contrarian case analysis is performed by creating quintiles on all variables and by performing cross-tabulations using the quintiles. Results are presented in Appendix 2.

5.5.2 fsQCA

This study applies fsQCA, which identifies patterns of elements leading to an outcome and goes a step further from the identification of only correlations among independent and dependent variables. By using fsQCA the outcome and the predictor variables may be on a fuzzy scale (continuous) than on a dichotomous scale (binary). Further, fsQCA offers two types of configurations that include necessary and sufficient conditions. These configurations may be marked by their presence, their absence, or a “do not care” condition. The necessary and the sufficient conditions lead to a distinction

between core and peripheral elements. Core elements are the ones with a strong causal condition with the outcome, peripheral elements are those with a weaker one (Fiss, 2011).

fsQCA requires that the outcome and the independent measures be defined. Next, all measures need to be calibrated into fuzzy sets with values ranging from 0 to 1. Specifically, the value of 1 denotes full set membership, while that of 0 denotes no set membership. Hence, all variables are continuous, with scale from 0-1, which indicates the level of their membership. The transformation of variables into calibrated set is done by fsQCA program, by setting three meaningful thresholds; full membership, full nonmembership, and the cross-over point, which describes whether the case is more in or out of a set (Ragin, 2008). The calibration is done by following the procedure employed by Ordanini et al. (2014). With this calibration method, the three qualitative anchors for the calibration, that is, full membership threshold, full non-membership threshold, and the crossover point threshold, were based on the survey scale (7-point Likert). The full membership threshold was fixed at the rating of 6; the full non-membership threshold was fixed at the rating of 2; and, the crossover point was fixed at 4.

Once the calibration is complete, the fsQCA algorithm is applied to produce a truth table of 2^k rows, with k representing the number of outcome predictors, and each row representing each possible combination. The truth table needs to be refined based on frequency and consistency (Ragin, 2008). The frequency describes the number of observations for each possible combination. Consistency refers to *“the degree to which cases correspond to the set-theoretic relationships expressed in a solution”* (Fiss, 2011 p.402). A frequency cut-off point is set to ensure that a minimum number of empirical observations is achieved for the assessment the assessment of subset relationships. For small and medium-sized samples a cut-off point of one is appropriate but for large-scale samples (e.g., 150 and more cases) cutoff point should be set higher (Ragin, 2008). The minimum

acceptable observation frequency is set at three (Fiss, 2011), and the lowest acceptable consistency for observations is set at $>.85$, higher than the minimum recommended threshold of 0.75 (Ragin 2006).

5.6 Findings

5.6.1 Measurements

A confirmatory factor analysis is performed to verify the factor structure of the reflective constructs. The constructs used in this research are evaluated in terms of reliability and validity. Reliability testing, based on the Cronbach alpha indicator, shows acceptable indices of internal consistency since all constructs exceed the cut-off threshold of 0.70. Establishing validity requires that average variance extracted (AVE) is greater than 0.50, the correlation between the different variables in the confirmatory models does not exceed 0.8 points, as this suggests low discrimination and that the square root of each factor's average variance extracted (AVE) is larger than its correlations with other factors (Fornell & Larcker, 1981). The AVE for all constructs ranges between 0.55 and 0.84, all correlations are lower than 0.80, and square root AVEs for all constructs are larger than their correlations. The findings are illustrated in Table 5-2.

Further, multicollinearity issues (O'Brien, 2007) are examined along with the potential common method bias by utilizing the Harman's single factor test (Podsakoff et al., 2003). The variance inflation factor (VIF) for each variable is below the value of 3, indicating that multicollinearity is not an issue. The results suggest that common method bias is not a problem, since the first factor did not account for the majority of the variance and no single factor occurred from the factor analysis.

Table 5-2 Descriptive statistics and correlations of variables

Construct	Mean (SD)	AVE	Construct							
			1	2	3	4	5	6	7	8
1. Quality of Personalization	4.6 (1.24)	0.73	0.85							
2. Message Quality	4.4 (1.13)	0.65	0.54	0.81						
3. Benefits of Personalization	4.9 (1.31)	0.66	0.56	0.73	0.81					
4. Strongly Positive Emotions	3.6 (1.40)	0.67	0.26	0.25	0.32	0.82				
5. Weakly Positive Emotions	3.1 (1.49)	0.60	0.16	0.15	0.23	0.69	0.77			
6. Strongly Negative Emotions	2.7 (1.25)	0.55	-0.11	-0.21	-0.16	-0.01	0.2	0.74		
7. Weakly Negative Emotions	2.2 (1.18)	0.61	-0.05	-0.12	-0.07	0.29	.31	0.57	0.78	
8. Intention to Purchase	4.5 (1.35)	0.84	0.61	0.57	0.65	0.37	0.32	-0.25	-0.12	0.92

Note: Diagonal elements (in bold) are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs (correlations of 0.1 or higher are significant, $p < 0.01$). For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Next several fit indices of the research model are examined. The chi-square statistic is sensitive to sample size, and is expected to be above the recommended value of 3 because of the large sample of this study. However it is a global statistic, hence it is used in this study. Further, comparative fit index (CFI), Tucker–Lewis index (TLI), and root

mean square error of approximation (RMSEA) served as indices to assess the overall measurement model fit. All values are within the recommended range. Specifically, χ^2/df : 3.45, TLI: 0.91, CFI: 0.92 and RMSEA: 0.06.

5.6.2 Results from the fsQCA

Outcomes of the fuzzy set analysis for high purchasing alignment firms are presented in Table 5-3. The black circles (●) denote the presence of a condition, while the crossed-out circles (⊗) indicate the absence of it (Fiss, 2011). Core elements of a configuration are marked with large circles, peripheral elements with small ones, and blank spaces are an indication of a do not care situation in which the causal condition may be either present or absent. The solution table (Table 5-3) includes values of set-theoretic consistency for each configuration as well as for the overall solution, with all values being above threshold (>0.75). Consistency measures the degree to which a subset relation has been approximated, whereas coverage assesses the empirical relevance of a consistent subset (Ragin, 2006; Mendel & Korjani, 2012). The overall solution coverage provides an indication as to what extent high purchase intentions can be determined based on the set of configurations, and is comparable to the R-square value reported in correlational methods (Woodside, 2013). The results indicate an overall solution coverage of .84, which suggests that a substantial proportion of the outcome is covered by the nine solutions.

For high purchase intentions to occur, solutions 1-3 reflect combinations of the presence and absence of cognitive with affective perceptions. Quality of personalization and strongly positive emotions are core constructs, pointing out the importance of these factors. In detail, the combination of high quality of personalization with strongly positive emotions towards personalized services, with the absence of message quality and both types of negative emotions, lead to high purchase intentions, regardless of the level of benefits of personalization and weakly positive emotions (solution 1).

Table 5-3 Configurations for achieving high level of purchase intention

	Solution								
Configuration	1	2	3	4	5	6	7	8	9
Cognitive Perceptions									
Quality of Personalization	●	●	●	●	●	●			⊗
Message Quality	⊗	•	•	●	●	⊗		•	⊗
Benefits of Personalization		•	•	•			●	●	⊗
Affective Perceptions									
Strongly Positive	●	●	●		⊗	⊗	⊗	•	⊗
Weakly Positive		⊗	•		⊗	⊗	⊗	•	●
Strongly Negative	⊗		•	⊗	⊗	●	⊗	⊗	⊗
Weakly Negative	⊗	⊗	•	⊗	⊗	⊗	⊗	⊗	⊗
Consistency	0.932	0.956	0.959	0.918	0.896	0.877	0.837	0.950	0.863
Raw Coverage	0.261	0.337	0.133	0.690	0.471	0.161	0.535	0.337	0.118
Unique Coverage	0.018	0.005	0.023	0.052	0.002	0.007	0.051	0.007	0.004
Overall solution consistency	0.841								
Overall solution coverage	0.840								
Note: Black circles (●) indicate the presence of a condition, and circles with “x” (⊗) indicate its absence. Large circles indicate core conditions; small ones, peripheral conditions. Blank spaces indicate “don’t care”.									

To this end, when all cognitive perceptions are present, in order to achieve high purchase intentions, they may be combined with either (i) strongly positive emotions, with the absence of weakly positive and negative emotions, and regardless of strongly

negative emotions (solution 2), or (ii) all types of emotions (solution 3), or (iii) with the absence of negative emotions and regardless of positive ones (solution 4).

With the absence of all emotions, high purchase intentions may be achieved with either high personalization and message quality, regardless of their benefits (solution 5), or just by high personalization benefits regardless of its quality (solution 7). Solution 6 combines personalization quality and strongly negative emotions, with the absence of message quality along with the rest of emotions. Personalization benefits play a minor role in this solution. On the other hand, in solution 8, benefits are an important (core) factor which combined with message quality, and the presence of positive emotions only lead to high purchase intentions. Finally, the same outcome may be achieved by the presence of weakly positive emotions combined with the absence of all other emotions and all cognitive perceptions (solution 9).

The findings provide support for all three propositions. First, more than one configurations exist that lead to high intention to purchase indicating equifinality (proposition 1). Second, the results reveal configurations of high purchase intentions, on which one condition may either be present or absent depending on its combination with the other conditions, indicating causal asymmetry (proposition 2). Third, there is always at least one cognitive or affective condition in the configurations that predict high intention to purchase (solution 3).

5.6.3 Testing for predictive validity

This study tests also for predictive validity, in order to examine how well the model predicts the dependent variable in additional samples (Gigerenzer & Brighton, 2009; Woodside, 2014; Wu et al., 2014), as presented on Table 5-4 and figure 5-2.

Table 5-4 Complex configurations indicating high intention to purchase for subsample

Models from subsample 1	Raw coverage	Unique Coverage	Consistency
1. BP*MQ*~SP*~SN*~WP*~WN	0.532	0.044	0.877
2. QP*BP*~MQ*~SP*~WP*~WN	0.309	0.027	0.853
3. QP*BP*~MQ*~SP*~WP*~WN	0.309	0.027	0.853
4. QP*BP*SP*~SN*WP*~WN	0.349	0.011	0.957
5. QP*BP*MQ*SP*SN*WP*WN	0.125	0.018	0.946
6. QP*BP*MQ*~SN*~WP*~WN	0.559	0.015	0.895
7. QP*BP*MQ*SP*~SN*~WN	0.459	0.012	0.949
Overall solution consistency			
	0.869		
Overall solution coverage			
	0.791		
QP; Quality of Personalization, BP; Benefits of Personalization, MQ; Message Quality, SP; Strongly Positive Emotions, WP; Weakly Positive Emotions, SN; Strongly Negative Emotions, WN; Weakly Negative Emotions			

Predictive validity is important because achieving only good model fit does not necessarily mean that the model offers good predictions. To this end, the sample is split in a subsample and a holdout sample. Table 5-4 shows the patterns of complex antecedent conditions are consistent indicators of high scores in intention to purchase using the subsample. As presented in Figure 5-2, the findings for testing model 1 predictions indicate a high consistency (0.893) and high coverage (0.468). Predictive tests for all models suggest that the highly consistent models for the subsample have high predictive abilities for the holdout sample, and vice versa. Readers may get all results upon request.

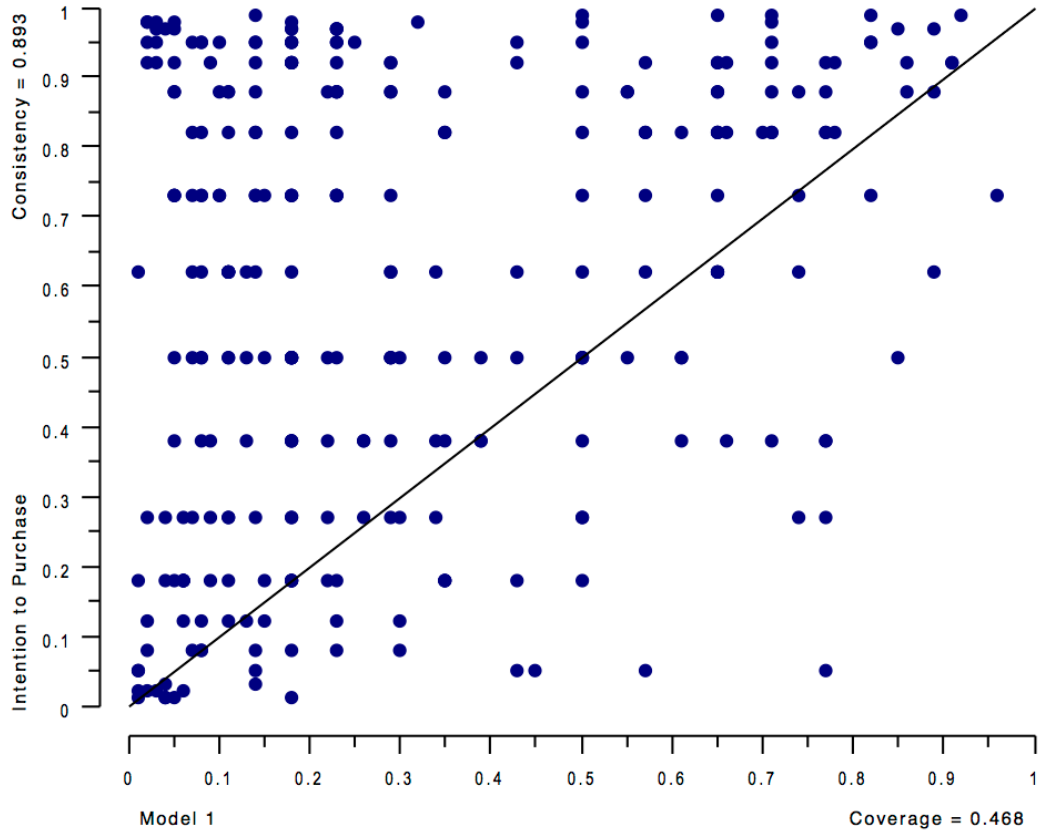


Figure 5-2 Test of model 1 from subsample using data from holdout sample

5.7 Discussion, implications and conclusion

This study proposes that in online personalized environments, customers' cognitive and affective perceptions combine to form configurations for predicting online shopping behavior. To this end, a conceptual model is constructed that serves as the basis to identify the aforementioned configurations. Of particular interest in the findings is the evident role of quality of personalization, which is present as a core construct in six out of nine solutions. In fact, quality of personalization leads to high purchase intentions with either the presence or absence of different types of emotions, respectively (solutions 1-6).

