

The influence of online store characteristics on consumer impulsive decision-making: a model and empirical application

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Abstract:

This study is one of the first to provide insight into the relationships between the online store and consumer impulsive decision-making. We develop a model and show how online store merchandise, ease of use (high task-relevant cues), enjoyment and style (low task relevant cues) relate to online impulse buying. The model is tested using survey data from 532 customers of a Dutch online store. The results show significant effects of merchandise, enjoyment and online store style, mediated by consumers' emotions and browsing behavior. The study adds to the literature by enhancing our understanding of online impulse buying and by assessing the impact of the online store beyond rational decision-making settings.

Keywords: impulsive decision-making, emotions, online store, high task-relevant cues, low task-relevant cues.

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1. Introduction

Consumers increasingly engage in impulsive online decision-making. Triggered by an easy access to products [31], instant ordering (e.g., 1-Click ordering of Amazon.com), lack of social pressures, and absence of delivery efforts [26], impulse purchases are assumed to account for about 40% of all online expenditures [44]. As insight into consumer buying behavior is vital for e-commerce practitioners, it becomes important to understand the nature of online impulse decision-making and address the role of online store characteristics therein.

Despite the relevance of impulsive decision-making, there is remarkably little research into the influence of online store characteristics on impulsive buying behavior [35]. The vast majority of online consumer research views purchase decision-making as a rational process, based on cognitive problem solving and information processing (cf. [10]). From this perspective, decision-making usually is seen as sequence of belief formation, attitude formation, intention formation, and actual purchase behavior. Captured into models such as the theory of reasoned action (TRA) [3] and the technology acceptance model (TAM) [16], researchers applied this sequence of effects to study the influence of online store beliefs such as online store merchandise, website style [45], ease of use and enjoyment [56] on rational buying behavior. While these studies add to our knowledge on the impact of the online store on rational buying, they fail to provide insight into situations where decision-making is spontaneous, unreflective, dominated by emotions, and immediate [41], that is, in impulse buying situations.

The major goal of this paper is to address how and to what extent online store characteristics influence consumer impulsive decision-making. Answering these questions seems vital to develop a more complete picture of the influence of the online store on consumer decision-making. Drawing upon the literature on consumer behavior and online retailing, we construct and empirically test a model relating the online store characteristics merchandise, ease of use, enjoyment, and website style to consumer impulse buying. By introducing the model, we intend to make four contributions. First, we aim to enhance our understanding of the impulse buying process. Conceptual foundations are discussed and incorporated in the proposed model. Second, using traditional theory on impulsive buying behavior [7] as backbone, we test the applicability of this theory in online buying settings. This contribution can be seen as contextual extension (cf. [9]). Third, being a core element of impulsive decision-making, we explicitly address the role of emotions in online settings. Knowledge about the role of emotions in online environments is scarce [14, 22]. Fourth we validate the influence of four common online store characteristics on online impulsive decision-making. As such, we assess the impact of the online store on consumer decision-making beyond rational buying settings.

The rest of this paper is organized as follows. In section 2, we discuss the concept of impulsive decision-making and provide a review of available works on online impulse buying. In section 3, we develop hypotheses and introduce our research model. Section 4 describes our research methodology, while section 5 reports on the empirical results of this study. In section 6 we discuss our findings and arrive at conclusions. We close with limitations and recommendations in section 7.

2. Theoretical Background

2.1 The buying impulse

Impulse buying occurs when people experience a sudden urge to buy a product, without engaging in extensive cognitive evaluation and prepurchase deliberation [15, 40, 54]. The urge to buy is often irresistible [7, 28], and consumers may therefore feel temporarily out of control and pay less attention to behavioral consequences [40]. As affective rather than cognitive processes dominate impulse buying [54], the decision-making usually is short and rather spontaneous in nature [31]. The affective nature of impulsive decision-making also implies that consumers may experience ambivalence towards the purchase, since immediate gratification (pleasure) and long term consequences (reality) may pull the consumers in two directions [40].

Typically, impulsive buying occurs at the spot, that is, in the shopping environment. The instantaneous nature of impulse buying implies that ‘the only available information, aside from internal or memory-base information, is the external information available in the shopping environment’ [31, p. 266]. Therefore, one might assume that in-store information plays a substantial role in consumer impulsive decision-making, and may even have more influence than in planned buying situations [31]. In-store elements that have been associated with impulse buying include product selection, store atmospherics [50], product pricing [43], promotions, easy payments [58], and word-of-mouth [31]. By adding to the affective state of consumers, these elements may trigger impulsive behavior [7, 50].

