Customer Confusion in Multi-Channel Shoppers – Is Channel Integration the Answer?

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Laura Bertrandie

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1 Introduction

1.1 Relevance for retail research and practice

At the verge of the 21st century the internet has prepared ground for the era of digitalization (Verhoef, Kannan, & Inman, 2015). With it, the advent of e-commerce alters the retailing environment radically. A plethora of online retailers emerge and they frequently offer lower prices than stationary retailers (Ancarani & Shankar, 2002). Customers worldwide adopt the new channel at a fast pace. For instance, as of the year 2019, online sales make up for 16 % of overall retail sales in the US (6,4 % in 2010) (Young, 2020). In Germany, the figure amounts to 10,9 % (4,7 % in 2010) (HDE Online Monitor, 2020). As a consequence of the fast growing popularity of e-commerce, traditional brick-and-mortar retailers such as Walmart, H&M or LIDL soon incorporate online channels into their business models to remain competitive (Dholakia, Zhao, & Dholakia, 2005; Verhoef et al., 2015).

Though the parallel use of sales channels is not an entirely novel concept (Schramm-Klein, 2003), the online channel brings a whole new dimension to multi-channel retailing – and with it, a set of unique opportunities and challenges. Such opportunities include, for example, an increasing market reach (Liu, Lobschat, & Verhoef, 2018), the possibility to exploit channel synergies (Cao & Li, 2015), and the enhancement of the overall customer shopping experience (Li et al., 2018; Verhoef et al., 2015). Moreover, studies suggest that consumers who use a retailer's various channels for purchases can have a 30% higher lifetime value for the firm (Krueger, 2015).

However, multi-channel retailers must carefully consider various complexities that come with the addition of new channels. To build on the potential of multi-channel retailing, they need to decide how to manage different distribution channels conjointly (van Baal, 2013). This is especially challenging, as they have to take into account the different characteristics, target groups, direct competitors and cost structures of their channels, as well as their overall higher operation cost in comparison to pure online or offline players (Berry et al., 2010; Trenz, 2015). Specifically, the question arises of how the retail mix instruments should be coordinated across channels to provide a better consumer experience that also translates into higher profits.

From a customer experience view, with online channels available to them, consumers engage in increasingly complex customer journeys (Barwitz & Maas, 2018; Lemon & Verhoef, 2016; Verhoef, et al., 2015). Having a wide range of choices gives customers more power as they are no longer reliant on one retailer or channel. Thus, given the possibility to find and compare products and prices, customers employ a variety of channels to acquire information before purchasing a product (Verhoef, Neslin, & Vroomen, 2007). The proliferation of internet-enabled smartphones allows them to do so

almost anywhere and anytime (Fulgoni, 2014). Consumer's might for example engage in "research shopping" behavior such as webrooming (searching for information online and then buying in a store; see Arora & Sahney, 2017; Flavián, Gurrea, & Orús, 2019; Kang, 2018), showrooming (searching for information in a store and then buying online; see Gensler, Neslin & Verhoef, 2017; Rapp, Baker, Bachrach, Ogilvie, & Beitelspacher, 2015; Schneider & Zielke, 2020), or they might switch search channels several times before purchasing (Barwitz & Maas, 2018; Verhoef et al., 2007). Meanwhile, in doing so, customers might encounter different assortments, prices, discounts or return policies across different channels. This can create a great potential for irritation, confusion and perceptions of unfairness (Melero, Sese, & Verhoef, 2016; Neslin & Shankar, 2009).

The literature has termed this phenomenon customer confusion and describes it as a state of mind that negatively influences decision making abilities (Mitchell & Papavassiliou, 1999; Walsh & Mitchell, 2010). Because confused consumers are likely to experience dissatisfaction and will possibly abandon the purchase (Edward & Sadahev, 2012; Walsh & Mitchell, 2010), multi-channel retailers are advised to craft multi-channel strategies that avoid confusion (Neslin et al., 2006; Zhang et al., 2010). In this respect, the integration of channels is mentioned as a solution (Goersch, 2002; Konuş, Verhoef & Neslin, 2008; Neslin & Shankar, 2009; Zhang et al., 2010).

While different aspects influence the level of channel integration (for a comprehensive overview, see Cao & Li, 2015), the harmonization of retail mix variables (e.g., van Baal, 2013; Emrich, Paul, & Rudolph, 2015) and technologies or services that allow channels to integrate information about and access to a second channel (i.e. click and collect, store finders, online terminals in store etc.; e.g., Bendoly, Blocher, Bretthauer, Krishnan, & Venkataramanan, 2005; Goraya et al., 2020; Herhausen, Binder, Schoegel, & Herrmann, 2015; Ortlinghaus, Zielke, & Dobbelstein, 2019) are identified as important markers of high channel integration. Both the harmonization of variables and the integration through multi-channel technologies/services aim at enabling seamless channel transitions for shoppers, and both are often discussed under the umbrella term channel integration. In the present work, the harmonization of variables of the retail mix will be in the focus of attention and the term channel integration will be used in this context.

In theoretical contributions, several cases are made for high levels of retail mix integration across channels as a means to avoid customer confusion (e.g., Berry et al., 2010; Goersch, 2002; Neslin & Shankar, 2009). Yet, recommendations remain empirically untested to this day. While much effort has been expended on the examination of customer confusion, research on this phenomenon exists only for singular channels (e.g, Anninou & Foxall, 2019; Diehl & Poynor, 2010; Matzler, Stieger, & Füller, 2011; Schweizer, 2005; Walsh, 1999; Walsh & Mitchell, 2010). On the other hand, few studies

have started to empirically investigate the integration of distinct aspects of the multi-channel retail mix with a customer perspective. In particular, these studies investigate integration of price (van Baal, 2013; Choi & Mattila, 2009; Fassnacht & Unterhuber, 2016; Homburg, Lauer, & Vomberg, 2019; Vogel & Paul, 2015), integration of assortment (van Baal, 2013; Emrich, Paul & Rudolph, 2015), integration of store design (Emrich & Verhoef, 2015) and the alignment of conveyed image in both channels (van Baal, 2013; Badrinarayanan et al., 2010). However, these contributions do not consider customer confusion and its interplay with other perceptual variables as an explanatory factor on consumer attitude or store patronage. To this date, there are no studies investigating customer confusion in the updated context of today's consumers' multi-channel shopping behavior.

Yet, the results of this research are highly relevant for multi-channel retailers. Different integration options regarding the retail marketing mix come with distinct expenses and opportunity costs. Inventory costs are higher offline than online. Hence, maintaining an equally large assortment across channels is more expensive than offering a smaller assortment in the stationary channel as compared to the online channel (Bhatnagar & Syam, 2014; Zhang et al., 2010) and full assortment integration then might require an overall smaller variety of merchandise offered. Moreover, strong assortment overlap might lead to a loss in sales opportunities if customers merely shift their purchase to the retailer's other channel (van Baal, 2013; Berman & Thelen, 2004; Zhang et al., 2010). Regarding pricing strategy, it is difficult for retailers with channel-integrated prices to remain competitive with pure online players, because online price levels might be too low to maintain overall operation cost (Fassnacht & Unterhuber, 2016; Homburg et al., 2019; Trenz, 2015). Thus, multi-channel retailer's must carefully weigh the costs of channel price and assortment integration against negative consumer perceptions that lead to detrimental consumer behavior. Therefore, it is necessary for them to know if channel integration regarding the retail mix effectively prevents or reduces customer confusion and which – if any – form of channel differentiation is accepted by customers. The results of the present work will provide specific implications for retailers with view to the coordination of pricing and assortment strategy across channels.

1.2 Research objectives and framework

The aim of this dissertation is to close the above-mentioned research gap by analyzing multi-channel assortment and price integration as a source of customer confusion empirically. To guide this effort, the following research question has been formulated:

Does assortment and price integration across channels reduce customer confusion and does this translate into more favorable consumer behavior?

In order to answer this question, this work aims to discern how the customer perceives and reacts to distinct assortment and price integration strategies. This dissertation comprises a pre-study and three main research projects. Across the three main research projects, customer confusion is the common denominator. According to their specific research focus, they investigate confusion together with further perceptual variables such as assortment perception, price fairness perception, customer inspiration, and behavioral consequences. The individual studies complement each other to provide a more comprehensive understanding of customer confusion in a multi-channel context. The results of this research provide concrete implications for multi-channel marketers with regard to the co-ordination of assortment and prices across channels. The following research projects were conducted:

Pre-Study:	Sources of confusion in multi-channel shopping (qualitative)
Research Project 1:	Focus on integration of assortment range (quantitative)
Research Project 2:	Focus on integration of assortment organization (quantitative)
Research Project 3:	Focus on integration of prices (quantitative)

The pre-study aims to gain an overall insight into sources of multi-channel customer confusion. Each of the three main research projects deals with distinct research questions and provides specific theoretical and managerial contributions. Two projects address assortment strategy – research project 1 focuses on assortment range and research project 2 on assortment organization. Research project 3 deals with price integration. In the following, the research projects will be presented in more detail and their raison d'être in the context of the dissertation will be laid out.

Sources of confusion have been specified and examined for offline channels and online channels individually. In the context of today's multichannel shopping behavior, such specification is missing. *The pre-study* aims to explore and quantify sources of confusion in multi-channel shoppers and subsequently subsume them into main categories. This is done using qualitative text analysis based on Mayring (2015). As a result of this study, 13 sources of confusion are identified which can be divided into the four categories *product information, price, assortment and availability*, and *channel service features*. The results of the pre-study reveal the complexity of the phenomenon customer confusion in a multi-channel shopping context. They also point towards topics for retailers to address and provide indications for the general thrust of the upcoming research.

The first research project "Assortment Integration" aims to identify the impact of a retailer's online and offline assortment range integration on customer confusion, assortment perception and the effect on attitudinal and behavioral consumer reactions. Furthermore, it seeks to show the existence of differential effects for cognitive and affective dimensions of confusion. The project thereby specifically responds to lack of investigation on the effects of multi-channel assortment strategy. We address

the following main research gaps: First, theoretical arguments (e.g., Berry et al., 2010; Goersch, 2002; Neslin & Shankar, 2009; Zhang et al., 2010) on the effects of assortment integration on customer confusion differ in their recommendations and the few empirical studies investigating the favorability of different strategies (van Baal, 2013; Emrich et al., 2015) neglect customer confusion as an explanatory variable. Second, we not only examine the integration of one multi-channel retailer (internal integration) but also investigate the effects of overlap with the assortment of a competitor's channel (external integration) in order to reflect more realistic search behavior of multi-channel shoppers. Third, in contrast to extant research in assortment literature (e.g., Chernev, 2003; Kuester & Buys, 2009; Mitchell & Papavassiliou, 1999), we not only include a cognitive measure drawn from information overload theory, but also an affective measure of confusion. The following research questions guide the study:

(1) How do different forms of integration influence customer confusion (cognitive confusion, affective confusion) and assortment perception in a choice situation with several retailers' channels to choose from?

(2) How do customer confusion and assortment perception influence attitudinal and behavioral consequences?

(3) Are there differential effects for cognitive and affective dimensions of confusion?

(4) Do the effects of internal integration depend on the type of asymmetry and assortment size?

Two online surveys are conducted. In a scenario-based online experiment using a 2x3 between-subjects design, we manipulate assortment integration internally (online and offline channel of the focal retailer) and externally (online channel of the focal retailer and competing online retailer) with different levels of integration. Full integration represents equal assortments in both channels while the asymmetrical condition features only partial overlap of assortment across channels. No integration features completely different assortments and is included only for external integration. In a second supplementary study, we further investigate internal asymmetrical integration. A 1x3 between-subjects design is manipulated to gain insight on the effects of reduced asymmetry (a reduced offline assortment compared to online) and mixed asymmetry (number of variants remains equal in both channels). MANOVAs, ANOVAs and PROCESS are used for analysis of the data of both studies.

The results of this research project indicate that assortment integration has an impact on customer confusion and assortment perception. Importantly, internal asymmetrical integration shows beneficial effects for the retailer in terms of confusion (both cognitive and affective) and assortment perception but only when asymmetry is based on a reduction of the offline assortment. For external integration, full integration and asymmetrical integration led to lower cognitive confusion than no integration;

yet, there is no difference in affective confusion or assortment perception. Regarding the results for attitudinal and behavioral consequences, we reveal the relevance of affective confusion. For internal integration, there are repercussions for immediate reactions (purchase abandonment) and long-term unfavorable consequences (decreasing attitude and patronage intention) which are mediated via affective confusion. We confirm a double mediation between internal integration and consequences via affective confusion and assortment perception. These results contribute to the literature on (1) channel integration and (2) customer confusion, as they offer new insights on the effects of asymmetrical assortment integration and on the mechanism of confusion. We can also derive clear implications for the retailer's assortment integration.

The second project "Assortment Organization Integration" aims to examine whether it is advisable for retailers to integrate complement-based assortment organization (which marketers frequently employ in stationary stores) into their online channels. Complement-based assortment organization combines products from different product categories in the way they are used together in a consumption context (e.g., IKEA showrooms). Specifically, the study focuses on the effect of complement-based vs. substitute-based assortment organization on the counteracting forces of customer inspiration and customer confusion (distinguishing cognitive and affective confusion dimensions). Furthermore, we explore two boundary conditions on the effects of inspiration: (1) the display or non-display of a total price in the complement-based presentation and (2) the decision-making style of customers. We contribute to the very limited scope of research for complement-based organization of assortments and address the following research gaps: While extant researches usually focuses on assortment organization in the offline environment (e.g., Drèze, Hoch, & Purk, 1994; Sarantopoulos, Theotokis, Pramatari, & Roggeveen, 2019), we address the question whether the results for stationary organization methods are transferable to the online environment. Furthermore, we include customer inspiration and customer confusion as counteracting forces to investigate changes in assortment perception. The following research questions guide the study:

(5) How does a substitute-based vs. complement-based assortment organization influence customer inspiration and customer confusion (cognitive confusion, affective confusion)?

(6) How do customer inspiration and customer confusion influence assortment perception?

(7) Are there differential effects for cognitive and affective dimensions of confusion?

(8) How do price display and the decision-making style of consumers influence customer inspiration and its effects?

In a scenario-based online experiment with a 1x3 between-subjects design, we manipulate an online shop including substitute-based organization, complement-based organization with display of total

price and complement-based organization without display of total price. In the process of data collection, we take two surveys with the same experimental design. The second survey includes a measure for decision-making style but is otherwise identical to the first one. MANOVAs, ANOVAs and PROCESS are used for analysis of the data. The results show that assortment organization has an influence on assortment perception via customer inspiration and customer confusion. For customer confusion, we find a double mediation effect: complement-based organization leads to more cognitive confusion than substitute-based organization and assortment perception is only influenced negatively if cognitive confusion leads to a negative evaluation of the situation (i.e. affective confusion). Complement-based organization also leads to more customer inspiration which mediates assortment perception positively. However, this effect might be mitigated when the total price of the complement-based set is displayed (results of two samples inconclusive on this matter). The net impact of complement-based assortment organization on assortment perception is positive due to the stronger effect of inspiration. Independent decision-makers are more inspired by complement-based organization than interdependent decision-makers, as they seem to value advice that does not involve asking others. Online and multi-channel retailers should therefore design their website to tap into the inspirational function of complement-based organization.

The third research project "Price Integration" examines the impact of multi-channel price differentiation on perceived price fairness, customer confusion, and the effect on attitudinal and behavioral consequences. Specifically, the aim is to discern whether different price instruments or combination of price instruments evoke differential effects on fairness perceptions and confusion. This is a crucial issue for multi-channel retailers as they have to consider competitive online prices and their own channel cost structure (Unterhuber, 2015). The study examines product price differentiation, differentiation through online promotions and differentiation through online shipping fees. Two research gaps are addressed. Extant research studies the effects of price instruments separately (e.g., Sheng, Bao, & Pan, 2007; Xia, Kukar-Kinney, & Monroe, 2010) or neglects shipping fees (e.g., Vogel & Paul, 2015). This study includes the examination of three common pricing instruments and their interactions. Moreover, existing studies focus on the effects of multi-channel price integration on price fairness (e.g. Choi & Mattila, 2009; Fassnacht & Unterhuber, 2016). Some studies mention the possibility of customer confusion in the context of price differentiation (e.g., Neslin et al., 2006; Zhang et al., 2010), yet no empirical study has investigated confusion in this context. The following research questions are posed:

(9) How does the use of price differentiation instruments (product price differentiation, online promotion, online shipping fees) influence price fairness and customer confusion?

(10) How do different price differentiation instruments interact to influence price fairness or customer confusion?

(11) How do customer confusion and price fairness influence attitudinal and behavioral consequences?

As a methodological approach, the study uses an online survey with a scenario-based experiment. In a 2x2x2 between-subjects design, the experiment manipulates product price differentiation (product price uniform or cheaper online), promotion (with online promotion or without online promotion) and online shipping fees (with shipping fees or without shipping fees). ANOVAs and PROCESS are used to analyze the data. The results indicate that price differentiation has an impact on fairness evaluations and customer confusion and that interactions between the instruments exist for price fairness evaluations. Specifically, for price fairness, the employment of product price differentiation and online promotions are perceived as more unfair than consistent pricing. However, the fairness perception of shipping fees depends on the use of product price differentiation. When prices are uniform, shipping fees are perceived as more unfair than no shipping fees, and when the price is cheaper online, shipping fees are perceived as fairer than no shipping fees. The overall results for price fairness suggest that shipping fees might work as a cue for customers to consider retailer's different channel cost, but customers then expect a consistent consideration of channel cost advantages and disadvantages from a retailer's pricing strategy. With view to customer confusion, confusion is higher when product price differentiation and online promotion apply yet shipping fees do not confuse the customer. Eventually, price fairness and customer confusion mediate the effects of the price differentiation through online promotion on attitudinal and behavioral consequences. These results contribute to expand literature on (1) channel integration and (2) customer confusion, as they offer new insights on the effects of price integration and on the influence of customer confusion. We also derive implications for retailers as to the use of the three instruments.

On a theoretical basis, the three research projects draw from customer confusion literature to incorporate information processing theories, and are supplemented by further concepts and theories according to their specific research focus, such as the paradox of choice (research project 1), the concept of inspiration from social psychology (research project 2), and equity theory and the dual entitlement principle (research project 3).

Figure 1 presents a schematic overview of the research projects that positions them in the context of the thesis:

Focus	General Focus	Assortment Strategy		Price Strategy
Research Project	**Pre-study** Sources of Confusion in Multi-Channel Shoppers	**Research project 1** Assortment Integration	**Research project 2** Assortment Organization Integration	**Research project 3** Price Integration
Research Gap	No systematic identification and categorization of sources of confusion in a multi-channel shopping situation	No examination of confusion as an explanatory variable for adverse consequences No inclusion of overlap with competitor channels in assortment integration studies	No examination of confusion and inspiration as counteracting drivers of consumer perception Lack of investigation of complement-based assortment organization in online channel	No examination of confusion as an explanatory variable for adverse consequences No joint analysis of product price differentiation, promotion and shipping fees

Figure 1. Schematic overview of research projects.

As a whole, this dissertation provides differentiated insights on the relationship between channel integration and customer confusion. Contingent on the research focus of the research project, customer confusion is investigated together with other perceptional variables to elucidate causes of favorable or unfavorable consumer behavior for the retailer. Overall, we are able to show that general recommendations for high levels of price and assortment integration as a means to avoid customer confusion must be treated with reservation. Importantly, our results show that, firstly, while in some cases less integrated channels lead to confusion, full integration is not always the less confusing option. Secondly, confusion might occur but – depending on the cause of confusion – does not necessarily lead to unfavorable consequences or will be outweighed by the positive effect of other mechanisms.

1.3 Structure of dissertation

This doctoral thesis comprises 6 chapters. The introduction outlines the relevance of the dissertation topic for research and retail. It then presents the research question and gives on overview of the research projects with different research objectives and contributions. Chapter 2 presents the pre-study. The subsequent chapters, i.e. chapters 3, 4 and 5 represent three separate research projects. Chapter 3 comprises the first research project “Assortment Integration”, chapter 4 presents the second research project “Assortment Organization Integration”, and chapter 5 the last project “Price Integration”. The thesis closes with a general conclusion in chapter 6 which includes a summary of the main results, an

elaboration of important theoretical and managerial implications as well as the presentation of relevant limitations and resulting future research approaches. Figure 2 illustrates the course of the present thesis.

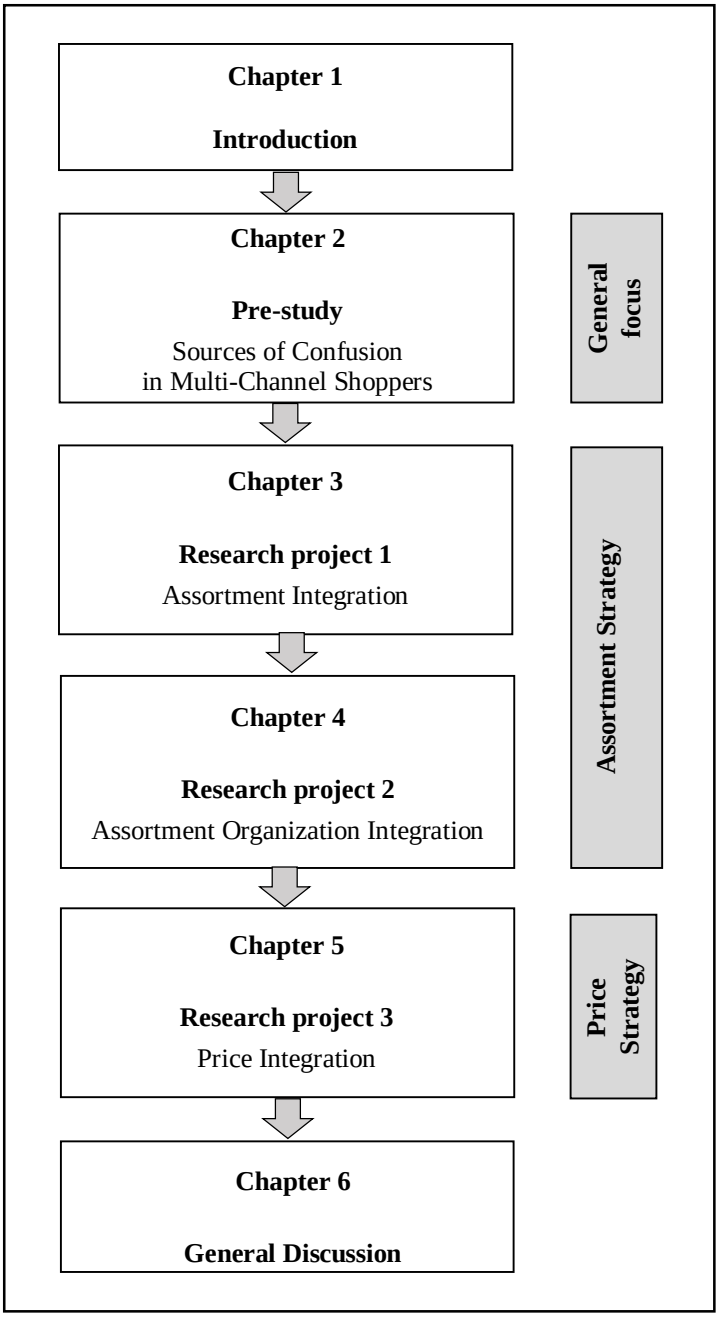

Figure 2. Structure of dissertation.

2 Pre-study: Sources of Confusion in Multi-Channel Shopping

2.1 Introduction

Providing a pleasant shopping experience is a crucial task for retailers, as consumers' experiences not only influence instant consumer reactions but also affect future shopping decisions (Anninou & Foxall, 2019). Due to arising feelings of frustration, stress or annoyance, customer confusion has an adverse impact on consumers' shopping experience and leads to, for example, decreased time spent in the store or overall purchase postponement (Anninou & Foxall, 2019; Lu & Gorsoy, 2015; Kasper, Bloemer, & Driessen, 2010; Walsh & Mitchell, 2010). Consequently, retailers need to find suitable ways to alleviate confusion. Meanwhile, confusion is a well-researched phenomenon only for the offline channel and online channel individually (e.g., Anninou & Foxall, 2019; Diehl & Poynor, 2010; Matzler et al., 2011; Mitchell, Walsh, & Yamin, 2005; Nagar & Gandotra, 2016; Lu & Gorsoy, 2015; Stanton & Paolo, 2012). Accordingly, such research has issued channel-specific recommendations for retailers.

However, confusion literature does not consider consumer experiences in multiple channel journeys. Consequently, to this date, it remains unclear which factors induce confusion resulting from using different channels for shopping. In the scientific discussion, differing cross-channel prices (Neslin & Shankar, 2009; Zhang et al., 2010) or differing assortments (Goersch, 2002) are named as potential causes of confusion. While these are valid concerns, this broad assessment does not reflect the entirety of consumer-firm interactions and touchpoints throughout the search, purchase and post-purchase phase (see Verhoef et al., 2015; Wolny & Charoensuksai, 2014). A more precise identification and quantification of specific areas of confusion for multi-channel shoppers is needed. To address the present research gap, a qualitative pre-study is used to approach the subject in an explorative manner. The results of this study will point towards the most relevant topics for retailers to address. From a theoretical viewpoint, they convey a deeper understanding for the multi-faceted nature of the subject and offers indications for the general thrust of the thesis.

2.2 Theoretical background

Research on antecedents of customer confusion springs from two main sources. The major part of confusion research is rooted in information overload theory (Malhotra, 1984). Information overload theory suggests that a large amount of information can exceed the processing capacities of consumers and cause difficulties in decision-making (e.g., Sproles & Kendall, 1986; Mitchell & Papavassiliou,

1999). Sproles and Kendall (1986) first identified a “confused by overchoice” customer and since then, cognitive overload has been widely used as a concept and measure of customer confusion in the research field (e.g., Anninou & Foxall, 2019; Nagar & Gandotra, 2016; Stanton & Paolo, 2012; Walsh & Mitchell, 2010). The origins of the second stream of research lie in the context of trademark-law, as so-called me-too products used visual and functional similarity with other brands to mislead customers (e.g., Foxman, Berger, & Cote, 1992; Foxman, Muehling, & Berger, 1992). However, customers might also perceive similarity due to decreasing inter-brand differences and a rising number of parity products (Tjiptono, Arli, & Bucic, 2014). High similarity of products or advertisements impede a clear distinction and may lead to sub-optimal choices for the customer (e.g., buying the wrong product because of similar packaging; Mitchell et al., 2005). A widely referenced framework suggested by Walsh and colleagues proposes that customer confusion results from stimulus overload, stimulus similarity and stimulus unclarity (Walsh, Hennig-Thurau, & Mitchell, 2007; Walsh & Mitchell, 2010). This framework has also been utilized to research confusion in the online environment (see Matzler et al., 2011; Matzler, Waiguny, & Füller, 2007). The third component, stimulus unclarity refers to the presence of ambiguous, contradictory or conflicting product information. According to Mitchell et al. (2005), it is caused by information that is inconsistent with a consumer's knowledge or beliefs about that product. This can include false product claims, contradictory product information or non-transparent pricing. In the context of multi-channel shopping, stimulus ambiguity seems of special interest, because researchers suggest that differing or conflicting information in channels (such as differing assortment or prices) may lead to confusion (Konuş et al., 2008; Neslin et al., 2006; Zhang et al., 2010). To this date however, no empirical research has attempted to systematically identify and categorize sources of confusion for shoppers that use multiple channels. The following study will fill this gap.

2.3 Research design and results

We conducted a qualitative study. Respondents were asked to answer an online questionnaire with open questions concerning a concrete situation in which they experienced customer confusion in a multi-channel search and purchase context. Notably, for this study, we allowed for a wide definition of multi-channel, where different channels could also include competitors’ distribution channels and subsidiaries. The participants were asked to answer in written text. The following questions were posed:

1. Can you remember a particular shopping situation in which you experienced confusion, frustration, irritation or similar negative feelings as you used more than one channel to search for and – if applicable – buy a suitable product? Please describe this situation.

2. Please put yourself back into that situation. What exactly were your feelings?

3. Can you remember your reaction (e.g., behavior) to said situation?

4. Did you decide to buy the product or abandon the purchase at that moment? Please describe your reasons.

The pre-study included 202 participants. We excluded unfinished questionnaires as well as questionnaires with short completion times. The sample then comprised 97 participants. We further checked that three criteria be met; namely that the respondent described a subjective and concrete experience, that the description included more than one channel and that the answer was specifically in reference to the posed question. This resulted in the deletion of 33 participants, leading to a final sample of 64 respondents (47 female and 17 male respondents; 26,2 years on average).

For data analysis, one coder (coder 1) used inductive category development by means of content structuring (see Mayring, 2015) in order to build a category system of possible sources of confusion. After coding the data for the first time, the intra-coder reliability and inter-coder reliability of the category system required proofing. To verify intra-coder reliability, the first coder encoded the data a second time several weeks later and assigned 98 % of the subcategories equally. A decision was taken by the first coder with regard to inconsistent cases. Subsequently, in order to check for inter-coder reliability, a second coder (coder 2) used the coding system of the first coder and categorized the data. For each of the 64 respondents, the second coder assigned 93 % of the subcategories that the first coder allocated. Table 1 shows the final category system with the subcategories, the subsumtion into main categories, and how frequently both coders assigned the codes to the particular subcategory. Notably, some respondents described more than one source of confusion, which resulted in the higher number of assigned cases as compared to respondents.

Table 1. Category system.