Curiously enough, increased quality of personalization, regardless of its benefits, combined with strongly negative emotions will increase customers' intention to purchase, as long as all other constructs are absent (solution 6). Another interesting result relates to the increased benefits of personalization, because only their presence, with the absence of all emotions, is sufficient to lead to high purchase intentions (solution 7).

The findings confirm the importance of cognitive perceptions in the area of personalized online shopping, that has been identified previously in the literature (e.g., Ho & Bodoff, 2014). Furthermore, this study points to a significant finding, that is, cognitive perceptions are more important than affective perceptions. Noticeably, in almost all solutions (8 out of 9), at least one cognitive perception is present. On the other hand, when all cognitive perceptions are absent, weakly positive emotions are sufficient for high purchase intentions, while all the other types of emotions are absent as well (solution 9). Thus, indicating that when customers do not have clear information to make a choice, they turn to their emotions instead, as suggested by DeSteno et al. (2004).

Regarding emotions, the results show that when one of the four types of emotions is present as a core factor, the rest are either peripheral, absent or do not matter (solutions 1,2,3,6,9). This suggests that although emotions at times co-exist, one emotion may dominate or neutralize the rest. The last solution, points out the critical role of positive emotions in online shopping, because when quality and benefits of personalized services are low, then a customer with weakly positive emotions will make a purchase. It is evident, that strongly positive emotions are unlikely to exist in this case, probably because of the low quality and benefits. Similar reasons may explain the results of solution 6, based on which high personalization quality and negative emotions lead to high purchase intentions.

5.7.1 Theoretical implications

The findings contribute to the literature in several ways. This study adds to online shopping literature by presenting conditions for online shopping behavior using personalized services. Previous studies explain customers' behavior by analyzing the effects of various cognitive and affective antecedents (e.g., Kamis et al., 2008; Pappas et al., 2014). However, these studies use structural equation modelling and multiple regression analysis and focus on the main effects of various antecedents on one or more dependent variables, while neglecting the interdependencies and interconnected causal structures between the variables (Woodside, 2014). This study, drawing from complexity theory takes a configurational approach towards personalized online shopping and contributes to literature by explaining how two sets of causal conditions, that is, cognitive and affective perceptions, combine to form configurations that affect purchase behaviors. Further, the study offers a better understanding of specific patterns of customers' cognitive and affective perceptions that increase their purchase intentions. It also adds to emotion literature by providing specific conditions on which positive and negative emotions coexist. In line with Watson & Spence (2007), the findings indicate that on certain occasions, if one emotion is more important than the others then it is likely to dominate and overlay the effects of mixed emotions.

This article extends personalized online shopping literature by addressing shortcomings of previous studies and by explaining mixed findings. Although quality of personalization has been found to influence directly online shopping behavior (Pappas et al., 2014) and perceived benefits (Xu et al., 2011), these effects may be influenced by other factors as well, including cognitive (Ho & Bodoff, 2014) and affective factors (Zhou et al., 2013). Further, Kuo and Wu (2012) reveal that customers might have positive or negative emotions during online shopping, however Pappas et al. (2014) suggest that only positive

emotions affect customers' intentions to purchase. Further, Koo and Ju (2010) examine positive emotions during online shopping without taking into account negative ones. This study presents various configurations between cognitive and affective perceptions and provides a deeper explanation of the conditions under which quality of personalization, benefits, message quality and emotions lead to increased intention to purchase.

Regarding its methodology, this study is one of the first to perform configural analysis based on individual-level data from online customers. As Leischnig & Braurer (2015) suggest, the implementation of complexity theory in individual level phenomena may be proven appropriate for theory building. Hence, this study makes propositions based on complexity theory in order to explain customers' intention to purchase online based on personalized services. Further, the study puts to test these propositions using fsQCA, a fairly used approach that receives increased attention in recent studies (Leischnig & Braurer, 2015; Ordanini et al., 2014; Woodside, 2014; Wu et al., 2014). The study confirms the importance of examining complex causal patterns of predictors, contrarian cases and asymmetric relationships between antecedents and outcomes.

5.7.2 Managerial implications

The findings of this research may be employed by online retailers to streamline their personalized services in order to increase the effectiveness of personalization strategies and increase the likelihood that such services will lead to eventual sales. Customers that choose to use personalized services expect recommendations tailored to their personal needs. This study identifies the critical role of cognitive over affective perceptions in online shopping. Various antecedents of high purchase intentions have been proposed, however findings here indicate that some are more important than others. Controlling all three factors (quality of personalization, message quality, benefits of personalization) is a challenging task for online retailers who need to continuously

improve the accuracy of personalized services. Quality of personalization is of utmost importance, followed by the potential benefits. Consequently, retailers besides offering high quality services, need to implement mechanisms that will study their customers' attitude and behavior (e.g., text mining of user reviews, pattern analysis of user ratings). Furthermore, the results may prove very useful for managers because they offer alternative combinations of customers' cognitive and affective perceptions that lead to increased purchase intentions. Specifically, knowing which factors are more important than the rest, and which combinations of factors explain better intention to purchase should help online retailers to develop more effective and efficient personalization strategies. Managers may focus on specific cognitive or affective factors depending on the customer that has been served each time. The solutions may be viewed as different types of customers, who present a variety of cognitive and affective perceptions, thus providing an opportunity for more advanced customer profiling.

Lastly, the study highlights the importance of positive emotions, in explaining high purchase intentions, since they are present in five out of nine solutions. Online retailers should strive to induce and maintain feelings of pleasure, joy and contentment for their customers. Positive emotions may rebalance wavered shopping intentions towards the actual purchase, or even lead to impulsive purchases. It is important to focus on both types of positive emotions (i.e., strongly and weakly positive emotions), because results show that when quality of the personalized services is low and there are no benefits, customers may purchase based on their weakly positive emotions. Emotional contagion strategies may aid marketers towards this direction, similar to the experiment performed in Facebook (Coviello et al., 2014). In detail, online retailers may send notifications to all their customers, referring to a satisfied and happy customer that just found the desired product.

5.7.3 Limitations and future research directions

As with any empirical study, there are some limitations. The sample consists of mostly high experience and highly educated Greek customers, so this may limit the generalization of the findings. The findings are based on self-reported data; other methods such as in-depth interviews and observations could provide a complementary picture of the findings. This study offers insight on how cognitive and affective factors together may explain online shopping behavior, while indicating which factors are more important than the rest. Future work should experiment on explaining if and under what circumstances, one or more factors dominate or neutralized the others.

This study differentiates from the majority of previous work on online shopping, which focus on multiple regression analysis, and confirms the importance of complexity theory and configural analysis. Nonetheless, more studies are needed in various contexts to enhance their usefulness, as suggested by the recent work of Wu et al. (2014). Finally, although this study examines emotions in a multidimensional concept, it only examines three key cognitive perceptions as antecedents of purchase intentions in the context of online personalized services. Since, the findings here identify the importance of cognitive perceptions over the affective, future studies in personalized online shopping should include more cognitive factors to explain behavior, such as attitude towards persuasion (Tam & Ho, 2005), distrust (Chau et al., 2013), risk (Chiu et al., 2014), reciprocity and responsiveness (Yoo et al., 2015).

5.8 Summary

This chapter offers evidence on examining combinations of cognitive and affective perceptions in order to better explain customers' intention to purchase. To do so, complexity theory is applied to point out the importance of analyzing complex patterns

of predictors, contrarian cases and asymmetric relationships. Quality of personalization, message quality, benefits of personalization, and emotions do not have to combine all together to stimulate intention to purchase. Complex but parsimonious patterns occur on which the various antecedents may be present or absent, suggesting that different types of perceptions may co-exist in order to explain customers' purchase behavior.

Chapter 6 The moderating role of emotions on the purchase process

This chapter develops and tests a theoretical model of customer persuasion in personalized online shopping environments, building on the prescriptions of the information processing theory, by addressing both the cognitive and affective stages of the persuasion process. The research model is validated through the statistical analysis of a survey on online customers (N=582) using SEM. This chapter is the second part of the study that was presented in chapter 5, is based on the same data, but proposes a research model built on different theory, which includes persuasion and has different goals. The results show that quality of personalization, message quality and benefits of the personalized recommendations are important to persuade customers to proceed to purchases in online-shopping. The results also suggest that positive emotions increase the effect of persuasion on purchase intentions, while negative emotions have no significant effect on the same relation. This research extends theory of online personalization by offering an in depth analysis of the persuasion process in online shopping, and provides valuable recommendations for personalized online marketing.

6.1 Introduction

Online retailers have been implementing various persuasive strategies to attract and retain customers. Online personalization is a strategy that may aid in convincing customers to select a product or service (Ho & Bodoff, 2014) and lead to persuasion. Through personalization, online retailers may use customers' personal data to offer custom tailored messages. Tailored messages are considerably more efficient than one-size-fits-all marketing strategies (Noar et al., 2007), and may increase the effectiveness of

persuasive campaigns (Hirsh et al., 2012). Persuasive messages in online marketing are capable of changing users' attitudes and intentions (Chang et al., 2015), and their efficiency is highly affected by individual differences (Haddock et al., 2008).

The attitudes and evaluations of an individual can be based on cognitive and affective experiences and they may affect persuasion, choice (See et al., 2008; Peck & Wiggins, 2006) and purchase intentions (Wang et al., 2011). To increase its receptivity a persuasive message may be cognitive or affect based, depending on the cognitive or affective needs of the individual (Haddock et al., 2008). Extant studies in the area of online shopping focus on the cognitive part of the persuasion process and cover it in breadth by examining the components that affect the stages of the persuasion process (Tam & Ho, 2005; Tam & Ho, 2006; Ho & Bodoff, 2014). In detail, they build on information processing theory and propose cognitive based models that examine individuals' attention, cognitive processing, decision and evaluation. Nevertheless, there is a critical need to complement previous studies by examining in depth the persuasion process, and by identifying pertinent factors for each step of the persuasion process in the context of online shopping.

The affective responses of the customer may be affected by interactive messages and eventually influence the persuasion process (Hsieh et al., 2014; Noort et al., 2012). Marketers use persuasive strategies based on interactive technologies in order to modify individuals' behavior (Berkovsky et al., 2012; Oinas-Kukkonen & Harjumaa, 2009; Kaptein and Eckles, 2012). These strategies include rational persuasion, inspirational appeal and consultation (Fu et al., 2004). In other words, businesses in order to persuade their customers, may recruit logical arguments, make emotional appeals or request input or feedback from them. Online retailers may positively influence customers' attitudes towards their company by inducing positive feelings to them (Holzwarth et al., 2006). However, persuasive messages may have negative affective responses to customers (e.g.,

irritation, anger) and lead to message rejection (Holzwarth et al., 2006). Although *internal factors* (i.e., emotions) are of great importance in retailing and online shopping, their effect on persuasion and behavior remains understudied (Chen & Lee, 2008; Griskevicius et al., 2010a,b; Pappas et al., 2014a). Previous studies point out the need to examine both types of emotions (i.e., positive and negative) together since they coexist and may occur simultaneously (Barclay & Kiefer, 2014; Pappas et al., 2014a). Nonetheless, in order to examine the effect of emotions on persuasion further specification is needed.

This study addresses the following research questions:

RQ1: Which factors relate with persuasion in the context of online shopping and what is the role and effectiveness of the factors at each stage of the persuasion process.

RQ2: Are there any fluctuations in the relationship between the outcome of the persuasion process and the online purchase behavior factoring the role of positive and negative emotions?

The clarification of these RQs is expected to contribute to the improvement of personalized online commerce through the identification and examination of the factors that comprise each step of the persuasion process. Furthermore, the role of persuasion on purchase behavior will be determined by pointing out the high importance of customers' emotions on the aforementioned relationship.