When comparing the impulse buying process to contemplative buying processes (cf. [10, 24]), two core elements characterize impulse buying [50]. First, the impulse buying process is unplanned and lacks deliberation. Although not all unplanned purchases are impulsive; unplanned purchases might be rational [54] and

may be decided later on, possibly away from the store as stimulus [37, p. 342]; the vice versa is true, that is, the impulse buying process is unplanned. This implies that consumers do not engage in extensive deliberation and evaluation [40], nor do they apply cognitive processes to consider costs, benefits or consequences [39, 50]. As such, the impulse buying process is unintended and does not lead to the formation of cognitive-structured attitudes or intentions [7, 50]. Second, emotions dominate the impulse buying process. By emotions we refer to “a mental state of readiness that arises from cognitive appraisals of events or thoughts; has a phenomenal tone; is accompanied by physiological processes; is often expressed physically (e.g. gestures, posture, facial features); and may result in specific actions to affirm or cope with the emotion, depending in its nature and meaning for the person having it” [6, p. 184]². Although impulsive buying does not completely preclude information processing, emotions play a key role in the impulse buying process [54] and may directly lead to impulse buying action [7, 37, 39]. While many conceptualizations on emotions exist, most conceptualizations distinguish emotions into positive and negative affect (see [30]). Positive emotions such as pleasure and excitement may stimulate people rewarding themselves [7] and have them fulfill their need for instant gratification by buying the product [58]. Negative emotions, like feelings of depression or sadness, on the other hand, may also stimulate impulse buying since buying the product helps consumers to feel better [39].

In line with the above conceptualization, and following the works of [7] and [39], online impulse purchasing is defined in this study as ‘A sudden and immediate online purchase with no pre-shopping intentions, which occurs after experiencing an

² This definition discriminates emotions from moods. Moods do not have an object or referent, are not directly coupled with action tendencies or explicit actions, and are longer lasting and lower in intensity [6].

urge to buy and tends to be spontaneous, driven by emotions, and without a lot of deliberation'. This definition excludes other types of unplanned purchases as well as reminder impulse buying, that is consumers remembering previous knowledge of experience, which triggers the impulse purchase (see [15, 43]).

2.2 Research on consumer online impulse buying

A few empirical studies into online impulse buying exist. Next to providing insights into the online impulse buying process, these works seem to offer interesting opportunities for further refinements.

Adelaar, Chang, Lancendorfer, Lee and Morimoto [1] were among the first to study online impulse buying. Using a student sample, they tested the direct influence of media format (text, pictures and video) and emotions on consumers' impulse buying intent for music CDs. Their results indicated a rather strong effect of arousal as emotional determinant of the impulse buying intent. No clear evidence was found for effects of media format on either emotions or impulse buying intent. As the authors conceptualized the impulse buying intent as rational purchase intention, and measured the construct accordingly (e.g. "I would intend to purchase from the site"), the applicability of their model for studying the online buying impulse may leave room for discussion.

Zhang and his associates addressed the influence of consumers' general tendency to buy impulsively on consumers' intentions to buy online. Using a student sample, Zhang, Prybutok and Koh [59] tested this relationship as part of a modified TAM model. The results indicated a small though significant direct effect. A follow up study of Zhang, Prybutok and Strutton [60] confirmed this outcome for another TAM modification, validated on another student sample. While both studies provide

insight in the role of consumer impulsiveness in online purchase behavior, the applicability of the adopted TAM perspective may be subject to debate. In fact, this view contrasts with the main body of consumer behavior literature claiming that impulse buying is unintended in nature; driven by emotions; does not lead to the formation of cognitive-structured intentions [7, 39, 50], and is unlikely to be captured via traditional attitude/intention models [50].

Jeffrey and Hodge [26] conducted an experiment with visitors of an online transaction site to study the influences of amount of money spend and provision of a reason to purchase on consumers' likelihood to buy an impulse product. The outcomes of a logistic regression analysis demonstrated a significant though small effect of amount of money spent prior to purchase on the likelihood of buying impulse items. Moreover, a t-test showed that consumers are more willing to buy an impulse item when a part of the spend money is donated to a charity foundation. As the study conceptualized impulse buying as unintended purchase, a conceptual limitation may be that the spontaneous and sudden nature of impulse buying was left outside consideration. Furthermore, no particular attention was paid to emotions.