Main Category	Nr.	Subcategory	Example	C1	C2
Product Information	1	Differing recommendations in different channels	"I wanted to buy a smartphone and there were two [smartphones] online that compared favorably (recommendations by other users), but in the store I was advised against them. I didn't know what to do." (Qnr. 1764, f, 24)	12	13
	2	Too much information in different channels	"[I] had the product in my hands, but […] did a quick check with the smartphone […] in order to reduce my insecurities. [There was an] overabundance of information (prices, recommendations, experiences of users). A feeling of overwhelmedness emerged at the store as I became uncertain about my priorities within seconds." (Qnr. 1910, f, 27)	8	8
	3	Differing (contradictory) information in different channels	„I wanted to research information on laptops and went through leaflets from MediaMarkt and Saturn. Additionally, I researched product characteristics and product tests for different brands online. It was somewhat frustrating, because there was contradictory information concerning battery, noise and heat. […]. I was unnerved and did not want to continue my search." (Qnr. 1924, m, 24)	9	9
Price	4	Differing prices in different channels	„Buying a PlayStation, researched online and saw that it was supposed to retail at 359 euros in the store, [I] went to the store and the price was 399 euros […]. I was annoyed that I had gone to the store in vain. In the end, I bought the PlayStation online, at another online retailer." (Qnr. 1625, m, 27)	28	27
	5	Differing prices through promotions in different channels	"I felt annoyed that I got a 20% reduction on [the price of] shoes at the Roland online shop although I would have had to pay the normal price at the store. While I was in the store, I had checked whether I could obtain the shoes cheaper online. It's upsetting in case you need the shoes immediately. […] I left the shoes and ordered them later online." (Qnr. 246, f, 27)	8	10
Assortment and Availability	6	Differing assortment (product is generally not offered in every channel)	"A couple of weeks ago I saw a dress in an online blog. The brand was named, so I could directly check the online shop of the brand. I found the dress there, but I did not want to place an order for one piece only. In the following week, I went to the stationary store hoping to find the dress. To no avail! I was disappointed the article was not available in both channels." (Qnr. 1919, f, 26)	10	9
	7	Differing availability (product is temporarily not available in every channel)	"I wanted to buy a laptop, I picked it out online. At Saturn I was given a different recommendation, because the desired product was not available in the store at the moment. But that would have been a bad tradeoff." (Qnr. 1988, f, 25)	12	13

	8	Poor information exchange / co-ordination regarding assortment across channels	"I was given the information that this product does not exist although it was sold in their online shop. As a customer you do not feel taken seriously. I told the sales-person constructively that I felt misunderstood […]." (Qnr. 70, f, 26)	2	1
	9	Poor information exchange/co-ordination regarding product availability across channels	"Advertisement of a clothing article in a newsletter. Supposedly, sold online exclusively. However, not available online. Request via e-mail. Response that the product is available in a store (at 30km distance). Sold out in the store as well. Great disappointment." (Qnr. 1043, f, 34)	4	3
	10	Differing product type designation for identical product in different channels	"When I wanted to buy a notebook, I was not able to make comparisons between different retailers because of similar but incomplete product type designations. […] I had to research more information to be able to keep on shopping." (Qnr. 2315, f, 26)	2	2
Channel service features	11	Differing time of product receipt upon purchase in different channels	„Once, I intended to buy a smartphone in a store, but wanted to quickly check online. When I saw that it was cheaper online, I was annoyed, because on the one hand I wanted to have it as cheap as possible but on the other hand I wanted to buy it immediately. I just felt frustrated, because I had to buy it either now for more money, or receive it later […]." (Qnr. 296, f, 23)	8	10
	12	Differing return policies in different channels	"Irritation and annoyance: differing rights for customers, for example returning policies. Experience not long ago for the purchase of a printer. It was not compatible with the interface of my laptop, but there was no defect generally, so the retailer (Saturn) did not want to accept the return of the product. This would be much easier with an online purchase." (Qnr. 242, m, 26)	2	3
	13	Differing quality of consultation in different channels	Visit of [the store of] a mobile company with subsequent search online, to obtain an overview over prices. When I went to another subsidiary, I was presented with a tariff option no other channel had offered me before, which made me doubt the quality of the consultation in the first store and the overview I had found online. (Qnr.67, f, 25)	11	16

Note: n = 64.

2.4 Discussion

The results show that sources of confusion in multi-channel shopping situations are varied and concern 1) differing recommendations, the amount of information, differing clarity of information and differing (contradictory) information in different channels 2) differing prices and differing prices through promotions in different channels 3) differing assortments, differing product availability, poor information exchange or co-ordination regarding assortment or product availability, differing type

designation for identical products in different channels and 4) differing time of product receipt, differing return policies and differing quality of consultation in different channels. The subsumption generates the following main categories for sources of confusion: *product information, price, assortment and availability* and *channel service features*.

We can relate some sources of multi-channel confusion to stimulus overload and unclarity, two of the antecedents in the single-channel notion of confusion. For instance, this holds for the subcategories 1 (differing recommendations) and 3 (differing/contradictory information), subcategories 4 (differing prices) and 5 (differing prices through promotions), and subcategory 10 (differing product type designation). Here, information acquired in a second channel is inconsistent with prior knowledge obtained in the first channel. Specifically, for differing recommendations (subcategory 1) or information (subcategory 3), an additional information search is often undertaken by consumers to alleviate confusion. Yet, acquiring even more information might also result in cognitive overload (Mitchell & Papavassiliou, 1999). For differing prices (subcategory 4 and subcategory 5), consumers must integrate new knowledge and re-evaluate their options which is cognitively demanding. Customers might also assume there is equal assortment (subcategory 6) or consistent product availability (subcategory 7) across channels and then realize this is not the case. While subcategory 2 (too much information) can also concern only one channel, the use of different channels can amplify the problem of overload since even more information is acquired through a second channel. Generally, it is noteworthy that customers explicitly mention feelings of frustration, upset, irritation, annoyance and overwhelmedness, and immediate reactions such as doubts about the retailer, unwillingness to continue the purchase process or even switching to a competitor (see Table 1).

As mentioned above, the study allowed for a broad definition of multi-channel to include customer journeys with competitor channels. Yet, the problems revealed could evoke even more detrimental effects for retailers not addressing them in their own channels. The main category *product information* is highly influenced by external sources such as other users' recommendations or information and offerings provided by competitors. These touchpoints are not directly malleable by the retailer. However, the main categories *price, assortment and availability* and *service channel features* incorporate controllable aspects from a retailer's point of view. In particular, the results suggest that assortment, prices, promotions and return policies constitute leverage points for an integration in the sense of a harmonization of channels. This is essentially in line with Cao and Li's (2015) proposed markers of high channel integration which include the alignment of assortment, prices, promotions and services. The improvement of information exchange or co-ordination of assortment and product availability across channels represent leverage points for operational integration through multi-channel technologies/services. Here, trained personnel should possess detailed knowledge about the assortment in

each channel a centralized back-end-systems need to ensure an adequate representation of product availabilities in the context of consumer cross-channel information access (for example, when consumers use the check and reserve function in the online shop or online terminals in store).

In summary, the results of this pre-study provide proof that customers can experience confusion for multiple reasons when using different channels to research and shop. Since assortment and prices are two of the top criteria for retailer patronage (Bronyarczyk & Hoyer, 2006) and as they have been identified as important – but manipulable – sources of confusion, the results of this pre-study provide further justification for the research focus of this dissertation. In the following, we will aboard the question whether confusion can effectively be reduced through assortment and price integration and whether such integration significantly impacts consumer reactions.

3 Assortment Integration[1]

Abstract

Assortment integration strategy is crucial for retailers operating different channels. As full assortment integration across channels is costly, retailers need to know how customers perceive less integrated assortments. In two experiments, we investigate internal (overlap of the retailer's own channels) and external assortment integration (overlap with competitor's channels) and show their impact on customer confusion, assortment perception and their consequences. Results show that (1) asymmetrical internal integration induces less cognitive and affective confusion than full integration as well as better assortment perception, but the effects depend on whether the asymmetry is based on a reduced or equal amount of items in the offline channel and (2) full and asymmetrical external integration lead to less confusion in terms of its cognitive component. Eventually, confusion has detrimental short and long-term effects for the retailer, leading to higher probability of purchase abandonment and less favorable attitude and patronage intentions.

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[1] Chapter 3 is based on the article "The Effects of Multi-Channel Assortment Integration on Customer Confusion" published in *The International Review of Retail Distribution and Consumer Research* (2017, Vol. 27).

3.1 Introduction

Customer confusion is a phenomenon that has been researched intensively for the past 35 years (e.g., Anninou & Foxall, 2019; Edward & Sahadev, 2012; Foxman et al., 1992; Malhotra, 1984; Mitchell & Papavassiliou, 1999; Turnbull, Leek, & Ying, 2000; Walsh & Mitchell, 2010). Researchers concur that an overabundance of information is the main cause for confusion in consumers (Kuester & Buys, 2009; Mitchell & Papavassiliou, 1999; Turnbull et al., 2000; Walsh & Mitchell, 2010). Accordingly, studies have consistently found that consumers can feel confused or frustrated when choosing from overly large assortments (Chernev, Böckenholt, & Goodman, 2015; Diehl & Poynor, 2010; Iyengar & Lepper, 2000). These feelings can lead to unfavorable outcomes for retailers, such as consumer dissatisfaction, purchase postponement or an overall negative attitude towards the seller (Kasper et al., 2010; Mitchell & Papavassiliou, 1999; Mitchell et al., 2005). Since the advent of e-commerce, however, there is not only a plethora of products and retailers to choose from. The ever increasing number of channels available for information search, price comparison and purchase calls for increasingly complex decision-making from the customer's point of view (Dholakia et al., 2010; Lynch & Barnes, 2020). As a result, today's consumers become even more susceptible to customer confusion. Thus, multi-channel retailers need to account for this risk in strategic assortment decisions.

While the literature has traditionally analyzed confusion in either the offline channel (e.g., Kuester & Buys, 2009; Mitchell & Papavassiliou, 1999; Mitchell et al., 2005; Schweizer, 2005) or online channel (e.g., Matzler et al., 2011; Matzler et al., 2007; Lu & Gursoy, 2015, Nagar & Gandotra, 2016), the present study considers confusion resulting from buying processes including multiple channels. As assortment is a highly decisive factor in consumers' retailer and channel choice, we will focus on the impact of multi-channel assortment integration on customer confusion, assortment perception and the effect on attitudinal and behavioral consumer consequences. Examining this is of considerable relevance because a less integrated assortment might lead to higher confusion, but could also influence assortment perception positively. From a retailer's perspective, it is important to know whether to offer a full or reduced assortment range in the offline channel as compared to their online channel and to gain insight into consequences of assortment overlap with competitors. Essentially, because full assortment integration is substantially more expensive and might foster cannibalization of channels (Bhatnagar & Syam, 2014; Zhang et al., 2010), multi-channel retailers need to know whether fully integrating their assortment is worth the costs.

In a scenario-based experiment, we analyze the effects of a multi-channel retailer's integration of online and offline assortment (internal integration) in combination with the overlap of the retailer's online assortment with that of an online competitor (external integration).

Specifically, our study seeks to answer the following questions:

- How do different forms of integration influence customer confusion (cognitive confusion, affective confusion) and assortment perception in a choice situation with several retailers' channels to choose from?
- How do customer confusion and assortment perception influence attitudinal and behavioral consequences?
- Are there differential effects for cognitive and affective dimensions of confusion?

The results of this experiment led to further research questions that we addressed in a supplementary experiment:

- Do the effects depend on the type of asymmetry?
- Do the effects depend on the size of the assortment?

We explore this question in a study that manipulates full integration, reduced asymmetrical integration and mixed asymmetrical integration as well as assortment size. The combined result of the experiments will guide the formulation of specific recommendations for retail managers. They also open up particular venues for future research to address.

3.2 Theoretical background and hypotheses

3.2.1 Literature review

Assortment strategy is a crucial issue for retailers and has been a widely researched topic in the past (e.g., Broniarczyk & Hoyer, 2006; Diehl & Poynor, 2010; Gourville & Soman, 2005; Morales, Kahn, McAlister, & Broniarczyk, 2005). A substantial part of this research has focused on perceived variety of assortment (Kahn & Wansink, 2004; Broniarczyk & Hoyer, 2006) and the overload confusion phenomenon (e.g., Diehl & Poynor, 2010). While the effects of assortment size (e.g., Chernev, 2003; Chernev et al., 2015; Diehl & Poynor, 2010; Scheibehenne, Greifeneder, & Todd, 2010) and assortment categorisation (e.g., Gourville & Soman, 2005; Morales et al., 2005) have been discussed mainly for the stationary channel, the implementation of additional channels entails novel challenges for a retailer's assortment strategy. In this context, one of the most important aspects in multi-channel retailing is assortment integration, which refers to the overlap of assortments between a retailer's different channels. Recently, the question has been raised as to the extent to which the assortments of

multi-channel retailers should be integrated. Although literature is still scarce, some conceptual articles (e.g., Berry et al., 2010; Neslin & Shankar, 2009; Zhang et al., 2010) discuss the favourability of full integration (i.e. channels carry exactly the same items), but they differ in their recommendations. For example, Berry et al. (2010) suggest that retailers offer different assortments across channels because competitors, capabilities and costs differ for specific channels but also acknowledge the potential of confusion when prices and products vary. Zhang et al. (2010) endorse carrying a smaller assortment in the offline channel due to capacity limits and higher inventory costs of stores (i.e., asymmetrical integration). Konuş et al. (2008) suggest retailers should use similar products and prices to avoid confusion. Neslin and Shankar (2009) lean towards a product/price integrity strategy. Goersch (2002) advocates for consistency in assortment across channels to limit customer irritation.

However, very little empirical research has been conducted to date. Van Baal (2013) researches harmonization of retail mix variables in an ex post facto survey design and finds that perceived assortment integration is positively correlated to customer retention and loyalty. One extensive experimental study has been conducted with regard to retailers' assortment integration to this date: Emrich et al. (2015) investigate the interplay of assortment integration and assortment structure (i.e., whether the relation between assortment items was substitute-based, complement-based or independent) on perceived variety, perceived risk, perceived convenience and patronage intentions. The authors include full integration, asymmetrical integration where one channel – usually online – carries all the items of the other channel plus additional items. While full integration consistently dominates no integration in their study, the authors find diverse effects for asymmetrical integration depending on assortment structure.

Thus, assortment integration has yet to be empirically tested in the context of the customer confusion phenomenon. In addition to this, previous studies focused solely on the integration of the online and offline channel of one retailer (internal integration), while research on the effects of assortment overlap with competitors (external integration) in multi-channel contexts is missing entirely. However, shoppers regularly use more than one channel in the buying process. In the following, we will shed light on the influence of different forms of internal and external integration on confusion and assortment perception. To do so, we first analyze the effects of full and asymmetrical integration of the offline and online channel of the focal multi-channel retailer (internal integration). Full integration means that assortments in both channels are identical. Asymmetrical integration refers to a partial overlap of assortments, which in retailing practice most frequently exists in the form of a limited assortment in the offline channel and an extended assortment in the online channel. For internal integration, we excluded the no integration option (i.e. completely different assortments) analyzed in

previous studies (see Emrich et al., 2015) because this strategy is not commonly used by multi-channel retailers. For the overlap with an online competitor, external integration, we examine the effects of full, asymmetrical and no integration on customer confusion and assortment perception. We also include an analysis of short-term and long-term consumer reactions for both forms of integration. The following chapters will present our main research model and the underlying hypotheses.

3.2.2 Customer confusion

There is an abundance of research investigating consumers' decision-making for choice tasks that involve choosing an adequate product from given assortments (e.g.¸Iyengar & Lepper, 2000; Kahn & Wansink, 2004). In this context, customer confusion has received a lot of attention (Diehl & Poynor, 2010; Iyengar & Lepper, 2000; Jacoby, Speller, & Kohn, 1974; Walsh & Mitchell, 2010). However, studies mostly conceptualised the phenomenon as a purely cognitive construct – also often termed "choice overload"– which was derived from information overload theory (see Chernev, 2003; Chernev, Böckenholt, & Goodman, 2010; Jacoby et al., 1974; Malhotra, 1984; Walsh & Mitchell, 2010). Research thus neglected emotional aspects of confusion (Walsh & Mitchell, 2010). In this study, we will make a conceptual distinction between cognitive and affective responses to encompass a more comprehensive and differentiated view of customer confusion.

The cognitive component is understood as cognitive effort (Cooper-Martin, 1994) needed for decision processing and is in accordance with information overload theory (see Malhotra, 1984). As the human processing capacity is limited, only a certain amount of information can be processed within a specific time period (Malhotra, 1984). In information overload theory, the number of choices and the number of attributes constitute the amount of information (Jacoby et al., 1974). If the consumer's processing threshold is surpassed, this will induce cognitive overload in individuals which will reduce the quality of decision-making (Jacoby et al., 1974; Malhotra, 1984). This is because for overloaded consumers, it becomes too difficult to compare and comprehend all the alternatives (Mitchell et al., 2005; Walsh et al., 2007). When consumers are confronted with comparing assortments in different channels, the amount of information to be processed should be lower if assortments contain the same products. This is likely because comparison is facilitated, as the information is consistent and no new information is presented in the second channel. In line with this reasoning, Goersch (2002) and Neslin and Shankar (2009) propose that consistency through full integration of a retailer's channels reduces the chance of confusion. In their empirical study, Emrich et al. (2015) find that asymmetrical integration increases consumer's perceived risk for assortments containing different variants of a product (such as different brands of laptops). Following this, we conclude that the lower the degree of assortment

integration, the higher the amount of confusion. We thus propose the following hypotheses for internal and external integration.

H1a: For internal assortment integration, cognitive confusion will be higher for asymmetrical integration than for full integration.

H1b: For external assortment integration, cognitive confusion will be highest for no integration, followed by asymmetrical, and full integration.

The affective component is viewed as an unpleasant emotional state that captures negative feelings linked to overload – such as irritation, annoyance and frustration (Garaus & Wagner, 2016; Mitchell et al., 2005). There are several explanations for affective confusion. On the one hand, choosing one option eventually involves the negation of all other possible options. Also known as the 'pain of choosing' (Schwartz, 2012), this phenomenon is accompanied by negative sentiments which is rooted in customers' insecurity about their choice being the best possible one (Botti & Iyengar, 2006). On the other hand, the perceptible difficulty of making a choice in itself can lead to unpleasant feelings (Mitchell & Papavassiliou, 1999). It is particularly disadvantageous if the consumer attributes the cause of these feelings to the retailer. Congruent to hypotheses H1a and H1b, an easy comparability provided by full assortment integration likely reduces insecurities about choice and negative emotional responses from cognitive block. We therefore hypothesize:

H2a: For internal assortment integration, affective confusion will be higher for asymmetrical integration than for full integration.

H2b: For external assortment integration, affective confusion will be highest for no integration, followed by asymmetrical, and full integration.

3.2.3 Assortment perception

Research has investigated different assortment sizes and assortment structures with view to consumer perception (e.g., Kahn & Wansink, 2004; Broniarczyk & Hoyer, 2006). One fairly consistent finding is that, although running the risk of being overwhelmed by choice, consumers tend to prefer larger assortments to smaller ones (Iyengar & Lepper, 2000). This has been termed the "paradox of choice" (see Schwartz, 2004) in the literature. The paradox of choice phenomenon can be explained by consumers' inherent need for variety (Menon & Kahn, 1995; Popkowski-Leszczyc & Timmermans, 1997). This means that consumer prefer to choose from an abundance of options, because they assume it increases their chances of finding the best possible product (Schwartz, 2004). For an asymmetrically integrated assortment, the second channel offers additional options compared to the first channel.

Hence, for internal integration, the variety of the asymmetrically integrated assortment of the multi-channel retailer might be perceived as superior (albeit being more confusing). Therefore, even though retailers with asymmetrical and full integration offer the same number of variants in the online channel, the added options in the asymmetrical condition may signal more variety and thus, higher possibility to find the best item. For external integration, no integration offers more overall variety for the consumer, which might translate into better assortment perception for the focal multi-channel retailer through a spill-over effect. We thus put forward the following hypotheses:

H3a: For internal assortment integration, the asymmetrical integration will lead to a superior assortment perception of the multi-channel retailer than full integration.

H3b: For external assortment integration, no integration will lead to a superior assortment perception of the multi-channel retailer, followed by asymmetrical, and full integration.

3.2.4 Psychological and behavioral outcomes

The customer confusion literature concurs that when consumers become overwhelmed and frustrated, this may result in negative consequences for the retailer (Anninou & Foxall, 2019; Diehl & Poynor, 2010; Mitchell & Papavassiliou, 1999; Walsh & Mitchell, 2010). For instance, an immediate reaction might be the temporal or complete abandonment of the purchase. Empirical studies have found that consumers experiencing feelings of confusion are much more likely to postpone a purchase (Kasper et al., 2010; Lu & Gorsoy, 2015; Mitchell et al., 2005). This entails the risk of the consumer choosing a different retailer at the time of re-entering the purchase process. In terms of long-term consequences, it has been concurred that confusion can lead to a decreasing attitude, lower trust, lower loyalty and negative word-of-mouth (Rosadi & Tjiptono, 2014; Walsh & Mitchell, 2010). This is because confusion leads to dissatisfaction with the purchasing experience or the purchase itself (i.e., the selected item not being the optimal choice in hindsight) (Jacoby, 1984; Mitchell et al., 2005; Turnbull et al., 2000; Walsh & Mitchell, 2010). With regard to the multi-channel retailer, we hypothesize for overall confusion as a two-dimensional concept:

H4: Customer confusion (a) increases purchase abandonment, (b) negatively influences attitude towards the retailer and (c) decreases patronage intentions.

Negative feelings and cognitive disruptions might also negatively influence the perception of the assortment. For example, Broniarczyk, Hoyer, and McAlister (1998) suggest that perceived ease of shopping might be a determinant of how consumers perceive assortments. Following this, confusion

should negatively influence assortment perception. A favorable assortment perception, in turn, usually has positive effects on the attitude towards the vendor, store choice or loyalty (e.g., Broniarczyk et al., 1998; Gázquez-Abad, Martínez-López, Mondéjar-Jiménez, & Esteban-Millat, 2015; Yoo, Park, & MacInnis, 1998). Therefore, we also suggest that assortment perception mediates the effect of confusion on the likelihood of purchase abandonment (short-term consequence), attitude towards the retailer and patronage intentions (long-term consequences). Accordingly, we propose the following hypotheses:

H5: Customer confusion negatively influences assortment perception.

H6: A positive assortment perception (a) decreases purchase abandonment, (b) positively influences attitude towards the retailer and (c) increases patronage intentions.

H7: The influence of customer confusion on (a) purchase abandonment (b) attitude towards the retailer and (c) patronage intentions is mediated by assortment perception.

To provide an overview, Figure 3 summarizes the conceptual model.

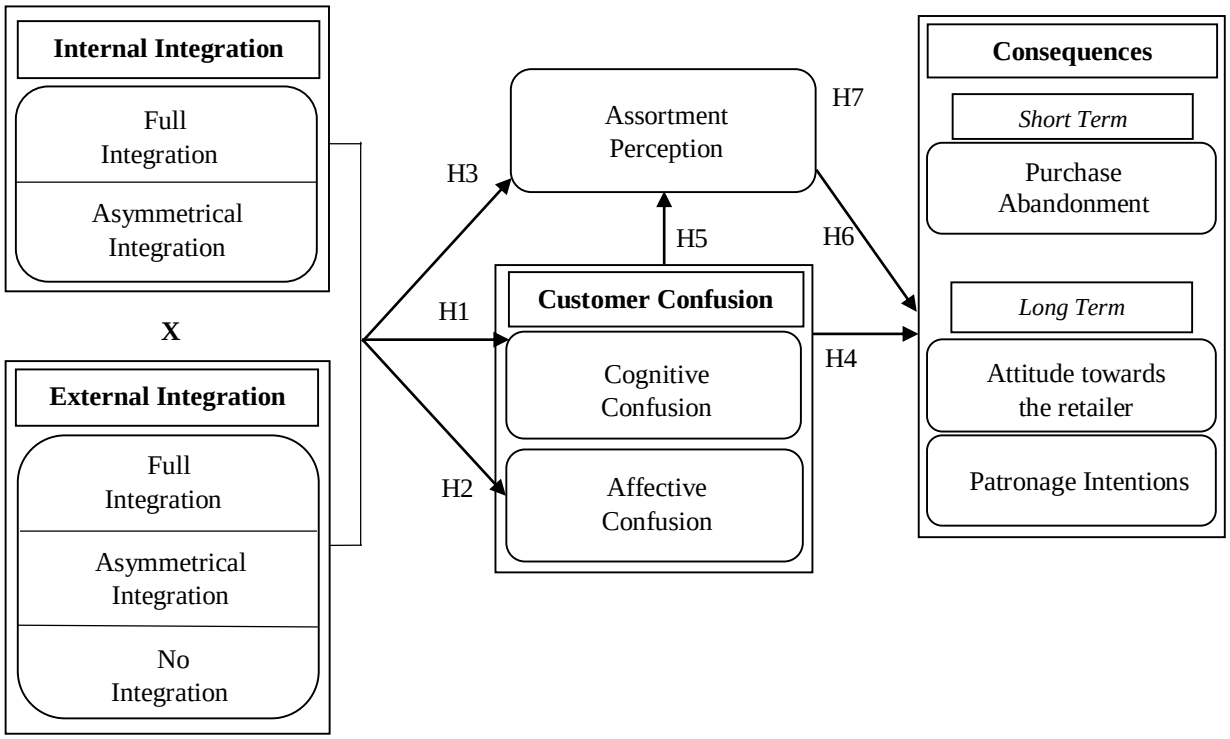


Figure 3. Conceptual model.

3.3 Main study

3.3.1 Method

To test our hypotheses, we use a scenario-based online experiment with a 2 (internal integration: full, asymmetrical) x 3 (external integration: full, asymmetrical, no integration) between-subjects design. The respondents are assigned randomly to one of six treatments of internal and external integration and asked to imagine the purchase of a new laptop (Appendix B). We choose laptops as a category because it is a high-involvement product with sufficiently complicated features and requires careful attention from respondents to make a choice. We introduce two fictional retailers: one multi-channel retailer with an offline and an online channel (bu multitech), and one pure online retailer (online-maxx). Hence, in the scenarios, each respondent is presented with three channels to buy from: two from the multi-channel retailer and one from the online retailer. We provide descriptions of the available channels for both retailers. The available options in the respective channels are shown to the respondents in the form of text and illustrations. The respondents are then asked to choose the purchasing channel and the laptop. With regard to *internal integration*, we manipulate two levels. In the full-integration treatment, the online and offline channel of the multi-channel retailer carry exactly the same six items. In the asymmetrical treatment, the offline channel offers three items which are also held by the online channel, but the online channel offers three additional items to a total of six items. Overall variety across the two channels of the multi-channel retailer remained the same in both conditions. With regard to *external integration*, three levels are manipulated. In the full-integration treatment, the assortment of the online retailer and the multi-channel retailer carry exactly the same six items. In the asymmetrical-integration treatment, the assortment of the online retailer contains three identical and three differing items to the assortment of the multi-channel retailer. In the no-integration condition, none of the six items in the online retailer's assortment are identical to the online assortment of the multi-channel retailer. Table 2 provides an overview of the scenarios, with each number representing one specific laptop alternative. For a detailed overview of the laptop alternatives and an exemplary scenario, see Appendix C.

The product alternatives presented to the respondents were based on the same visual illustration to avoid a brand preference bias. Each alternative comprised several attributes (processor, resolution, battery service life, weight) with three varying levels representing high, average or low levels. Overall, the attribute levels were counterbalanced in a way that no alternative could be perceived as outstanding. Three categories of slightly better or worse alternatives arose where the differences were accounted for by varying the respective prices around three price levels.

Table 2. Scenarios of main study.

Scenario	*bu multitech* offline	*bu multitech* online	*onlinemaxx* online
1 (full/full)	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6
2 (full/asymmetrical)	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,7,8,9
3 (full/no)	1,2,3,4,5,6	1,2,3,4,5,6	7,8,9,10,11,12
4 (asymmetrical/full)	1,2,3	1,2,3,4,5,6	1,2,3,4,5,6
5 (asymmetrical/asymmetrical)	1,2,3	1,2,3,4,5,6	1,2,3,7,8,9
6 (asymmetrical/no)	1,2,3	1,2,3,4,5,6	7,8,9,10,11,12

Note: Each number represents a laptop with specific characteristics (see Appendix C).

We used items from existing scales to measure constructs. For cognitive confusion, we adapted a scale from Heitmann, Lehmann, and Hermann (2007). To measure affective confusion, we use items from Garaus and Wagner (2016), Iyengar and Lepper (2000) and Diehl and Poynor (2010). For assortment perception, we adapted items from Kahn and Wansink (2004). We loosely base items on the decision postponement scale by Walsh et al. (2007) and on the purchase abandonment scale from Albrecht, Hattula, and Lehmann (2017) adapting the items to our context. A scale based on Spears and Singh (2004) was used for the attitude towards the retailer. For patronage intentions, we adapted a scale from Emrich et al. (2015). The specific items can be viewed in Appendix A. The constructs were measured using seven-point Likert scales. The scales ranged from totally disagree = 1 to totally agree = 7. Attitude towards the retailer used a bipolar measure.

A random sample was drawn in a major European country, yielding 594 questionnaires. There were 56,4 % female and 43,6% male respondents, and the average age was 30,7 years. The scenarios are comparable in terms of the gender and age distribution of the respondents. For each scenario, we generated between 93 and 106 completed questionnaires. Appendix K describes the demographic composition of the sample in more detail.

3.3.2 Analysis and results

3.3.2.1 Hypothesis testing

Reliability of the scales used exceeded the level of .70 for all constructs (please refer to Appendix A for values). This indicates an adequate reliability (Loewenthal, 2018). We included a realism check, which indicated that the respondents perceived the scenarios as mostly realistic (M = 4.72). Furthermore, we conducted a factor analysis to check discriminant validity for the confusion components which showed two factors representing cognitive confusion and affective confusion. In the process,

two items were deleted because of high loadings on both factors. We calculated sumscores for the dependent variables, and additionally calculated an overall confusion variable merged from cognitive and affective confusion. MANOVAs and two-way ANOVAs were used to analyze effects of internal and external assortment integration.

MANOVA results show a statistically significant difference between the levels of internal integration on the combined dependent variables ($F(6, 492) = 3.314$, $p = .003$, $\eta^2 = .039$, Wilk's Lambda = .961) with significant effects on cognitive confusion, affective confusion, assortment perception, attitude and patronage intentions ($p < .05$) and a marginally significant effect for purchase abandonment ($p < .10$). For external integration, the MANOVA results indicate a significant difference ($F(12, 986) = 1.821$, $p = .041$, $\eta^2 = .022$, Wilk's Lambda = .957) with significant effects on cognitive confusion and overall confusion ($p <. 05$). For the interaction effect of internal and external integration, no significant difference is detected ($F(12, 986) = .700$; $p = .753$; $\eta^2 = .008$, Wilk's Lambda = .983). Further analyses are conducted via ANOVA. Please refer to Appendix D for an overview of mean values across scenarios.