6.2 Literature review

6.2.1 The role of persuasion in online shopping

Persuasion refers to activities, strategies and tactics where people are convinced into believing that they will perform a certain task with success, such as completing an online purchase. Persuasion occurs when one's attitude changes, either from neutral to

some attitude or from one attitude to a different one (Petty et al., 2003). Persuasion is everywhere in individuals' everyday life, with advertising being its most common implementation. Consequently, theories of persuasion have played a pivotal role in marketing research explaining and predicting customer behavior (Meyers-Levy & Malaviya, 1999).

Retailers' main goal is to convince customers to buy a product or service, and in order to achieve their goals they use different strategies and tactics. Previous studies focus on pricing tactics as persuasive strategies, examining the relation of such tactics with persuasion knowledge (Pillai & Kumar, 2012; Kachrsky, 2011). However, persuasive strategies involve a lot more than pricing (Meyers-Levy & Malaviya, 1999). Furthermore, retailers use specific advertisements and persuasive messages to increase customer involvement and follow different marketing strategies, such as sending personalized messages to customers that have been created by other customers (Thomson & Malaviya, 2013). However such strategies lead to increased persuasion only under specific conditions (Thomson & Malaviya, 2013).

Extant research in the online shopping context, aims to examine how customers process persuasive messages by segmenting them through different routes (Chen & Lee, 2008; Ho & Bodoff, 2014; Tam & Ho, 2005). Specifically, the effectiveness of persuasive messages is examined by using the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986), which is based on information processing theory. Through ELM and the implementation of different variables (e.g., personality traits, hedonic and utilitarian values, attitude towards the website) researchers aim to understand how persuasive messages are perceived and processed by customers (Chen & Lee, 2008). Similarly, Tam and Ho (2005) analyze persuasion through the lens of the ELM, by examining customers'

attention, information elaboration and choice outcome, suggesting that persuasion may be explained by studying customers' behavior through the whole process of a purchase.

Although ELM frames how attitudes form and change, while taking into account factors such as mood and attractiveness, it neither examines persuasion as a separate factor nor counts the effect of emotions on customers' behavior. ELM demonstrates customers' cognitive responses to recommendations from personalized services, but not their affective responses to them. The latter present great interest to online retailers who want to know how their customers' feel in order maximize their satisfaction with their choices (Mosteller et al., 2014; Walsh et al., 2011). To account for this, we have used regulatory focus theory (Higgins, 2000), which examines how a user behaves based on how he or she feels about a certain judgment.

6.2.2 The role of personalization on persuasion

Personalization refers to offering customers specific content, based on their personal information, such as items purchased Online personalization aims to convince users to perform a certain task, and past research focuses on examining this task through the investigation of behavior and intention to purchase (Ha et al., 2010; Thongpapanl & Ashraf, 2011). Furthermore, previous studies include persuasion in an attempt to explain how personalized services, through persuasive strategies, may modify customers' attitudes and behaviors (Tam & Ho, 2005). In particular, a message that is created for a specific customer, based on personality traits, is likely to be more effective and may lead to more successful persuasive strategies (Hirsh et al., 2012). Berkovsky et al. (2012) couple personalization and persuasion, and suggest that one affects the other and together they may enhance their impact on user behavior. In addition, customers prefer quality to quantity when they receive recommendations through persuasion mechanisms (Lee & Kwon, 2008). This suggests that focus should be given on quality factors in online

personalized shopping, such as information quality and perceived benefits, which will lead to increased persuasion and increased purchase intentions. Similarly, Yi et al. (2013) posit that during the process of persuasion customers prefer interaction with familiar objects or parties, favoring high information quality, suggesting that the offer of specific personalized services that include increased benefits and information quality will lead to more efficient persuasion.

6.2.3 The role of emotions on the relationship between persuasion and shopping behavior

The effectiveness of persuasion strategies is affected by emotions, which have been found to influence the process of persuasive messages (Griskevicius et al., 2010a). In the absence of clear information that will help in making a choice, individuals turn to their emotions as a source of information (DeSteno et al., 2004). Regarding user persuasion, information processing is related with arousal; in particular, increased arousal leads to more impulsive decisions, made in a shallow manner and based on mental shortcuts (Verhagen & Dolen, 2011).

The relation between types of emotions (e.g., anger, pleasure) and intention to purchase has been studied in the past (Koo & Ju, 2010; Pappas et al., 2014a, Verhagen & Dolen, 2011), however only in a few studies emotions are considered as a whole. Here, examining emotions as whole means including together distinct emotions of both positive and negative valence and control (Scherer et al., 2013). The two main types of emotions (positive and negative) are correlated (Chang et al., 2014) and are likely to exist simultaneously in customers. However, although positive and negative emotions are interrelated, their relationship is not proportional and an increase in one does not imply a reduction of the other.

Someone might simultaneously experience both positive and negative emotions in the same situation, but for different reasons. Pappas et al. (2014a), who examine the effects of personalized services in online shopping, have found that positive emotions directly increase intention to purchase while negative emotions reduce it. Further, they posit that positive and negative emotions are interdependent and the intensity of the one may affect the intensity of the other. However, Pappas et al. (2014a) suggest that different aspects of emotions, based on distinct emotions, should be examined. In addition, previous studies have found that different positive emotions may either increase or decrease the effectiveness of persuasion messages (Griskevicius et al., 2010a), and the effectiveness of persuasion depends on whether the context elicits positive or negative effects (Griskevicius et al., 2009). Ergo, a more comprehensive assessment of emotions is essential, since emotions are a multidimensional concept comprised of diverse characteristics. The effect of customers' emotions is expected to be important on the relation of persuasion with purchase intentions.

6.3 Conceptual framework and research model

The proposed research model builds on the prescriptions of the information processing theory, which posits that the impact of a persuasive message is subject to a series of cognitive sequential tasks that follow the initial exposure of the individual to the persuasive message. These tasks include the attention effect of the message, followed by a cognitive processing of the message, and resulting to a judgmental evaluation that accepts or dismisses the message (McGuire 1968). The theory has been successfully applied in the context of web personalization and persuasion by Tam and Ho (2005; 2006) therefore, it represents a suitable core to ground our theoretical propositions.

Our conceptual model includes three building blocks of web personalization strategies that are hypothesized to influence persuasion in the context of online retailing.

The first component recognizes the importance of the communication method that is employed in order to reach the user. Optimal communication of the message would draw the attention of the user to the persuasion message and trigger its cognitive processing. In the context of online services, the quality of the communication, or *message route* as coined by Oinas-Kukkonen (2009), will influence how users perceive the personalized message and its intended benefits; increased relevance of the personalized content will yield positive attitudes towards the message and the overall effectiveness of the personalization strategy (Hirsh et al. 2012;). The latter components characterize the cornerstones of the cognitive evaluation process; users that are exposed to a specific personalization strategy would formulate an opinion and act accordingly after evaluating the personalized message and relate that message to a desired performance (e.g. purchasing a product that fits their current needs). Extant studies on persuasion have reported a positive association between the quality of the message and the persuasion effect (Cesario et al., 2008; Petty & Cacioppo, 1986). Likewise, effective online personalization strategies are likely to lead to persuasion (Oinas-Kukkonen 2009).

The information processing theory has been developed to account for judgment changes in response to rational cues. Nevertheless, individuals rarely base their persuasion only on rationality. Instead, scholars report that affective qualities, in the form of discrete positive or negative emotions, influence the degree and quality of persuasion (DeSteno et al. 2004; Griskevicius et al. 2010;). In our research we posit that emotions will influence the relationship between the outcome of the personalization strategy (i.e., the persuasion effect) and the formulation of behavior based on the persuasion judgment. Our thesis is grounded on regulatory fit theory, which is a widely applied method used to increase the effectiveness of persuasive strategies that attempt to influence attitudes and behavior (Cesario et al., 2008).

Regulatory fit theory investigates one's motivational orientation and the manner in which he or she pursues a certain goal (Higgins, 2000, 2005). People experience regulatory fit when their strategies for goal pursuit match their regulatory orientation (Higgins, 2006). In detail, those with a promotion focus will adopt eagerness strategies to pursue their goal, whereas those with a prevention focus will adopt vigilance strategies. People become more engaged and feel right about their reactions when they experience regulatory fit. In turn, these subjective experiences influence their judgments (Lee et al., 2010).

Persuasive strategies present to the users specific means that will help them achieve their goals (Cesario et al., 2004). For example, promotional messages are more effective and persuasive when they fit the customers' regulatory focus (Lee and Aaker, 2004) and when the type of message matches customers' mental representation of information processing, such as in personalized advertising (Thompson and Hamilton 2006). In addition, Cesario et al. (2004) observed that positive thoughts lead to more favorable evaluations, whereas negative thoughts lead to more unfavorable evaluations when participants are presented with a fit message.

The following figure (Figure 6-1) presents the conceptual framework of our study.

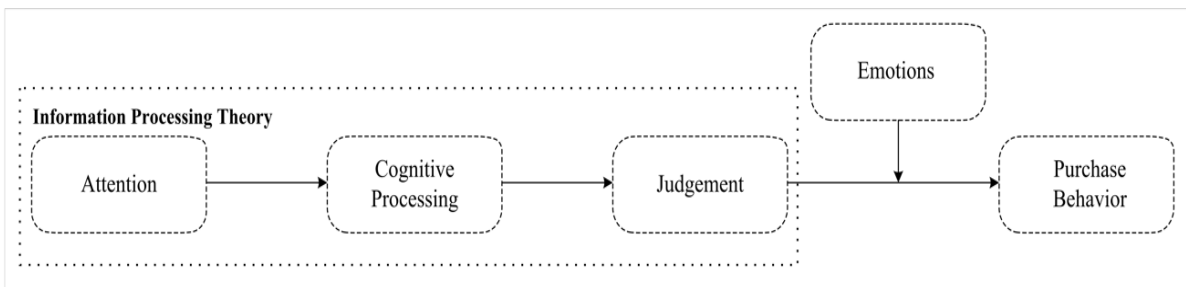


Figure 6-1 The proposed conceptual framework

6.3.1 Quality of personalization

Personalized services give exclusive treatment to their users'; through the unique information they offer they make them feel "closer" to the provided services (Kim & Ammeter, 2014). Personalized services goal is to offer useful information to customers and as result it is very likely that the customers will perceive that the transferred information are of high quality. The quality of a message may be of great importance when the message is personalized (Hirsh et al., 2012). Offers and feeds from personalization and recommendation agents is expected to increase perceived information quality as opposed to simple informative messages (Xu et al., 2013). Therefore, it is proposed that:

H1: Quality of personalization has a positive effect on message quality.

During the development of persuasive messages it is essential to determine what benefits to offer to customers and how to correspond them (Lee et al., 2010). Customers are likely to prefer online shopping due to its benefits, such as convenience, time and cost savings. Personalization is efficient when such services are built on customers' needs, interests, online activity and time of the day (Xu et al., 2011). As a consequence, the implementation of personalized services in online shopping will provide gains for customers related to convenience, product variety and pricing. Customers want to receive and use personalized services, and prefer companies that offer interactive communication (Hsieh, 2009). For example, interactive services that obtain the relevant information before making a purchase, based on previous transactions. Hence, it is proposed that:

H2: Quality of personalization has a positive effect on benefits of personalization.

The increased efficiency of personalized services is assumed to lead to an increased customer persuasion and is likely to provide gains for both customers and retailers. Previous studies on innovation adoption suggest that perceptions of relative advantage

are associated with the adoption of Internet related technology (Chen et al., 2002), such as personalized services. Employing specific techniques to make online shopping more personal, leads to increased satisfaction with the retailer, a more positive attitude toward the product, and a greater purchase intention (Holzwarth et al., 2006). Consumers are aided in their shopping experience by accessibility of knowledge of retail choices that are particularly relevant to their needs or preferences. For example, third-party cookies enable online third-party advertisers to more precisely follow online behavior across affiliated sites and to provide personalized advertisements (Jai et al., 2013). Hence, personalized services are optimal for retailers to be used as a medium in order to offer contextualization value and satisfy customers' needs. Thus, it is proposed that:

H3: Quality of personalization has a positive effect on persuasion.

6.3.2 Message quality

Information quality in online shopping is customers' general perception of the accuracy and completeness of website information as it relates to products and transactions (Yi et al., 2013). Acquiring high quality information is crucial for decision makers, including potential buyers (Miranda & Saunders, 2003; Song et al., 2012). In the context of online services, information quality is an antecedent of customers' overall evaluation of such services and of customers' online behavior (Setia et al., 2013). Therefore, it is hypothesized that:

H4: Message Quality has a positive effect on persuasion

6.3.3 Benefits of personalization

Online shopping benefits are consumers' perception of gains and advantages (Forsythe et al., 2006). Previous research has found that perceived benefits from using online services will positively affect attitudes and intentions (Lee, 2009). The competence

to obtain more value from shopping when it is done online is an important reason for customers to prefer it (Forsythe et al., 2006), suggesting that the increased value, which derives from perceived benefits, will in turn affect customers' behavior. Taking into account that perceived benefits of online shopping are antecedents of individual adoption and customers' online shopping behavior, their effectiveness on persuasion may be determined. Ergo, it is proposed that:

H5: Benefits of Personalization have a positive effect on persuasion.