Finally, we refer to the study of Parboteeah et al. [35] who proposed an integrated model of visual appeal, information fit-to-task, usefulness, enjoyment and urge to buy impulsively. Visual appeal and information fit-to-task were postulated as website characteristics that both lead to cognitive (usefulness) and affective (enjoyment) reactions. Furthermore, usefulness was hypothesized as enjoyment determinant while enjoyment was proposed in the model as direct determinant of the urge to buy impulsively. An experimental study with a student sample was then conducted to test the research model in an online shopping context. The empirical results confirmed the entire model structure and show that the urge to buy is directly

and strongly determined by enjoyment. A follow-up experiment in their study validated the outcomes. A possible area for improvement of the model concerns the explicit focus on positive affect. As there is relative consensus in the literature that impulse buying is subject to positive *and* negative emotions, this leaves room for extensions.

The above demonstrates the progress made in the current research field. More important, it suggests that if we want to further our understanding on online impulse buying we need to exclude rational paradigms, include the sudden nature of the buying impulse, focus on emotions, and pay attention to positive and negative emotions. Here, we intend to incorporate these elements into a model relating online store characteristics to impulse buying behavior. In the next section, we introduce the model and elaborate on its conceptual foundations.

3. Hypotheses development

As discussed above, several studies have shown that impulse buying is influenced by the emotions that consumers experience. Other influences on impulse buying have also been suggested but the empirical evidence is scarce. For instance, it has been suggested that the urge to buy impulsively influences impulse buying but this influence is hardly empirically demonstrated, offline and online (a notable exception for the offline context is [7]). Furthermore, it is also known that the urge to buy is influenced by positive affect, negative affect, and the browsing activity. However, only [7] have demonstrated this latter influence of browsing. In this study, we will consolidate these influences mentioned above in the online context. Furthermore, we research what the antecedents are of affective responses and what causes browsing behavior in an online context, influences that have not been researched so far.

It is well known that when online users visit a website, they will have cognitive as well as affective reactions [35]. Especially affective responses have been found to be of influence on the urge to buy impulsively [7]. A considerable amount of research has been undertaken regarding the structure of affect and two dominant emotional dimensions of affect have consistently emerged: positive affect and negative affect [53]. These two dimensions have been shown to be stable across cultures, gender and age groups [17]. Positive affect and negative affect are considered as independent, i.e. orthogonal and to represent two independent dimensions. According to [52] positive affect “reflects the extent to which a person feels enthusiastic, active, and alert” (p. 1063). High positive affect is a state of high energy, pleasurable engagement and concentration. Negative affect is the dimension for general distress and includes emotions like anger, disgust, guilt and fear [52].

Several types of factors have found to be of influence on affect. In this paper, we focus on two types of store attributes that might influence affect, i.e., high task-relevant cues and low task-relevant cues. High task-relevant cues are the site descriptors “that appear on the screen which facilitate and enable the consumer’s shopping goal attainment” [21, p. 180], like merchandise and ease of use. Low task-relevant cues refer to “site information that is relatively inconsequential to completion of the shopping task” [21, p. 180), like website enjoyment and website style. High and low task-relevant cues are suggested to influence consumer emotions. However, empirical research on these effects is scarce. [35] show that these cues influence perceived enjoyment, but do not focus on positive affect in general or negative affect. Furthermore, they only focus on information fit-to-task as the high task-relevant cue and visual appeal as the low task-relevant cue. In this study we take a broader spectrum of cues into account.

3.1 The influence of high task-relevant cue on affect and browsing

An important task-relevant cue is merchandise, which refers to aspects like the number of products on a site, interesting offers, value for money, and whether products are aligned to the consumer's interest. Merchandise has been suggested to influence affect [21]. However, the link between products and emotions has only been empirically researched in the offline context (e.g. [47]). For instance, [13] shows that products can create positive affect such as joy, pleasure and delight as well as negative effect like worry, irritation, and disappointment. In the online context, the link between special offerings and positive affect (i.e., excitement) has been shown for auctions [8]. In line with this research we argue that websites with products that are in line with the consumers' interests and with interesting offers may create positive feelings. Furthermore, we believe that good merchandise will produce less negative affect (i.e. frustration). Therefore, we hypothesize:

H1a There is a positive relationship between perceived online store merchandise and positive affect.