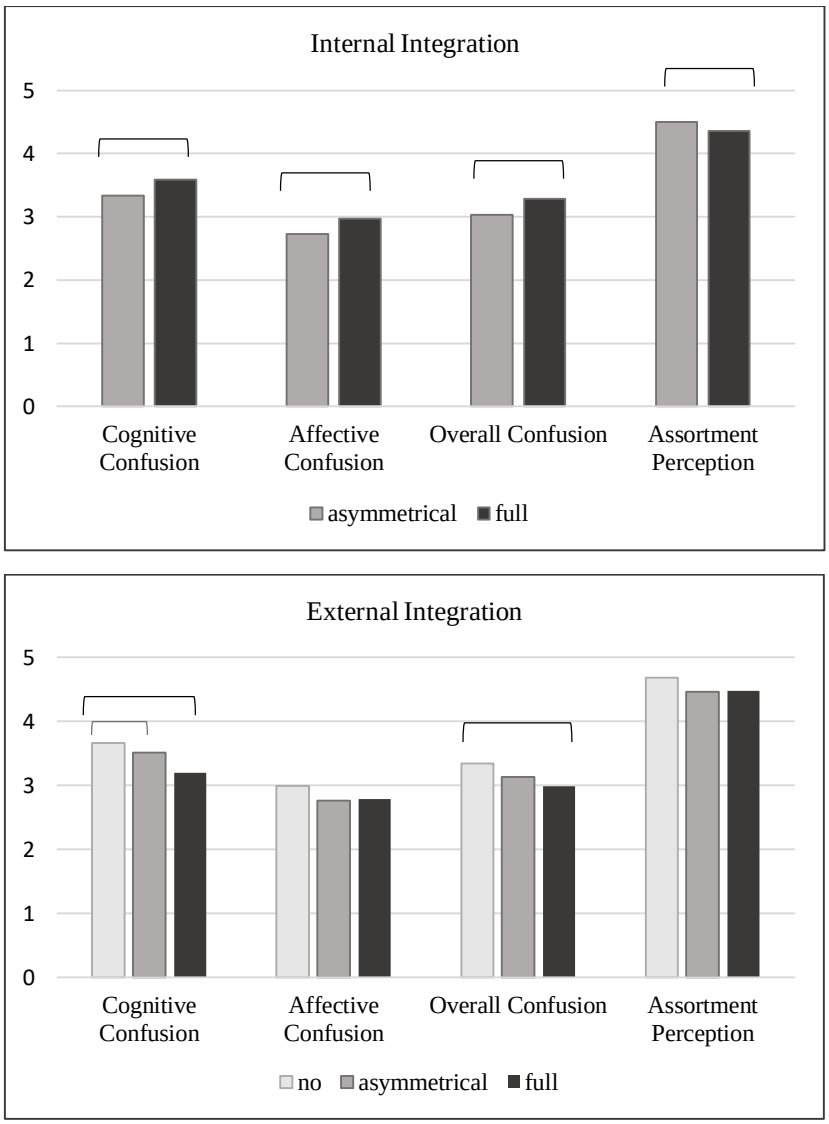
We find a significant main effect for both internal ($F(1,588) = 5.75$, $p = .002$) and external ($F(2,588) = 6.20$, $p = .017$) integration on *cognitive confusion*. However, no interaction effect is detected ($F(2,588) = 0.90$, $p = .407$). With regard to internal integration, the means indicate the opposite effect to our hypothesis, i.e. full internal integration resulted in higher cognitive confusion than asymmetrical integration (M_{full}: 3.59, SD = 1.37 > $M_{asymmetrical}$: 3.33, SD = 1.36). As a result, H1a is rejected. For external integration, the mean for the no integration condition is highest, followed by asymmetrical and full integration respectively (M_{no}: 3.66, SD = 1.40 > $M_{asymmetrical}$: 3.51, SD = 1.38 > M_{full}: 3.20, SD = 1.30). Post-hoc tests (Tukey) reveal a significant difference between no and full integration ($p = .002$) and a marginally significant difference between asymmetrical and no integration ($p = .062$). Therefore, the results partially support H1b.

We observe a significant main effect for internal integration ($F(1,588) = 5.75$, $p = .017$) on *affective confusion*, but no significant effect for external integration ($F(2,588) = 2.18$, $p = .114$) and no interaction effect ($F(2,588) = 0.03$, $p = .974$) . For internal integration, the means of affective confusion are higher for full than for asymmetrical integration (M_{full}: 2.97, SD = 1.32 > $M_{asymmetrical}$: 2.73, SD = 1.23). The results again show evidence of the opposite effect to our hypothesis. H2a is not supported. Because of missing significance for external integration (M_{no}: 2.99, SD = 1.31 > $M_{asymmetrical}$: 2.76, SD = 1,28 > M_{full}: 2.79, SD = 1.24), H2b is rejected as well.

We also merge cognitive and affective confusion into an *overall confusion* variable. The results are comparable to those for cognitive confusion, showing significant main effects of internal ($F(1,588) =$

7.01, p = .008; M_{full}: 3.28, SD = 1.21 > $M_{asymmetrical}$: 3.03, SD = 1.18) and external (F(2,588) = 4.18, p = .016; M_{no}: 3.34, SD = 1.25 > $M_{asymmetrical}$: 3.13 , SD = 1.20 > M_{full}: 2.99, SD = 1.14) integration, but no interaction effect (F(2,588) = 0.36, p = .704). Post-hoc tests reveal a significant difference between no and full external integration with p = .015.

Internal integration shows a significant main effect (F(1,588) = 9.37, p = .002) on *assortment perception*. The asymmetrical assortment is perceived as superior to the fully integrated assortment ($M_{asymmetrical}$: 4.71, SD = 1.31 > M_{full}: 4.36, SD = 1.37), supporting H3a. As no external integration effect (F(2,588) = 1,278, p = .279; M_{no}: 4.68, SD = 1.30 > $M_{asymmetrical}$: 4.47 , SD = 1.37 > M_{full}: 4.47, SD = 1.39) and no interaction exist (F(2,588) = 1,589, p = .205), H3b is rejected. Figure 4 provides an overview of significant differences in mean values for internal and external integration.



Note: light bracket = p < .10; dark bracket = p < .05.

Figure 4. Effect of internal and external integration on dependent variables.

To analyze H4, H5 and H6 we conduct linear regression analyses. Overall confusion has a significant positive effect on purchase abandonment (ß = .329, t = 8.475, *p* = .000), and negative effects on attitude towards the retailer (ß = -.228, t = -5.692, *p* = .000) and patronage intentions (ß = -.130, t = 8.567, *p* = .004). This holds partly for cognitive confusion (purchase abandonment: ß = .279, t = -3.871, *p* = .000; attitude: ß = -.157, t = -3.871, *p* = .000; patronage intentions: ß = -.072, t = -1.614, *p* = .107) and fully for affective confusion (purchase abandonment: ß = .319, t = 8.178, *p* = .000; attitude: ß = -.259, t = -6.535, *p* = .000; patronage intentions: ß = -.166, t = -3.765, *p* = .000). For overall confusion, H4 is supported. Overall confusion has a significant negative effect on assortment perception (ß = -.090, t = -2.189, *p* = .029), thus supporting H5. This does not hold for cognitive confusion (ß = -.013, t = .308, *p* =.758), but for affective confusion (ß = -.155, t = -3.809, *p* = .000). Assortment perception has a significant negative effect on purchase abandonment (ß = -.294, t = -7.485, *p* = .000), and positive effects on attitude towards the retailer (ß = .562, t = 16.541, *p* = .000) and patronage intentions (ß = .536, t = 14.210, *p* = .000), which supports H6. Table 3 gives a summarized overview over regression results including effects for confusion and its components on assortment perception.

Table 3. Standardized regression coefficients.

	Purchase Abandonment	**Attitude tw. the retailer**	**Patronage Intentions**	**Assortment Perception**
Overall Confusion	.329***	-.228***	-.130 ***	-.090**
Cognitive Confusion	.279***	-.157***	-.072	-.013
Affective Confusion	.319***	-.259***	-.166***	-.155***
Assortment Perception	-.294***	.562***	.536***	—

Note: * = *p* < .10 / ** *p* < .05 / *** = *p* < .01

For the analysis of H7, mediation analysis is conducted via PROCESS (see Hayes, 2017). The significance of the indirect effects is assessed through bootstrapping at 95% level of confidence. The mediation analysis of cognitive confusion via assortment perception on all consequences is excluded as cognitive confusion shows no significant effect on assortment perception (see Table 3). Assortment perception partially mediates the effect of *overall confusion* on purchase abandonment (indirect effect: .025; CI: .003 to .052) and attitude towards the retailer (indirect effect: -.050; CI: -.096 to -.006) (H7b). Similarly, there is a significant mediation effect on purchase abandonment (indirect effect: .038; CI: .016 to .065) and attitude (indirect effect: -.079; CI: -.122 to -.038) via affective confusion. The mediation through assortment perception is not significant for overall confusion (indirect effect: -.051; CI: -.112 to .006). A partial mediation exists for the effect of affective confusion on patronage intentions (indirect effect: -.084; CI: -.142 to -.029). H7 is partially supported (see Table 4). Table 5 gives an overview regarding the results of hypothesis testing.

Table 4. Results of mediation analysis via assortment perception.

	Total Effect	Direct Effect	Indirect Effect	BootLLCI	BootULCI
AC → AP → Abandonment	.314***	.275***	.038^{+}	.016	.065
OC → AP → Abandonment	.345***	.320***	.025^{+}	.003	.052
AC → AP → Attitude	-.246***	-.177***	-.079^{+}	-.122	-.038
OC → AP → Attitude	-.230***	-.181***	-.050^{+}	-.096	-.006
AC → AP → Patronage	-.195**	-.111***	-.084^{+}	-.142	-.029
OC → AP → Patronage	-.163***	-.112***	-.051	-.112	.006

Notes: AC = Affective Confusion; OC = Overall Confusion; AP = Assortment Perception;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

Table 5. Results of hypotheses tests.

	Hypotheses	Result
H1a	For internal assortment integration, cognitive confusion will be higher for asymmetrical integration than for full integration.	not supported
H1b	For external assortment integration, affective confusion will be highest for no integration, followed by asymmetrical, and full integration.	supported
H2a	For internal assortment integration, affective confusion will be higher for asymmetrical integration than for full integration.	Partially supported
H2b	For external assortment integration, affective confusion will be highest for no integration, followed by asymmetrical, and full integration.	not supported
H3a	For internal assortment integration, the asymmetrical integration will lead to a superior assortment perception of the multi-channel retailer than full integration.	supported
H3b	For external assortment integration, no integration will lead to a superior assortment perception of the multi-channel retailer, followed by asymmetrical, and full integration.	not supported
H4	Customer confusion (a) increases purchase abandonment, (b) negatively influences attitude towards the retailer and (c) and decreases patronage intentions.	supported
H5	Customer confusion negatively influences assortment perception.	supported
H6	A positive assortment perception (a) decreases purchase abandonment, (b) positively influences attitude towards the retailer and (c) and increases patronage intentions.	supported
H7	The influence of customer confusion on (a) purchase abandonment (b) attitude towards the retailer and (c) patronage intentions is mediated by assortment perception.	Partially supported

3.3.2.2 Additional analyses

We conduct additional mediation analyses to examine relationships between integration, confusion (cognitive or affective confusion) and assortment perception and their effect on consequences. Regarding internal integration, the independent variable is coded with 0 = "asymmetrical" and 1 = "full". The main total effects of internal integration on consequences are significant for attitude ($F(1,588) = 15.64$, $p = .001$; M_{full}: 4.74, SD = 1.25 < $M_{asymmetrical}$: 5.06, SD = 1.16), patronage intentions ($F(1,497) = 9.095$, $p = .003$; M_{full}: 3.93, SD = 1.44 < $M_{asymmetrical}$: 4.32, SD = 1.43), marginally significant for purchase abandonment ($F(1,588) = 3.621$, $p = .058$; M_{full}: 3.70, SD = 1.28 > $M_{asymmetrical}$: 3.51, SD = 1.24), and significant for the respective mediators (see results in 3.2.1).

Via PROCESS, we examine single and serial mediation models of internal integration via cognitive confusion, affective confusion and assortment perception. For cognitive confusion, we find single mediations on purchase abandonment (indirect effect: .065; CI: .009 to .127) and attitude (indirect effect: -.033; CI: -.076 to -.003). No significant serial mediation with cognitive confusion and assortment perception exists as there is no significant effect of cognitive confusion on assortment perception (see Table 3). A serial mediation analysis reveals significant single and serial mediations via affective confusion and assortment perception for the consequences (see Table 6 and Figure 5).

Table 6. Results of serial mediation analysis via affective confusion and assortment perception.

Purchase Abandonment

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	.195*	.048	.147^{+}	.063	.239
II → AC → Abandonment (a1b1)			.067^{+}	.007	.129
II → AP → Abandonment (a2b2)			.071^{+}	.019	.134
II → AC → AP → Abandonment (a1a3b2)			.009^{+}	.001	.020

Attitude

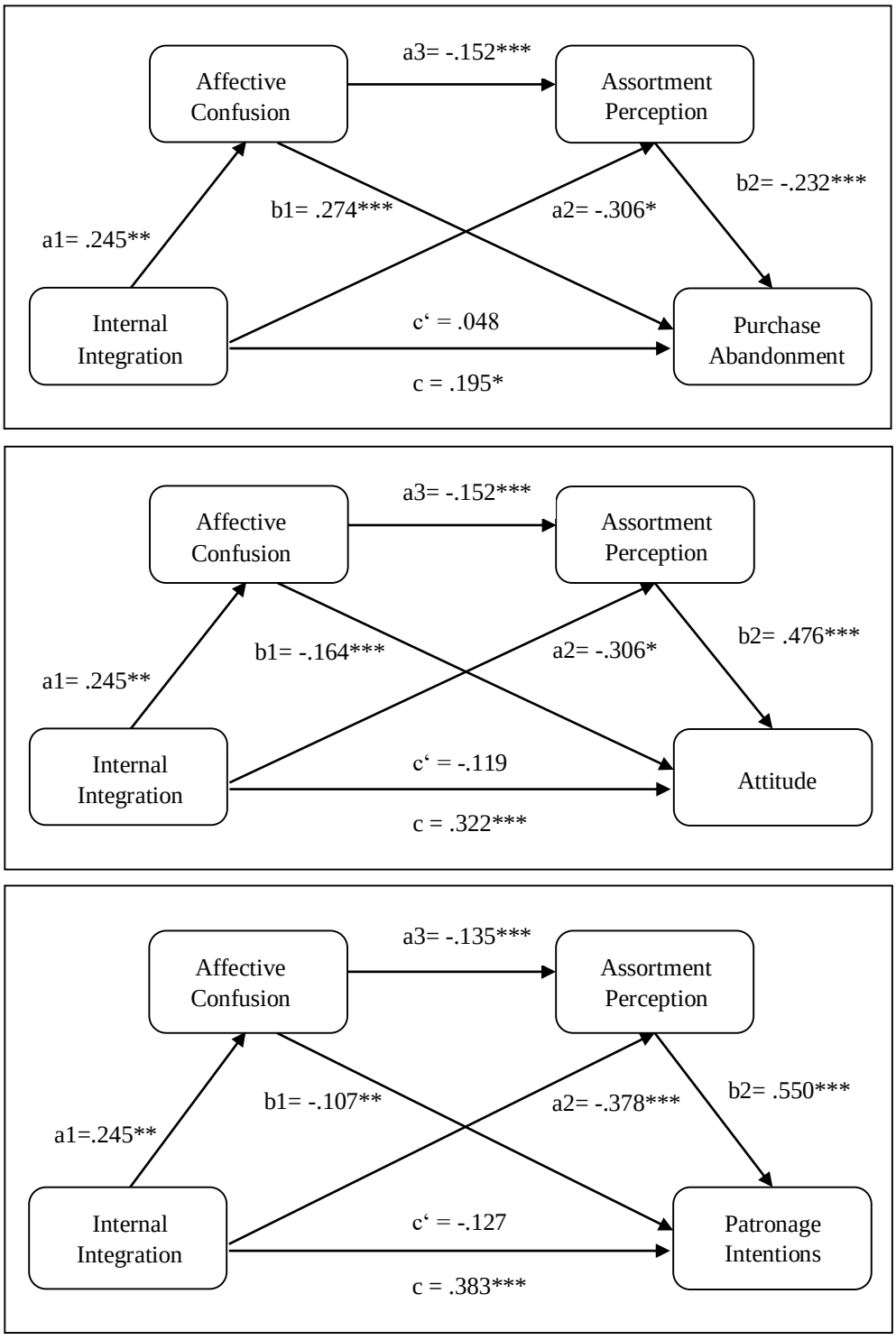
	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	-.322***	-.119	-.203^{+}	-.327	-.083
II → AC → Attitude (a1b1)			-.040^{+}	-.081	-.006
II → AP → Attitude (a2b2)			-.150^{+}	-.254	-.043
II → AC → AP → Attitude (a1a3b2)			-.018^{+}	-.040	-.002

Patronage Intentions

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	-.383***	-.127	-.256^{+}	-.406	-.112
II → AC → Patronage (a1b1)			-.023^{+}	-.069	-.001
II → AP → Patronage (a2b2)			-.208^{+}	-.346	-.080
II → AC → AP → Patronage (a1a3b2)			-.020^{+}	-.046	-.002

Notes: II = Internal Integration; AC = Affective Confusion; AP = Assortment Perception;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

Specifically, we find a full double mediation effect via affective confusion and assortment perception on purchase abandonment (indirect effect: .009; CI: .001 to .020) as the direct effect is not significant when mediators are included. We observe the same results for attitude and patronage intentions: a full double mediation via affective confusion and assortment perception on attitude (indirect effect: -.018; CI: -.040 to -.002) and patronage intentions (indirect effect: -.020; CI: -.046 to -.002).



Note: * = $p < .10$ / ** $p < .05$ / *** = $p < .01$.

Figure 5. Serial mediation analysis via affective confusion and assortment perception.

Within the serial mediation model, the single mediation effects via affective confusion and assortment perception on purchase abandonment are similar in strength, yet the mediation via assortment perception on attitude and patronage intentions is stronger than via affective confusion. We also tested for double mediation via overall confusion and assortment perception, but due to the influence of

cognitive confusion, the serial mediation effect is not significant on purchase abandonment (indirect effect: -.005; CI: -.001 to .015), attitude (indirect effect: -.011; CI: -.029 to -.001) and patronage intentions (indirect effect: -.010; CI: -.031 to .004).

Regarding external integration, the main effects on overall confusion and cognitive confusion are significant (see chapter 3.2.1), but not significant on the consequences. Therefore, we checked for suppressor mediation effects, but did not detect any.

3.4 Supplementary study

3.4.1 Method

Due to the unexpected findings with regard to internal integration in the main study, which indicate that asymmetrical integration leads to lower cognitive and affective confusion, we need to further investigate into the effects of internal asymmetrical integration. We thus conducted a supplementary study. Here, we analyze the effect of another form of internal asymmetrical integration which features no assortment reduction in the offline channel compared to the online channel (reduced asymmetrical integration). Instead, the number of products is held equal in both the online and the offline channel (mixed asymmetrical integration). Furthermore, we also varied the size of the assortment to see whether there are interactions of internal integration type with assortment size. This leads to a 2 (size: small, large) x 3 (integration type: full, reduced asymmetrical, mixed asymmetrical) between-subjects design where the dependent variables are affective confusion, cognitive confusion and assortment perception. Table 7 presents the scenarios, which uses a similar description and laptop alternatives from the same pool presented in study 1 (see Appendix B and C).

Table 7. Scenarios of supplementary study.

Scenario	**bu multitech - offline**	**bu multitech - online**
1 (small/full)	1,2,3,4,5,6	1,2,3,4,5,6
2 (small/asym.-reduced)	1,2,3	1,2,3,4,5,6
3 (small/asym.-mixed)	1,2,3,7,8,9	1,2,3,4,5,6
4 (large/full)	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9
5 (large/asym.-reduced**)**	1,2,3,4,5,6	1,2,3,4,5,6,7,8,9
6 (large/asym.-mixed)	1,2,3,4,5,6,10,11,12	1,2,3,4,5,6,7,8,9

Note: Each number represents a laptop with specific characteristics (see Appendix C).

We use the same scales than in the main study for both confusion components and assortment perception. We yielded a sample of 438 (68 to 81 respondents per scenario) questionnaires with 50,2% female and 49,8% male respondents. The average age of respondents was 34,3 years.

3.4.2 Analysis and results

Following the factor analysis, we exclude three items from affective confusion, so that discriminant validity was secured for both confusion components. The reliability of the scales exceeded .80 for all constructs (see Appendix A for detailed values). The scenarios were perceived as mostly realistic (M = 4.99). We test the effects using MANOVA and two-way ANOVAS. The MANOVA results show a statistically significant difference between the levels of integration form on the combined dependent variables (F(6,860) = 2.162, p = .045, η^2 = .015, Wilk's Lambda = .971), with significant effects on cognitive confusion and affective confusion (p <. 05). For size, MANOVA indicated a significant difference (F(3,430) = 11.707, p = .000, η^2 = .076, Wilk's Lambda = .924) with significant effects on cognitive confusion, affective confusion and assortment perception (p <. 05). For the interaction effect of integration form and assortment, no significant difference is detected (F(6,860) = .476; p=.826; η^2 = .003, Wilk's Lambda = .993). ANOVAs are used for further analysis. Appendix D also offers an overview of mean values across scenarios.

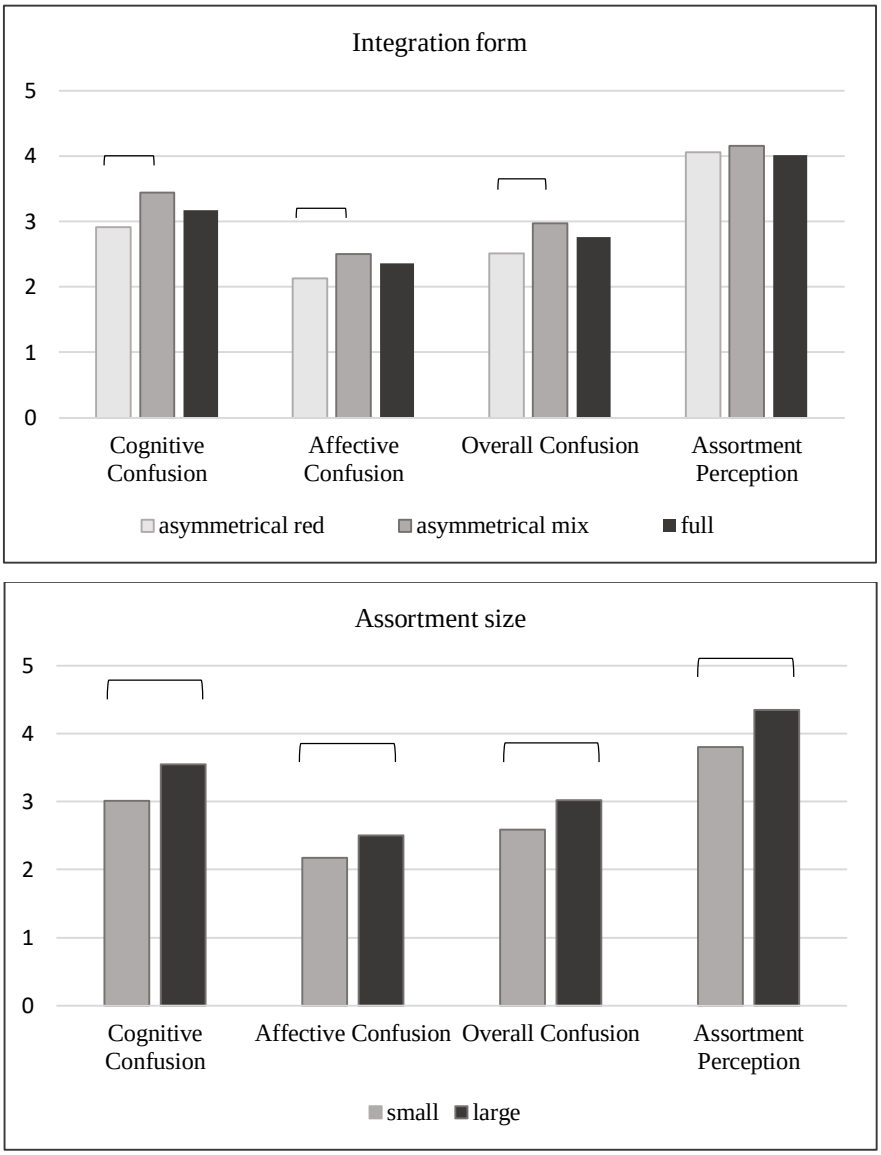
For *cognitive confusion*, we find a significant main effect for asymmetrical integration type (F(2,432) =5.73, p = .003) and assortment size (F(1,432) = 19.22, p = .000). No interaction effect is detected (F(2,432) = 0.088 , p = .916). Post-hoc testing shows a significant difference with p=.004 between reduced asymmetrical and mixed asymmetrical integration ($M_{a\text{-}mix}$: 3.52, SD = 1.45 > M_{full}: 3.27, SD = 1.30 > $M_{a\text{-}red}$: 3.03, SD = 1.24). Cognitive confusion is significantly higher for the large assortment than for the small assortment (M_{large}: 3.55, SD = 1.36 > M_{small}: 3.01, SD = 1.30).

For *affective confusion*, we find a significant main effect for asymmetrical integration type (F(2,432) = 3.17, p = .043) and assortment size (F(1,432) = 7.20, p = .008). However, no interaction effect is detected (F(2,432) = 0.03, p = .970). With regard to integration type, post-hocs reveal a significant difference (p = .043) between reduced asymmetrical (lowest affective confusion) and mixed asymmetrical integration (highest affective confusion) ($M_{a\text{-}mix}$: 2.50, SD = 1.38 > M_{full}: 2.36, SD = 1.43 > $M_{a\text{-}red}$: 2.13, SD = 1.18). Regarding assortment size, the mean for the large assortment is significantly higher than for the small assortment (M_{large}: 2.50, SD = 1.42 > M_{small}: 2.17, SD = 1.24).

The compound variable *overall confusion* mirrors these results with significant effects for asymmetrical integration type (F(2,432) = 5.47, p = .005) and assortment size (F(1,432) = 15.75, p = .000) but

no interaction effect (F(2,432) = .026, p.=974). Asymmetrical integration differs significantly between asymmetrical reduced and asymmetrical mixed integration (p = .005; $M_{a\text{-}mix}$: 3.00, SD = 1.26 > M_{full}: 2.81, SD = 1.21 > $M_{a\text{-}red}$: 2.58, SD = 1.10). Overall confusion is significantly higher for large than for small assortment (M_{large}: 3.02, SD = 1.25 > M_{small}: 2.59, SD = 1.11).

For *assortment perception*, we find no significant effect for asymmetrical integration type (F(2,432) = 0.48 , p = .622; M_{full}: 4.01, SD = 1.41 < $M_{a\text{-}red}$: 4.05, SD = 1.44 < $M_{a\text{-}mix}$: 4.15, SD = 1.52). There is a significant effect of size with better assortment perception for large assortments than for small assortments (F(1,432) = 15.84, p = .000; large: 4.35, SD = 1.44 > small: 3.81, SD = 1.42) but no interaction exists (F (2,432) = 2.28, p = .331). Please refer to Figure 6 for an overview of results.



Note: bracket = p < .05.

Figure 6. Effects of integration form and assortment size on dependent variables.

3.5 Discussion

3.5.1 Summary of results

Customers nowadays increasingly use different channels to complete their purchases. Multi-channel retailers must thus decide how to integrate their channels in order to provide a pleasant customer experience. Using an experimental approach, the present research aims to uncover the effects of assortment integration across channels on consumer confusion, assortment perception and their psychological and behavioral consequences. The results of this research indicate that integration does have an impact on customer confusion and consumers' assortment perception. We find significant effects of internal and external integration for confusion and diverse effects on its components.

Firstly, for internal integration the asymmetrical condition leads to less affective confusion and cognitive confusion than full integration. An explanation for this unexpected finding might be that while both integration forms offer the same number of variants across the focal retailer's channels, the asymmetrical integration offers a pre-selection in the offline channel. This pre-selection helps to structure the consumer's decision process, as the consumer builds a preference more easily within a smaller assortment (Chernev, 2003) and then uses this preference as a benchmark to evaluate the new options in the second channel. As a consequence, lower cognitive and affective confusion occurs. The results of the supplementary study provide support for this argument. When holding the number of variants constant in both channels, customer confusion is significantly higher compared to a reduced asymmetrical integration form, and also – though not significantly – higher compared to full integration. Moreover, in the main study we observe that the asymmetrically integrated assortment of the multi-channel retailer is perceived as superior (i.e. more varied) to the fully integrated assortment. Overall, as customer confusion is lower and assortment perception is better, the combined results of both studies suggest that a reduced asymmetrical internal integration can be more beneficial for the retailer in terms of than full channel integration. This challenges some of the aforementioned theoretical recommendations concerning full internal channel integration (e.g., Goersch, 2002; Neslin & Shankar, 2009). For external integration, the full and asymmetrical conditions lead to less cognitive confusion than no integration. In contrast to internal integration, external integration had no effect on affective confusion. External integration thus does not lead to frustration and irritation, which means that while consulting competitive channels with differing assortments is cognitively demanding, there seems to be comprehension for differentiation between retailers from the customer point of view.