6.3.4 Persuasion

According to information processing theory each user may process the received information differently, according to their ability to process an argument, hence the effect of such information on attitude and behavior are likely to differ for each user. Furthermore, ELM suggests that based on how people think, process and elaborate information; different factors will persuade them and lead them to a specific outcome. Based on the regulatory fit theory, when users feel right about what they are doing when pursuing a goal, value from fit is created, which can be transferred for example on evaluations of attitudes. Consequently, receiving persuasive messages personalized services, which involve a goal to be attained, will make a customer feel right, otherwise they would not be using such services, and are likely to affect attitude and behavior. Nonetheless, previous studies examining the role of persuasion on shopping behaviors focus on its outcomes on behavior rather than persuasion itself (Ho & Bodoff, 2014; Lee et al., 2010; Thomson & Malaviya, 2013), suggesting that persuasion as a distinct factor needs further investigation. The implementation of specific types of persuasion agents has been found to increase customers' satisfaction with the retailer, their attitude towards products and their purchase intentions (Holzwarth et al., 2006). Consequently, it is proposed that:

H6: Persuasion has a positive effect on intention to purchase.

6.3.5 The key role of emotions

Shopping online creates diverse emotions to customers, which affect their behavior. Previous research has demonstrated the relationship between customers' emotions and their purchase behavior when using personalized services (Pappas et al., 2014a). In detail, positive emotions increase intention to purchase while negative emotions decrease it. Additionally, positive emotions mediate the effect of personalized services on intention to purchase. Online personalization may be used as a persuasion strategy that will lead to attitude change and influence users' behavior (Tam and Ho, 2005). There are multiple factors that may affect customers' behavior when attempting to engage them in an online process (e.g., using personalized services and adopting persuasive strategies), thus creating a positive or negative experience for them. Users with negative reactions to a persuasive message feel even more negatively, under certain conditions, towards the received message (Cesario et al., 2004). Customers' emotional state is affected by both negative and positive emotions. Therefore, we aim to examine how the two basic types of emotions based on their different levels of intensity, influence the effect of persuasion on customers' intention to purchase. Ergo, it is proposed that:

H7a: Customers' positive emotions have a moderating effect on the relationship between persuasion and intention to purchase.

H7b: Customers' negative emotions have a moderating effect on the relationship between persuasion and intention to purchase.

The following figure (Figure 6-2) presents the research model.

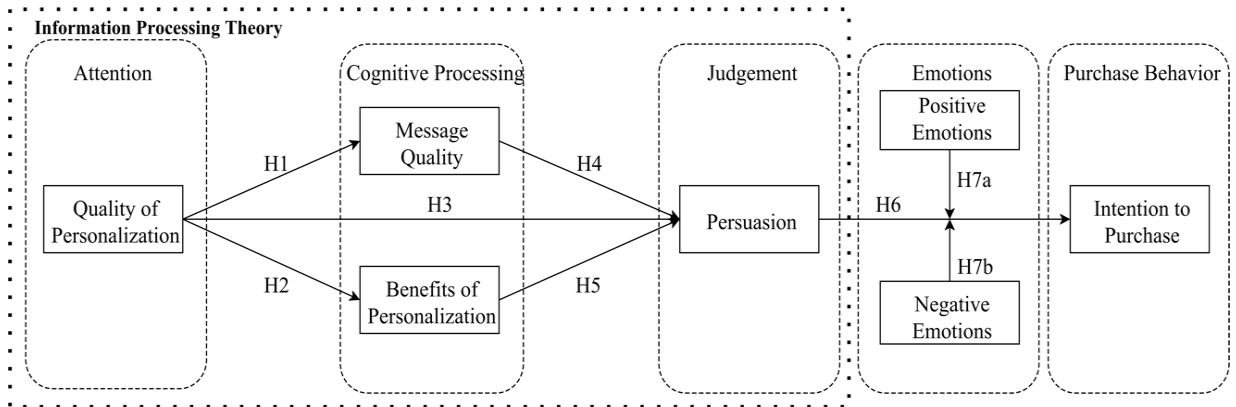


Figure 6-2 Research Model and Hypotheses

6.4 Research methodology

6.4.1 Data collection

The research presented in this chapter is the second part of the study that was presented in chapter 5, thus the data collection is the same.

6.4.2 Measures

As mentioned in chapter 5 the questionnaire consisted of two parts. The first part included questions on the demographics of the sample (age, gender, education). The second part included measures of the various constructs identified in the literature review section. For reasons of completeness of the present chapter, the construct definitions are presented again in Table 6-1 along with that of persuasion. The appendix lists the questionnaire items used to measure each construct, along with descriptive statistics and loadings.

Table 6-1 Construct Definitions

Construct	Operational Definition	Source
Quality of Personalization	Tailoring content and services to match the buyer's personal interests or preferences.	Pappas et al., 2014
Message Quality	Customer's general perception of the accuracy and completeness of Website information as it relates to products and transactions, when using personalized services.	Kim et al., 2008
Benefits of Personalization	Customer's belief about the extent to which he or she will become better off from the online transaction with a certain Website, when using personalized services.	Kim et al., 2008
Persuasion	Customer's perceptions about how persuasive and convincing is the personalized service	Cesario et al., 2004
Emotions	Measuring customer's emotions, based on valence, when using personalized services.	Scherer et al., 2013
Intention to Purchase	Customer's intention to shop online based on personalized services.	Pappas et al., 2014

Similarly, regarding emotions, we adopt the work of Scherer et al. (2013), who attempt to understand emotions semantics. However, in this chapter emotions were divided based on valence, following the work of Scherer et al. (2013) and verified with an exploratory factor analysis, into positive and negative emotions. Next, based on a median split, two groups of high and low intensity were created for both positive and negative emotions. Further, the model examined in this chapter includes persuasion, a construct that was not included in the first part of the study presented in chapter 5.

6.5 Data analysis

6.5.1 Reliability and validity

The constructs used in this research were evaluated in terms of reliability and validity. Reliability was tested with the use of the Cronbach alpha indicator, which required to be higher than 0.7 for every factor. Validation analysis consists of convergent and discriminant validity. Establishing validity requires that average variance extracted (AVE) is greater than 0.50, the correlation between the different variables in the confirmatory models does not exceed 0.8 points, as this suggests low discrimination and that the square root of each factor's average variance extracted (AVE) is larger than its correlations with other factors (Fornell & Larcker, 1981). Further, multicollinearity issues (O'Brien, 2007) were examined along with the potential common method bias by utilizing the Harman's single factor test (Podsakoff et al., 2003).

Goodness of fit describes how well the model fits its data. Here, several fit indices were used to assess model-data fit. The chi-square statistic is sensitive to sample size, and is expected to be above the recommended value of 3 because of the large sample of this study. However it is a global statistic, hence it is used in this study. Root mean square error of approximation (RMSEA), comparative fit index (CFI) and normed fit index (NFI) values were all used to evaluate model-data fit (Byrne, 2009). RMSEA less than 0.05 suggests good model-data fit; between 0.05 and 0.08 it suggests reasonable model-data fit and between 0.08 and 0.1 suggests acceptable model data fit. CFI indices greater than 0.90 suggest good model-data fit and greater than 0.80 suggest adequate model-data fit. A χ^2/df ratio less than 3 is acceptable.

6.5.2 Multi-group analysis (invariance analysis)

When analysis involves more than one sample, the model needs to be tested for invariance across groups. In other words, it must be examined if components of the measurement and structural model are equivalent across particular groups of interest. Prior to invariance testing, each group was assessed using a goodness of fit test. Invariance of the components is highly important. Unless it is proved, the examination of the structural model has no value. Also, if invariance cannot be proved for the structural model, path differences should be examined in order to find which ones differ among the groups (Byrne, 2009). The multi-group analysis extends the generalizability of the measurement items, it directly compares the structural weights by using equivalent measurements and is more appropriate than an analysis of covariance when the samples in each group exceed the minimum of 100 (Deng et al., 2005).

The data is divided into two groups based on the respondents' level of emotion intensity by performing a median split for positive and negative emotions respectively, since it may provide greater parsimony. Following the suggestions of Iacobucci et al. (2015) for the examination of group differences, a median split may be performed, as long as there is no multicollinearity among the variables. Furthermore, the authors validate that by splitting the sample based on the median of the moderating variable, produces the same results as treating the moderating variable as a continuous one. To this end, the variance inflation factor (VIF) for each variable is below the value of 3, indicating that multicollinearity is not an issue (O'Brien, 2007). For positive emotions the median of the sample is 3.44, thus creating the low and high positive emotions groups. The low positive emotions group consists of 275 respondents, with the remaining 307 comprising the high positive emotions group. Similarly, for negative emotions the median of the sample is 2.19, thus creating the low and high negative emotions groups. The low negative emotions

group consists of 259 respondents, with the remaining 323 comprising the high negative emotions group.

The next step was to estimate the effect of personalization, information quality and perceived benefits on persuasion, the direct effect of persuasion on customers' intention to purchase and the moderating effect of emotions on the relationship between persuasion and intention to purchase, by means of a multi-group SEM analysis. Multi-group analysis was performed with the use of the standard SEM software AMOS Version 18.0 software.

6.6 Results

6.6.1 Direct and indirect effects

First, an analysis of reliability and validity was carried out. Reliability testing, based on the Cronbach alpha indicator, shows acceptable indices of internal consistency since all constructs exceed the cut-off threshold of 0.70. The AVE for all constructs ranges between 0.57 and 0.76, exceeding the cut-off threshold of .50. Finally, all correlations are lower than 0.80, and square root AVEs for all constructs are larger than their correlations. Our findings are illustrated in Table 6-2.

As already mentioned, multicollinearity is not an issue in this study. Further, the results suggest that common method bias is not a problem, since the first factor did not account for the majority of the variance and no single factor occurred from the factor analysis (Podsakoff et al., 2003). Next the fit indices of the research model were examined. All values are within the recommended range. Specifically, χ^2/df : 3.76, NFI: 0.92, CFI: 0.94 and RMSEA: 0.06.

Table 6-2 Descriptive statistics and correlations of latent variables

				Construct				
Construct	Mean (SD)	CR	AVE	1	2	3	4	5
1. Quality of Personalization	4.58 (1.24)	0.89	0.73	0.85				
2. Message Quality	4.41 (1.13)	0.93	0.65	0.54	0.81			
3. Benefits of Personalization	4.91 (1.31)	0.90	0.66	0.56	0.73	0.81		
4. Persuasion	4.32 (1.14)	0.84	0.57	0.60	0.52	0.58	0.75	
5. Intention to Purchase	4.45 (1.35)	0.90	0.76	0.61	0.57	0.65	0.62	0.87
<p>Note: Diagonal elements (in bold) are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs (all correlations are significant, $p < 0.01$). For discriminant validity, diagonal elements should be larger than off-diagonal elements.</p>								

The estimated path coefficients of the structural model were examined in order to evaluate our hypotheses. All direct relations are significant. Specifically, quality of personalization has a positive effect on message quality, benefits of personalization and persuasion, supporting H1-H3. Also, both message quality and benefits of personalization have a positive effect on persuasion, supporting H4 and H5. Finally, persuasion positively affects customers' intention to purchase, supporting H6. Square multiple correlations (R^2) are presented in Figure 6-3 as well. The R^2 for message quality is 0.34, for benefits of

personalization is 0.39, for persuasion is 0.68 and for intention to purchase is 0.64. Values higher than 0.26 imply high effect of the predictors of the aforementioned factors.

Regarding mediating effects of message quality and benefits of personalization on the relation between quality of personalization and persuasion, the bootstrap estimation procedure in AMOS was used. This method is the most accurate for computing confidence intervals for indirect effects (MacKinnon et al. 2004). The indirect effect of quality of personalization on persuasion is estimated to be 0.29 ($p < 0.05$). The lower and upper bounds of the estimate are 0.22 and 0.37, with 95 % confidence respectively. Since, there is no overlap with zero in the 95 % confidence interval, the indirect effect is significant at $p < 0.05$.

6.6.2 Multigroup Analysis

Before testing for invariance, goodness of fit is examined for each group suggesting acceptable model fit. Specifically, the indices for the group with low positive emotions were X^2/df : 2.24, CFI: 0.92, RMSEA: 0.08, and for the group with high positive emotions were X^2/df : 2.45, CFI: 0.93, RMSEA: 0.08. Next, indices for the group with low negative emotions were X^2/df : 2.42, CFI: 0.92, RMSEA: 0.08, and for the group with high negative emotions were X^2/df : 2.22, CFI: 0.92, RMSEA: 0.08.

For the positive emotions, comparing the measurement model with the unconstrained one proves the group equivalence. Specifically, as Table 6-3 demonstrates, the p-value is non-significant with $\Delta X^2(17)$: 16.26 (Byrne, 2009). Hence, the examination of the equivalence among the structural weights follows. Unlike the measurement model, the structural model has a significant p-value with a $\Delta X^2(6)$: 23.84 (Table 3). Consequently, testing for path differences in the model was possible.