H1b There is a negative relationship between perceived online store merchandise and negative affect.

Ease of use is another important high task-relevant cue. Ease of use of the website allows the customer to easily access the products, there is an organized layout, consumers can easily navigate the site, and learn how to use the site. Although the direct influence of ease of use on affect has not been researched, several related

constructs indicate an influence. For instance, [22] and [32] found out that a positive evaluation of usability, including ease of use, has a positive impact on positive emotions and a negative impact on negative emotions. [42] show in their study that system design plays a very important role in triggering emotional reactions such as pleasure and arousal that are significant determinants of the online buying impulse. And although not researched empirically yet, it is understandable that in case a site is more easy to use, consumers will experience less distress and will explore and consequently browse the site more. Therefore, we hypothesize:

H2a There is a positive relationship between perceived ease of use and positive affect.

H2b There is a negative relationship between perceived ease of use and negative affect.

H2c There is a positive relationship between perceived ease of use and browsing.

3.2 The influence of low task-relevant cue on affect and browsing

An important low task-relevant cue is enjoyment, which refers to a fun site, whether it is a great pleasure to browse through the site, and the attractiveness of the site. The influence of site enjoyment on affect has not been researched as such, but several related constructs have been found to influence affect. For instance, [42] reveal in their study that cues like music in the background and visual effects (i.e. fun aspects) have a significant effect on positive emotions and compared to the high task-related cues, are a stronger predictor of positive affect. Also, [48] show that a fun website (i.e., a website including comic strips, cartoons, and funnies) may create positive

affect. This is in line with the findings of [7] that, in an offline context, individuals who enjoy shopping in the store more tend to experience more positive affect. Also, [48] demonstrate that fun aspects on a website can offset negative effects. Applying this to our research, this may suggest that site enjoyment may decrease irritation and distress. Finally, it is expected that site enjoyment will increase browsing behavior on a website. Beatty and Ferrell [7], in an offline context, expected but did not find that shopping enjoyment lead to more in-store browsing. However, they point out that this might be caused by the lack of a clear distinction between browsing and shopping. “True shoppers” may have not liked their definition of browsing – just looking around. Overall, it is understandable to expect that the enjoyment that consumers experience, while being on the website will positively influence their online browsing. Therefore, we hypothesize:

H3a There is a positive relationship between perceived shopping enjoyment and positive affect.

H3b There is a negative relationship between perceived shopping enjoyment and negative affect.

H3c There is a positive relationship between perceived shopping enjoyment and browsing.

Website style is another important low task-relevant cue. Website style refers to the fact whether a website is calm, friendly, and knowledgably. Like with the other cues, the effect of website style on affect has not been researched as such but several related

constructs indicate its influence. For instance, [1] in their research on the effects of multi-media website content (text of lyrics, still images from the song's music video and the music video itself) on emotions and impulse buying found that a video format alone on a website was not enough to generate the positive feeling that was expected. However, showing the lyrics while playing the song created positive feelings. So, a mix of verbal and visual stimuli, i.e. more knowledge on the website, could strengthen emotional responses from the consumers. In another research, [42] show that the more interactive and the more vivid the online stimuli (i.e. website style characteristics), the stronger is the pleasure and the higher the arousal felt by online customer. Finally, we believe that in case a site has a better style, consumers will experience less distress and irritation. Therefore, we hypothesize:

H4a There is a positive relationship between perceived website style and positive affect.

H4b There is a negative relationship between perceived website style and negative affect.

3.3 The influence of emotions and browsing on urge to buy and impulse buying.

Several researchers identified affect as a variable that influences impulse purchasing [19]. Also [7] argue that when one is experiencing positive affect, one is more likely to engage in approach behavior than avoidance behavior. When negative affect is experienced one's urge to buy impulsively may be influenced negatively. Although they write about general affect, they specifically measure emotions. In addition, [1] as

well as [19] show that the more of a positive emotion felt by the individual, the greater the likelihood of overspending and impulse buying. We, in line with [7] argue that emotions influence impulse buying through a stronger urge to buy. Therefore, we hypothesize:

H5a There is a positive relationship between positive affect and urge to buy.