Secondly, congruent to extant customer confusion studies (e.g., Anninou & Foxall, 2019; Matzler & Waiguny, 2005; Walsh & Mitchell, 2010), customer confusion has detrimental effects for the multi-channel retailer in terms of short- and long-term consequences. While cognitive confusion increases

the risk of purchase abandonment and a less favorable attitude towards the retailer, affective confusion tends to impact them more strongly and additionally affects long-term patronage intentions, which include word-of-mouth and repurchase intentions. Notably, and in contrast to cognitive confusion, affective confusion also influences assortment perception negatively. Overall, affective confusion is a more dominant driver of unfavorable reactions. The results concord with the suggestion that affective judgments could lead to more long-term negative consequences than purely cognitive aspects of confusion (Walsh & Mitchell, 2010).

Thirdly, upon deeper examination into the relationship between internal integration, customer confusion, assortment perception and consequences, we observe several important findings. Cognitive confusion individually mediates the relationship between internal integration and purchase abandonment or attitude, respectively. Meanwhile, affective confusion and assortment perception influence adverse consumer reactions both individually and serially. That is, while individually assortment perception mediates the relationship more strongly than affective confusion, high affective confusion will also negatively influence assortment perception. This in turn evokes less favorable consumer reactions. This provides further support for the importance of affective confusion and offers a more profound understanding of how confusion and assortment perception interact to influence consumer behavior.

Fourthly, the findings of the supplementary study reveal that the size of multi-channel assortments also matters. The bigger assortments led to better assortment perception and higher customer confusion in both confusion components, which is in accordance to extant research and the notion of the paradox of choice (e.g., Huffman & Kahn, 1998; Iyengar & Lepper, 2000; Schwartz, 2004). More importantly, we also find that the perception of internal integration does not depend on the size of the assortment. The effects of internal integration on customer confusion hold for smaller and larger assortments equally, showing that these effects are not diluted by an overall higher number of alternatives.

3.5.2 Managerial implications

As this study has shown, some integration forms more than others are linked to unfavorable short and long-term consequences. The observed effects have direct managerial implications. Based on the results, multi-channel retailers should integrate their assortments asymmetrically by offering a reduced assortment in the offline channel because of lower cognitive and affective confusion and a more favorable assortment perception. This is an important finding, as offering a reduced assortment in the offline channel is not only favorable from a customer's point of view – it also reduces offline

inventory costs for slower moving items, which can be moved to the online channel, and allows retailers to stage products more selectively and prominently in the stores where shelf space is limited. For external integration (competitive online channels), full integration led to the lowest cognitive confusion but, contrary to our expectations, not to an inferior assortment perception for the multi-channel retailer's assortment. This might explain why we did not detect effects on behavioral consequences. Nevertheless, we are cautious in recommending full external integration as this might cause further problems not addressed in this paper. Full external integration might, for example, reduce differentiation between online shops and result in increased price competition. This is disadvantageous for multi-channel retailers as they face higher overall costs than online retailers.

It is thus most recommendable for retailers to focus on internal integration and retaining customers in their channels through loyalty programs, distinguishing service factors, or by allowing customers to switch channels as seamlessly as possible. For instance, when channels are not fully integrated, retailers' use of multi-channel technologies should encourage store customers who search for other options to access their full assortment online – and from there, allow for easy product orders.

3.5.3 Theoretical contribution

The present study extends prior multi-channel research in a number of different ways that we will discuss in the following. Firstly, this research contributes to the literature by investigating the impact of assortment on customer confusion in a multi-channel context. While previous research has analyzed such effects only in selected channels (either offline or online; e.g., Matzler et al., 2011; Mitchell et al., 2005), this article sheds light on assortment-induced customer confusion in multi-channel shoppers. Secondly, this study also extends existing research on assortment integration (Emrich et al., 2015) by considering customer confusion as an important consequence and as an influencing factor of various consumer responses. To this end, our study distinguishes the two components cognitive confusion and affective confusion. The results reveal a differential influence of integration on the components and importantly, a stronger impact of the affective component on consequences. In this context, this research also contributes to provide a deeper understanding of the mechanism in which customer confusion and assortment perception interplay to influence consumer behavior, namely over affective confusion. Thus, we show that this distinction is useful and we recommend future research to implement it. Thirdly, this article contributes to previous research on assortment integration by distinguishing between internal and external integration. While previous studies have focused on internal integration solely, we shed light on effects of external integration that include consumers' search in competitor's channels. As an important general research implication, our study

suggests placing more emphasis on customer confusion in the context of channel integration. Although we found no interaction between external and internal integration, future research should provide more insight into the specific effects of both integration forms and possible interactions. Future studies can build on the framework provided by this study to analyze different forms of integration between online and offline channels.

3.5.4 Limitations and future research

This study has limitations which might be addressed in further research. Regarding our results, it has to be noted that we found strong significance with view to the favorability of reduced asymmetrical integration, that is, better assortment perception and customer confusion. Yet, while the supplementary indicated the same for confusion, it did not replicate the significant results for assortment perception. As we observe only a weak (but similar) tendency in the supplementary study, further studies should test for the robustness of our finding. Moreover, similar to previous research (e.g., Emrich et al., 2015), we only provided a limited number of options for the scenarios of the experiment. However, we used different product attributes for each laptop with attribute levels being counterbalanced to ensure it was sufficiently difficult for respondents to make a decision. Nevertheless, it would be interesting for upcoming research to investigate the effects for a higher and thus more realistic number of choice options. Furthermore, we fixed the order of channel access. As the observed effects might vary with the order of access, we recommend future research to examine multi-channel assortment integration with regard to different customer journeys, such as showrooming and webrooming. A comparison of order of channel access will deepen the understanding of the effects of channel integration.

4 Assortment Organization Integration[2]

Abstract

Stationary retailers can organize their assortments per substitutes (within one category i.e. different shirts) or complements (across categories i.e. complete outfits). As complement-based organization is introduced to online channels as well, the question for pure online and multi-channel retailers remains whether its effects are transferable to the online environment. We examine the influence of substitute-based vs. complement-based online assortment organization on cognitive and affective customer confusion, customer inspiration and their net impact on assortment perception. In an experiment, we find that complement-based organization leads to more customer inspiration, which mediates assortment perception positively. In contrast, customer confusion negatively mediates assortment perception via double mediation effect: assortment perception is only influenced negatively if cognitive confusion leads to a negative evaluation of the situation (i.e. affective confusion). The net impact of complement-based assortment organization on assortment perception is positive due to the stronger effect of inspiration. Price and decision-making style can influence the effects of inspiration.

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[2] A preliminary version of this paper was presented at the 5th Colloquium on European Research and Retailing (CERR 2020). A full paper is ready for submission to a peer-reviewed journal.

4.1 Introduction

Organizing assortments in a way that appeals to the customer is a crucial concern for every retailer (Sarantopoulos et al., 2019). Offline retail has implemented organization by product category (i.e., shirts from different brands) or by consumption constellation (see Englis & Solomon, 1996; i.e., complete outfits) where complementary products are assembled from different categories with a particular consumption goal or context of use (Diehl, van Herpen, & Lamberton, 2015; van Herpen, Diehl, & Poynor, 2009). The complement-based assortment organization can serve different functions, such as showing customers how to combine different articles, enhancing the customers' shopping experience or promoting cross-category sales (Sarantopoulos et al., 2019).

Due to the continuously growing importance of the online channel, retailers aim to provide an enticing online shopping experience to their customers. To this end, recently, some online or multi-channel retailers have adopted complement-based assortment organization in their online channels as well. For example, IKEA – congruent to using showrooms with complement-based product display in their stores – displays pictures of rooms presenting furniture in complement-based organization under the "Inspiration" Tab of their online shop. However, it is still uncertain whether the effects of complement-based organization are transferable to the online environment because offline and online shopping environments are inherently different. As Pauwels and Neslin (2015) argue, the online environment seems to be more amenable to goal-directed shopping, while shopping offline has stronger experiential qualities for the customer. Thus, effects of complement-based organization might differ for online shopping.

There is a long-standing body of research addressing assortment organization in offline channels (e.g. Bronyarzcyk & Hoyer, 2006; Gourville & Soman, 2005; Kahn & Wansink, 2004). Meanwhile research on assortment organization in the online environment is still very limited (e.g. Chang, 2011; Sarantopoulos et al., 2019). The present study will examine the influence of two factors that drive consumers' perceptions when confronted with substitute-based versus complement-based assortment presentation: customer inspiration and customer confusion. Thus, the underlying study extends prior research in the following ways. First, this study investigates the opposing effects of customer confusion and customer inspiration, and their net effect on assortment perception. Second, we examine the influence of price display in the context of complement-based assortment organization. Third, we examine consumer decision making style as a boundary condition for the perception of inspiration. Fourth, we provide a differentiated view of customer confusion by separating cognitive and affective confusion.

In an experiment, we manipulate assortment organization in an online shop and analyze the effects of complement-based vs. substitute-based organization on cognitive and affective confusion, customer inspiration, and their mediating role on assortment perception. Specifically, our study seeks to answer the following questions:

- How does a substitute-based vs. complement-based assortment organization influence customer inspiration and customer confusion (cognitive confusion, affective confusion)?
- How do customer inspiration and customer confusion influence assortment perception?
- Are there differential effects for cognitive and affective dimensions of confusion?
- How do price display and the decision-making style of consumers influence customer inspiration and its effects?

The results of this research will allow online and multi-channel retailers to strategically implement online assortment organization that enhance the shopping experience and increase the likelihood of repurchase. Moreover, from a multi-channel retailer's channel integration perspective, it is of special interest to know whether they can implement complement-based formats successfully in their online channels as well.

4.2 Theoretical background and hypotheses

4.2.1 Literature review

Assortment organization has received a lot of attention in academic discussion for years (e.g. Bronyarzcyk & Hoyer, 2006; Gourville & Soman, 2005; Huffman & Kahn, 1998; Kahn & Wansink, 2004; Lamberton & Diehl, 2010; Lamberton & Diehl, 2013; Morales et al., 2005). For the most part, this discussion was centered on assortment organization within product categories. For example, Hoch, Bradlow, and Wansink (1999) show that perceptions of variety are significantly higher for organized assortments than for random assortment within one product category if consumers look for a specific item (versus if they only browse the assortment). Kahn and Wansink (2004) show that for large assortments, perceptions of variety are higher in organized assortments, while for smaller assortments, variety is perceived as higher when they are unorganized. Bronyarczyk and Hoyer (2006) and Morales et al. (2005) find that consumer behavior differs when items within one product category are organized according to one versus the other product attribute (e.g. brand vs. flavor). Likewise, Lamberton and Diehl (2013) show that consumers are more satisfied with their choice when choosing from a benefit-based assortment organization of nutrition bars (e.g. "muscle gain") than when choosing from an attribute-based assortment organization (e.g. "chocolate flavor"). Van Herpen and

Bosmans (2018) show that when an assortment is organized according to an individual's goal (e.g., choose a caffeinated tea) by separating goal-fulfilling items (i.e., caffeinated tea) from non-fulfilling items (i.e., non-caffeinated tea), consumers are less likely to stray from their buying goal.

A smaller body of research concerns itself with the effects of assortment organization across different product categories (e.g., Diehl et al., 2015; Drèze et al., 1994). In retail, inter-category synergies are of considerable interest in the context of shelf space management and cross-channel sales. For example, research finds that placing less frequently bought complement-based items (toothbrush) more visibly than their more frequently bought counterpart product (toothpaste) results in higher overall sales of both (Drèze et al., 1994). Van Herpen et al. (2009), Diehl et al. (2015) and Sarantopoulos et al. (2019) specifically investigate complement-based vs. substitute-based assortment organizations with an offline focus. A complement-based organization groups together products based on stylistic or goal specific interrelationships across different categories, whereas a substitute-based organization holds different product variants of one specific product category (Diehl et al., 2015; Englis & Solomon, 1996). These studies find positive effects on assortment perception (Diehl et al., 2015) as well as a rise in purchases and spending (Sarantopoulos et al., 2019). While this research provides valuable insight on consumer perception and purchase behavior of substitute-based versus complement-based assortments, the examinations (1) are mostly focused on the offline channel (2) do not take into account the role of inspiration and (3) lack a differential view of customer confusion as a cognitive and affective construct. Our study will focus on the online channel. Furthermore, a more differentiated approach will shed light on the interplay of confusion, inspiration and assortment perception.

4.2.2 Customer confusion

Customer confusion is a phenomenon that has long been recognized as a substantial influencing factor on the consumers' purchase decision. Researchers agree that customer confusion leads to undesirable consumer behavior for retailers, such as purchase abandonment (Mitchell & Papavassiliou, 1999) or decreased trust (Rosadi & Tjiptono, 2014; Walsh & Mitchell, 2010). Extant literature defines customer confusion as "a state of mind which affects information processing and decision making" (Mitchell & Papavassiliou, 1999, p. 327) and "consumer's failure to develop a correct interpretation of various facets of a product/service" (Turnbull et al., 2000, p. 145). Research mostly identifies product- or marketing-related stimuli as causes for customer confusion, such as information overload (e.g., too many products), similarity (e.g., similar packaging) and ambiguity (e.g., misleading product information) of stimuli. The aforementioned conceptualizations thus focus on the cognitive aspects of customer confusion in the process of decision-making.

While customer confusion studies traditionally have focused on cognitive processes, literature also points at the disregard of an affective component of confusion (e.g., Mitchell et al., 2005; Walsh & Mitchell, 2010). Besides the cognitive costs of decision-making, there are emotional costs of making a choice. Choosing one over all other options creates feelings of insecurity as to whether the choice is right. This diminishes the joy of the shopping experience (Botti & Iyengar, 2006). Moreover, unpleasant feelings such as annoyance and frustration can arise when consumers perceive the process of decision-making as difficult (Anninou & Foxall, 2019; Mitchell & Papavassiliou, 1999). We thus understand the affective component as an unpleasant emotional state that captures negative feelings linked to customer confusion (Garaus & Wagner, 2016; Mitchell et al., 2005). As the affective evaluation of information remains in the memory longer than the information itself (Muncy, 1986), affective confusion might cause more damage to the customer-retailer relationship (e.g., lower store loyalty) (Mitchell et al., 2005).

Although extant literature has recommended the examination of the affective component (e.g. Walsh et al., 2007; Walsh & Mitchell, 2010), research has remained scarce. In their theoretical contribution, Mitchell et al. (2005) provide a comprehensive review of definitions, and include a cognitive, affective and conative dimension into their conceptualization of customer confusion. Garaus and Wagner (2016) are the first to create a scale based on these different components. In their study about multichannel assortment integration, Bertrandie and Zielke (2017) incorporate a two-dimensional confusion measure including a cognitive and affective component, showing that their influence differs with regard to attitude or store patronage intentions. In the context of organization across categories, only the cognitive component has received attention in research (see Diehl et al., 2015).

Cognitive effort perceived from complement-based assortment can arise for several reasons. Firstly, online shoppers are generally more familiar with choosing from substitute-based assortment categorization. Secondly, the physical distance between substitutes in a complement-based arrangement (for example, on different pages of a website) makes a comparison cognitively more demanding because customers have to use their memory to compare alternatives (Diehl et al., 2015). Third, complements may also increase cognitive effort because they compete for attention (Janiszewski, 1998). Beyond this, a complement-based arrangement recommends a certain combination of products; therefore, some customers might feel this limits their freedom of choosing. As Agrawal and Smith (2003) argue some customers may wish to purchase certain sets of items simultaneously, but others may prefer to purchase the items individually (see also 4.2.5.1). In their studies, Diehl et al. (2015) and van Herpen et al. (2009) find evidence that a complement-based organization leads to more cognitive effort than a substitute-based-based assortment organization. Thus, we hypothesize:

H1: A complement-based assortment organization leads to higher cognitive confusion than a substitute-based assortment organization.

As argued before, the perceived difficulty of decision-making at the time of cognitive processing also might induce negative affective reactions. This will especially be the case if the customer attributes the cause of these difficulties to the retailer. Affective science theories see cognitive processing as preceding emotion (see Levenson, 2018). In this regard, Lazarus (1999, p. 127) proposes that "cognitive activity causally precedes an emotion in the flow of psychological events, and subsequent cognitive activity is also later affected by that emotion." Emotions thus occur when events, objects and people are evaluated by the individual (Keltner & Horberg, 2015; Lazarus, 1991). After processing the assortment cognitively, the consumer forms an evaluation of the situation and emotions arise. Therefore, when cognitive confusion emerges at the time of cognitive processing, unpleasant feelings and insecurity can develop (i.e. affective confusion). We thus hypothesize cognitive confusion will act as a mediator between assortment organization and affective confusion:

H2: (a) A complement-based assortment organization leads to higher affective confusion than a substitute-based assortment organization and (b) cognitive confusion mediates this relationship.

4.2.3 Customer inspiration

Customers who face an abundance of choice online can no longer be satisfied only through conventional marketing approaches such as large assortments or low prices (Barnes, Beauchamp & Webster, 2010). As Böttger (2015) notes, hedonic shopping value is gaining importance over utilitarian value. Customers today seek pleasurable shopping experiences and new ideas while shopping (Böttger, Rudolph, Evanschitzky, & Pfrang, 2017; Childers, Carr, Peck, & Carson, 2003). This hedonistic motive has also become known as "idea shopping" or "browsing". Breugelmans and Campo (2011) find that hedonistically motivated customers are more open to environmental stimuli and tend to change their short-term purchase plans. Childers et al. (2003) likewise show that consumers actively seek pleasure when shopping. These findings show that the feeling of being inspired is not only something consumers enjoy, but they often might actively pursue it. Accordingly, inspiration as a term has also found its way into marketing communication (e.g. IKEA website) to attract customers.

In social psychology, Thrash and Elliot (2004) conceptualize inspiration as a two-component model including an activation state of being inspired by something and a motivational state of being inspired to do something. Böttger (2015) and Böttger et al. (2017) are the first to provide a conceptualization in the context of marketing and define customer inspiration as a consumer's "cognitive and motiva-

tional state that is evoked by marketing stimuli, incorporates the realization of new or enhanced consumption-related insights, and motivates customers to purchase a product or service" (Böttger, 2015, p. 25) or respectively as a "temporary motivational state that facilitates the transition from the reception of a marketing-induced idea to the pursuit of a consumption related goal" (Böttger et al., 2017, p. 117). These definitions also encompass the idea that there is an "inspired-by" and an "inspired-to" state. In the "inspired-by" state the consumers spontaneously realize a new idea and their imagination is stimulated. In the "inspired-to" state, the motivation arises to pursue a consumption related-goal. Here, the customers experience an urge to actualize the new idea (e.g., by purchasing and using a product) (Böttger et al., 2017). The activation component ("inspired-by" state) also relates to the results of Sarantopoulos et al. (2019) who show that a complement-based layout of a store leads to an increase in the ability to visualize using the products. The complement-based organization thus fosters a vivid imagination of consumption. This is particularly important in an online context where consumers cannot see the product in reality. The ability to visualize consumption then leads to a higher motivation to actually consume the product ("inspired-to" state). Therefore, we hypothesize:

H3: A complement-based assortment organization leads to higher inspiration than a substitute-based assortment organization.

4.2.4 Counteracting effects on assortment perception

How customers perceive assortments is of crucial concern for retailers as assortment perceptions strongly influence customers' store preference (Broniarczyk et al., 1998). Generally, studies find that complement-based assortment organization increases assortment perception (Diehl et al., 2015) as well as purchases and spending (Sarantopoulos et al., 2019). In the underlying context, we suggest that the influence of complement-based assortment organization on assortment perception is mediated negatively via customer confusion and positively via inspiration.

From a theoretical point of view, cognitive disruptions (i.e. cognitive confusion) and negative feelings associated with confusion (i.e. affective confusion) might negatively influence assortment perception. There is empirical evidence suggesting that this effect does not occur through cognitive confusion directly. For example, Bertrandie and Zielke (2017) do not find an influence of cognitive confusion on assortment perception but they do find a negative effect of affective confusion on assortment perception. Diehl et al. (2015) and van Herpen et al. (2009) find that despite a higher perceived cognitive effort when choosing from a complement-based assortment, the assortment is perceived as more at-

tractive. However, these studies did not control for the influence of customer inspiration on assortment perception. We propose cognitive and affective confusion will mediate the effect of assortment organization on assortment perception negatively:

H4: (a) Cognitive confusion and (b) affective confusion negatively mediate the effect of a complement-based (vs. substitute-based) assortment organization on assortment perception.

Complement-based organizations provide consumers with ideas on how to use products together. Thus, consumers feel inspired by the complement-based organization as they start to use their imagination and realize ways of combining the items (see Sarantopoulos et al., 2019). The possibility to vividly imagine using products that otherwise cannot be touched or seen in reality may increase the attractiveness of the items. Thus, inspiration should function as a mediator and influence assortment perception positively. In this regard, we also find indications in the results of Sarantopoulos et al. (2019). They find that lower goal specificity ("something to eat" vs. "ingredients for lasagna") – where consumers are more open to inspiration – strengthens the effect of the complement-based organization. We put forward the following hypothesis:

H5: Inspiration positively mediates the effect of a complement-based (vs. substitute-based) assortment organization on assortment perception.

4.2.5 Boundary conditions

4.2.5.1 Price display

Research has found that consumers spend more time looking at consumption constellations overall rather than perform thorough examinations of product attributes and details (van Herpen et al., 2009). The presentation of the products then causes the consumers to form new ideas and induce a vivid visualization of consumption in their heads (see Sarantopoulos et al., 2019). Thus, consumers are less likely to use their cognitive resources to compute the overall price. In line with this, Kim, Park, and Wyer (2009) show that consumers first construe decisions in terms of abstract desirability considerations and only consider feasibility more concretely when an external cue gives impetus to do so. Therefore, when the total price is not displayed the inspirational factor should be more dominant. When the total price is displayed, this works as a cue and the positive effect of inspiration might be mitigated, because the overall price is more tangible and present in consumer's minds. Thus, we postulate:

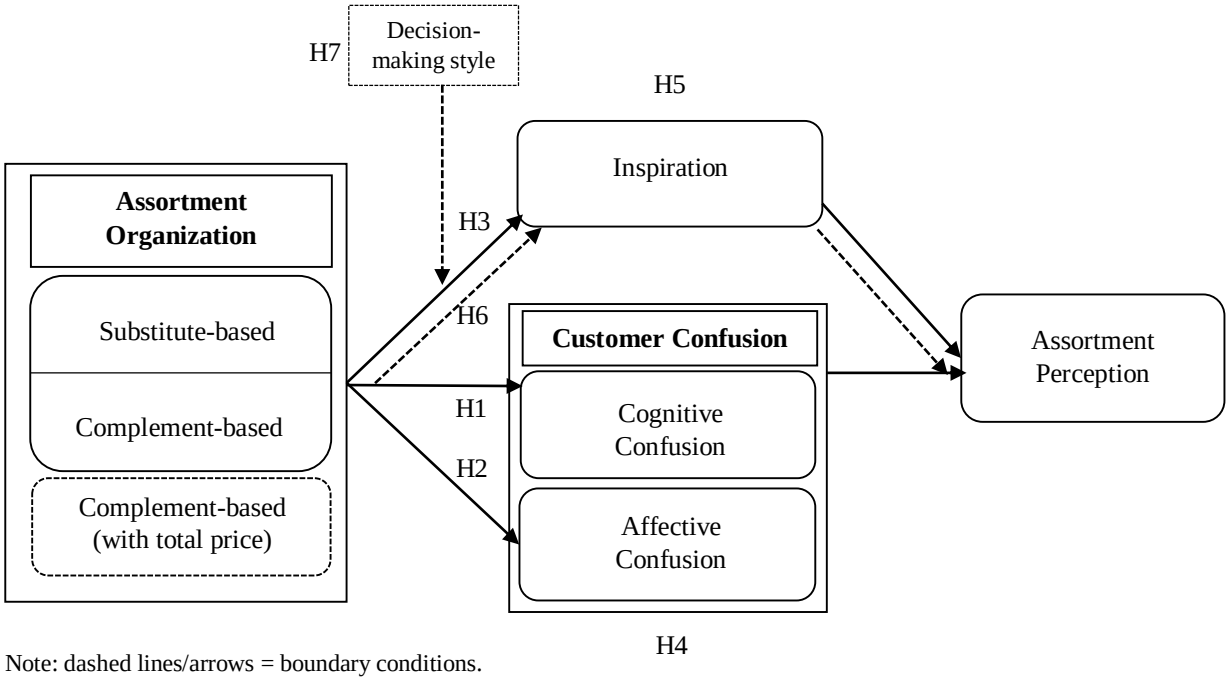
H6: The display of the total set price (vs. no display of a total price) reduces (a) the effect of a complement-based assortment on inspiration and (b) the effect of inspiration as a mediator between assortment organization and assortment perception.

4.2.5.2 Decision-making style

Individuals have different decision making styles (see Scott & Bruce, 1995 for an overview) that can influence the consumers' purchase decision and choice satisfaction (Karimi, Papamichail, & Holland, 2015). While extant research has often analyzed effects of maximizing vs. satisficing or analytical vs. holistic styles in purchase decision-making (e.g., Chernev, 2011; Karimi et al., 2015) the independent-interdependent decision-making style has not received much attention. Interdependent decision makers are characterized by a preference to ask family or friends for advice when confronted with important decisions. Accordingly, independent decision makers favor making decisions without external help (Scott & Bruce, 1995; Rubin, Watt, & Ramelli, 2012). In the context of complement-based assortment organization, the proposition of a set offers such advice through the depiction of a pre-selected combination of products. Therefore, we hypothesize that interdependent decision-makers will value this pre-selection more and feel more inspired. Meanwhile, independent decision-makers might subconsciously feel a decision is imposed on them by an external source and thus feel more inhibited and less inspired. We propose the following hypothesis:

H7: An independent (vs. interdependent) decision-making style reduces (strengthens) (a) the effect of a complement-based assortment on inspiration and (b) the effect of inspiration as a mediator between assortment organization and assortment perception.

Overall, we suggest that customer inspiration and customer confusion are counteracting forces on consumer's assortment perception and that there are boundary conditions for the effect of inspiration. Though we observe some indications in the results of extant research, the net effect of customer inspiration and customer confusion on assortment perception is uncertain. While Diehl et al. (2015) do find a net positive impact of complement-based organization on assortment perception, this effect could differ between situations and channels. For example, the positive effect of inspiration might be weaker in online channels where customers' search is more goal-directed. This is because goal-driven customers are less open to inspiration (Breugelsman & Campo, 2011). We cannot predict which of the two proposed mediation effects will be stronger and will examine the net impact on assortment perception exploratively. To provide an overview over the hypothesized relationships, Figure 7 presents the conceptual model.



Note: dashed lines/arrows = boundary conditions.

Figure 7. Conceptual model.

4.3 Empirical Study

4.3.1 Method

To test our hypotheses, we used a scenario-based online experiment with a one-way (three levels) between-subjects design. We used illustrations and texts to introduce a fictional home décor online retailer. The respondents were given the task to choose a high quality set of dinnerware containing cutlery, plates, glasses and placemats as a birthday gift for a 60th birthday, with the given premise that they have a given budget available with money that was collected from the birthday guests for this purpose specifically; this was done to level respondents individual price sensitivity. A dinnerware set is a lifestyle product that has a high level of complementarity and is often presented in complement-based settings offline and online. The respondents were assigned randomly to one of three treatments. They were either shown a scenario with a substitute-based arrangement of the four products, where first plates, then glasses, then cutlery and lastly placemats were presented separately on four distinct webpages. The prices for the individual items were displayed (scenario 1). In this scenario, respondents were not shown complete sets; they had to put together a set by choosing one item of each product category individually. Alternatively, we presented a scenario with four different sets containing plates, glasses, cutlery and placemats on four distinct pages, each including a picture of the complete dinnerware presented on a table. Again, prices were displayed for the individual items (scenario 2). In this scenario, respondents were able to choose whether to purchase one of the four

sets directly or to put together a set by choosing one item of each product category individually. To measure the influence of price on consumer perception, we introduced a third scenario. This scenario equals the second scenario but displayed the full price of the complete set in addition to the individual items' prices (scenario 3). In all scenarios, the product choices pertaining to one category (e.g., the different options for the plates) were priced equally, so that the total purchase price of any chosen set was equal in each scenario. Please see Appendix F for graphical depictions of the scenarios.

We used items from existing scales to measure constructs. For affective confusion, we used items from Garaus and Wagner (2016), Iyengar and Lepper (2000) and Diehl and Poynor (2010). For cognitive confusion, we adapted items from Heitmann et al. (2007). We use a scale from Kahn and Wansink (2004) to measure assortment perception. The scale for customer inspiration was based on Böttger et al. (2017). We included a scale for decision making style adapted from Rubin et al. (2012) in a second survey that otherwise was equal to the first survey. We used 7-point likert scales ranging from totally disagree to totally agree. For a detailed overview of the items, see Appendix E.

By means of the two surveys we collected two samples of data. For the first survey, the revised dataset yielded 218 usable questionnaires with 127 female (58,3 %) and 91 male (41,7 %) respondents; the average age in the sample is 32,3 years. The three scenarios are comparable with regard to gender and age distribution. We generated between 56 and 81 questionnaires for each of the three scenarios. The second survey yielded usable 184 questionnaires, with 108 (58,7%) female and 76 (41,3%) male participants and an average age of 31,6 years. Please see Appendix K for detailed sample information. We generated between 40 and 78 questionnaires for the scenarios. Again, the scenarios were comparable considering gender and age distribution. For both surveys, the varying number of respondents per scenario is caused by eliminations after manipulation checks concerning the recognition of the total price display.