Table 6-3 Invariance testing for Positive Emotions

Summary of Goodness of Fit Indices				
Model	df	χ^2	RMSEA	CFI
Unconstrained Model	402	1092.55	.05	.93
Measurement Weights	419	1108.81	.05	.93
Structural Weights	408	1116.39	.05	.92
Differential Goodness of Fit Indices				
Model Comparisons	df	χ^2 diff ($\Delta\chi^2$)		Pvalue
Measurement Weights	17	16.26		Non-significant
Structural Weights	6	23.84		0.001

Similarly, for the negative emotions, comparing the measurement model with the unconstrained one proves the group equivalence. As Table 6-4 demonstrates the p-value is non-significant with $\Delta\chi^2(17)$: 21.84 (Byrne, 2009). Hence, the examination of the equivalence among the structural weights follows. The structural model has also a non-significant p-value with a $\Delta\chi^2(6)$: 9.13 (Table 6-4). Testing for path differences in the model is not possible, thus negative emotions have no moderating effect on the relation between persuasion and intention to purchase, rejecting H7b.

Table 6-4 Invariance testing for Negative Emotions

Summary of Goodness of Fit Indices				
Model	df	χ^2	RMSEA	CFI
Unconstrained Model	402	1121.46	.05	.93
Measurement Weights	419	1143.29	.05	.93
Structural Weights	408	1130.59	.05	.93
Differential Goodness of Fit Indices				
Model Comparisons	df	χ^2 diff ($\Delta\chi^2$)		P-value
Measurement Weights	17	21.84		Non-significant
Structural Weights	6	9.13		Non-significant

The moderating effect of positive emotions in the proposed model is estimated through a multi-group analysis. Table 6-5 presents the results. Testing for differences for the effect of persuasion on intention to purchase, based on positive emotions, is achieved by doing a pairwise comparison of the coefficients, using the critical ratios for differences on Amos. Significant group differences were found between customers with low positive emotions and customers with high positive emotions, providing support for H7a.

Table 6-5 Multi-group Analysis

Intention To Purchase				
	Emotions		Group Difference	Hypotheses
Persuasion	Low Positive Emotions	High Positive Emotions	p<0.05	Accepted (H7a)
		.73*** (R ² =.54)		
Goodness of Fit		X ² (df):2.71; CFI: 0.93; RMSEA: 0.05		
		*** p < .001		

Figure 6-3 presents the analysis of the research model including both direct effects and the multigroup analysis.

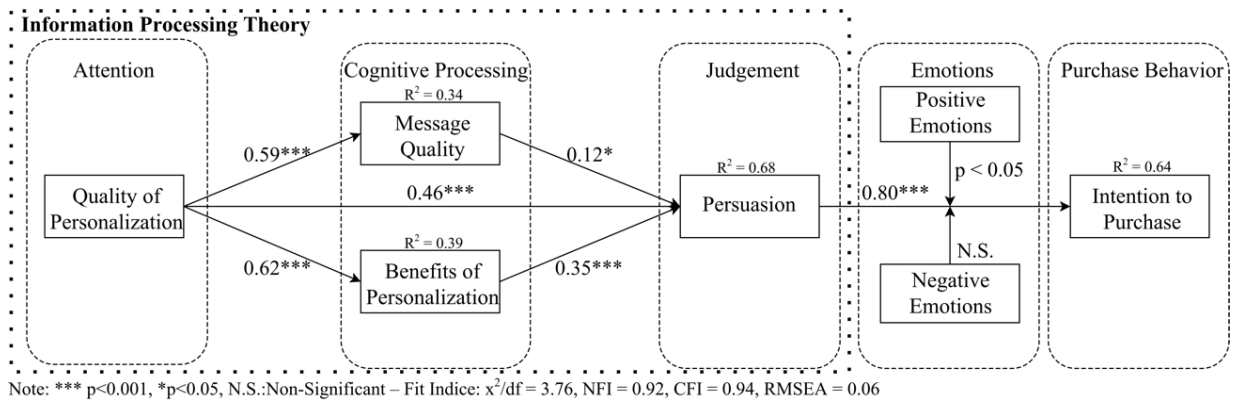


Figure 6-3 SEM analysis of the research model

6.7 Discussion

The goal of this study is to investigate the dynamics of persuasion process in online shopping; this study is of particular importance since it is one of the first to examine persuasion as a distinct factor, under the scope of personalized services, while at the same time is taking into account the role of emotions in the formulation of online shopping behavior. To this end, a conceptual model was constructed that features the role of persuasion in online shopping along with its antecedents, and extended with the inclusion of individuals' emotions towards online shopping.

First, quality of personalization in online shopping increases customers' persuasion, message quality and benefits of personalization. The findings indicate that quality of personalization remains a predictor of persuasion and the implementation of personalized services is considerably more effective persuasion strategy than mass advertising. The results are consistent with other studies' findings that tailoring a message to someone's personality might increase the efficiency of persuasive campaigns (Hirsh et al., 2012; Noar et al., 2007). Similarly, it was confirmed that by using such services, customers' expectations towards message quality and benefits of personalization will be higher because their adoption implies sharing their personal and private data. To this extent, both message quality and benefits of personalization have a positive effect on customers' persuasion. However, the effect of benefits of personalization on persuasion is almost three times higher than that of message quality.

Second, persuasion has a positive effect on customers' intention to purchase online. This was expected, since persuasion is defined as the capability of a website to convince and influence using personalized services and to hook interested customers. Consequently, receiving tailored messages that increase customers' persuasion and services' effectiveness will eventually increase customers' intention to purchase online.

These findings are in accordance with Lee et al. (2010) and Tam and Ho (2005); who indicate the importance of persuasive strategies as these may entail both cognitive and affective appraisals that affect users' behavior.

Third, persuasion's effect on intention to purchase differs when customers' emotions change. Since individuals may experience both positive and negative emotions simultaneously, we examined how the effect of persuasion on intention to purchase is affected by a shift of customers' positive or negative emotions. The empirical results suggest that there is a moderating effect of positive emotions on the aforementioned relationship; on the other hand, negative emotions do not moderate this relationship. In other words, when customers feel negative emotions the effect of persuasion on their intention to shop online will remain the same. However, when customers feel positive emotions the effect of persuasion on their intention to shop online will be increased or decreased accordingly.

Finally, when customers have positive emotions, the effect of persuasion (and persuasion strategies which are effected by personalization) increase and as a result their intention to purchase will significantly increase. This is of high importance in the area of emotions and online shopping, due to the fact that positive emotions are more important (for the customer) than negative ones (Pappas et al., 2014a). Hence, this study goes one step further by adding that, not only positive emotions are crucial but also play a critical role on increasing the effect of other important factors such as persuasion. In addition, we partially verify the findings of Pappas et al. (2014b) in a different context, who found that the satisfaction from the use of social network sites increases only when positive emotions intensity increases too.

6.7.1 Theoretical implications

From a theoretical stance, this research builds on the prescriptions of the information processing theory and explains the persuasion process in online retailing settings through the lenses of cognitive and affective decision-making. Specifically, we complement extant research that investigates web-based personalization and persuasion [e.g., Tam & Ho, (2005)] by providing a detailed view on the online persuasion process and pinpointing factors that ultimately influence the persuasion effect of a personalized recommendation. To the best of our knowledge, this is the first study that proposes and empirically validates pertinent factors that explain each step of the online persuasion process. Interestingly, our findings indicate that the direct effects of the quality of personalization on persuasion are stronger than their indirect effects through the cognitive processing variables (i.e., message quality and perceived benefits). This paves the ground for scholars to revisit cognitive-based theories of persuasion in online retailing. Emerging theories may focus on elaborating the attention stage of the online persuasion process in order to explain the increased importance of this stage in the context of online retailing. Furthermore, scholars may apply our theoretical propositions to other information systems, which involve online transactions or information exchange (e.g., e-government) to extend the generalizability of our results.

Moreover, the study relates two different categories of emotions based on valence (i.e., positive and negative), each separated into two groups based on intensity (i.e., high and low). Studying emotions in a multidimensional way in our model provides an enriched explanation of emotions' role in online shopping. Also, we extend the work of Pappas et al. (2014a), to address questions about the understanding of customers' emotions when using personalized services.

Finally, we posit that this research addresses a few shortcomings of previous studies in the area. Berkovsky et al. (2012) posit that personalization and persuasion are related and should be studied together. However, they do not put to test this position. Our findings suggest that there is a direct effect of personalization on persuasion. Griskevicious et al. (2009) have found that the outcome of persuasive strategies differs as it is based on positive and negative affects. However, their study includes only specific types of emotions (e.g., fear and arousal) examined in a unidimensional manner. As pointed out by this study, emotions comprise a multidimensional concept and both positive and negative dimensions coexist. Similarly, Griskevicious et al. (2010a) examine persuasion processing and focus on different positive emotions. Although, previous literature has found positive emotions to be more important than negative ones (Pappas et al., 2014a), the present study argues that positive and negative emotions should be coupled and examined together. We extend previous work by examining emotions as moderators to identify significant differences between them.

6.7.2 Practical and managerial implications

The findings of this research may be employed by online retailers to streamline their personalization services in order to increase the persuasion effects of personalization strategies and increase the likelihood that such services will lead to eventual sales. In effect, our study provides empirical support that personalized strategies should follow a two-stage implementation treat. The first stage should be orchestrated around the fortification of the rational dimension of the persuasion building process. The second stage should address the affective qualities that stem from the rationally-driven judgments in terms of reinforcing the positive emotions from successful persuasive actions.

Specifically, the current study confirmed that online shoppers are persuaded through the triptych of personalization quality, persuasion message quality, and benefits of the persuasion process outcome. Controlling all three factors is a challenging task for online retailers who need to continuously improve the accuracy of personalized recommendations. To do so, retailers may employ a variety of information technology tools ranging from text mining of user reviews from confirmed buyers (Ganu et al., 2013) to implementing collaborative filtering and/or sequential pattern analysis of user ratings (Choi et al., 2012) and session-based recommendations based on users' browsing/navigation history (Matthijs et al., 2011). Along these lines, retailers need to include feedback mechanisms in order to identify possible deviations between the actual user needs and the accuracy of the personalized recommendation. For example, the e-shop might ask the shopper to rate whether the recommendation matches his/her preferences (either through a binary response model or using a scale) and utilize this response to improve the personalization process.

Moreover, our study highlighted the importance of positive emotions on strengthening the relationship between persuasion and intention to purchase. This indicates that online retailers should strive to evoke and, subsequently maintain, feelings of joy, surprise, and excitement as a result of the personalization process. There are two benefits for achieving that goal. On the one hand, positive emotions may rebalance wavered shopping intentions towards the actual purchase. On the other hand, such feelings may influence e-shoppers to perform unplanned, or impulsive, purchases. Interestingly, both arguments are supported by offline retailing literature (Beatty et al. 1998; Wang et al. 2011). Online retailers may artificially induce positive emotions by following emotional contagion strategies; online emotional contagion received increased attention recently through an experiment performed in Facebook, which showcased that

feelings may be spread between users of social media through manipulation of the emotional content of user news feeds (Coviello et al. 2014). Online shops may employ a similar strategy; specifically, they can notify all visitors about successful recommendations through short personalized messages. Such a message would indicate that another shopper found the product she was searching and that she was happy with the purchase she made.

Lastly, in line with current thinking on online economy, this research suggests that firms equipped with appropriate persuasive strategies should also incorporate strategies for customers' emotional engagement (not only rational/active elements). Aspects such as trusting and defending the brand (for example, on Facebook), the associated enjoyment of owning and using the product or service, the feel-good factor associated with interacting with the organization or the empathy customers have for the company (for example, due to its green focus); are of tremendous importance for an online retailer.

6.7.3 Limitations and future work

As with any empirical study, there are some limitations. First, our sample included mostly Greek online shopping customers. Second, the subjects were highly experienced in online shopping and highly educated, so this may limit the generalization of the findings. Third, the findings are based on self-reported data; other methods such as in-depth interviews and observations could provide a complementary picture of the findings.

We encourage future researchers to investigate more detailed aspects of emotions, especially the relation of emotions with different online shopping media and strategies and the role of emotions on maintaining a customers or even attaining new. For future

research, it may be beneficial to examine how the different types of emotions (e.g., anger, arousal) influence online shopping.

6.8 Summary

This chapter offers insight on investigating together cognitive and affective perceptions in order to explain customers' online shopping behavior. Building on the prescriptions of the information processing theory, by addressing both the cognitive and affective stages of the persuasion process, we propose and test a research theoretical model to point out the importance of persuasion in the online shopping process, and differentiate persuasion from intention to purchase. We provide evidence that persuaded customers may still be affected in a way that will alter their purchase intentions. Quality of personalization, message quality and benefits of the personalization are important when it comes to customer persuasion, in order to shop online. Further, the findings suggest that customers' positive emotions increase the effect of persuasion on purchase intentions, while negative emotions have no significant effect on the same relation.