H5b There is a negative relationship between negative affect and urge to buy.

The effect of browsing on impulse buying has only been empirically researched by [7]. They argue that browsing is a central component in the impulse buying process. As consumers browse longer, they will encounter more stimuli, which would increase the likelihood of experiencing impulse buying urges. And, obviously, as more urges are experienced, the likelihood of engaging in an impulse purchase increases.

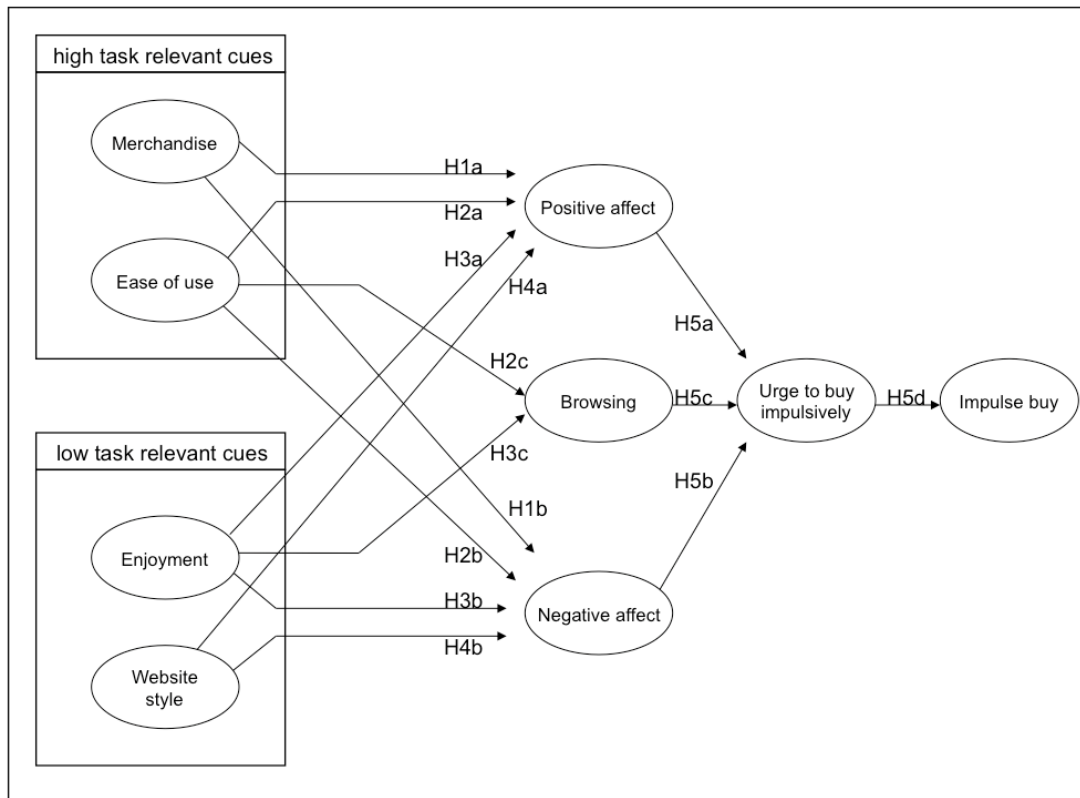
Although [7] show these relationships in the offline context, we argue that the same effects may happen in the online context. While browsing online, consumer encounter desirable products and these encounters produce an urge to buy. This urge is difficult to resist as it is just one click to get the product in the online shopping cart.

Therefore, we hypothesize:

H5c There is a positive relationship between browsing and urge to buy.

H5d There is a positive relationship between urge to buy and impulse buy.

Figure 1. Research model and hypothesized relationships



4. Research method

4.1 Procedure

An online survey design was adopted to collect empirical data. The sample consisted of customers of an online store selling fashion items (e.g. clothing, accessories, jewelry) in the Netherlands. Our decision to focus on fashion products was supported by the fact that these products evoke affective reactions and support consumers' self-images, two product characteristics that are assumed to trigger impulsive decision-making [2]. As impulse buying is accompanied by an immediate desire to buy and usually occurs spontaneously, a pre-purchase survey was unlikely to grasp the instantaneous nature of the phenomenon. Therefore, we adopted the approach of [7] and gathered information from buyers immediately *after* the overt buying behavior. Customers who completed an online transaction received an invitation to participate freely in the study, which was shown in the order confirmation that appeared on-

screen after the transaction closure. The invitation included a link that led to a web-based survey. The online survey addressed perceptions of the research constructs, and socio-demographics. As an incentive, respondents were asked to fill in their e-mail address to engage in the raffle of a book token of 50 Euro, and two clothing items together being worth 95 Euro.