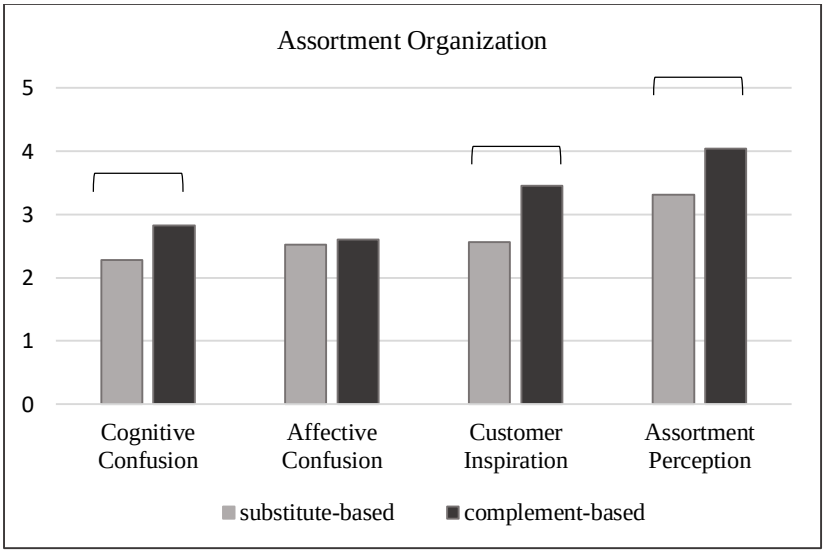
4.3.2 Analysis and results

We analyze the two data sets separately as only the second dataset includes decision-making styles. We use the second sample to test the robustness of our results from the first sample. For both data sets, the reliability of the scales surpasses .70 for all constructs. The corresponding realism checks suggested that respondents perceive the scenarios as mostly realistic (M_1 = 5,19 and M_2 = 5,41). A factor analysis shows that cognitive and affective confusion are separate constructs; the discriminant validity is thus confirmed Please refer to Appendix E for detailed values of Cronbach's alpha and factor loadings.

4.3.2.1 First set of data

For the first data set, a one-way MANOVA showed a statistically significant difference between assortment organization on the combined dependent variables ($F(4, 131) = 4.502$, $p = .002$, $\eta^2 = .121$, Wilk's Lambda = .879) with significant effects for cognitive confusion ($p = .007$) , customer inspiration ($p = .003$) and assortment perception ($p = .006$), but not for affective confusion ($p = .679$).

For further investigation, we use t-tests and the PROCESS macro by Hayes (2017).[3] We find a significant difference for the influence of assortment organization on cognitive confusion ($M_{compl} = 2.83$, $SD = 1.19 > M_{subst} = 2.28$, $SD = 1.11$; $t = -2.75$, $p = .007$). We do not find a significant difference for the influence of assortment organization on affective confusion ($M_{compl} = 2.60$, $SD = 1.46 > M_{subst} = 2.52$, $SD = 1.50$; $t = -.294$, $p = .769$). For customer inspiration, results show a significant effect ($M_{compl} = 3.45$, $SD = 1.65 > M_{subst} = 2.56$, $SD = 1.74$; $t = -3.02$, $p = .003$). We thus confirm H1 and H3. H2a is rejected. We find a significant difference for assortment perception with $M_{compl} = 4.04$, $SD = 1.49 > M_{subst} = 3.31$, $SD = 1.48$; $t = -2.79$, $p = .006$). See Figure 8 for significant mean differences.



Note: bracket = $p < .05$.

Figure 8. Effects of assortment organization on dependent variables.

Mediation analysis is conducted to test for a suppressor effect for H2b where the total effect on affective confusion was not significant, and to test hypothesis H4a and H4b which hypothesized the mediating roles of cognitive and affective confusion on assortment perception. The bootstraps test at 95% level of confidence. The coding is 0 for "supplement-based" and 1 for "complement-based". We find some indications of a suppressor effect for H2b, with a significant indirect but insignificant direct effect (indirect effect: .103; CI: .027 to .201). No mediation effect via cognitive (indirect effect: .005;

[3] Please refer to Appendix G for means and standard deviations across scenarios for both data sets.

CI: -.042 to .049) or affective confusion (indirect effect: -.009; CI: -.079 to -.049) is found, rejecting H4a and H4b (see Table 8). Further analysis of serial mediation of the effect on assortment perception via cognitive confusion (mediator 1) and affective confusion (mediator 2) reveals a significant double mediation of assortment organization on assortment perception via cognitive and affective confusion (indirect effect: -.045; CI: -.095 to -.010). Table 9 and Figure 9 show the detailed results for the serial mediation. Testing H5, we find a significant full mediation for assortment organization on assortment perception via customer inspiration (indirect effect:.124, CI: .042 to .213; see first row in Table 10).

Table 8. Results of mediation analysis via cognitive and affective confusion (first dataset).

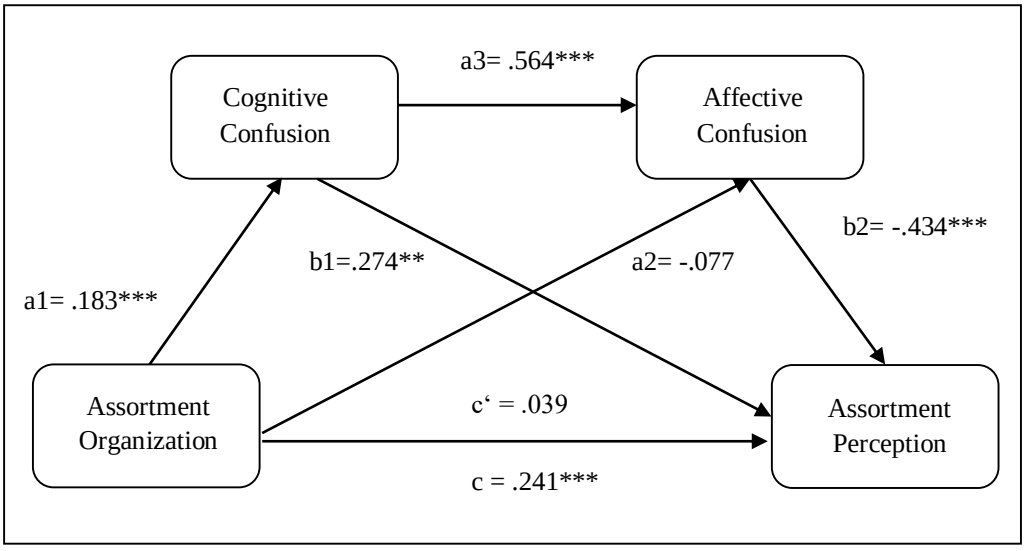
	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
AO → CC → AC	.033	-.077	.103^{+}	.027	.201
AO → CC → AP	.241***	.236***	.005	-.042	.049
AO → AC → AP	.241***	.250***	-.009	-.079	-.049

Notes: AO = Assortment Organization; CC = Cognitive Confusion; AC = Affective Confusion; AP = Assortment Perception;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

Table 9. Results of serial mediation analysis via cognitive and affective confusion (first dataset).

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	.241***	.202**	.039	-.045	.118
AO → CC → AP (a1b1)			.050^{+}	.006	.109
AO → AC → AP (a2b2)			.034	-.033	.098
AO → CC → AC → AP (a1a3b2)			-.045^{+}	-.095	-.010

Notes: AO = Assortment Organization; CC = Cognitive Confusion; AC = Affective Confusion; AP = Assortment Perception;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.



Note: * = $p < .10$ / ** $p < .05$ / *** = $p < .01$.

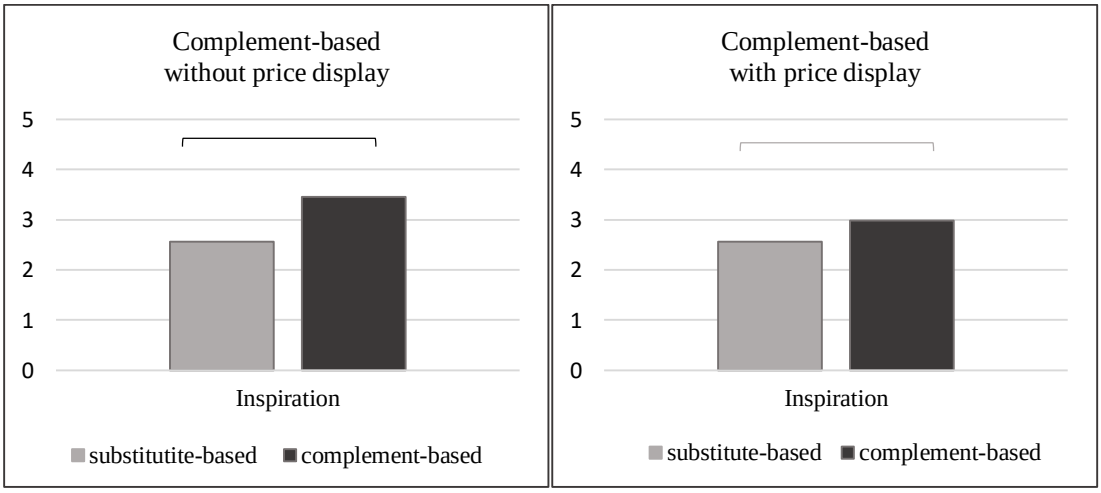
Figure 9. Serial mediation analysis via cognitive and affective confusion.

Table 10. Results of mediation analysis via inspiration (first dataset).

	Total Effect	Direct Effect	Indirect Effect	BootLLCI	BootULCI
AO → IN → AP	.241***	.117	.124^{+}	.042	.214
AOP → IN→ AP	.545***	.315	.230	-.037	.510

Notes: AO = Assortment Organization; AOP = Assortment Organization (total price display); IN = Inspiration; AP = Assortment Perception; * = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

For the testing of H6a and H6b, the influence of the price display, we compare the t-tests and mediation analysis for substitute-based and complement-based organization without price display with our test results for substitute-based and complement-based organization with price display. The results show a marginal significant difference for customer inspiration ($M_{compl\text{-}price}$ = 2.98, SD = 1.50 > M_{subst} = 2.56, SD = 1.65; t = -1.69, p = .093) which is in contrast to the significant result without price display; Figure 10). Furthermore, we find a significant difference for assortment perception ($M_{compl\text{-}price}$= 3.86, SD = 1.49 > M_{subst} = 3.31, SD = 1.49; t = -2.33, p = .021) but we do not find a significant mediation of the effect of assortment organization on assortment perception via customer inspiration (indirect effect: .230; CI: -.037 to .510; see Table 10). H6a and H6b are supported.



Note: light bracket = p<.1; dark bracket = p<.05.

Figure 10. Comparison of effects of complement-based assortment organization with and without total price display.

4.3.2.2 Second set of data

For the second data set, a one-way MANOVA showed a statistically significant difference for assortment organization on the combined dependent variables (F(1,104) = 3.365, p = .013, η^2 = .118, Wilk's Lambda = .882) with significant effects for cognitive confusion (p = .012) , customer inspiration (p = .018) and assortment perception (p = .039), but not for affective confusion (p = .735). The t-tests reveals very similar results to the first data set. We replicate the findings for H1, H2a and H3. We

find a significant difference for the influence of assortment organization on cognitive confusion (M_{compl} = 3.08, SD = 1.34 > M_{subst} = 2.48, SD = 1.05; t = -2.55, p = .012). We do not find a significant difference for the influence of assortment organization on affective confusion (M_{compl} = 2.89, SD = 1.21 > M_{subst} = 2.79, SD = 1.41; t = -.340, p = .735). There is a significant effect on customer inspiration (M_{compl} = 3.55, SD = 1.34 > M_{subst} = 2.83, SD = 1.58; t = -2.40, p = .018) as well as on assortment perception (M_{compl} = 3.88, SD = 1.16 > M_{subst} = 3.34, SD = 1.31; t = -2.09, p = .039). For the mediation analysis regarding H2b, H4a, H4b please refer to Tables 11 and 12. For H5 see Table 13 (first row). The findings are replicated.

Table 11. Results of mediation analysis via cognitive and affective confusion (second dataset).

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
AO → CC → AC	.030	-.052	.082^{+}	.014	.112
AO → CC → AP	.175***	.161***	.014	-.034	.065
AO → AC → AP	.175***	.188***	-.013	-.087	-.059

Notes: AO = Assortment Organization; CC = Cognitive Confusion; AC = Affective Confusion; AP = Assortment Perception; * = p < .10 / ** p < .05 / *** = p < .01 / + = sig. indirect effect.

Table 12. Results of serial mediation analysis via cognitive and affective confusion (second dataset).

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	.175***	.135*	.040	-.053	.127
AO → CC → AP (a1b1)			.055^{+}	.006	.126
AO → AC → AP (a2b2)			.026	-.057	.105
AO → CC → AC → AP (a1a3b2)			-.041^{+}	-.091	-.006

Notes: AO = Assortment Organization; CC = Cognitive Confusion; AC = Affective Confusion; AP = Assortment Perception; * = p < .10 / ** p < .05 / *** = p < .01 / + = sig. indirect effect.

Table 13. Results of mediation analysis via inspiration (second dataset).

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
AO → IN → AP	.175***	.089	.087^{+}	.016	.189
AOP → IN→ AP	.775***	.466**	.309	-.087	.593

Notes: AO = Assortment Organization; AOP = Assortment Organization (total price display); IN = Inspiration; AP = Assortment Perception; * = p < .10 / ** p < .05 / *** = p < .01 / + = sig. indirect effect.

However, with the data from the second data set, we cannot replicate our findings with regard to H6a and H6b. The mean difference between substitute-based and complement based with the price display is significant ($M_{compl\text{-}price}$ = 3.62, SD = 1.50 > M_{subst} = 2.83, SD = 1.65; t = -2.90, p = .004), thus not

supporting H6a. Moreover, the corresponding mediation effect via inspiration on assortment perception remains significant as well when the price is displayed (indirect effect:.309; CI: -.087 to .593) (see second row in Table 13). H6b is not supported.

In H7, we hypothesized the decreasing influence of an independent decision-making style on inspiration and the mediation effect via inspiration. We analyze a moderation model (H7a) and a moderated mediation model (H7b). We find a significant moderation effect (interaction effect: .477; t (106) = 2.95; p = .004) with an independent decision-making style strengthening the effect of assortment organization on inspiration, as the effect increases at increasing values of the moderator decision-making style (SD = -1; mean; SD = +1; see Table 14). Figure 11 visualizes the interaction. The observed interaction is in contrast to our hypothesis and we reject H7a and in consequence, H7b.

Table 14. Effect of assortment organization at values of decision-making style.

Value of DMS	Effect	t	p	BootLLCI	BootULCI
2.79 (SD -1)	-.049	-.364	.717	-.317	.219
3.42 (mean)	.244	2.535	.013	.052	.435
4.04 (SD +1)	.536	3.789	.000	.256	.817

Note: DMS = Decision-making style.

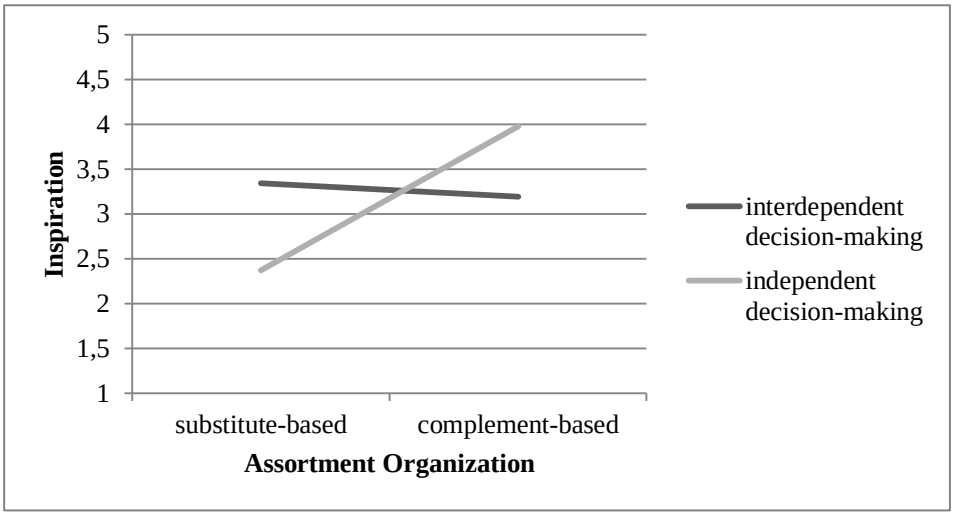


Figure 11. Interaction of assortment organization and decision-making style.

Although we reject H7b, we calculate the moderated mediation as an additional analysis via PROCESS. The results show that the index of the moderated mediation is significant (index: .169; CI: .047 to 330). Deductible from Table 15, the indirect effect increases at increasing values of the moderator (SD = -1; mean; SD = +1). Thus, the results show an increasing indirect effect via inspiration with increasing independence in respondents decision-making style.

Table 15. Indirect effect at values of decision-making style.

Value of DMS	Indirect Effect	BootLLCI	BootULCI
2.79 (SD -1)	-.018	-.119	.085
3.42 (mean)	.088	.016	.188
4.04 (SD +1)	.194	.073	.366

Note: DMS = Decision-making style.

As a general descriptive finding of both data sets, 59% of respondents in the complement-based conditions (with and without price) decided to purchase a set while 41% opted for putting together a set individually. In the second data set, 52% of respondents chose to buy a set while 48% wanted to select the items individually. For an overview of the results of hypothesis testing across both data sets, please refer to Table 16. Notably, we can replicate findings for H1 to H5, but the results for H6 are not replicated. Only the second data set surveyed decision-making style.

Table 16. Results of hypothesis testing.

	Hypotheses	Dataset 1	Dataset 2
H1	A complement-based assortment organization leads to higher cognitive confusion than a substitute-based assortment organization.	supported	supported
H2	(a) A complement-based assortment organization leads to higher affective confusion than a substitute-based assortment organization and (b) cognitive confusion mediates this relationship.	Partially supported	Partially supported
H3	A complement-based assortment organization leads to higher inspiration than a substitute-based assortment organization.	supported	supported
H4	(a) Cognitive confusion and (b) affective confusion negatively mediate the effect of a complement-based (vs. substitute-based) assortment organization on assortment perception.	supported	supported
H5	Inspiration positively mediates the effect of a complement-based (vs. substitute-based) assortment organization on assortment perception.	supported	supported
H6	The display of the total set price (vs. no display of a total price) reduces (a) the effect of a complement-based assortment on inspiration and (b) the effect of inspiration as a mediator be-tween assortment organization and assortment perception.	supported	not supported
H7	An independent (vs. interdependent) decision-making style reduces (strengthens) (a) the effect of a complement-based assortment on inspiration and (b) the effect of inspiration as a mediator between assortment organization and assortment perception.	(not surveyed)	not supported

4.4 Discussion

4.4.1 Summary of results

The results of this study reveal that assortment organization has an influence on customer confusion, customer inspiration and assortment perception. First, in line with the studies by Diehl et al. (2015)

and van Herpen et al. (2009), we show that complement-based assortment organization leads to stronger cognitive confusion than substitute-based organization. This is not surprising, as presenting the consumers with a complement-based assortment exposes them to different product categories all at once instead of subsequently. That is, comparisons of complex product bundles from short-term memory are cognitively more demanding than instant side-by-side comparison of substitute-based items. By implication, consumers might perceive the decision process to be less structured than what they are used to when shopping online.

Second, we further reveal that affective confusion arises not directly, but as a result of cognitive confusion in a double mediation of assortment organization on assortment perception. Hence, cognitive confusion only reduces assortment perception when it leads to affective confusion. Meanwhile, affective confusion seems to emerge only if the customer forms a negative evaluation of the situation. This might be the case when the customer attributes their processing difficulties to the retailer. Affective confusion in turn influences assortment perception negatively. This overall relationship may also explain why the present study and extant research (e.g., Bertrandie & Zielke, 2017; Diehl et al., 2015; van Herpen et al., 2009) fail to find a negative influence of cognitive confusion on assortment perception or store choice. It also supports the notion that different dimensions of confusion exist.

Third, we also reveal that inspiration is higher for a complement-based organization than for a substitute-based organization, and that inspiration is an important influencing factor on assortment perception as a mediator. This effect is positive and stronger than the negative mediation effect via cognitive and affective confusion. That is, the negative effect of confusion is offset by the stronger effect of inspiration. Even though consumers are confused, the complement-based assortment is still perceived more positively because of its ability to inspire consumers.

Fourth, we examined price display and decision-making style as mitigating conditions on the effect of inspiration. We observe that the effect of complement-based organization on inspiration and the indirect effect via inspiration on assortment perception is stronger for people with a more independent decision style. This contradicts our suggestion that independent deciders are less inclined to be inspired by the recommendation provided through complement-based organization. A possible explanation might be that precisely because independent deciders are more reluctant to seek help from friends and family, they value more highly the help provided by the digital medium. This medium transmits the feeling they decided without other's advice. Based on these results, we suggest independent deciders are generally open to different forms of digital shopping help (e.g., virtual fitting rooms). With view to price, the results in the first set of data indicated that the influence of inspiration can be mitigated through the display of the overall set price, as the effect of organization type is no

longer mediated via inspiration. As this finding is not replicated in the second data set, we cannot definitely confirm the influence of price display.

Fifth, with regard to preferred purchase mode in the complement-based conditions a majority of respondents wished to purchase a given set in contrast to selecting items individually. In the given context, more than half of respondents consciously favored the complement-based organization even if presented with the option to shop in a traditional way. Even if consumers chose to purchase individually, the complement-based organization was generally perceived as more inspirational. This provides further support for the strong impact of inspiration in contrast to confusion.

4.4.2 Managerial implications

Following these results, marketers should thus incorporate complement-based organization in addition to the traditional assortment organization online. When doing so, they should design their website to foster a consumers' visualization of using the product or product set (e.g. through pictures or videos) to tap into the positive outcomes of customer inspiration. For multi-channel retailers, employing complement-based assortment in online channels as well might also serve as a means to integrate their channels more. Furthermore, in the context of channel integration, re-designing assortment organization online is a rather inexpensive tool to harmonize retailer's channels. Additionally, different online website performance tools (e.g, click-through-rate) can easily track the favorability of different assortment presentations. Furthermore, the study reveals that people with independent decision making styles react even more strongly to complement-based assortment with view to inspiration than customers with interdependent decision-making. This also supports the recommendation for the integration of both organization forms online where consumers can access their preferred method of assortment display. However, our study also suggests retailers should be aware that the display of the overall price of a set might influence customer perceptions. Not displaying the total price would be in accordance to the approach in stationary retail, where the total price is usually not displayed for complement-based items unless a promotion or a bundle price applies.

4.4.3 Theoretical contribution

This study advances research in the field threefold: First, by investigating and revealing the counteracting forces of customer confusion and customer inspiration in an online buying situation with complement-based assortment organization. Extant research (e.g., Sarantopoulos et al., 2019) does not include inspiration as an explanatory variable and only features a cognitive confusion component.

Second, we provide a more differentiated insight on the overall positive effect of complement-based organization on assortment perception and a missing explanation for the manner in which confusion affects assortment perception, namely through affective confusion. This provides support for a two-dimensional conceptualization of confusion. Third, we investigate two boundary conditions: We are the first to examine the effect of consumers independent-interdependent decision making styles on organization on inspiration and show their relevance to perception. We are also the first to include the effects of total price display in the context of online complement-based assortment organization. Though the results are not conclusive, indications exist that price can influence perception that call for research to explore this.

4.4.4 Limitations and future research

However, there are also some limitations and venues for future research. First, our results are not yet generalizable to all product categories. Congruent to the results found by Diehl et al. (2015) regarding a hedonistic versus utilitarian shopping focus, a more hedonistic or functional product category might induce different results. Thus, it would be interesting to compare results for hedonistic versus functional product categories. In this context, it is noteworthy that some individuals perceive some product categories as more hedonistic than other people. This might also be the case for furniture or home décor which should be controlled for in further studies. Second, the assortment presented was limited to four variants of each product (or four sets respectively). In the online environment, consumers have to handle far more choices which likely leads to an increase of decision-making effort. It might be fruitful to include more choices in future research to investigate whether the positive effects of inspiration still persist. Moreover, the experiment gave respondents the task to buy a set instead of one particular product. We would expect higher confusion in such a situation, but cannot predict whether the inspirational effect would change. Third, our study also raises further questions about the influence of price in complement-based assortment organization which are worthy of deeper examination (e.g., variations of pricing such as the influence of lower overall set prices). We encourage future research to address this. Lastly, the present study focuses on aspects of consumer perception to avoid over-complexity of the model. However, in a previous study (Bertrandie & Zielke, 2017) we were able to confirm the influence of assortment perception on consumer attitude and behavior.

5 Price Integration[4]

Abstract

Multi-channel retailers face the question of whether to differentiate or integrate prices across their different channels. Due to the costs of integration and price-competitive online retailers, it is important for retailers to know how customers perceive price differentiation. Our study examines the impact of common multi-channel price differentiation instruments (product price differentiation, online promotion and shipping fees) on perceived price fairness, customer confusion, and their consequences. The results indicate that product price differentiation and online promotion are perceived as more unfair and lead to more confusion than price parity. Furthermore, customers perceive shipping fees as fairer than no shipping fees when prices are cheaper online but less fair when prices are integrated. This suggests that customers expect a consistent consideration of channel cost advantages and disadvantages and that shipping fees might serve as a cue for customers to consider the retailer's channel costs. Ultimately, the use of non-integrated promotions may lead to detrimental effects for the retailer, mediated via customer confusion and price fairness perceptions.

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[4] Chapter 3 is based on the article "The Influence of Multi-Channel Pricing Strategy on Price Fairness and Customer Confusion" in *The International Review of Retail, Distribution and Consumer Research* (2019, Vol. 29).

5.1 Introduction

The era of digitalization has given path to one of the most dynamic developments in retailing on a global scale. Multi-channel retailing has become a common business model, as a still growing number of retailers incorporate new distribution channels (Verhoef et al., 2015). However, the adoption of additional channels has given rise to novel challenges regarding the co-ordination of the retail mix (see Neslin et al., 2006 for a comprehensive overview). In this context, one of the most important management decisions is setting an optimal pricing strategy across multiple channels (Neslin et al., 2006; Wolk & Ebling, 2010; Zhang et al., 2010). Specifically, multi-channel retailers must decide whether to integrate prices (i.e. set the same prices in both channels for identical products) or differentiate prices (i.e. set differing prices in both channels for identical products).

While the literature often recommends a higher degree of overall channel integration (e.g., Verhoef et al., 2015; Zhang et al., 2010), the implementation of price parity in all channels comes with hurdles. Specifically, multi-channel retailers are faced with higher costs from operating multiple channels and must also consider the different cost structures of their channels, as they incur higher costs in their offline channel than online channel. To account for these costs, uniform prices across channels have to be higher than the pure-online retailers' prices, putting multi-channel retailers at a competitive disadvantage in the online channel (Homburg et al., 2019; Unterhuber, 2015). While price differentiation appears to be the more economical solution, retailers need to strike a careful balance between consumer perceptions of channel integration and profitability considerations. In this context, they have to consider consumer's perception of price fairness and the risk of causing customer confusion.

Multi-channel retailers can exert price differentiation through different instruments. These include product price differentiation (where the base price of an article differs without discounts or fees) or price promotions. Furthermore, retailers have to decide whether to charge shipping fees online and if so, consider the interplay of cheaper online prices and shipping fees in their pricing strategy. With our study, we investigate the impact of different pricing instruments on consumer perceptions. In a scenario-based online experiment, we examine a 2 x 2 x 2 between-subjects design to investigate the effects of product price differentiation, online promotion and online shipping fees on customer confusion, price fairness and resulting attitudinal and behavioral consequences.

Our research extends prior studies in several ways. Firstly, it contributes to the literature by revealing the differential effects of three multi-channel pricing instruments, or the combination thereof, on consumer perception and behavior. Extant research considers effects of instruments separately (e.g., Sheng et al., 2007; Xia et al., 2010;) or does not investigate the impact of shipping fees (e.g., Vogel & Paul, 2015). We will also shed light on the role of shipping fees. Secondly, while existing studies

mostly investigate the effects of multi-channel price integration on price fairness (e.g. Choi & Mattila, 2009; Fassnacht & Unterhuber, 2016; Homburg et al., 2019; Vogel & Paul, 2015), we also examine effects on customer confusion. Notably, some theoretical studies have alluded to the possibility of customer confusion, however, no empirical study has investigated customer confusion in this context. Thirdly, we analyze the role of customer confusion and fairness as mediators of the effect of pricing instruments on important consequences, such as attitude and behavior. Specifically, our study seeks to answer the following questions:

- How does the use of price differentiation instruments (product price differentiation, online promotion, online shipping fees) influence price fairness perceptions and customer confusion?
- How do the instruments interact to influence price fairness perceptions and customer confusion?
- How do customer confusion and price fairness influence attitudinal and behavioral consequences?

By analyzing these effects, we also shed light on the possibility of differentiation through specific instruments for retailers. In practice, many retailers use price differentiation instruments but lack an understanding of how these specific pricing tools (or combinations thereof) influence consumer behavior. The results of this study deliver important implications for retailers to adjust their pricing strategy.

5.2 Theoretical background and hypotheses

5.2.1 Literature review

Price discrimination allows firms to segment customers with respect to their willingness to pay by setting differing prices for the same product or service (Phlips, 1983). In an ideal economic setting, each customer pays the exact amount reflecting their maximum willingness to pay according to their preferences (Jain & Srivastava, 2000; Phlips, 1983). In the context of multi-channel price discrimination, different prices across channels build on customers' different channel preferences. Distinct prices are set for the same product in different channels and consumers can select their favored channel-price combination (Wolk & Ebling, 2010).

Due to the novelty of the topic, extant literature on channel-based price differentiation features a strong focus on theoretical contributions assessing the favorability of different strategies for multi-

channel retailers (e.g., Grewal et al., 2010; Neslin et al., 2006; Neslin & Shankar, 2009; Zhang, 2009; Zhang et al., 2010). While some studies recognize price differentiation across sales channels as a possibility to increase profits (e.g., Yoo & Lee, 2011; Zhang et al., 2010), other research points towards possible negative effects, such as confusion or unfairness perceptions (e.g., Neslin & Shankar, 2009).

For example, Neslin et al. (2006) and Neslin and Shankar (2009) note that product price disparity could entail negative consumer reactions such as customer confusion, unfairness perceptions or switching behavior, yet they acknowledge the possibility of price differentiation via shipping fees or promotions (Neslin & Shankar, 2009). Using an analytical approach, Kauffman, Lee, Lee, and Yoo (2009) suggest that higher levels of customer channel migration call for more integrated prices. Other studies stress that directing customers towards specific channels through price differentiation could increase profitability (Myers, Pickersgrill, & van Metre, 2004; Neslin & Shankar, 2009). Similarly, Zhang (2009) and Zhang et al. (2010) view differential pricing as a means to increase sales volume in one channel or redirect customers to the other channel. They suggest setting prices according to the cost structure in channels. Yoo and Lee (2011) also conclude that differential pricing is more profitable for multi-channel retailers. Observational research on the status quo of multi-channel pricing in practice finds that prices are usually higher offline than online, but market, product category and retailer characteristics influence the pricing strategy (e.g., Ratchford, 2009; Wolk & Ebling, 2010).