Chapter 7 Contribution and the way ahead

This last chapter concludes this research study by presenting a summary of the findings and its contribution to theory and practice. In detail, the next section provides a summary of the results and insights of the work discussed in the previous chapters. Section 7.2 presents the findings of this research study, along with the theoretical and practical implications. Finally, section 7.3 discusses the limitations of the research methodology, followed by directions for future research in section 7.4

7.1 Summary of research

The aim of this study is threefold. First, identify the importance of emotions in personalized online shopping by examining them as a multidimensional factor through an in depth analysis. Second, examine how combinations of both cognitive and affective (i.e., emotions) perceptions predict customers' online shopping behavior when using personalized services. Third, investigate the persuasion process of personalized online shopping, how cognitive perceptions affect persuasion and how emotions influence the effect of persuasion on customers' intention to purchase.

Online shopping literature (e.g., Ha et al., 2010; Ho et al., 2011) mainly focuses on the various cognitive perceptions that influence customers' online shopping behavior. These studies build on different theories and theoretical models in order to predict and explain online shopping behavior. However, these studies do not take into account the role of affective perceptions in the persuasion process of online shopping. Affective perceptions, and specifically certain types of emotions have been found to play an important role in online shopping (e.g., Chen & Lee, 2008; Koo & Ju, 2011). The present study determines the importance of emotions in personalized online shopping through

an exploratory study that examines together positive and negative emotions along with the mediating effect of quality of personalization, through emotions, on customers' intention to purchase. Further, this exploratory study confirms the need to examine positive and negative emotions together, and provides evidence on why emotions should be examined as a multidimensional factor.

The majority of the studies in online shopping (e.g., Barclay & Kiefer, 2014; Hsieh et al., 2014) target their focus on the examination of the main effects of various antecedents on customers' online behavior. As we have already mentioned, such antecedents may be types of cognitive and affective perceptions. This research study adopts the Geneva Wheel of Emotions (GEW) for an in depth examination of emotions. Further, we build on the theory of complexity and configural theory in order to explore specific causal patterns that explain online shopping behavior. In detail, we identify combinations between cognitive perceptions (i.e., quality of personalization, benefits of personalization, message quality) and affective perceptions (i.e., strongly and weakly positive and negative emotions) that lead to high intention to purchase when using personalized services. To this end, the findings will offer evidence on the relationship between the examined factors, as well as on which factors are more important and which might be able to neutralize or dominate the others. To determine these configurations this study employs a fuzzy-set qualitative comparative analysis (fsQCA) (Ragin, 2008), which has received increased attention in various fields (e.g., Ordanini et al., 2014; Woodside, 2014). Through this study, researchers will get a deeper and richer understanding on the data, and retailers will be able to improve their strategies regarding personalized services.

The focal point of personalized online shopping research in the past decade (e.g., Tam & Ho, 2005; Ho & Bodoff, 2014) has been the various cognitive perceptions that

influence customers' online shopping behavior in order to explain which factors are able to persuade customers to proceed to an online purchase. These studies build on different theories and theoretical models in order to predict and explain online shopping behavior. Such are the information processing theory and the Elaboration Likelihood Model (ELM). Further, the regulatory fit theory has been applied to explain the persuasion process of a customer (Lee et al., 2010). Nonetheless, many studies (e.g., Ethier et al., 2008; Verhagen & Dolen, 2011) have examined affective perceptions in online shopping. Most of them build on the Pleasure-Arousal-Dominance (PAD) theory or include only distinct factors. Recently, the Affective Response Model (ARM) has been proposed in attempt to explain affective concepts in the ICT. This study, builds on the information processing theory and uses the GEW to examine emotions as a multidimensional factor, in order to investigate the online persuasion process and how emotions may affect customers' purchase behavior when using personalized services.

The main goal of this research is to identify the role of emotions in personalized online shopping through the proposition of theoretical frameworks and the implementation of state of the art methodologies. To this end, an exploratory study provides evidence on the importance of emotions, and two empirical studies build on different theories (i.e., information processing theory, regulatory fit theory, complexity theory) which propose and test two theoretical frameworks, that include both emotions and cognitive factors, as antecedents of customers' online shopping behavior.

7.2 Findings and contribution

7.2.1 Research findings

The following table summarizes the findings of this research study along with the objectives that were set and the research questions that were posed on the introduction.

Objectives & Research Questions	Research Findings
<p>O1: Identify the importance of affective perceptions in personalized online shopping through an exploratory study. Various types of affective perceptions have been examined in the literature. We aim to examine together positive and negative emotions.</p>	<p>This research study goes beyond examining specific types of emotions, to an overall analysis of their relationship with personalization and their effect on customers' intention to purchase. The findings indicate that personalized services partially affect customers' emotions. In particular, personalization influences positive emotions but does not affect negative ones. Additionally, the results suggest that personalization remains a predictor of online purchase intentions. Furthermore, positive emotions mediate the relationship between personalization and intention to purchase. It was confirmed that negative emotions decrease customers' intentions to purchase online.</p>
<p>O2: Provide a deeper understanding of the types of emotions that influence customers' online shopping behavior. Adopt a microanalytic approach regarding their effects on customer behavior. Provide evidence regarding</p>	<p>The findings from previous studies suggest that emotions need a more detailed and in depth examination in order to determine their role in personalized online shopping. This research study examines 20 different distinct emotions and groups them based on</p>

<p>the multidimensional role of emotions in personalized online shopping.</p>	<p>their valence, intensity, and power/control. Positive and negative emotions co exist during personalized online shopping. Positive emotions are more important than negative emotions. One emotion may dominate or neutralize the rest. Examining the different dimensions of emotions suggests that each one may have different effects on each other and on customers' online shopping behavior.</p>
<p>O3: Propose and test a theoretical framework that will explain and predict customers' online behavior in personalized online shopping. Examine how cognitive and affective perceptions relate to each other and how, together, they can help to convince customers proceed to a purchase.</p>	<p>The findings confirm the importance of cognitive perceptions in the area of personalized online shopping. Also, cognitive perceptions are more important than affective perceptions. The findings identify quality of personalization as the most significant from the cognitive perceptions that are examined in this research study, followed by benefits of personalization and message quality. The findings indicate the existence of perceived persuasion as a part of the purchase process and a predictor of intention to purchase. Also, quality of personalization is a predictor</p>

	<p>of customers' persuasion to shop online with the highest effect, followed by the benefits of personalization and message quality respectively. When personalization is of high quality then, customers' perceptions about benefits of personalization and message quality will be high as well. Persuaded customers are more likely to proceed to a purchase but not always, suggesting the existence of other factors affecting this relation. This study analyzes the moderating effect of emotions between persuasion and intention to purchase. When positive emotions change, persuasion's effect on intention to purchase changes as well. However, the effect is not the same for negative emotions. Positive emotions are more important than negative ones. Finally, the results suggest that affective perceptions become important to customers, mainly, when cognitive ones are missing.</p>
<p>O4: Gain a deeper understanding on how customers perceive online personalized services. Offer insight on</p>	<p>This research study adds to online shopping literature by presenting conditions for predicting online shopping behavior using</p>

<p>how current literature needs to be advanced theoretically, practically or methodologically. Provide suggestions on how managers and decision makers should develop their business strategies in order to increase customer retention and remain competitive in the global marketplace.</p>	<p>personalized services. Also, the study offers a better understanding of specific patterns of customers' cognitive and affective perceptions that increase their purchase intentions. It also adds to emotion literature by providing specific conditions on which positive and negative emotions coexist. The findings include various configurations between cognitive and affective perceptions that offer a deeper explanation of the conditions under which quality of personalization, benefits, message quality and emotions lead to increased intention to purchase.</p> <p>This research study is one of the first to perform configural analysis based on individual-level data from online customers. The implementation of complexity theory in individual level phenomena may be proven appropriate for theory building. Further, this study builds on information processing and combines it with emotions in order to explain the persuasion process in personalized online shopping.</p>
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	<p>The results pave the ground for scholars to revisit cognitive-based theories of persuasion in online retailing. Emerging theories may focus on elaborating the attention stage of the online persuasion process in order to explain the increased importance of this stage in the context of online retailing.</p> <p>The findings suggest that retailers besides offering high quality services, need to implement mechanisms that will study their customers' attitude and behavior and feedback mechanisms that will describe deviations between actual needs and personalization accuracy. Knowing which factors are more important than the rest, and which better explain intention to purchase, should help online retailers to develop more effective and efficient personalization strategies. The findings may help with customer profiling by identifying the factors that should be given focus.</p>
<p>RQ1: What is the role of affective perceptions in personalized online</p>	<p>Affective perceptions are a critical factor of personalized online shopping. Customers</p>

<p>shopping? How do different types of these perceptions relate to each other? Is one type more important or do they need to be studied together?</p>	<p>turn to their emotions in order to make a choice when they do not have other sources of information. Emotions are a multidimensional construct, they co-exist, they may occur simultaneously and they may dominate or neutralized each other. Thus, they need to be examined together. The findings indicate that positive emotions are more important than negative emotions. Further, the various dimensions of emotions have different effects on customer behavior, with strongly positive ones being the most important. Finally, the effect of strongly negative emotions may be diminished by offering personalization of high quality.</p>
<p>RQ2: How do cognitive and affective perceptions regarding personalized services influence customers' online shopping behavior? Which perceptions are more critical in formulating shopping intentions? How do they relate to each other?</p>	<p>Both cognitive and affective perceptions are critical factors in personalized online shopping and in the persuasion process. The quality of personalization, the benefits of personalization, and message quality increase customers' perceived persuasion. Further combinations of the three aforementioned cognitive perceptions are able to explain customers' high intention to</p>

	<p>purchase. In addition, positive emotions are able to influence the effect of persuasion on intention to purchase. Finally, combinations of both cognitive and affective perceptions are able to explain high purchase intention. Cognitive perceptions are more important than affective perceptions in affecting customers' behavior in personalized online shopping, but they are interrelated and on occasion they complement each other.</p>
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7.2.2 Contribution to theory

The contribution of this research study is in the area of personalized online shopping. The theoretical and empirical examinations offer evidence on the important role of emotions when offering personalized services in online shopping. The exploratory study in chapter 4, examines positive and negative emotions in the same research model and investigates their direct effects on customer behavior, along with the direct and indirect effects of personalization on emotions and customer behavior. This was one of the first studies in this context to examine both types of emotions at the same time. The results indicate that emotions should be studied as a multidimensional factor and an in depth analysis is needed that will include both types of emotions. Further, more factors should be included to better describe the rational part of the purchase process. To this end, the findings are used to design a study that will address the propositions made by the exploratory study, and are presented in chapters 5 and 6.

The chapters 5 and 6 take a multidimensional approach in the examination of customers' emotions based on self report data. This approach has been used in other fields (e.g., social sciences) but it is the first time that is applied in the context of personalized online shopping. Further, to offer an in depth analysis of the role of emotions in the purchase process, two separate theoretical frameworks are proposed and tested. They both explain customer behavior in personalized online shopping, but each through a different point of view, establishing the different role of emotions and the interrelationship between emotions and cognitive perceptions. The two proposed models, each build on different theories (i.e., theory of complexity and information processing theory) to explain the purchase process and analyze emotions in a distinct way (i.e., based on control/power and valence, and based on intensity and valence).

The findings of this research study extend theories and theoretical models that have been used to explain customer behavior in online shopping, by extant studies in area (e.g., Ho & Bodoff, 2014; Tam & Ho, 2006). In detail, the findings suggest that the frequently used ELM should be extended to include affective perceptions and emotional factors as well. Although ELM suggests that central and peripheral variables are the main antecedents of customer behavior, it focuses on cognitive factors. However, the present study posits that emotions are essential factors that should be studied along with the various cognitive perceptions. To this end, Zhang (2013) considers the crucial role of affective perceptions in ICT and proposes the ARM, which aims to explain the empirical models that examine affective factors in this context.

Further, the present research helps in advancing the methodologies applied in explaining and predicting customer behavior, by implementing the theory of complexity which may help in future theory building (Leischnig & Braurer, 2015). In addition, this research performs contrarian case analysis to explain the whole range of the sample

(Woodside, 2014), and also performs configural analysis to identify causal patterns of predictors, that lead to combinations of emotions and cognitive perceptions that predict online shopping behavior.

To sum up, this research verifies the direct effect of emotions on customers' intention to purchase when using personalized services (e.g., Koo & Ju, 2010), and identifies the mediating role of positive emotions on the effect of personalization on intention (e.g., Penz & Hogg, 2011). Furthermore, we extend the literature on the persuasion process (e.g., Ho, 2012; Ho et al., 2011), by examining persuasion as a separate factor on personalized online shopping, its effects on customer behavior, and by analyzing critical factors of the persuasion process. Regarding emotions, we posit that positive emotions are more significant than negative ones since they are able to moderate the effect of persuasion on intention to purchase. In addition, the different effects of certain types of emotions suggest that further research is needed in this area. Finally, the findings suggest that the role of cognitive factors in personalized online shopping is more decisive than that of emotions, in line with the majority of the studies that focus on them (e.g., Ha et al., 2010). Nonetheless, emotions become crucial in making a decision when the customers can not choose based on cognitive perceptions. Thus, future models of online shopping, and ICT in general, should examine both cognitive and affective perceptions as their combinations may be able to better explain customer and user behavior.