The questionnaire was constructed using standard translation and back translation. A member of the research team translated the questionnaire into Dutch. A second member of the research team compared this Dutch questionnaire to the original American English questionnaire. To investigate whether the Dutch draft questionnaire contained any faults in the wording that could result in comprehension difficulties a pretest was held. Six graduate students participated in the test. The participants were asked to evaluate the clarity and interpretability of the questionnaire. Following this pretest, the participants met with one member of the research team to discuss and suggest improvements. Some minor modifications were made.

4.2 Measures

We operationalized the constructs with multi-item scales. The items for the *merchandise* construct were derived from the online store studies of [49] and [55]. *Ease of use, enjoyment* and *website style* were adopted from [45]. *Browsing, positive affect, negative affect* and *urge to buy* were modified from [7]. The major modification included the change of wording of the positive affect and negative affect items to make them applicable for the online context. To measure *impulse buy* we applied established procedures on scale construction (see [33]). First, the construct was conceptualized and defined (section 2.1). Then, a sample of six items was

selected based on previous literature (e.g. [28, 29, 39, 41, 54]), each of the items tapping into the conceptual domain of the construct (content validity). To judge the representativeness of the items, a pretest was conducted with a panel of three IS researchers (content validity, face validity). To judge the interpretability and ambiguity of the items, a focus group interviews with 10 undergraduate students was held. Based on the pretest and the focus group interviews, some minor refinements were made. Finally, a pilot test was conducted using 85 undergraduate students following a course e-business. The subjects were asked to keep track of their online purchases during the period of the course (eight weeks), and fill in the test survey each time after completing an online purchase. This resulted in 64 viable responses that were then used to study the convergent validity, discriminant validity (Exploratory factor analysis) and reliability (Cronbach alpha) of the instrument. We removed one item. The remaining instrument was unidimensional and contained an acceptable alpha (> 0.70).

4.3 Sample

The online survey yielded 532 responses. Table 1 shows the sample characteristics. The demographics indicate that the majority of the respondents was between 15 and 34 years old, and mostly female. Most respondents considered themselves experienced in using the Internet, while a slight majority reported to have experience in buying at the online fashion store. The online store confirmed that the sample profile matched their own findings on the customer profile. Although a sample bias was noticed, the Internet shopper is assumed to be more balanced in gender and more diverse in age, it is likely to be representative for the kind of store under examination.

Table 1. Sample demographics ($n= 532$)

Demographic	Category	Percentage	Count (n)
Age	10-14	0.4%	2
	15-24	54.9%	292
	25-34	26.5%	141
	35-44	12.6%	67
	45-54	3.6%	19
	>55	2.1%	11
Gender	Male	14.3%	76
	Female	85.7%	456
Internet experience	Very inexperienced	3.2%	17
	Inexperienced	1.1%	6
	Neutral	12.4%	66
	Experienced	54.5%	290
	Very experienced.	28.8%	153
Purchase experience	Yes	44.2%	235
	No	55.8%	297

5. Data analysis and results

5.1 Validity and reliability of measurement

Confirmatory factor analysis (CFA) was applied to test the adequacy of the measurement model. The software package Amos 7 with maximum likelihood estimation (MLE) was used for the analysis. The initial fit indices demonstrated poor fit. Following model respecification procedures (e.g. [4, 23]) we focused on the pattern of residuals to assess whether items shared a high residual variance with items across constructs. Five items (appendix) shared large residuals with other items. We deleted these items and reran the CFA. Overall, the respecified model demonstrated a satisfactory fit ($\chi^2 = 804.73$, $p < 0.001$; CMIN/DF 2.359; GFI: 0.91; AGFI: 0.88; NFI: 0.91; IFI: 0.95; TLI: 0.94; CFI: 0.95; RMSEA: 0.051), suggesting unidimensionality, convergent validity and discriminant validity of the measures. We conducted additional study on convergent validity, and assessed measurement

reliability by computation of Cronbach's alphas, composite reliabilities, minimum item-to-total correlations and Average Variance Extracted (AVE) (Table 2).