Recently, empirical research on consumer behavior in the context of multi-channel pricing has emerged (e.g., Choi & Mattila, 2009; Fassnacht & Unterhuber, 2016; Vogel & Paul, 2015). These studies focus on the negative effects of price differentiation on perceived price unfairness, but also show that perceptions depend on the price frame, beliefs about industry pricing standard and which channel features the higher price (Choi & Mattila, 2009; Fassnacht & Unterhuber, 2016). Vogel and Paul (2015) are the first to investigate different price differentiation instruments focusing on promotional tools and service fees in a telecommunication services context and find positive and negative effects of price differentiation.

To summarize, the aforementioned studies have provided some important insights into the effects of channel-based price differentiation. However, empirical research is required to understand the perception of different instruments that multi-channel retailers commonly use to differentiate prices.

5.2.2 Price fairness

Price unfairness can be defined as the evaluation of a price as unacceptable, unreasonable or unjustifiable (Xia, Monroe, & Cox, 2004). Consumers perceive price unfairness when confronted with different prices for an identical item (Xia & Monroe, 2005). This applies when retailers set different prices for the same product across their channels.

The literature offers several theoretical explanations for price unfairness perceptions in multi-channel buying situations. Firstly, according to equity theory, consumers evaluate the input-outcome ratio of transactions. Transactions are considered to be just when observed input-outcome ratios do not significantly diverge (Adams, 1965; Greenberg, 1987). That is, consumers compare the price (input) they would pay with the prices others would pay for the same product (outcome) (Martins and Monroe, 1994). For differentiated pricing to be perceived as fair, a higher financial input from the customer (i.e., a higher price paid) demands a higher outcome provided by the firm, such as added value to the item or to the purchase in a specific channel (e.g., better service), so that the ratio remains the same. Secondly, customers are believed to consider the firm's point of view as well (Campbell, 1999). In general, they also evaluate prices on a cost-plus basis and agree that firms are entitled to reasonable profit as much as consumers are entitled to a reasonable price. This is known as the dual entitlement principle. Applied to cross channel price differentiation, if costs are believed to be higher in one channel, higher prices in this channel can be viewed as justifiable (Kahneman, Knetsch, & Thaler, 1986).

Although a retailer's online and offline channels can differ in terms of their service level and costs, we argue that consumers do not always actively consider these differences if they are not communicated. Research provides support for this. When they are communicated, some studies show that this can have a positive effect: For small price differences, Fassnacht and Unterhuber (2015) find beneficial effects of communicating added value of a channel. Furthermore, Grewal, Hadesty, and Iyer (2004) demonstrate that cost-based communication can have a positive influence on fairness perceptions. Yet, even when consumers consider costs, research has shown they tend to underestimate them in general (Bolton, Warlop, & Alba, 2003). When there seems to be no explanation for differences in prices, price unfairness perceptions are more likely. As unfairness perceptions can occur in spite of consumers' chance to take advantage of cheaper prices (Ordóñez, Conolly, & Coughlan, 2000), we derive the following hypothesis for differing product prices:

H1a: Product price differentiation across channels is perceived as more unfair than harmonization across channels (same product prices in both channels).

Promotions offer a percentage-off or a cents-off discount to a product base price. They are limited to a specific time frame (DelVecchio, Krishnan, & Smith, 2007). Numerous studies have shown the positive effects of promotions on purchasing rates in singular channels (e.g., Ailawadi & Neslin, 1998; DelVecchio et al., 2007; Pauwels, Hanssens, & Siddarth, 2002). However, the arguments relating to price differentiation across channels laid out above should also hold for a promotional offer that only applies in the online channel. As online promotions are usually not cost-caused, customers might perceive cross-channel price differentiation as unfair. Moreover, the time restriction of a promotion uses the principle of scarcity (Cialdini, 2009). It thus serves as a psychological ultimatum to immediately purchase the product in the specific channel or not obtain the lower price at all, so that consumers with differing channel preferences may feel that the decision is imposed (Neslin & Shankar, 2009; Vogel & Paul, 2015). We thus hypothesize:

H1b: Price differentiation across channels through online promotions is perceived as more unfair than harmonization across channels (no promotion in both channels).

Shipping fees have traditionally been studied for the online channel. While some studies suggest that free shipping increases order incidence (e.g., Lewis, 2006; Lewis, Singh, & Fay, 2006), research on partitioned prices shows that the separate disclosure of surcharges (such as shipping fees) can increase purchase intent as compared to aggregated prices (e.g., Greenleaf, Johnson, Morwitz, & Shalev, 2016). Yet, how online shipping fees of a multi-channel retailer are perceived might also depend on the retailer's use of other differentiation instruments. When shipping fees are disclosed, we argue this serves as a cue for consumers leading them to consider the channel-specific costs of the retailer. Though the consumers' cost assumptions might underestimate real costs, customers mostly assume that the offline channel comes with higher costs (Unterhuber, 2015). If they consider these assumptions (as suggested by the principle of dual entitlement), they might find shipping fees fair for differentiated prices because they understand the charge as costs of delivery and the price differentiation as a result of diverging channel costs. On the other hand, if they evaluate prices on a cost-plus basis they might perceive shipping fees in combination with uniform prices to be unfair because they feel that when the firm does not pass on the cost advantage of the online channel it should not pass on the cost of delivery to the customer either. We hypothesize:

H1c: For uniform product prices, shipping fees are perceived as more unfair than no shipping fees, whereas for differentiated product prices no shipping fees are perceived as more unfair.

5.2.3 Customer confusion

Price differentiation does not solely influence price unfairness perceptions but might also lead to feelings of confusion (Neslin & Shankar, 2009). Customer confusion hereby is "an uncomfortable state of mind … which negatively affects consumers' information processing and decision-making abilities" (Walsh, 1999, p. 24). Customer confusion has been found to result in negative consumer reactions such as dissatisfaction, purchase deferment or an overall unfavorable attitude towards the retailer (Mitchell & Papavassiliou, 1999; Mitchell et al. 2005). The customer confusion phenomenon has often been researched in relation to product variety in assortment (e.g., Bronyarzcyk & Hoyer, 2006; Diehl & Poynor, 2010; Iyengar & Lepper, 2000; Kuester & Buys, 2009) and has been viewed as resulting from cognitive overload (see Chernev et al., 2015 for a comprehensive overview). Cognitive overload occurs where consumers are confronted with more information than they can accurately process (Malhotra, 1984). Overloaded consumers have difficulties comprehending and comparing all available options (Walsh et al., 2007). Affective reactions linked to cognitive overload include feelings of overwhelmedness, irritation and frustration (Bertrandie & Zielke, 2017; Mitchell et al., 2005).

In a multi-channel context, feelings of confusion can occur because consumers have to process more price information than when using only a single channel. Moreover, confusion arises when customers receive new information that does not coincide with present knowledge (Walsh et al., 2007; Walsh & Mitchell, 2010). When multi-channel retailers differentiate product prices across channels or add new price components (for example, promotion or shipping fees) in one channel, the consumer has to integrate and re-evaluate the price information received from both channels to adequately compare all products and purchasing options. This hinders the easy comparability of alternatives across channels and can lead to cognitive overload and negative feelings. We thus hypothesize:

H2a: Product price differentiation across channels leads to more confusion than harmonization across channels (same product prices in both channels).

H2b: Price differentiation across channels through online promotions leads to more confusion than harmonization across channels (no promotion in both channels).

H2c: Price differentiation across channels through online shipping fees leads to more confusion than harmonization across channels (no shipping fees).

5.2.4 Psychological and behavioral outcomes

While perceived price fairness has been the focus of attention in the price differentiation literature, some of the more recent studies have also investigated some attitudinal and behavioral consequences (e.g. Fassnacht & Unterhuber, 2016; Vogel & Paul, 2015). For example, Fassnacht and Unterhuber (2016) find that price differentiation directly and significantly increases negative word of mouth and decreases purchase intention. We therefore assume a direct effect of price differentiation on consumers' behavior where we distinguish between an immediate reaction, abandonment of the purchase and long-term consequences such as attitude towards the retailer and patronage intentions. Although we expect negative effects for product price differentiation and online promotion, the direction of the effect is not as clear for shipping fees. Thus, we formulate the following general hypotheses, which we test for each of the price differentiation instruments (without proposing a direction):

H3: Price differentiation across channels influences purchase abandonment, attitude towards the retailer and patronage intentions.

When retailers differentiate prices across channels, confusion can stem from the customer being unable to understand the reason for diverging price information, which directly influences perceptions of price fairness (see 5.2.2). Furthermore, consumers might resent the cognitive effort needed to process additional information (Garaus & Wagner, 2016) such as different prices or new price components. This could translate into unfairness perceptions as well. Therefore, we hypothesize that price fairness will also be influenced by customers' feelings of confusion. We hereby assume a mediation through confusion. Hence, we put forward the following hypothesis:

H4: The effect of price differentiation on price fairness is mediated via confusion.

Perceived unfairness leads to feelings of distress (Adams, 1965; Martins & Monroe, 1994). As a coping mechanism people tend to withdraw from such situations (Xia et al., 2004). Perceived price unfairness has been also shown to reduce customer satisfaction and repurchase intentions (Kukar-Kinney, Xia, & Monroe, 2007; Marc, Mumel, & Pisnik, 2016) and augment negative word of mouth (Fassnacht & Unterhuber, 2016; Marc, Mumel, & Pisnik, 2016). Similarly, as stated under 5.2.3, customer confusion was found to evoke purchase deferment or a negative attitude towards the retailer (Walsh & Mitchell, 2010). We therefore assume that the hypothesized effect of price differentiation on short and long-term consequences will be mediated via perceived price unfairness and customer confusion. Thus, we derive the following hypothesis:

H5: The effect of price differentiation across channels on purchase abandonment, attitude towards the retailer and patronage intentions is mediated via price fairness.

H6: The effect of price differentiation across channels on purchase abandonment, attitude towards the retailer and patronage intentions is mediated via confusion.

The following graphic (Figure 12) depicts the conceptual framework with the corresponding hypotheses.

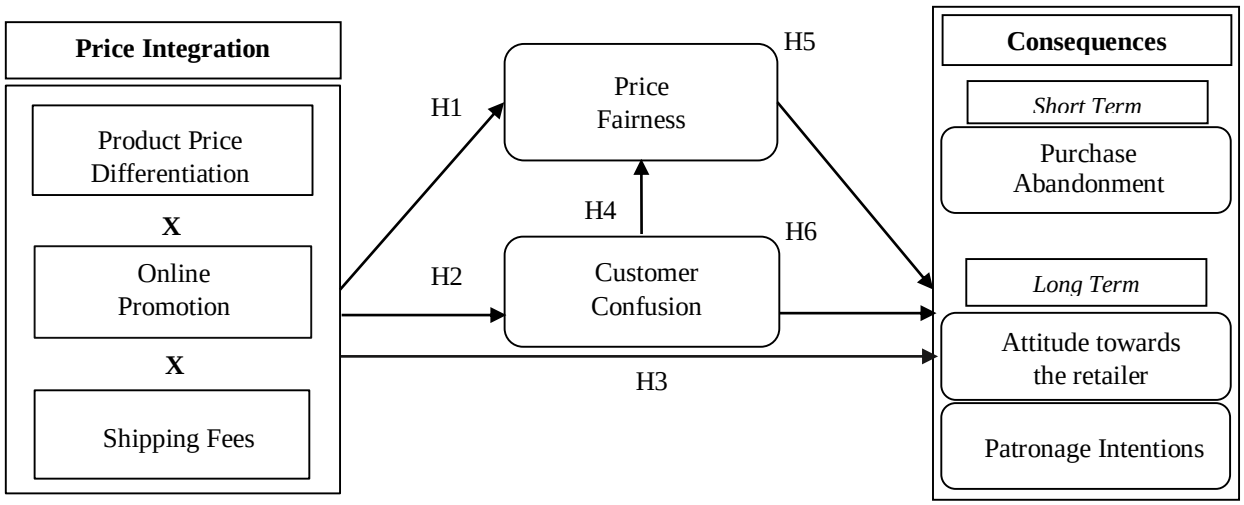

Figure 12. Conceptual model.

5.3 Empirical Study

5.3.1 Method

To test our hypotheses, we use a scenario-based online experiment with a 2 (product price differentiation: cheaper online vs. uniform) x 2 (online promotion: with promotion vs. without promotion) x 2 (online shipping fees: with shipping fees vs. without shipping fees) between-subjects design. The respondents are assigned randomly to one of eight treatments. We used illustrations and texts to introduce a fictional furniture retailer featuring an offline and an online channel. We chose a furniture retailer because retailers in this industry commonly use the three pricing instruments and shipping fees are often high.

The introductive text asked respondents to imagine planning the purchase of a cupboard at the furniture retailer. It specified that respondents could purchase in the store or online and that they were able to transport the cupboard with their car should they decide to buy in the store. The respondents were then asked to proceed to the channels of the retailer where they should choose their favored product and the channel via which they would purchase it. The respondents initially saw a selection of eight distinct cupboards in the offline channel. Then, they moved on to the online channel, where they saw the same products. Every cupboard came with a picture, product description (such as color and size)

and price information. While the offline price was the same in all scenarios, the pricing instruments differed in the online channel. For product price differentiation, the product prices online were lower than the offline price. For online promotion, a disclaimer informed respondents of a discount given at the time of purchase. Likewise, a disclaimer notified respondents about shipping fees. The base product prices of these cupboards in the offline channel (that is, without any of the differentiation instruments) varied between 399€ and 999€ and were set according to industry standards for similar products. The variation of product price differentiation, online promotion and shipping fees were set after researching realistic spans of cross-channel price variations and shipping fees in this industry. They were set equally high to exclude effects of different levels of differentiation across instruments. Table 17 details the scenarios for an exemplary price of one specific cupboard in the offline channel (399€); prices vary accordingly for all cupboards. Please refer to Appendix I for an exemplary scenario.

Table 17. Overview of scenarios.

Scenario	Product Price Differentiation	Online Promotion	Shipping Fees
1	uniform (399€)	w/o promotion (-0€)	w/o shipping fees (+0€)
2	cheaper online (359€)	w/o promotion	w/o shipping fees
3	uniform	with promotion (-40€)	w/o shipping fees
4	cheaper online	with promotion	w/o shipping fees
5	uniform	w/o promotion	with shipping fees (+40€)
6	cheaper online	w/o promotion	with shipping fees
7	uniform	with promotion	with shipping fees
8	cheaper online	with promotion	with shipping fees

We used items from existing scales to measure constructs. The items for price fairness were based on Bolton, Keh, and Alba (2010) and Xia et al. (2010). To measure customer confusion, we included items measuring affective confusion by Garaus and Wagner (2016), Iyengar and Lepper (2000) and Diehl and Poynor (2010) as well as items for cognitive confusion adapted from Heitmann et al. (2007). We used own items for purchase abandonment. A scale based on Spears and Singh (2004) was used for the attitude towards the retailer. For patronage intentions, we adapted a scale from Emrich et al. (2015). The constructs were measured using seven-point Likert scales from totally disagree (= 1) to totally agree (= 7), except for attitude towards the retailer where a bipolar measure was used. The complete item list is included in Appendix H.

A random sample was drawn in a major European country, yielding 319 usable questionnaires. There were 206 female and 113 male respondents. The average age of the sample was 28,2 years. The gender and age distribution of respondents is similar across all scenarios. For further information on

sample demographics please refer to Appendix K. For each scenario, we generated between 36 and 45 completed questionnaires, which allows for a conservative testing of the hypotheses.

5.3.2 Analysis and results

To determine internal consistency of the scales, we performed a reliability test. Cronbachs alpha exceeded the level of .70 for all constructs, thus indicating an adequate reliability (Loewenthal, 2018; see Appendix H for detailed values). A factor analysis confirmed the discriminant validity of the constructs, and also showed two factors for cognitive and affective confusion. The realism check showed that the scenarios were perceived as mostly realistic (M = 5,55). For the following analyses, we calculated sum scores for the variables. We conducted a three-factor MANOVA that reveals marginally significant differences for price differentiation on price fairness and customer confusion ($p < .10$), significant differences for online promotion on price fairness, customer confusion and consequential variables ($p < .05$), as well as for the interaction effect of shipping fees and price differentiation on price fairness ($p < .05$). ANOVAs and the PROCESS script (Hayes, 2017) were then used to analyze the effects of the pricing instruments in more detail.

We find a marginally significant main effect for product price differentiation on price fairness ($F(1,319) = 3.07$, $p = .078$), and a significant effect for online promotion on price fairness ($F(1,319) = 5.887$, $p = .015$). Means for product price differentiation show that the uniform condition was perceived as fairer than the differentiated condition ($M_{uniform} = 5.00$, $SD = 1.14 > M_{cheaper\text{-}online} = 4.76$, $SD = 1.20$). For online promotion, we find that prices without promotion were perceived as fairer than prices including an online promotion ($M_{without\text{-}promotion} = 5.04$, $SD = 1.15 > M_{with\text{-}promotion} = 4.72$, $SD = 1.18$). H1a is marginally supported and H1b fully supported. The main effect of shipping fees is not significant ($F(1,319) = 0.020$; $p = .900$; $M_{without\text{-}shipping\text{-}fees} = 4.88$, $SD = 1.12 < M_{with\text{-}shipping\ fees} = 4.89$, $SD = 1.23$). Please also refer to Figure 13.

However, we find an interaction for product price differentiation and shipping fees ($F(1,319) = 4.024$, $p = .046$). When prices are differentiated, shipping fees are perceived as fairer than no shipping fees ($M_{online\text{-}cheaper\ x\ with\text{-}shipping\text{-}fees} = 4.89$, $SD = 1.10 > M_{online\text{-}cheaper\ x\ without\text{-}shipping\text{-}fees} = 4.64$, $SD = 1.30$); when prices are uniform, no shipping fees are perceived as fairer than shipping fees ($M_{uniform\ x\ with\text{-}shipping\text{-}fees} = 4.87$, $SD = 1.15 < M_{uniform\ x\ without\text{-}shipping\text{-}fees} = 5.12$, $SD = 1.12$). The interaction effect is shown in Figure 14. H1c is supported.

Note: light bracket = $p < .10$; dark bracket = $p < .05$.

Figure 13. Effects of price differentiation instruments on price fairness.

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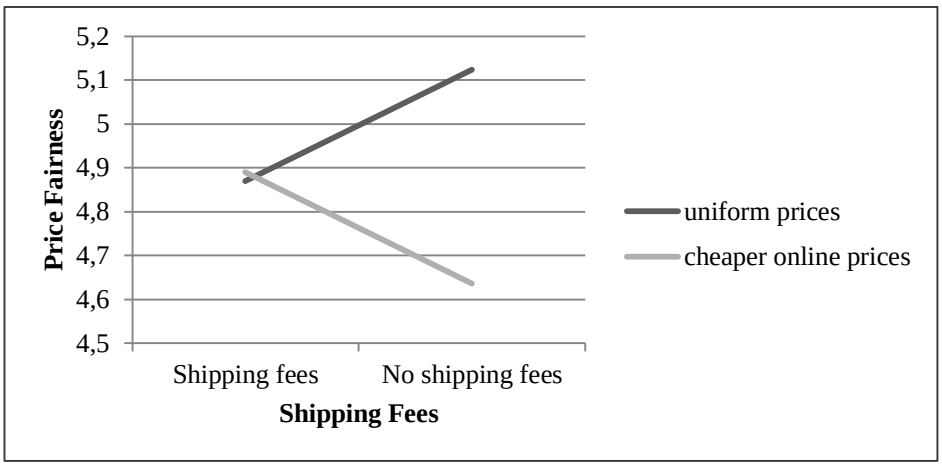
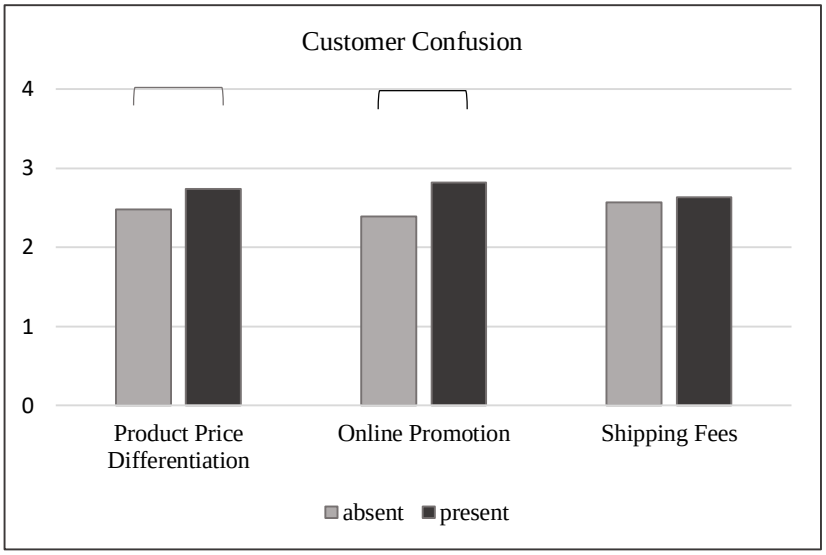


Figure 14. Interaction of product price differentiation and shipping fees.

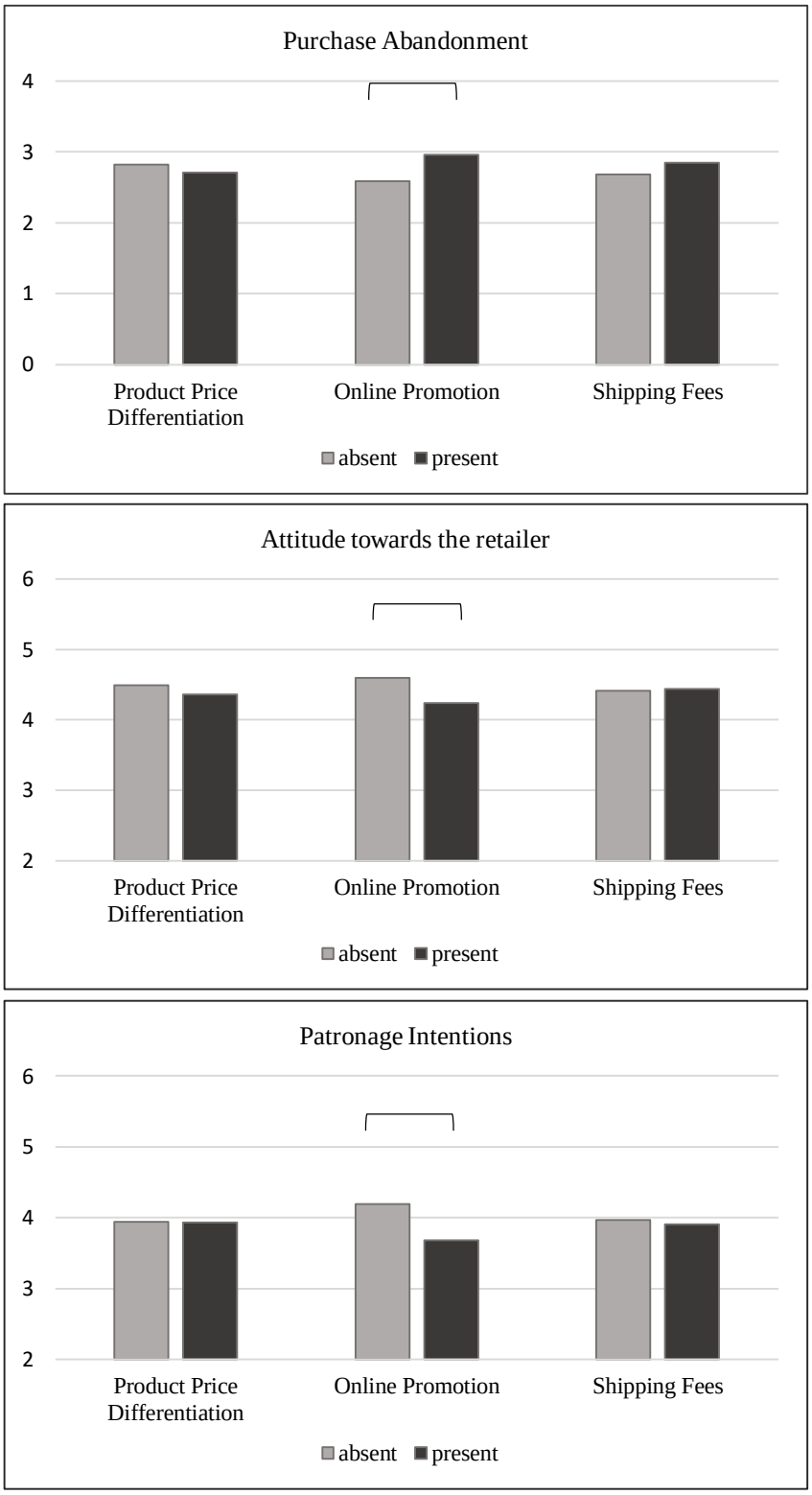
For customer confusion, we also conducted all analyses for a cognitive and affective component of confusion separately as identified by the factor analysis. As no differences were found in the results, we report customer confusion as an overall construct. We find a marginally significant main effect for product price differentiation ($F(1,319) = 3.545$, $p = .060$; $M_{uniform} = 2.48$, $SD = 1.16 < M_{cheaper\text{-}online} = 2.74$, $SD = 1.29$) and a significant effect for online promotion ($F(1,319) = 9.943$, $p = .002$; $M_{without\text{-}promotion} = 2.39$, $SD = 1.12 < M_{with\text{-}promotion} = 2.82$, $SD = 1.31$) integration. No significant effect is detected for shipping fees ($F(1,319) = .079$; $p = .779$; $M_{without\text{-}shipping} = 2.63$, $SD = 1.23 > M_{with\text{-}shipping\ fees} = 2.57$, $SD = 1.23$) and no interactions between instruments were found. Thus, H2a is partially and H2b fully supported. H2c is rejected. Please refer to Figure 15.



Note: light bracket = $p < .10$; dark bracket = $p < .05$.

Figure 15. Effects of price differentiation instruments on customer confusion.

With regard to attitudinal and behavioral consequences, we find a significant effect only for online promotion on purchase abandonment ($F(1,319) = 5.674$, $p = .018$; $M_{without\text{-}promotion} = 2.59$, $SD = 1.38$ < $M_{with\text{-}promotion} = 2.96$, $SD = 1.48$), on attitude towards the retailer ($F(1,319) = 6.979$, $p = .009$; $M_{without\text{-}promotion} = 4.60$, $SD = 1.19$ > $M_{with\text{-}promotion} = 4.24$, $SD = 1.25$) and on patronage intentions ($F(1,319) = 12.171$, $p = .001$; $M_{without\text{-}promotion} = 4.19$, $SD = 1.21$ > $M_{with\text{-}promotion} = 3.68$, $SD = 1.36$). We have not found significant effects for product price differentiation on purchase abandonment ($F(1,319) = .499$, $p = .481$; $M_{uniform} = 2.82$, $SD = 1.38$ > $M_{cheaper\text{-}online} = 2.71$, $SD = 1.50$), attitude ($F(1,319) = 0.815$, $p = .367$; $M_{uniform} = 4.49$, $SD = 1.27$ > $M_{cheaper\text{-}online} = 4.36$, $SD = 1.19$) or patronage intentions ($F(1,319) = 0.01$, $p = .970$; $M_{uniform} = 3.94$, $SD = 1.32$ > $M_{cheaper\text{-}online} = 3.93$, $SD = 1.30$). Nor did we find significant effects for shipping fees on abandonment ($F(1,319) = 1.462$, $p = .227$; $M_{without\text{-}shipping\text{-}fees} = 2.68$, $SD = 1.47$ < $M_{with\text{-}shipping\text{-}fees} = 2.85$, $SD = 1.41$), attitude intentions ($F(1,319) = 0.085$, $p = .771$; $M_{without\text{-}shipping\text{-}fees} = 4.44$, $SD = 1.25$ > $M_{with\text{-}shipping\text{-}fees} = 4.41$, $SD = 1.22$) and patronage intentions ($F(1,319) = 0.057$, $p = .811$; $M_{without\text{-}shipping\text{-}fees} = 3.91$, $SD = 1.33$ > $M_{with\text{-}shipping\text{-}fees} = 3.97$, $SD = 1.29$). We did not find any interaction effects of different instruments on the consequences. Figure 16 shows the mean differences for product price differentiation, online promotion and shipping fees on purchase abandonment, attitude and patronage intentions. H3 is partly confirmed with regard to online promotion.



Note: bracket = $p < .05$.

Figure 16. Effects of price differentiation instruments on consequences.

For the analysis of the predicted mediation effects we use the PROCESS script by Hayes (2017). The significance of the indirect effects was assessed using a bootstrapping at 95% level of confidence. We include shipping fees in the mediation analysis only when customer confusion is not involved because of lacking significance of the independent variables on customer confusion. Product price

differentiation is coded as 0 = "uniform" and 1 = "cheaper online" and online promotion is coded as 0 = "without promotion" and 1 = "with promotion". Regarding H4, the mediation analysis of product price differentiation via customer confusion on price fairness, we find a significant full mediation for online promotion (indirect effect: -.111; CI: -.207 to -.049). The mediation effect for product price differentiation via customer confusion is not significant (see Table 18). H4 is partially supported.

Table 18. Results of mediation analysis via customer confusion on price fairness.