7.2.3 Practical implications

This research study has several implications for practice and policy. The findings imply that online retailers should consider different marketing strategies when they plan to offer personalized services to convince their customers, by taking into account their emotions and how they feel when they receive such services.

Online retailers and managers should focus on inducing and maintaining positive emotions to their customers, such as happiness, pleasure and joy. The results suggest that positive emotions are more important than negative ones since they are able to influence the effect of persuasion on customers' intention to purchase, while negative emotions do not. Further, positive emotions when coupled with cognitive factors are more likely to explain high intention to purchase. In addition, retailers should focus on both strongly and weakly positive emotions because the results suggest that quality of personalization is considered to be low, then customers are more likely to proceed to a purchase when they feel content or admiration. This implies, that even when the retailer offers a recommendation that may be targeted to the wrong customer, or it is of low quality, the customer is still likely to proceed to a purchase if he experiences positive emotions. To this end, retailers should adopt emotional contagion strategies, which will aid in increasing positive emotions. For example, they may inform their customers about a happy customer that made a purchase based on a successful recommendation.

The findings of this study add to the importance of personalization in online shopping. Retailers should invest on personalized services since, when they are of high quality, they may induce positive emotions and increase the perceptions towards the message quality and the perceived benefits from the recommendation. Managers should focus on providing the right stimuli to their customers, which will make them feel right about their choice and be perceived as a chance for more rewards and benefits. To this end, various personalization tools may be implemented on online shops (e.g., social login, behavioral targeting).

Finally, this research study may be used as a guide for online retailers as it offers empirical support on the fact that personalization strategies should follow a two-step approach. In detail, managers should focus firstly on the rational dimension of the

persuasion process, and secondly on the affective qualities that occur from the rationally-driven judgments by increasing positive emotions from successful persuasion strategies. A variety of information tools (e.g., text mining of user reviews, implementation of collaborative filtering and sequential pattern analysis of user ratings) should be adopted in order to improve the quality of personalization, the message quality and the perceived benefits. In addition, retailers should employ persuasive strategies that build on customers' emotional engagement, since positive emotions may rebalance wavered shopping intentions towards the actual purchase and may lead them to unplanned and impulsive purchases.

7.3 Research limitations

As with any empirical study, the studies performed during this thesis have various limitations. First, the generalization of the findings should be made quite carefully, since the studies are conducted in Greece and also most of the respondents are highly experience with online shopping and highly educated. Second, all studies examine perceptions based on self reported data. Performing interviews and observations will offer more concrete findings. Third, the exploratory study of emotions in personalized environments, performed in chapter 4, does not examine emotions as a multidimensional factor, but aims to identify the role of the two basic types of emotions (i.e., positive and negative). Nonetheless, the empirical study presented in chapters 5 and 6, address this limitation by adopting the GEW for emotions.

Fourth, we only control for personalization by giving various specific examples to the respondents about what personalized services might be. Nonetheless, future studies may include, for example, a question with multiple answers that will ask the respondents of what they think that personalized services include. This will help create a sample that will definitely be aware of personalized services. Finally, only three types of cognitive

perceptions are examined in the empirical studies (quality of personalization, benefits of personalization, message quality), while other cognitive aspects may influence customers' online shopping behavior. However, literature has described the critical role of these three factors in personalized online shopping, thus stressing the need to examine them along with emotions, in the context of personalized online shopping. Despite its limitations, this thesis offers valuable insights for future studies and its findings may be used and extended by online shopping researchers.

7.4 The way ahead

This section presents suggestions for future research in the area of online shopping, personalized services and emotion literature.

This research study examines intensively customers' emotions when shopping online based on personalized services. The findings pinpoint the importance of positive emotions over the negative ones. Nonetheless, since the measurement of emotions is based on self reports, future studies should implement different ways to measure emotions (e.g., interviews, observations). Furthermore, future studies should examine the distinct emotions in the four different categories (strongly and weakly positive and negative emotions) in order to identify which are more important and which may dominate the others. To this end, each emotion may have a different effect, in terms of intensity, on customer behavior.

The implementation of the theory of complexity and configural analysis in this context takes literature of online shopping a step further and suggests new ways on theory building. To this end, future work should be performed in order to verify and extend the findings of this thesis. In addition, studies should compare the results based on this methodology with the results from multiple regression analysis and the examination of

main effects in general. This comparison will be able to verify or contradict the results of one methodology with the other, and lead to more concrete findings and frameworks with better explanatory power.

Another area for future research, stems from the fact that cognitive perceptions are more important than affective ones in personalized online shopping. Although this might seem obvious since past research mainly focuses on cognitive perceptions, this study has made clear the evident role of emotions in the purchase process. Combining these facts, future studies should include more types of cognitive factors along with emotions.

Appendix A: Measurement scales summary (chapter 3)

Measures		Loading
Privacy (PR)	Personalization causes privacy problems:	
PR1	Because it may keep track of my web behavior.	0.97
PR2	Because it may monitor my clicks and browsing records.	0.96
PR3	By exposing my personal information to unknown parties.	0.76
Trust (TR)	The online vendor that offers personalized services:	
TR1	Can be trusted at all times.	0.84
TR2	Can be counted on to do what is right.	0.89
TR3	Has high integrity.	0.86
Emotions	In general, when I receive personalized services, I feel:	
Happiness (HAP)	Satisfied	0.87
	Excited	0.84
	Curious	0.57
Anxiety (ANX)	Anxious	0.78
	Insecure	0.74
	Helpless	0.71
	Nervous	0.78
Intention to Purchase	Based on personalized services:	
INT1	In the future I intend to continue shopping.	0.93
INT2	My general intention to buy online is very high.	0.88
INT3	I will shop online in the future.	0.78

Appendix B: Measurement scales summary (chapter 4)

Measures		Mean	S.D.	Loading
Personalization (PER) Cronbach's alpha = 0.92				
PER1	Online vendors can provide me with personalized deals/ads tailored to my activity context.	4.76	1.69	0.84
PER2	Online vendors can provide me with more relevant promotional information tailored to my preferences or personal interests.	4.60	1.74	0.95
PER3	Online vendors can provide me with the kind of deals/ads that I might like.	4.66	1.74	0.89
Positive Emotions (POS) Cronbach's alpha = 0.92				
POS1	I feel happy after receiving personalized services for online shopping.	4.27	1.83	0.92
POS2	I have a warm feeling after receiving personalized services for online shopping.	3.92	1.86	0.83
POS3	I am being valued after receiving personalized services for online shopping.	3.71	1.83	0.84
Negative Emotions (NEG) Cronbach's alpha = 0.93				
NEG1	I feel angry after receiving personalized services for online shopping.	2.76	1.97	0.89
NEG2	I am in a bad mood after receiving personalized services for online shopping.	2.51	1.82	0.96
NEG3	I feel upset after receiving personalized services for online shopping.	2.32	1.64	0.87
Intention to Purchase (INT) Cronbach's alpha = 0.94				
INT1	In the future I intend to continue shopping online based on personalized services.	4.24	1.74	0.93
INT2	My general intention to buy online based on personalized services is very high.	3.92	1.80	0.94
INT3	I will shop online in the future based on personalized services.	4.00	1.75	0.87

Appendix C: Measurement scales summary (chapter 5)

Construct and scale items	Mean	S.D.	Loading
Quality of Personalization (CA = 0.89)			
1. Online vendors can provide me with personalized deals/ads tailored to my activity context.	4.6	1.44	0.84
2. Online vendors can provide me with more relevant promotional information tailored to my preferences or personal interests.	4.6	1.36	0.88
3. Online vendors can provide me with the kind of deals/ads that I might like.	4.5	1.32	0.84
Message Quality (CA = 0.93)			
1. Personalized services provide correct information about items or services I want to purchase.	4.3	1.30	0.74
2. Overall, I think personalized services provide useful information.	4.5	1.32	0.80
3. Personalized services provide timely information on an item/service.	4.5	1.29	0.76
4. Personalized services provide sufficient information when I try to make an online purchase.	4.3	1.33	0.77
5. I am satisfied with the information that personalized services provide.	4.6	1.40	0.84
6. Overall, the information personalized services provide is of high quality.	4.4	1.43	0.89
7. Personalized services provide timely information on an item/service.	4.3	1.31	0.86
Benefits of Personalization (CA = 0.90)			
1. I think the use of personalized services is convenient.	4.9	1.43	0.85
2. I can save money by using personalized services.	4.7	1.60	0.76
3. I can save time by using personalized services.	5.2	1.57	0.86
4. Using personalized services enables me to accomplish a shopping task more quickly than using traditional methods.	5.9	1.57	0.84
5. Using personalized services increases my productivity in shopping (e.g., make purchase decisions or find product information within the shortest time frame).	4.8	1.57	0.74
CA = Cronbach's alpha			

Appendix D: Measurement scales summary (chapter 5)

Construct and scale items				Mean	S.D.	Loading	
Intention to Purchase (CA = 0.90)							
1. In the future I intend to continue shopping online based on personalized services.				4.7	1.47	0.93	
2. My general intention to buy online based on personalized services is very high.				4.4	1.54	0.94	
3. I will shop online in the future based on personalized services.				4.4	1.42	0.87	
Emotions							
	Mean	SD	Loading		Mean	SD	Loading
Strongly Positive (CA = 0.91)					Weakly Positive (CA = 0.89)		
1. Pleasure	3.7	1.73	0.95	1. Contentment	3.7	1.73	0.93
2. Joy	3.5	1.71	0.93	2. Admiration	3.1	1.73	0.76
3. Pride	2.8	1.63	0.74	3. Love	2.4	1.57	0.64
4. Amusement	3.8	1.57	0.75	4. Relief	3.0	1.79	0.75
5. Interest	4.21	1.51	0.68				
Strongly Negative (CA = 0.83)					Weakly Negative (CA=0.89)		
1. Anger	2.99	1.71	0.72	1. Disappointment	2.72	1.65	0.68
2. Hate	2.66	1.45	0.85	2. Shame	2.12	1.48	0.87
3. Contempt	3.09	1.83	0.65	3. Regret	2.47	1.61	0.80
4. Disgust	2.15	1.39	0.86	4. Guilt	2.04	1.33	0.84
5. Fear	2.79	1.72	0.57	5. Sadness	1.93	1.32	0.77
				6. Compassion	2.12	1.38	0.69
CA = Cronbach's alpha							

Appendix E: Contrarian case analysis (chapter 5)