Table 2. Reliability and convergent validity statistics

Construct (no. of items)	α	Composite reliability	Minim. item-to- total correlation	AVE
Merchandise (4)	0.71	0.82	0.64	0.54
Ease of use (3)	0.80	0.88	0.82	0.71
Enjoyment (3)	0.91	0.95	0.91	0.85
Website style (3)	0.78	0.87	0.69	0.69
Positive affect (3)	0.83	0.90	0.77	0.75
Negative affect (3)	0.90	0.94	0.89	0.84
Browsing (2)	0.67	0.83	0.74	0.71
Urge to buy (3)	0.80	0.88	0.79	0.71
Impulse buy (5)	0.91	0.93	0.75	0.74

The convergent validity of the measures was confirmed by the alphas, minimum item-to-total correlations, and AVE's. All scores exceeded accepted criteria (factor loadings: 0.70; alpha: 0.80; AVE: 0.50; minimum item-to-total correlations: 0.40). Except for the two-item measure *browsing*³, the alphas exceeded the value of 0.70. As all composite reliability scores exceeded the value of 0.70, and all AVEs surpassed the 0.50 guideline, acceptable reliability of all measures was demonstrated. Finally, we further tested for discriminant validity by comparing the square roots of average variance extracted of each construct with its squared correlations with other constructs. The results confirmed discriminant validity as all squared AVEs exceeded the values of the squared correlations.

³ Cronbach's alpha is highly sensitive to the number of items. The higher the number of (valid) items the higher the alpha will be [33].

Table 3. Discriminant validity: AVEs versus cross-construct squared correlations

Construct	Merchandise	Ease of use	Enjoyment	Website style	Positive affect	Negative affect	Browsing	Urge to buy	Impulse buy
Merchandise	0.29								
Ease of use	0.23	0.50							
Enjoyment	0.27	0.32	0.72						
Website style	0.20	0.29	0.36	0.48					
Positive affect	0.19	0.15	0.23	0.19	0.56				
Negative affect	0.08	0.06	0.07	0.05	0.17	0.71			
Browsing	0.03	0.01	0.05	0.02	0.07	0.01	0.50		
Urge to buy	0.03	0.03	0.07	0.04	0.08	0.00	0.08	0.50	
Impulse buy	0.02	0.02	0.04	0.02	0.06	0.00	0.07	0.28	0.55

Note: the bold scores (diagonal) are the square roots of the AVEs of the individual constructs. Of the diagonal are the squared correlations between the constructs.

Finally, as both dependent and independent variables were collected from the same respondents, we decided to test for common method bias by conducting Harmon's single-factor test. First, we loaded all measurement items into one exploratory factor analysis (principle components analysis) and assessed whether a) one single factor emerged or b) one factor emerged that accounted for the majority of the variance (see [38]). As the factor solution demonstrated more than one factor, and the first factor accounted for 27.3% of the variance, no indication for common method bias was found. Second, we conducted a CFA (Amos 7.0; MLE) to assess the fit of a single factor model (all items loading on one factor) and compared the outcomes with the fit indices of the nine-factor measurement model (cf. [57]). The single-factor model showed very poor fit ($\chi^2 = 5745.05$, $p < 0.001$; CMIN/DF 15.239; GFI: 0.51; AGFI: 0.44; NFI: 0.38; IFI: 0.39; TLI: 0.35; CFI: 0.39; RMSEA: 0.164), which confirmed the absence of common method bias [38].