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
PPD→ CC → PF	-.231*	-.164	-.067	-.151	.005
OP → CC → PF	-.320***	-.209	-.111^{+}	-.207	-.045

Notes: PPD = Product Price Differentiation; OP = Online Promotion; CC = Customer Confusion; PF = Price Fairness;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

For H5, we find significant partial mediation of online promotion via price fairness on abandonment (indirect effect: .073; CI: .019 to .177), on attitude (indirect effect: -.091, CI: -.190 to -.023) and patronage intentions (indirect effect: -.107; CI: -.216 to -.025) respectively. We find no significant mediation for product price differentiation (see Table 19). We also calculate a moderated mediation for the interaction effect of shipping fee and product price differentiation. However, the index of the moderated mediation is not significant (index: -.124; CI: -.289 to .004) at a 95% confidence level. Although not significant, we see a change in valence of the indirect effect (indirect effect for no shipping fees: .063; CI:.-.0211 to .1715; indirect effect for shipping fees: -.062; CI: .173 to -.036). H5 is partially supported with regard to online promotion.

Table 19. Results of mediation analysis via price fairness on consequences.

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
PPD → PF → Abandonment	-.116	-.175	.059	-.006	.144
PPD → PF → Attitude	-.118	-.059	-.069	-.163	.006
PPD → PF → Patronage	-.006	.078	-.084	-.192	.013
OP → PF → Abandonment	.370**	.296*	.073^{+}	.019	.177
OP → PF → Attitude	-.367***	-.276**	-.091^{+}	-.190	-.023
OP → PF → Patronage	-.515***	-.408***	-.107^{+}	-.216	-.025

Notes: PPD = Product Price Differentiation; OP = Online Promotion; PF = Price Fairness;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

As shown in Table 20, we find significant effects for online promotion on abandonment with a full mediation via customer confusion (indirect effect: .270; CI: .101 to .472), and partial mediations on attitude (indirect effect: -.092; CI: -.189 to -.032) and patronage intentions (indirect effect: -.119; CI: -.231 to -.043). No significant mediation is found for product price differentiation. H6 is partially

supported. An additional analysis reveals a serial mediation effect for online promotion via customer confusion and price fairness on attitude (indirect effect: -.027; CI: -.054 to. -.008) and patronage intentions (indirect effect: -.031; CI: -.063 to -.008; please refer to Table 21 and Figure 17).

Table 20. Results of mediation analysis via customer confusion on consequences.

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
PPD → CC → Abandonment	-.116	-.283	.167	.006	-.346
PPD → CC → Attitude	-.118	-.068	-.060	-.139	.003
PPD → CC → Patronage	-.006	.074	-.080	-.180	.012
OP → CC → Abandonment	.370**	.100	.270^{+}	.101	.472
OP → CC → Attitude	-.367***	-.275**	-.092^{+}	-.189	-.032
OP → CC → Patronage	-.515***	-.396**	-.119^{+}	-.231	-.043

Notes: PPD = Product Price Differentiation; OP = Online Promotion; CC = Customer Confusion;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.

Table 21. Results of serial mediation analysis via customer confusion and price fairness.

Purchase abandonment

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	.370**	.088	.282^{+}	.109	.467
OP → CC → Abandonment (a1b1)			.263^{+}	.093	.454
OP → PF → Abandonment (a2b2)			.012	-.016	-.055
OP → CC→ PF → Abandonment (a1a3b2)	.		.007	-.008	.024

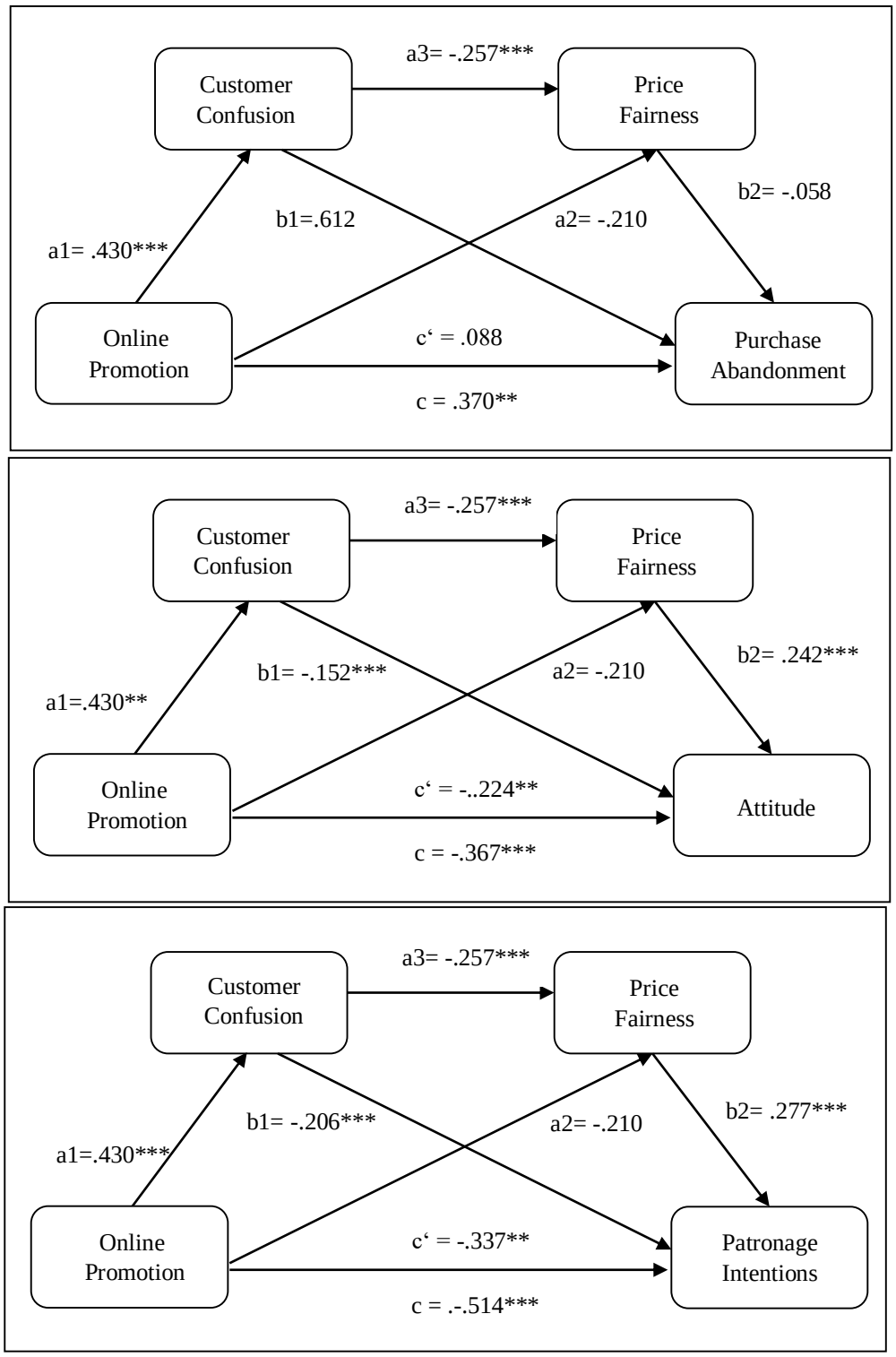
Attitude

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	-.367***	-.224**	-.143^{+}	-.248	-.053
OP → CC → Attitude (a1b1)			-.065^{+}	-.141	-.014
OP→ PF → Attitude (a2b2)			-.051	-.125	.011
OP→ CC→ PF → Attitude (a1a3b2)			-.027^{+}	-.054	-.008

Patronage Intentions

	Total Effect	**Direct Effect**	**Indirect Effect**	**BootLLCI**	**BootULCI**
Total Mediation Model	-.514***	-.337**	-.177^{+}	-.3044	-.0670
OP → CC → Patronage (a1b1)			-.089^{+}	-.1761	-.0240
OP → PF → Patronage (a2b2)			-.508	-.1387	.0114
OP→ CC→ PF → Patronage (a1a3b2)			-.031^{+}	-.063	-.008

Note: PPD = Product Price Differentiation; OP = Online Promotion; CC = Customer Confusion;
* = $p < .10$ / ** $p < .05$ / *** = $p < .01$ / + = sig. indirect effect.



Note: * = $p < .10$ / ** $p < .05$ / *** = $p < .01$.

Figure 17. Serial mediation analysis via affective confusion and price fairness.

Deductible from the descriptive results in Appendix J, we see that the highest values for price fairness, attitude towards the retailer and patronage intentions are achieved when no instrument is used at all. For customer confusion, the sole use of shipping fees is the least confusing with no use of price differentiation instrument as a close second.

Table 22. Results of hypothesis testing.

	Hypotheses	Results
H1a	Product price differentiation across channels is perceived as more unfair than harmonization across channels (same product prices in both channels).	supported
H1b	Price differentiation across channels through online promotions leads to more confusion than harmonization across channels (no promotion in both channels).	supported
H1c	For uniform product prices, shipping fees are perceived as more unfair than no shipping fees, whereas for differentiated product prices no shipping fees are perceived as more unfair.	supported
H2a	Product price differentiation across channels leads to more confusion than harmonization across channels (same product prices in both channels).	supported
H2b	Price differentiation across channels through online promotions leads to more confusion than harmonization across channels (no promotion in both channels).	supported
H2c	Price differentiation across channels through online shipping fees leads to more confusion than harmonization across channels (no shipping fees).	not supported
H3	Price differentiation across channels influences purchase abandonment, attitude towards the retailer and patronage intentions.	Partially supported
H4	The effect of price differentiation on price fairness is mediated via confusion.	Partially supported
H5	The effect of price differentiation across channels on purchase abandonment, attitude towards the retailer and patronage intentions is mediated via price fairness.	Partially supported
H6	The effect of price differentiation across channels on purchase abandonment, attitude towards the retailer and patronage intentions is mediated via confusion.	Partially supported

5.4 Discussion

5.4.1 Summary of results

Using an experimental approach, this study aims to uncover the effects of price integration on customer confusion and price fairness and to examine the differential impact of distinct pricing instruments retailers can use to differentiate their prices. The results of this study indicate that price integration has an impact on consumers' fairness evaluations and feelings of confusion.

Firstly, in line with our expectations, product price differentiation and online promotion were perceived as more unfair than consistent pricing strategies. This shows that unfairness perceptions can arise even in situations where the customer has the possibility to take advantage of cheaper prices. This corroborates the findings of similar research by Choi and Mattila (2009) and Fassnacht and Unterhuber (2016) and is in line with our reasoning. Furthermore, unfairness perceptions and confusion might occur because the customer is not aware of or might not consider the retailer's higher offline channel costs.

Secondly, we revealed an interaction effect for product price differentiation and shipping fees, suggesting that consumers prefer no shipping fees when product prices are uniform and accept shipping fees in the online channel when product prices are lower online. Here, the shipping fees might serve as a cue that makes customers aware of different cost structures in the online and offline channels. The higher unfairness perception in a situation with uniform prices and shipping fees might arise due to the consumer's perception that firms should pass on channel cost advantages and disadvantages consistently. This is to say, retailers should pass on channel cost advantages (e.g., lower inventory costs) through a lower online price if they pass on disadvantages (e.g., cost of delivery) through shipping fees to customers.

Thirdly, we found that product price differentiation and online promotions lead to more confusion, but shipping fees do not. This could be due to the fact that consumers compare prices rather at a product level than at an aggregated level (Greenleaf et al., 2016). Hence, confusion from price differentiation most likely occurs at the time of product comparison rather than when shipping fees are added. We also tested for an interaction of product price differentiation and shipping fees on customer confusion but did not find a significant effect.

Fourthly, we found direct effects of online promotion on attitudinal and behavioral consequences and several mediation effects. In particular, perceived price fairness and customer confusion mediate the effect of price differentiation through online promotion on negative consumer reactions. It is noteworthy that customer confusion has a particularly strong impact on purchase abandonment. This effect is considerably stronger than the impact of price fairness on purchase abandonment, while there is no noticeable difference for attitude or patronage intentions. Thus, for purchase abandonment, customer confusion is the leading cause. We also found that a double mediation effect exists via customer confusion and price fairness, thus shedding light on the dual effect of confusion (directly, and indirectly via price fairness) on consequences. The reason for the pronounced negative influence of online promotions might be that customers do not link them to any channel-based cost structures and hence fail to understand the reason for distinct promotional strategies between channels.

Fifthly, as a general finding, price fairness perceptions, attitude towards the retailer and patronage intentions were highest when no pricing instrument was used at all (integrated prices without promotion and shipping fees). Customer confusion was lowest with uniform pricing and shipping fees or when no instrument was used at all.

5.4.2 Managerial implications

Based on these observations, we can deduct direct implications for retail managers. Multi-channel retailers should pay careful attention to the implementation of the pricing instruments. Some combinations have stronger effects on price fairness and customer confusion than others. First, the results indicate that for shipping fees, retailers have to be aware of possible interactions with price variations in the online channel. Shipping fees should preferably be applied when the retailer offers lower prices through product price differentiation online. Second, online promotions seem to have particularly strong effects on perceived price unfairness and confusion, and they directly influence purchase abandonment, attitude and patronage intentions. Practitioners should thus keep in mind that promotions in only one channel might not be beneficial and rather opt for cross-channel integrated promotions. Overall, multi-channel retailers also have to consider the influence on profits for the possible combinations of instruments, weigh them against negative long-term effects for customers and investigate the accepted levels of differentiation for the instruments (see Fassnacht & Unterhuber, 2016). Furthermore, if multi-channel retailers have to set higher prices to cover their higher operation costs, multi-channel retailers need to differentiate themselves from pure online retailers through non-price dimensions (Li & Tang, 2011), such as the flexibility offered by cross-channel technologies and services (e.g., click and collect, possibility to return products in every channel etc.) and qualified personnel in their offline channels to provide proficient consultation and after-sales services. These benefits should be clearly communicated to the customer.

5.4.3 Theoretical contribution

Our study extends prior multi-channel research in different ways. Firstly, this study contributes to the literature by investigating the combination of three different instruments. These were investigated separately in the past (e.g., Fassnacht & Unterhuber, 2016; Lewis, 2006), or did not include online shipping fees when investigated conjointly (e.g., Vogel & Paul, 2015). In this context, the findings shed light on the potential of shipping fees to raise the customer's awareness of costs. With this, we are able to show that the principle of dual entitlement only takes effect for price product differentiation in specific situations, videlicet when cost-based considerations are activated through shipping fees as a cue. Thus, our theoretical reasoning in combination with the results of our study indicates that the consistency of considered channel cost advantages and disadvantages positively influences price fairness, while pricing instruments without cost justification (such as non-integrated promotions) have negative effects on price fairness perceptions, even when the customers might benefit

from such price differentiation. Overall, the study also provides deeper insight regarding the relationship between communicated channel costs and the perceived fairness of price discrimination between channels. Secondly, the study examines price fairness and customer confusion. This expands the price integration literature where studies usually focus on price fairness perceptions (e.g., Choi & Mattila, 2009; Fassnacht & Unterhuber, 2016). While both influence purchase abandonment, we reveal that the influence of customer confusion is more pronounced, indicating that confusion might be a stronger driver of unfavorable consequences. Furthermore, it expands literature with view to the field of confusion, as confusion has only been researched for singular channels, usually focusing on assortment (Chernev, 2003; Walsh & Mitchell, 2010). Our study considers multiple channels, providing insight into confusion resulting from different pricing strategies.

5.4.4 Limitations and future research

The study also has some limitations and venues for future research. In our experiment, we only investigated one product category (furniture). To deepen our understanding, a systematic cross-category comparison could reveal whether the effects are generalizable across other industries such as fashion retail or electronic goods. Furthermore, the effects could also depend on the specific level of each instrument (e.g. amount of promotion or shipping fees; Fassnacht & Unterhuber, 2016). Further studies therefore should test for variations in levels of promotions and shipping fees. Additionally, our results supported mediation effects only for online promotion while the other instruments at least significantly influenced price fairness. We assume the effects on attitudinal and behavioral consequences are weaker (and thus not significant) because these dependent variables are more general and therefore influenced by further personal and situational constructs (see also Fassnacht & Unterhuber, 2016). Further research should hence analyze the interplay between pricing instruments and further personal and situational variables. Finally, we also recommend future research to consolidate the two existing streams of price differentiation research. More specifically, future studies should empirically investigate the effects of price differentiation on consumer behavior and profitability conjointly.

6 General Discussion

6.1 Summary of results

The present dissertation researches the customer confusion phenomenon in the context of consumers' multi-channel shopping behavior. Today, the multitude of available search and purchasing channels engages customers in complex customer journeys (Fulgoni, 2014; Verhoef et al., 2015) which make them susceptible to customer confusion. When using different channels for information search and purchasing, consumers very frequently encounter contradictory information, differing assortments or varying prices. This can be an irritating situation – especially if these channels pertain to one and the same retailer. As customer confusion can taint the customer's shopping experience, retailers need to be alert about adverse effects such as dissatisfaction, postponement of purchase and loss of trust (Anninou & Foxall, 2019; Edward & Sadahev, 2012; Mitchell et al., 2005; Wang & Shukla, 2013). As a measure to avoid confusion, literature tentatively recommends retailers to employ higher channel integration in terms of a harmonization of retail mix variables (e.g., Goersch, 2002; Berry et al., 2010; Neslin et al., 2006; Neslin & Shankar, 2009). However, multi-channel retailers face various complexities which need to be considered. The distinct costs and characteristics (e.g., target groups, direct competitors and operation modes) of their online and offline channels commands a more sophisticated approach to this topic. As the price of integration is high, retailers need to make certain that the benefits outweigh the expenditures. Accordingly, the following central research question was posed to guide the effort of this thesis:

Does assortment and price integration across channels reduce customer confusion and does this translate into more favorable consumer behavior?

To provide a differentiated answer to this question, one pre-study and three independent research projects covering different aspects of the multi-channel retail mix were conducted. The qualitative pre-study aimed to identify and categorize sources of confusion for multi-channel shoppers. The results reveal that sources of customer confusion for multi-channel shoppers are multi-faceted. They can be categorized into four main categories, namely *product information* (e.g., differing information or recommendations across channels), *assortment and availability* (e.g., differing assortments or availability of products across channels), *price* (e.g., differing prices and promotions across channels) and *channel service features* (e.g., differing return policies or quality of consultation across channels). In particular, *assortment and availability*, *price* and *channel service features* include levers that can directly be influenced by the firm. The identified sources also provide further justification for the research focus of the three main research projects. Specifically, research project 1 and 2 are dedicated

to multi-channel assortment strategy (assortment integration and assortment organization integration), while research project 3 concentrates on multi-channel pricing strategy (price integration). In the following, we provide a summary of the projects with their distinct research questions, results and implications, and further delineate their contribution in answering the general research question of the thesis.

Research project 1

The first research project deals with the integration of assortment range where multi-channel retailers need to decide the extent of assortment overlap between their channels. This project addresses two research gaps specifically. First, until now there is no examination of confusion as an explanatory variable for adverse consequences resulting from different integration strategies. Recommendations on suitable assortment integration strategies to limit confusion have been theoretical and remained without empirical evidence to support them (Berry et al., 2010; Goersch, 2002; Konuş et al., 2008). Furthermore, until now, no research has studied channel integration in a setting with more than one retailer to choose from. Overall, the question remains of how the assortment integration of a multi-channel retailer's own channels and the assortment overlap with a competitor channel affect customer confusion (and its different components) as well as customer behavior. This is of considerable relevance for retailers, as full assortment integration comes with extensive costs and possible cannibalization effects. To close this research gap, the first research project addresses the following questions:

(1) How do different forms of integration influence customer confusion (cognitive confusion, affective confusion) and assortment perception in a choice situation with several retailers' channels to choose from?

(2) How do customer confusion and assortment perception influence attitudinal and behavioral consequences?

(3) Are there differential effects for cognitive and affective dimensions of confusion?

(4) Do the effects of internal integration depend on the type of asymmetry and assortment size?

Using an experimental between-subjects design, the results show that both internal and external assortment integration have an impact on customer confusion and assortment perception. With regard to the channels of the multi-channel retailer, asymmetrical integration (i.e., reduced assortment in the offline channel) leads to lower cognitive and affective confusion and better assortment perception than full assortment integration. Upon investigation, we observe that internal asymmetrical integration leads to lower confusion and assortment perception only when it is based on a reduction of the

assortment in the online channel. When the number of variants is held constant in both channels, individuals experience higher customer confusion. This is likely because a smaller selection fosters preference building (Chernev, 2003) and evaluating new options against this preference facilitates comparison. Additionally, the effects of internal integration hold for larger assortments as well, showing that these effects are not diluted by an overall higher number of alternatives. For the overlap of assortment with the competitor's online channel, we find that higher integration evokes lower cognitive confusion, but does not affect affective confusion.

From these results, it also becomes manifest that differential effects exist for the two confusion components. In contrast to external integration, internal integration shows an influence on affective confusion. This hints to the fact that customers attribute the causes of confusion to the retailer who holds responsibility over his channels.

Confusion resulting from internal channel integration can lead to unfavorable consequences for retailers. On the one hand, they risk losing business with customers in the short term if customers abandon the purchase. On the other hand, future purchase decisions can be impacted through a more unfavorable attitude and lower patronage intentions (i.e., repurchase and positive word of mouth intentions). The results show that affective confusion tends to impact consumers more strongly than cognitive confusion. In contrast to cognitive confusion, it also reduces patronage intentions. A significant double mediation exists via affective confusion and assortment perception via the consequences. While – individually – assortment perception mediates the relationship of integration on consequences more strongly than affective confusion, a higher affective confusion will also negatively impact assortment perception, which results in less advantageous behavior. In summary, when retailers apply an integration form that leads to affective confusion, this can have detrimental consequences for the retailer.

The most important implication for multi-channel retailers is that a reduced asymmetrical integration is not only less costly for retailers – it also reduces the risk of customer confusion. Retailers providing only a selected assortment in the offline channel might even facilitate decision-making for their customers. Regarding external integration, more integration might lead to less confusion but will also reduce differentiation between retailers and foster competitive prices. We therefore recommend retailers to focus on an optimized internal integration strategy, deciding on the extent of reduction and wisely select the products to feature in stationary retail.

As a theoretical contribution, this research extends extant literature by examining confusion in the context of a multi-channel shopping situation. The research also provides a deeper understanding of

the mechanism in which customer confusion and assortment perception interplay to influence consumer behavior, revealing the role of affective confusion. It thus confirms that a distinction between cognitive and affective confusion is useful and we recommend future research to implement it.

This study contributes to the answer of the overall research question by showing that, in contrast to theoretical recommendations, the harmonization of assortment across channels leads to more confusion than particular forms of asymmetric integration. Asymmetrically reduced integration effectively diminishes confusion in comparison to full integration, is generally perceived more favorably, and increases the probability of advantageous consumer behavior. These results are attributed to the pre-structuring of the consumer's decision-making process, where additional options are added for consideration only after a first preference was formed and can be used as a benchmark for further evaluations.

Research project 2

While the first project investigates assortment overlap across channels, research project 2 deals with the integration of complement-based assortment organization where products from different product categories are grouped according to a common context of use. This research importantly addresses two research gaps in the literature: First, research on complement-based organization is very limited and focuses mostly on the offline channel (e.g., Drèze et al., 1994; Diehl et al., 2015; Sarantopoulos et al., 2019). However, it is relevant for retailers to know whether complement-based organization is transferable to an online environment that is more amenable to a goal-directed search. Second, while the favorability of organization is usually assessed in form of assortment perception, purchase volume or spending, the literature features a lack of explanatory variables that reveal the causality of observed differences. We examine customer confusion and inspiration as variables that are influenced by assortment organization and might have opposing effects on consumer perception. To close the research gap, we investigate the following research questions:

(5) How does a substitute-based vs. complement-based assortment organization influence customer inspiration and customer confusion (cognitive confusion, affective confusion)?

(6) How do customer inspiration and customer confusion influence assortment perception?

(7) Are there differential effects for cognitive and affective dimensions of confusion?

(8) How do price display and the decision-making style of consumers influence customer inspiration and its effects?

We employ an experimental between-subjects design. The results of this study reveal that complement-based assortment organization leads to stronger cognitive confusion than substitute-based organization. The structure provided by the subsequent display of distinct product categories (substitute-based organization) facilitates decision-making while the comparisons of product bundles are more complex. However, it also leads to stronger inspiration through the quality of enhancing the customers' ability to imagine the product in use (i.e., visualization).

With view to customer confusion, we find out that affective confusion arises not directly but as a result of cognitive confusion in a double mediation of assortment organization on assortment perception. Hence, cognitive confusion only reduces assortment perception when the customer forms a negative evaluation of the situation e.g., when the customer blames the retailer for their confusion. Customer inspiration in turn has a positive effect on assortment perception which is stronger than the negative effect via confusion. Importantly, this explains why overall the complement-based assortment is perceived better.

We also find some boundary conditions for the effect of inspiration: The effect of complement-based organization on inspiration is stronger for people with a tendency to more independent decision-making style, because they value the help provided by the digital medium. From our results, there is a possibility that the display of the overall set price plays a role in mitigating the effect on inspiration, our second data set however does not replicate this finding.

Relevant implications for marketers can be drawn. Online and multi-channel retailers should integrate complement-based organization in addition to a traditional assortment organization into their online channel as well and foster a consumers' visualization of using the product or product set (e.g. through images or videos). Adjusting assortment organization online is not costly for retailers and performance can easily be monitored. However, they should allow customers to choose and switch seamlessly between their preferred mode of organization, so that different types of customers (e.g., with distinct decision-making styles) feel accommodated. For multi-channel retailers, integrating assortment organization online is a cheap and effective tool to enhance the customer experience online.

As for its theoretical contributions, this research extends previous work by providing a differentiated insight on the overall positive effect of complement-based organization on assortment perception. This positive effect is a result of the strong inspirational function of a complement-based assortment organization. We also provide a missing explanation for the manner in which confusion affects assortment perception and further support for a two-dimensional conceptualization of confusion.

With regard to the overall research question, this research contributes by showing that while integrating complement-based organization online can lead to higher customer confusion, this does not necessarily lead to negative consumer perceptions. The overcompensation of customer confusion through customer inspiration makes complement-based assortment organization a sensible tool for a stronger harmonization of channels.

Research project 3

The third research project is dedicated to price integration strategy through distinct instruments. The question of whether to differentiate or integrate prices across channels mandates the consideration of perceptions of price differentiation instruments. In particular, this research addresses two main research gaps: First, extant research on multichannel pricing does include price fairness but not customer confusion as an explanatory variable for adverse consequences. Second, they focus on product differentiation through one selected pricing instrument (e.g., Choi & Mattila, 2009; Sheng et al., 2007; Xia et al., 2010) or neglect shipping fees as an important pricing tool for retailers with online channels (Vogel & Paul, 2015). Specifically, the question remains whether different retailing price instruments or the combination of price instruments induce differential effects on fairness perceptions, customer confusion and adverse consequences. This issue is relevant for retailers because competitive online prices put pressure on retailers to offer lower prices online which cannot be sustained in the stationary channel (Grewal et al., 2010; Unterhuber, 2015). To close this research gap, the following questions guided our research:

(9) How does the use of price differentiation instruments (product price differentiation, online promotion, online shipping fees) influence price fairness and customer confusion?

(10) How do different price differentiation instruments interact to influence price fairness and customer confusion?

(11) How do customer confusion and price fairness influence attitudinal and behavioral consequences?

We use an experimental approach with a between-subjects design. The results show that product price differentiation and online promotions lead to higher unfairness perceptions. This effect occurs albeit the customers being able to take advantage of a lower price as they might have to purchase in a less favored channel to do so. We also find that consumer's fairness perception of shipping fees depends on price differentiation of the base product price. Specifically, online shipping fees are perceived as fairer than no shipping fees when the online product price is cheaper in the online channel and more unfair than no shipping fees when the online product price equals the offline price. Customers might

be cued to consider channel costs when shipping fees apply. As a consequence, they might feel that cost advantages (lower inventory cost online) and cost disadvantages (costs of delivery) of channels should be applied consistently. We attribute these results to consumer's considerations of fair social exchange within equity theory (Adams, 1965) and the principle of dual entitlement (Kahneman et al., 1986). Furthermore, customer confusion arises through product price differentiation and online promotions but not through shipping fees. We thus suggest that confusion from price differentiation most likely occurs at the time of product comparison rather than when shipping fees are added.

We found direct effects of online promotion on attitudinal and behavioral consequences and several mediation effects. Specifically, perceived price fairness and customer confusion mediate the effect of price differentiation through online promotion on negative consumer reactions. Customer confusion influences an immediate purchase abandonment particularly strongly. We also found that a serial mediation effect exists via customer confusion and price fairness on consequences, thus revealing the two-fold influence (directly and indirectly via price fairness) of confusion. We suggest that the reason for the strong impact of online promotions might be that customers do not consider them in the context of channel-based costs and hence find no explanation for a differentiation.

The observed results offer important implications for multi-channel retailers. Retailers need to consider the distinct and joint influence of pricing instruments. With view to confusion and fairness perceptions, it is advisable to adjust the price via shipping fees when the retailer offers lower prices through product price differentiation online. Furthermore, promotions in only one channel might not be beneficial if the consumer prefers to buy in another channel. In this case, to avoid price unfairness perceptions and customer confusion retailers should employ cross-channel integrated promotions. However, they also must consider the influence on profits for the possible combinations of the instruments and the scale of differentiation.

This research also contributes substantially to the literature, as it extends previous work by investigating product price differentiation, price differentiation through promotions and price differentiation through shipping fees jointly. The findings shed light on the potential of shipping fees to raise the customer's awareness of costs and influence price fairness perceptions. With this, we are able to show that fairness-related theories, in particular the principle of dual entitlement, take effect for channel-based product price differentiation in specific situations only – that is, when cost-based considerations are activated through a cue. Furthermore, this research also widens the scope of multi-channel pricing literature by considering customer confusion as an explanatory factor. Importantly, the results show evidence that it might be a stronger driver of adverse consequences than price unfairness perceptions.

This study contributes to the answer of the overall research question by showing that less integrated prices through the specific use of differentiation instruments can increase customer confusion and price unfairness perceptions. Unfavorable consequences arise from price unfairness perception and customer confusion specifically for online promotions. Customer confusion strongly drives purchase abandonment resulting from non-integrated online-promotions. While price integration might reduce confusion, not every price differentiation instrument leads to unfavorable consumer reactions. Overall, pricing remains a complex issue for retailers who need to consider the effects of the joint use of price differentiation instruments on consumer perceptions and profits.