		Intention to Purchase							Intention to Purchase				
		1	2	3	4	5			1	2	3	4	5
Q.P. ($\phi^2 = .43, p < .001$)	1	<i>65</i> (11.2%)	<i>21</i> (3.6%)	<i>6</i> (1.0%)	8 (1.4%)	4 (0.7%)	M.Q. ($\phi^2 = .50, p < .001$)	1	<i>62</i> (10.7%)	<i>29</i> (5%)	<i>10</i> (1.7%)	5 (0.9%)	3 (0.5%)
	2	<i>33</i> (5.7%)	<i>33</i> (5.7%)	<i>33</i> (5.7%)	12 (2.1%)	7 (1.2%)		2	<i>32</i> (5.5%)	<i>38</i> (6.5%)	<i>25</i> (4.3%)	14 (2.4%)	11 (1.9%)
	3	<i>14</i> (2.4%)	<i>25</i> (4.3%)	<i>22</i> (3.8%)	<i>22</i> (3.8%)	<i>8</i> (1.4%)		3	<i>25</i> (4.3%)	<i>20</i> (3.4%)	<i>28</i> (4.8%)	<i>26</i> (4.5%)	<i>15</i> (2.6%)
	4	18 (3.1%)	24 (4.1%)	<i>33</i> (5.7%)	<i>65</i> (11.2%)	<i>34</i> (5.8%)		4	9 (1.5%)	13 (2.2%)	<i>34</i> (5.8%)	<i>52</i> (8.9%)	<i>26</i> (4.5%)
	5	3 (0.5%)	5 (0.9%)	<i>12</i> (2.1%)	<i>33</i> (5.7%)	<i>42</i> (7.2%)		5	5 (0.9%)	8 (1.4%)	<i>9</i> (1.5%)	<i>43</i> (7.4%)	<i>40</i> (6.9%)
B.P. ($\phi^2 = .39, p < .001$)	1	<i>72</i> (12.4%)	<i>25</i> (4.3%)	<i>12</i> (2.1%)	4 (0.7%)	0 (0.0%)	S.P. Emotions ($\phi^2 = .16, p < .001$)	1	<i>55</i> (9.5%)	<i>23</i> (4%)	<i>17</i> (2.9%)	26 (4.5%)	5 (0.9%)
	2	<i>33</i> (5.7%)	<i>39</i> (6.7%)	<i>23</i> (4.0%)	18 (3.1%)	4 (0.7%)		2	<i>25</i> (4.3%)	<i>24</i> (4.1%)	<i>16</i> (2.7%)	26 (4.5%)	15 (2.6%)
	3	<i>17</i> (2.9%)	<i>19</i> (3.3%)	<i>35</i> (6.0%)	<i>37</i> (6.4%)	<i>17</i> (2.9%)		3	<i>30</i> (5.2%)	<i>31</i> (5.3%)	<i>26</i> (4.5%)	<i>32</i> (5.5%)	<i>15</i> (2.6%)
	4	5 (0.9%)	16 (2.7%)	<i>28</i> (4.8%)	<i>42</i> (7.2%)	<i>23</i> (4.0%)		4	17 (2.9%)	17 (2.9%)	<i>23</i> (4%)	<i>26</i> (4.5%)	<i>20</i> (3.4%)
	5	6 (1.0%)	9 (1.5%)	<i>8</i> (1.4%)	<i>39</i> (6.7%)	<i>51</i> (8.8%)		5	6 (1.0%)	13 (2.2%)	<i>24</i> (4.1%)	<i>30</i> (5.2%)	<i>40</i> (6.9%)
W.P. Emotions ($\phi^2 = .14, p < .001$)	1	<i>43</i> (7.4%)	<i>18</i> (3.1%)	<i>16</i> (2.7%)	20 (3.4%)	5 (0.9%)	S.N. Emotions ($\phi^2 = .10, p < .001$)	1	22 (3.8%)	14 (2.4%)	<i>13</i> (2.2%)	<i>41</i> (7%)	<i>35</i> (6.0%)
	2	<i>28</i> (4.8%)	<i>29</i> (5%)	<i>18</i> (3.1%)	31 (5.3%)	17 (2.9%)		2	18 (3.1%)	16 (2.7%)	<i>21</i> (3.6%)	<i>37</i> (6.4%)	<i>20</i> (3.4%)
	3	<i>26</i> (4.5%)	<i>30</i> (5.2%)	<i>26</i> (4.5%)	<i>35</i> (6%)	<i>13</i> (2.2%)		3	<i>28</i> (4.8%)	<i>28</i> (4.8%)	<i>22</i> (3.8%)	<i>24</i> (4.1%)	<i>22</i> (3.8%)
	4	25 (4.3%)	23 (4%)	<i>19</i> (3.3%)	<i>22</i> (3.8%)	<i>19</i> (3.3%)		4	<i>33</i> (5.7%)	<i>22</i> (3.8%)	<i>25</i> (4.3%)	17 (2.9%)	7 (1.2%)
	5	11 (1.9%)	8 (1.4%)	<i>27</i> (4.6%)	<i>32</i> (5.5%)	<i>41</i> (7%)		5	<i>32</i> (5.5%)	<i>28</i> (4.8%)	<i>25</i> (4.3%)	21 (3.6%)	11 (1.9%)
W.N. Emotions ($\phi^2 = .05, p < .05$)	1	24 (4.1%)	20 (3.4%)	<i>19</i> (3.3%)	<i>37</i> (6.4%)	<i>28</i> (4.8%)	Cases in bold represent contrarian cases. Cases in <i>italics</i> represent main effect. The sets of contrarian cases are counter to the main effect size (ϕ^2 range from .05 to .50). QP; Quality of Personalization, BP; Benefits of Personalization, MQ; Message Quality, SP; Strongly Positive Emotions, WP; Weakly Positive Emotions, SN; Strongly Negative Emotions, WN; Weakly Negative Emotions						
	2	19 (3.3%)	10 (1.7%)	<i>12</i> (2.1%)	<i>33</i> (5.7%)	<i>19</i> (3.3%)							
	3	<i>33</i> (5.7%)	<i>25</i> (4.3%)	<i>26</i> (4.5%)	<i>24</i> (4.1%)	<i>20</i> (3.4%)							
	4	<i>26</i> (4.5%)	<i>31</i> (5.3%)	<i>26</i> (4.5%)	21 (3.62%)	16 (2.7%)							
	5	<i>31</i> (5.3%)	<i>22</i> (3.8%)	<i>23</i> (4%)	25 (4.3%)	12 (2.1%)							

Appendix F: Measurement scales summary (chapter 6)

Construct and scale items	Mean	S.D.	Loading
Quality of Personalization			
1. Online vendors can provide me with personalized deals/ads tailored to my activity context.	4.61	1.44	0.84
2. Online vendors can provide me with more relevant promotional information tailored to my preferences or personal interests.	4.59	1.36	0.88
3. Online vendors can provide me with the kind of deals/ads that I might like.	4.54	1.32	0.84
Message Quality			
1. Personalized services provide correct information about items or services I want to purchase.	4.31	1.30	0.74
2. Overall, I think Personalized services provide useful information.	4.50	1.32	0.80
3. Personalized services provide timely information on an item/service.	4.53	1.29	0.76
4. Personalized services provide sufficient information when I try to make an online purchase.	4.29	1.33	0.77
5. I am satisfied with the information that personalized services provide.	4.55	1.40	0.84
6. Overall, the information personalized services provide is of high quality.	4.40	1.43	0.89
7. Personalized services provide timely information on an item/service.	4.31	1.31	0.86
Benefits of Personalization			
1. I think the use of personalized services is convenient.	4.85	1.43	0.85
2. I can save money by using personalized services.	4.66	1.60	0.76
3. I can save time by using personalized services.	5.23	1.57	0.86
4. Using personalized services enables me to accomplish a shopping task more quickly than using traditional methods.	5.08	1.57	0.84
5. Using personalized services increases my productivity in shopping (e.g., make purchase decisions or find product information within the shortest time frame).	4.76	1.57	0.74

Appendix G: Measurement scales summary (chapter 6)

Construct and scale items	Mean	S.D.	Loading
Persuasion			
1. Personalized services are persuasive. (i.e. Based on appeals made to the will, moral sense or emotions).	4.27	1.40	0.71
2. Personalized services are convincing. (i.e., Based on evidence or arguments made to the intellect)	4.24	1.40	0.78
3. Personalized services are compelling. *	4.05	1.46	0.52
4. Personalized services are influential.	4.31	1.46	0.69
5. Personalized services are effective.	4.46	1.32	0.82
Intention to Purchase			
1. In the future I intend to continue shopping online based on personalized services.	4.64	1.47	0.93
2. My general intention to buy online based on personalized services is very high.	4.36	1.54	0.94
3. I will shop online in the future based on personalized services.	4.36	1.42	0.87
* Deleted due to low loading.			

Appendix H: Questionnaire of the first study

Investigating the effect of personalized services in consumers' online shopping behavior

Survey Purpose

This questionnaire has been developed to investigate the effect of personalized services in consumers' online shopping behavior. You are kindly requested to contribute to this research by providing us with useful information and insight about your personal experience while shopping online. The Ionian University declares that the collected data will be subject to aggregate analysis and will be used exclusively for the research purposes of the Department of Informatics.

*Personalized services may include relevant ads, product recommendations (physical or digital), article recommendations (e.g., from online newspapers) and more through onsite banners, emails, etc.

Demographics

1. Gender:

Male Female

2. Age

<18 18-24 25-29 30-39 40-49 50+

3. Educational Level

Primary School Middle School High School University Post Graduate

4. Marital Status

Single Married Divorced Widowed

5. Country:

6. Online Shopping Experience:

How many times (approximately) have you made purchases online in the past six months?:

7. Social Network Sites (SNS)

Do you use Social Network Sites (SNSs)? Yes No

Personalization and behavior

8. Please indicate how much you agree or disagree with the following statements regarding personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. Online vendors can provide me with personalized deals/ads tailored to my activity context	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Online vendors can provide me with more relevant promotional information tailored to my preferences or personal interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Online vendors can provide me with the kind of deals/ads that I might like.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Please indicate how much you agree or disagree with the following statements regarding your purchase intentions based on personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. In the future I intend to continue shopping online based on personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. My general intention to buy online based on personalized services is very high.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I will think about shopping online based on personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. I will shop online in the future based on personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Emotions

10. Please indicate how much you agree or disagree with the following statements regarding your positive emotions towards personalized services:

	Not at all				Very much		
	1	2	3	4	5	6	7
a. I feel happy after receiving personalized services for online shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I have a warm feeling after receiving personalized services for online shopping..	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I am being valued after receiving personalized services for online shopping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Please indicate how much you agree or disagree with the following statements regarding your negative emotions towards personalized services:

	Not at all				Very much		
	1	2	3	4	5	6	7
a. I feel angry after receiving personalized services for online shopping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I am in a bad mood after receiving personalized services for online shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I feel upset after receiving personalized services for online shopping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Please indicate how much you agree or disagree with the following statements regarding your enjoyment with personalized services

	Not at all				Very much		
	1	2	3	4	5	6	7
a. Internet shopping with personalization is enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Internet shopping with personalization is exciting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Internet shopping with personalization makes me feel good.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Internet shopping with personalization is boring.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Please indicate how much you agree or disagree about how you generally feel when you receive personalized services:

	Not at all				Very much		
	1	2	3	4	5	6	7
a. Satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Disheartened	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Dispirited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Insecure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Frustrated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Curious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Helpless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Privacy and trust

14. Please indicate how much you agree or disagree with the following statements regarding your privacy concerns towards personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. Personalization causes privacy problems because it may keep track of my web behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Personalization causes privacy problems because it may monitor my clicks and browsing records.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Personalization causes privacy problems by exposing my personal information to unknown parties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Please indicate how much you agree or disagree with the following statements regarding your trust towards e-vendors that offer personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. The online vendor can be trusted at all times.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. The online vendor can be counted on to do what is right.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The online vendor has high integrity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The online vendor is competent and knowledgeable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix I: Questionnaire of the second study

Investigating the effect of emotions in personalized online shopping environments

Survey Purpose

This questionnaire has been developed to investigate the effect of emotions and personalized services in consumers' online shopping behavior. You are kindly requested to contribute to this research by providing us with useful information and insight about your personal experience while shopping online. The Department of Informatics of Ionian University declares that the collected data are anonymous, will be subject to aggregate analysis and will be used exclusively for research purposes.

*Personalized services may include relevant ads, product recommendations (physical or digital), article recommendations (e.g., from online newspapers) and more through onsite banners, emails, etc.

Demographics

16. Gender:

Male

Female

17. Age

<18

18-24

25-34

35-44

45-54

55-64

65+

18. Educational Level

Primary School

Middle School

High School

University

Post Graduate

19. Country:

Experience

20. Online Shopping Experience (in years)

- <1
 1-3
 3-5
 5-7
 >7

21. How many purchases have you made online in the past six months (approximately):

22. How do you prefer to shop online? Using:

- Desktop/Laptop
 Mobile Phone
 Tablet
 Other

Information Quality and Perceived Benefits

23. Please indicate how much you agree or disagree with the following statements regarding Information Quality when using personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. Personalized services provide correct information about items or services I want to purchase.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Overall, I think Personalized services provide useful information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Personalized services provide timely information on an item/service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Personalized services provide reliable information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Personalized services provide sufficient information when I try to make an online purchase.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. I am satisfied with the information that personalized services provide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Overall, the information personalized services provide is of high quality.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Please indicate how much you agree or disagree with the following statements regarding your Perceived Benefits when using personalized services:

	Not at all				Very much		
	1	2	3	4	5	6	7
a. I think the use of personalized services is convenient.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I can save money by using personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I can save time by using personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Using personalized services enables me to accomplish a shopping task more quickly than using traditional methods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Using personalized services increases my productivity in shopping (e.g., make purchase decisions or find product information within the shortest time frame).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Personalization, Persuasion and Behavior

25. Please indicate how much you agree or disagree with the following statements regarding personalized services:

	Not at all				Very much		
	1	2	3	4	5	6	7
a. Online vendors can provide me with personalized deals/ads tailored to my activity context	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Online vendors can provide me with more relevant promotional information tailored to my preferences or personal interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Online vendors can provide me with the kind of deals/ads that I might like.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Please indicate how much you agree or disagree with the following statements regarding the persuasiveness of personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. Personalized services are persuasive. (i.e. Based on appeals made to the will, moral sense or emotions).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Personalized services are convincing. (i.e., Based on evidence or arguments made to the intellect).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Personalized services are compelling.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Personalized services are influential.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Personalized services are effective.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. Please indicate how much you agree or disagree with the following statements regarding your purchase intentions based on personalized services:

	Not at all			Very much			
	1	2	3	4	5	6	7
a. In the future I intend to continue shopping online based on personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. My general intention to buy online based on personalized services is very high.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I will think about shopping online based on personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. I will shop online in the future based on personalized services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Emotions							
28. Please indicate how much you agree or disagree with the following statements regarding the persuasiveness of personalized services:							
	Not at all			Very much			
	1	2	3	4	5	6	7
a. Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Hate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Contempt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Disgust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Fear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Compassion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Disappointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Shame	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Regret	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Guilt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Sadness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Amusement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Pride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Joy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Pleasure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Contentment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. Admiration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. Love	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. Relief	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Biography

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