The combined results of the pre-study and the research projects provide differentiated insights on the relationship between channel integration and customer confusion. While this thesis provides proof that assortment and price strategies of multi-channel retailers influence customer confusion, we are able to show that recommendations for high levels of price and assortment integration as a means to avoid customer confusion are not generalizable. Importantly, as is the case of assortment integration, particular forms of lower integration lead to less confusion than full integration (research project 1) or, as revealed for price integration, specific differentiation instruments (shipping fees) do not lead to more confusion than price integration (research project 3). Furthermore, confusion may occur but – depending on the cause of confusion – does not necessarily lead to a significant difference in unfavorable consequences (research project 3). In other cases, confusion might be outweighed by the positive effects of other factors (research project 2). This research hence also exposes the importance of interrelationships of confusion with other influencing factors such as assortment and fairness perceptions. An answer towards the favorability of different forms of integration needs to consider these factors in conjunction with customer confusion.

6.2 Implications for research

While specific implications for research were deduced for the individual research projects, the present thesis also offers contributions to literature as a whole. Firstly, the present work is the first to analyze customer confusion in the context of a buying process that includes multiple channels. In contrast to extant research on confusion (e.g., Matzler & Waiguny, 2005; Walsh & Mitchell, 2010), this perspective embraces the search and buying behavior of today's global consumers who exhibit channel switching behavior in their search for the right product (Arora & Sahney, 2018; Flavián et al., 2019; Lemon & Verhoef, 2016). In doing so, this research first identifies and categorizes sources of confusion in multi-channel shopping situations that can be coordinated through the management of the

specific retail mix levers. This categorization offers a framework for future research on confusion in multi-channel retailing contexts to build on.

Secondly, we introduce customer confusion as an explanatory variable that has not been considered in empirical research (e.g., Emrich et al., 2015; van Baal, 2013) with the intention of explaining changes in consumer perceptions, purchase abandonment, attitude and store patronage intentions. We thus offer a deeper understanding of direct and indirect influencing mechanisms of confusion on consumer reactions. Besides, we also shed light on counteracting forces that are able to offset customer confusion.

Thirdly, we use a differentiated measurement for the construct customer confusion. Past research has conceptualized and recommended such differentiation but has not applied it in empirical investigations (Garaus & Wagner, 2016; Mitchell et al., 2005). The results of the first and second research project show that cognitive and affective confusion are distinct, induce different results and also provide missing explanations for previous results related to cognitive confusion (e.g., Diehl et al., 2015; van Herpen et al., 2009). This justifies the separation and we encourage future research in the field of customer confusion to implement this approach.

6.3 Managerial outlook

From the three research projects, specific management implications were derived according to the respective results of the studies. There are also some implications for business practice with view to the overall reasoning of this thesis. Firstly, this research shows that multi-channel retailers – to a certain extent – can decide on implementing lesser integrated price and assortment strategies. However, the training of service staff and cross-channel services must be designed to complement and support this strategy, as easy access to other channels also helps to limit cognitive effort by rendering the transaction process transparent (Li et al., 2018). For example, stationary retailers can place online terminals or tablets next to their offline assortment of a specific product-category, thus ensuring customer transparent access to their full product range and the corresponding prices.

Secondly, there are implications with regard to the differentiation of multi-channel retailers from online competitors. If multi-channel retailers carry similar assortments to online competitors or if they set higher or differentiated price levels to account for their costs, they should differentiate themselves from pure online retailers through multi-channel specific assets, such as the flexibility offered by cross-channel services (e.g., click and collect, possibility to return products in every channel etc.) and consultation and after-sales service in stores for online and offline customers equally. In this

context, research has shown that higher prices can become less important to the customer (Gensler et al., 2017).

The third implication deals with the measurement of integration performance. Generally, price and assortment integration across channels is a multifarious task because of the retailer's different channel costs, slow- and fast-moving items, customer channel preferences, customer shopping goals, market conditions and direct competitor's prices. Retailers thus need to model optimization functions that account for interactions and interdependencies of their channels to base their decision on (Zhang et al., 2010). These analytical models have to include an adequate measurement objective for the effectiveness of the different forms of assortment and price integration (e.g., net profit after accounting for integration costs) conjointly, and they need to account for different market conditions. This also requires a high level of data integration across channels, such as integrated product sales data, inventory data and customer data extracted from loyalty programs or online analytical tools.

6.4 Limitations and future research

This work has some general limitations that we advise future research to address. Firstly, we use scenario-based surveys for our studies. While our studies have high internal validity, experiments including a real physical and online retailer would aid to compose a more comprehensive picture of customer confusion in multi-channel shopping contexts. Therefore, future studies should conduct field experiments with the co-operation of a multi-channel retailer.

Secondly, a further limitation is that our experiments examine only a limited segment of complex customer multi-channel journeys and the sequence of the channels in which respondents accessed them was fixed. In real-world shopping experiences, the customer is influenced through multiple touchpoints during the information search stage and might switch or reuse channels several times. Studies might investigate more channels or examine the offline-online channel combination in the way the consumer prefers to access them and allow for more interactions between the presented channels. Further research might also include the mobile channel as a second form of the online channel, as the way consumers navigate the assortment through their mobile device differs.

Thirdly, the confusion phenomenon is contextual. For practical reasons, and similar to previous studies, each study was limited to certain products or to one product category. Although comparable results are assumed for products pertaining to the same main category (e.g., laptops and other technical products), some categories induce confusion more than others. Furthermore, some situations or consumer involvement might induce more confusion. For example, in situations where customers shop

according to habitual purchases in their usual channel, they might not get confused irrespective of integration. As the pre-study has shown, confusion can also be influenced by personnel recommendations in stores, by evaluations from others, by time preferences for product receipt, etc. Furthermore, the amount of confusion might depend on consumer's channel preferences and channel migration behavior. Further research should include the impact of such variables.

Finally, for a retailer to assess the impact of confusion, it is important to consider profitability in the long term. Different forms of integration have different costs and might influence confusion and consumer attitudes in a certain manner, which in turn influences profit. The results of this thesis do not allow for a definite conclusion on the long-term profitability of different forms of assortment and price integration. Similar to van Baal (2013), we also call for long-term empirical research through company-level-data to reveal the effects of costs and benefits of different integration forms of price and assortment.

6.5 Conclusion

Some researchers have voiced concern that inconsistency between assortment and prices across channels confuses customers. Thus, this thesis has attempted to provide an answer to the question at hand: Is channel integration in the sense of a harmonization of price and assortment the solution to customer confusion? Regarding consumer behavior, is channel integration ultimately worth the costs and the challenges it raises? There is no unequivocal answer. Based on our results, in some cases less-integrated channels lead to lower confusion than fully integrated channels. Sometimes, confusion might occur but will be overcompensated by the positive effects of other mechanisms or – contingent on the particular methods used – might or might not lead to unfavorable consequences. Accordingly, it is possible to use specific multi-channel price or assortment strategies that allow for less integration on the one hand. On the other hand, there are less expensive tools for retailers (e.g., introducing complement-based product presentations online) that also foster integration of channels.

Overall, this is good news for retailers – for now. Multi-channel retailing is a highly dynamic field and a new era of possibilities has already begun. There are, and there will continue to be, fast technological advancements, new touchpoints and new ways for retailers to sell their products. As of today, virtual stores, shopping with augmented reality, same day delivery, ephemeral pop-up concepts and personalized pricing are changing the retailing world yet again. At the same time, the Covid-19 pandemic has boosted online purchases to an unprecedented level and increased the utilization of online-to-offline multi-channel services (e.g., click and collect) (Global Data, 2020). We might see

an acclimation of new customer groups to the use of the online channel. This will even further augment the need for integrational multi-channel services and assortment presentation concepts that introduce experiential qualities to online shopping.

Thus, the diffusion of recent innovations – and the ones that are yet to come – will further blur the lines between the online and the offline shopping world. They will open up new challenges for retailers' channel integration and eventually, they will also reopen the case for customer confusion.

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Appendix

Research project 1:

Research project 2:

Research project 3:

Appendix A. Items, reliability measures, results of factor analysis (research project 1).

Constructs	Items	main study		supplementary study	
		Cronbachs alpha	**Factor loading**	**Cronbachs alpha**	**Factor loading**
Cognitive Confusion	Overall, it was easy for me to choose from the retailer's/retailers' assortment/s.*	.834	.538	.877	-.705
	I could not afford the time to choose the right product from the assortments.		.654		.660
	It took me time and effort to choose from the retailers'/retailers assortment/s.*		.752		.733
	I concentrated a lot while making the choice.		.792		.712
	It was difficult to compare the different offers.		.776		.788
Affective Confusion	I felt confused at the time of decision-making.	.820	.663	.819	.682
	It was frustrating to make the decision.		.811		.845
	I felt irritated at the time of decision-making.		.719		.766
	I felt annoyed at the time of decision-making.		.844		.822
	I felt unnerved at the time of decision-making.		.679		.702
	It was fun to make the decision**		-.512		
Assortment Perception	The assortment of [the retailer] offers sufficient alternatives to choose from.	.851	.797	.845	.899
	The assortment gives me (at least) one laptop that I like.		.739		.827
	The assortment of the retailer offers a great variety.		.713		.884
Purchase Abandonment	In a real purchase scenario, I would have postponed the purchase	.747	.770		
	In a real purchase scenario, I would have abandoned the purchase		.777		
	In a real purchase scenario, I would not have been able to choose a product.		.770		
Attitude towards the retailer	To which extent would you evaluate [the retailer] as...	.956			
	Disappointing/Satisfactory		.865		
	Unappealing/appealing		.864		
	Bad/good		.865		
	Unfavorable/Favorable		.829		
Patronage Intentions	I would recommend [the retailer] to someone who seeks my advice.	.956	.783		
	I would consider [the retailer] as my first choice in the future.		.796		
	I would encourage friends and relatives to purchase from [the retailer].		.813		
	I would say positive things about [the retailer]		.795		
Realism Check	It was very easy for me to imagine the purchase situation.	.927		.937	
	It was very easy for me to put myself in the purchase situation.				

Note: *Items for cognitive confusion referred to two retailers for study 1 and one retailer for study 2. /**This item was deleted in study 2 / Items measured on a seven-point scale from 1 = 'I do not agree at all' to 7 = 'I totally agree' and bipolar seven-point scale for attitude towards the retailer.

Appendix B. Scenario description of main and supplementary study (research project 1).

Main study

Please try to put yourself into the following situation. Imagine you intend to purchase a laptop in the following days. You can make your pick on the following pages. You will have a look at the assortment of the retailer bu multitech and the online retailer onlinemaxx. bu multitech has a store that is located close to you, and an online shop. Onlinemaxx has an online shop. You will visit these three channels. You need to decide where to buy and which product to buy. Please remember your favored channel and product. You will be asked questions regarding your choice. Keep in mind the following: The online shop of bu multitech and onlinemaxx are both known for their good delivery service and their flexible return policies. Online, you can shop comfortably from wherever you like and you are not bound to opening hours. However, you will see the product in real life only when it arrives at your home. If the product is wrong, you will have to invest additional time and effort to return it. The store of bu multitech can be reached easily. The store has recently been awarded for great consultation quality. If you find a suitable product there, you can immediately take it home and use it. However, you will have to invest more time and effort, and you are bound to opening hours.

Supplementary study

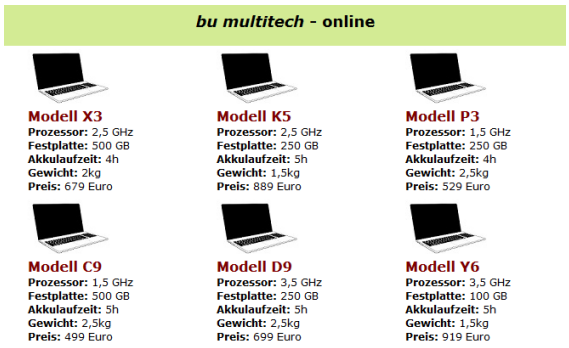
Please try to put yourself into the following situation. Imagine you intend to purchase a laptop in the following days. You can make your pick on the following pages. You will have a look at the assortment of the retailer bu multitech. bu multitech has a store that is located close to you and an online shop. You will visit the store and the online shop. You need to decide where to buy and which product to buy. Please remember your favored channel and product. You will be asked questions regarding your choice. Keep in mind the following: The online shop of bu multitech is known for its good delivery service and flexible return policy. Online, you can shop comfortably from wherever you like and you are not bound to opening hours. However, you will see the product in real life only when it arrives at your home. If the product is wrong, you will have to invest additional time and effort to return it. The store can be reached easily. The store has recently been awarded for great consultation quality. If you find a suitable product there, you can immediately take it home and use it. However, you will have to invest more time and effort, and you are bound to opening hours.

Appendix C. Laptop alternatives and exemplary scenario (research project 1).

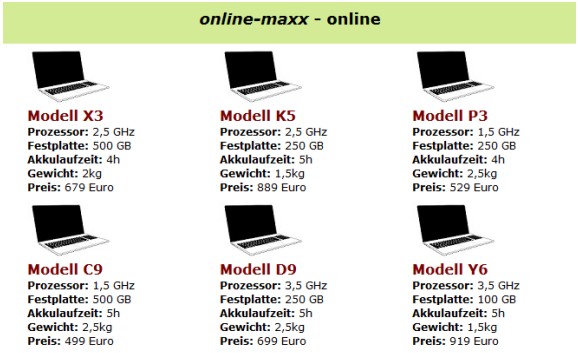
Product alternatives	Processor	Hard drive	Battery life	Weight	Price
1 = X3	2,5 GHz	500 GB	4h	2kg	679.-
2 = C9	1,5 GHz	500 GB	5h	2,5kg	499.-
3 = K5	2,5 GHz	250 GB	5h	1,5kg	889.-
4 = D9	3,5 GHz	250 GB	5h	2,5kg	699.-
5 = P3	1,5 GHz	250 GB	4h	2,5kg	529.-
6 = Y6	3,5 GHz	100 GB	5h	1,5kg	919.-
7 = M3	2,5 GHz	100 GB	5h	2kg	529.-
8 = G6	3,5 GHz	250 GB	4h	2kg	709.-
9 = Q3	1,5 GHz	500 GB	5h	1,5kg	879.-
10 = K2	2,5 GHz	100 GB	6h	2kg	719.-
11= S4	1,5 GHz	100 GB	5h	1,5kg	479.-
12= R5	3,5 GHz	500 GB	6h	2kg	899.-

Page 1

Page 2



Page 3



Appendix D. Means and standard deviations for dependent variables across scenarios (research project 1).

Main study

Scenario	n	Assortment Perception	Cognitive Confusion	Affective Confusion	Abandon-ment	Attitude	Patronage Intentions
1	99	4.33 (1.37)	3.23 (1.27)	2.90 (1.27)	3.55 (1.27)	4.86 (1.90)	4.02 (1.41)
2	98	4.40 (1.34)	3.72 (1.28)	2.88 (1.37)	3.75 (1.24)	4.72 (1.26)	3.96 (1.45)
3	93	4.36 (1.41)	3.83 (1.39)	3.15 (1.31)	3.82 (1.33)	4.63 (1.30)	3.82 (1.48)
4	99	4.62 (1.39)	3.17 (1.33)	2.67 (1.20)	3.61 (1.26)	5.11 (1.14)	4.22 (1.57)
5	99	4.53 (1.40)	3.30 (1.18)	2.64 (1.35)	3.42 (1.25)	5.05 (1.18)	4.35 (1.30)
6	106	4.95 (1.12)	3.50 (1.39)	2.86 (1.30)	3.60 (1.21)	4.90 (1.18)	4.14 (1.42)

Note: Standard deviation in parentheses.

Supplementary study

Scenario	n	Assortment Perception	Cognitive Confusion	Affective Confusion
1	73	3.67 (1.36)	3.00 (1.27)	2.26 (1.30)
2	70	3.91 (1.44)	2.71 (1.16)	2.06 (1.06)
3	81	3.84 (1.51)	3.27 (1.38)	2.49 (1.24)
4	68	4.38 (1.37)	3.52 (1.29)	2.62 (1.44)
5	74	4.17 (1.44)	3.33 (1.25)	2.40 (1.28)
6	72	4.50 (1.45)	3.80 (1.48)	2.44 (1.32)

Note: Standard deviation in parentheses.

Appendix E. Items, reliability measures, results of factor analysis (research project 2).

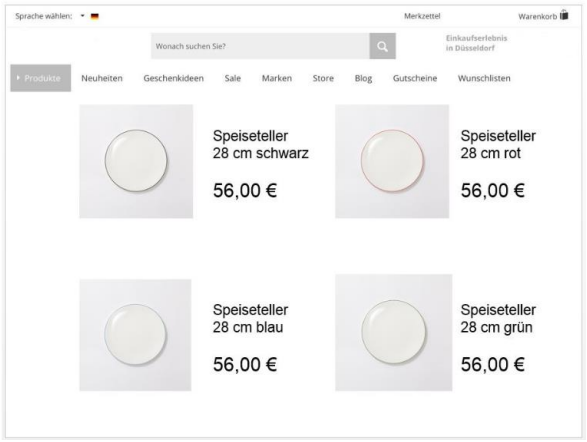
Constructs	Items	1st dataset		2nd dataset	
		Cronbachs Alpha	**Factor loading**	**Cronbachs Alpha**	**Factor loading**
Cognitive Confusion	The decision was difficult to make.	.754	.779	.729	.777
	It took time and effort to choose.		.769		.760
	I concentrated a lot while making the choice.		.669		.638
	Overall, it was easy for me to choose.		-.645		-.700
Affective Confusion	I felt confused at the time of decision-making.	.890	.841	.869	.769
	It was frustrating to make the decision.		.800		.754
	I felt irritated at the time of decision-making.		.835		.791
	I felt annoyed at the time of decision-making.		.819.		.811
	I felt unnerved at the time of decision-making.		.816		.797
Customer Inspiration	The online shop stimulated my imagination.	.947	.893	.940	.904
	The online shop inspired me to new ideas.		.907		.931
	The online shop inspired me to buy something.		.880		.808
	I got new ideas from the online shop.		.894		.913
Assortment Perception	The assortment of [the retailer] offers sufficient alternatives to choose from.	.884	.878	.857	.859
	The assortment offers products that I like.		.891		.875
	The assortment of [the retailer] offers a great variety.		.848.		.700
Decision-Making Style	I don't like asking other people to help me with decisions.	Not surveyed		.802	.760
	I prefer to make decisions alone instead of making them together with others.				-.811
	I value the help and advice of other people when I have to make difficult decisions.				-.826
	I like to get advice from family and friends when making decisions				.790
Realism Check	It was very easy for me to imagine the purchase situation.	.947		.938	
	It was very easy for me to put myself in the purchase situation.				

Note: Items measured on a seven-point scale from 1 = 'I do not agree at all' to 7 = 'I totally agree'.

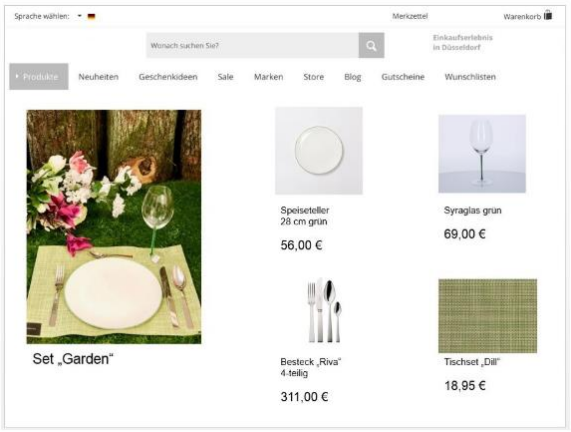
Appendix F. Scenario description and exemplary scenario (research project 2).

Please read carefully and try to visualize the following situation. Imagine you want to buy a high quality set of dinnerware for the 60th birthday of one of your relatives, containing plates, cutlery, glasses and placemats. Together with the other birthday guests you gathered money and have now a budget of 500 euros available. You were put in charge of finding a nice and matching dinnerware set, and notify the others about the price after the purchase. You visit an online shop that was recommended to you and that you are aware of carries such products. First, you have a look at all the available products and then you decide what you want to buy.

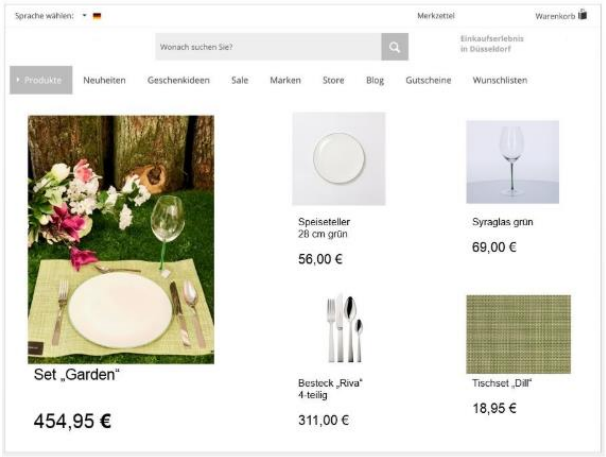
Example Page 1 – Substitute-based (Plates)



Example Page 1 – Complement-based <u>without</u> price



Example Page 1 – Complement-based <u>with</u> price



Appendix G. Means and standard deviation for dependent variables across scenarios (research project 2).

First Dataset

Scenario	n	Customer Inspiration	Cognitive Confusion	Affective Confusion	Assortment Perception
1	80	2.56 (1.66)	2.28 (1.11)	2.52 (1.46)	3.31 (1.49)
2	82	2.99 (1.50)	2.71 (1.14)	2.38 (1.27)	3.86 (1.48)
3	56	3.45 (1.57)	2.83 (1.19)	2.60 (1.59)	4.04 (1.46)

Note: Standard deviation in parentheses.

Second Dataset

Scenario	n	Customer Inspiration	Cognitive Confusion	Affective Confusion	Assortment Perception
1	66	2.83 (1.57)	2.47 (1.05)	2.79 (1.40)	3.35 (1.31)
2	78	3.62 (1.68)	2.74 (1.32)	2.39 (1.28)	4.12 (1.55)
3	40	3.55 (1.58)	3.07 (1.34)	2.88 (1.21)	3.88 (1.16)

Note: Standard deviation in parentheses.

Appendix H. Items, reliability measures, results of factor analysis (research project 3).

Constructs	Items	Cronbach's alpha	Factor loadings
Price Fairness	The retailer's handling of prices is …	0.869	
	unfair.		.779
	just.		.805
	unacceptable.		.764
	unprofessional.		.761
	fair.		.800
Customer Confusion	**Affective Confusion Items**	0.883	
	I felt confused at the time of decision-making.		.760
	It was frustrating to make the decision.		.744
	I felt irritated at the time of decision-making.		.773
	I felt annoyed at the time of decision-making.		.745
	I felt unnerved at the time of decision-making.		.752
	Cognitive Confusion Items		
	The decision was difficult to make.		.738
	It took time and effort to choose.		.775
	I concentrated a lot while making the choice.		.701
	Overall, it was easy for me to choose.		.745
Purchase Abandonment	In a real purchasing situation, I would have postponed the purchase.	0.730	.779
	In a real purchasing situation, I would have abandoned the purchase.		.840
	In a real purchasing situation, I would not have been able to choose in which channel to buy.		.554
Attitude towards the Retailer	To which extent would you describe the retailer as …	0.920	.
	bad/good		.853
	negative/positive		.863
	unappealing/appealing		.802
	disappointing/satisfactory		.851
Patronage Intentions	I would recommend the retailer to someone who seeks my advice.	0.922	.838
	I would consider the retailer as my first choice in the future.		.836
	I would encourage friends and relatives to purchase from the retailer.		.848
	I would say positive things about the retailer.		.858
Realism Check	It was very easy for me to imagine the purchase situation.	0.822	
	It was very easy for me to put myself in the purchase situation.		

Note: *Cognitive confusion and affective confusion loaded on two different factors. Cronbach's alpha is reported for customer confusion overall. Items measured on a seven-point scale from 1 = 'I do not agree at all' to 7 = 'I totally agree' and bipolar seven-point-scale for attitude towards the retailer.

Appendix I. Scenario description and exemplary scenario (research project 3).

Please read carefully and try to visualize the following situation. Imagine you want buy a new cupboard. There is a furniture retailer close to your home. You can reach it easily with your spacious car. The retailer also has an online shop which guarantees quick delivery (1-2 days). You decide to look at the retailer's assortments in order to make a decision. First, you go to the store and see some cupboards that match your budget. In the evening, you have a look at the retailer's online shop, that offers the same cupboards. Please decide where you want to buy the cupboard and where you want to buy it: At the store or online. Decide the way you would decide in a real situation.

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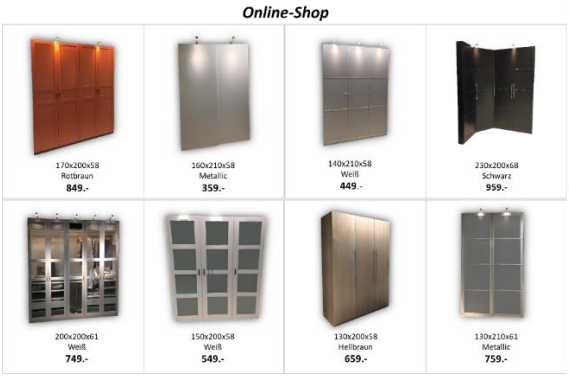

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Appendix J. Means and standard deviation for dependent variables across scenarios (research project 3).

Scenario	n	Price fairness	Customer Confusion	Purchase Abandonment	Attitude	Patronage Intentions
1	41	5.30 (1.02)	2.42 (1.13)	2.80 (1.48)	4.71 (1.30)	4.37 (1.18)
2	38	4.64 (1.32)	2.47 (1.19)	2.32 (1.44)	4.49 (1.28)	4.16 (1.27)
3	42	4.95 (1.19)	2.67 (1.04)	2.83 (1.43)	4.32 (1.21)	3.36 (1.37)
4	38	4.64 (1.29)	2.98 (1.49)	2.75 (1.51)	4.24 (1.19)	3.80 (1.31)
5	45	5.14 (1.04)	2.19 (1.15)	2.65 (1.30)	4.70 (0.99)	4.19 (1.16)
6	40	5.04 (1.17)	2.53 (0.98)	2.55 (1.32)	4.51 (1.23)	4.04 (1.26)
7	39	4.55 (1.21)	2.67 (1.30)	3.03 (1.34)	4.19 (1.23)	3.84 (1.40)
8	36	4.72 (1.00)	3.00 (1.39)	3.25 (1.65)	4.19 (1.40)	3.75 (1.39)

Note: Standard deviation in parentheses.

Appendix K. Sample characteristics of each study.

Variable	**Pre-study** (n = 64)		**Study 1** ***Main Study*** (n = 594)		**Study 1** ***Suppl. Study*** (n = 438)		**Study 2** ***1st sample*** (n = 218)		**Study 2** ***2nd sample*** (n = 184)		**Study 3** (n = 319)	
	n	%	n	%	n	%	n	%	n	%	n	%
Gender												
Female	47	73.4	335	56.4	220	50.2	128	58.3	108	58.7	206	64.6
Male	17	26.6	259	43.7	218	49.8	90	41.7	76	41.3	113	35.4
Age												
Ø	26.2		30.7		34.3		32.3		31.6		28.2	
(σ)	(4.0)		(11.5)		(12.8)		(11.9)		(11.6)		(8.2)	
School Ed. Level												
School student	0	0	6	1.0	4	0.9	1	0.5	1	0.5	3	9.4
Lower level education (grad.)	3	4.7	81	13.6	40	9.1	27	12.4	40	21.7	20	6.3
High school education (grad.)	55	85.9	472	79.5	380	86.8	182	83.5	140	75.1	281	88.1
Other	5	7.8	26	4.4	13	3.0	5	2.3	2	1.1	15	4.7
No answer	0	0	9	1.5	1	0.2	3	1.4	3	1.6	0	0
Current Activity							*not surveyed*		*not surveyed*		*not surveyed*	
Employed (employee/freelancer)	21	32.8	307	51.7	270	61.6						
Unemployed	0	0	6	1.0	1	0.2						
Military / FSJ	0	0	4	0.7	1	0.2						
School student	1	1.6	28	4.7	7	1.6						
University student	41	64.1	190	32.0	113	25.8						
Trainee/Apprentice	1	1.6	26	4.4	13	3.0						
Retiree	0	0	6	1.0	5	1.1						
Other	1	1.6	19	4,3	22	5.0						
No answer	0	0	8	1.3	6	1.4						
*Professional Qualification**	*not surveyed*		*not surveyed*		*not surveyed*							
No qualification							1	0.5	4	2.2	12	3.8
Apprenticeship (current.)							26	11.9	27	14.7	54	16.9
..9Apprenticeship (grad.)							66	30.3	49	26.6	70	21.9
University / UAS (grad.)							40/ 85	18.3/ 39.0	39/ 69	21.2/ 37.5	119/ 54	37.3/ 16.9
PhD (grad.)							5	2.3	5	2.7	3	9.4
Other							11	5.0	3	1.6	7	2.2
No answer							3	1.4	0	0	0	0
Professional stage	*not surveyed*		*not surveyed*		*not surveyed*							
Full-time							100	45.9	89	48.4	108	33.9
Part-time							44	20.2	30	16.3	44	13.8
Marginally employed							30	13.8	31	16.8	81	25.4
Unemployed							13	6.0	18	9.8	41	12.9
Other							25	11.5	14	8.5	37	11.6
No answer							6	2.8	2	0.2	8	2.5
Income											*not surveyed*	
< 1000 EUR	25	39.1	105	17.7	57	13.0	29	13.3	29	15.8		
1000 < 2000 EUR	16	25.0	116	19.5	65	14.8	37	17.0	27	14.7		
2000 < 3000 EUR	10	15.6	95	16.0	63	14.4	44	20.2	36	19.6		
3000 < 4000 EUR	7	10.9	83	14.0	60	13.7	38	17.4	31	16.8		
4000 < 5000 EUR	0	0	53	8.9	54	13.0	19	8.7	20	10.9		
> 5000 EUR	4	6.3	53	8.9	51	11.6	22	10.1	20	10.9		
No answer	2	3.1	89	15.0	78	17.8	29	13.3	21	11.4		