5.2 Hypothesis testing

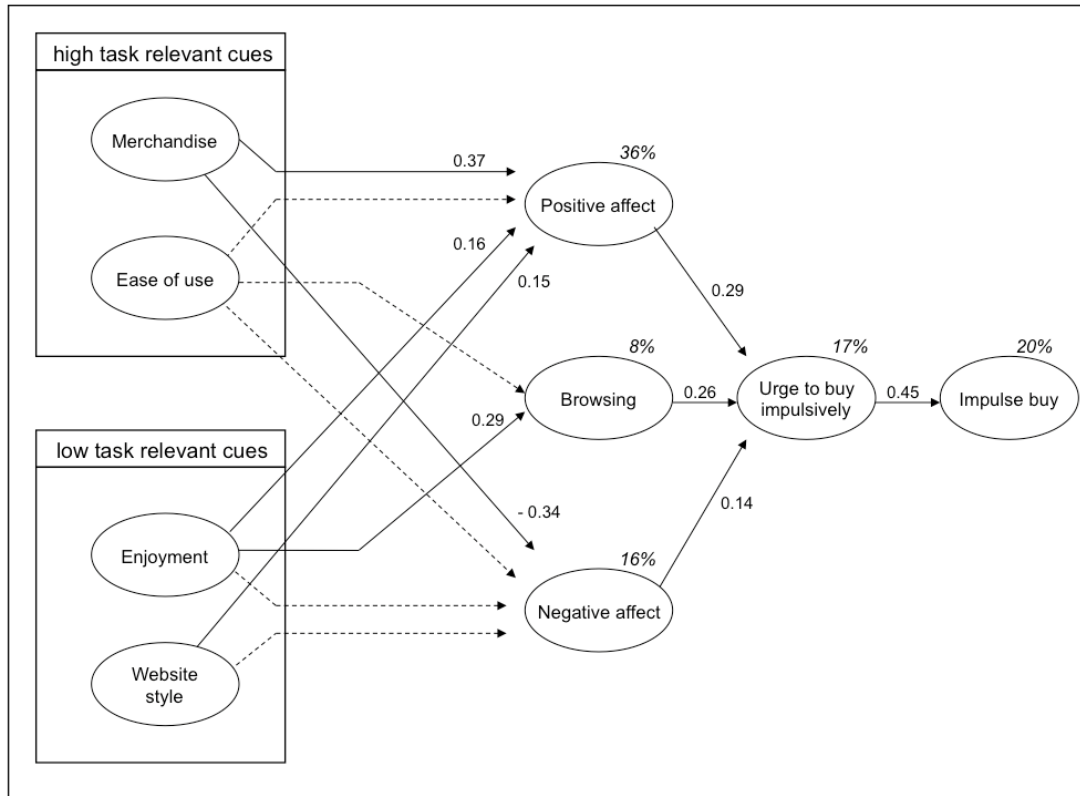
SEM was applied to estimate the structural model and test the hypotheses. The results indicated a good fit with the data ($\chi^2 = 902.454$, $p < .000$; CMIN/DF= 2.528; GFI=0.90; AGFI=0.87; NFI=0.90; IFI= 0.94; TLI=0.93; CFI= 0.94; RMSEA= 0.054). The path coefficients (β) and R^2 values of the structural model are shown in Table 4 and Figure 1.

Table 4: Hypothesis testing results ($n=532$)

Hypothesis	Path	β	Sign.
H1a	Merchandise \rightarrow positive affect	0.37	< .001
H1b	Merchandise \rightarrow negative affect	-0.34	< .001
H2a	Ease of use \rightarrow positive affect	0.02	n.s.
H2b	Ease of use \rightarrow negative affect	-0.00	n.s.
H2c	Ease of use \rightarrow browsing	-0.08	n.s.
H3a	Enjoyment \rightarrow positive affect	0.16	< .05
H3b	Enjoyment \rightarrow negative affect	-0.04	n.s.
H3c	Enjoyment \rightarrow browsing	0.29	< .001
H4a	Website style \rightarrow positive affect	0.15	< .05
H4b	Website style \rightarrow negative affect	-0.06	n.s.
H5a	Positive affect \rightarrow urge to buy impulsively	0.29	< .001
H5b	Negative affect \rightarrow urge to buy impulsively	0.14	< .01
H5c	Browsing \rightarrow urge to buy impulsively	0.26	< .001
H5d	Urge to buy impulsively \rightarrow impulse buy	0.45	< .001

Note: all expected relationships are positive in nature; n.s. refers to non-significance

Figure 2. Results structural model ($n=532$)



Overall, the results confirm the predictive power of the model. The results indicate that nine hypotheses are accepted (H1a, H1b, H3a, H3c, H4a, H5a, H5b, H5c, H5d) and of five (H2a, H2b, H2c, H3b, H4b) are rejected.

6. Discussion and conclusion

This paper is among the first to provide insights into the relationships between the online store and consumer impulsive decision-making. We proposed and tested a model relating the online store characteristics merchandise, ease of use (high task cues), enjoyment and website style (low task cues) to emotions, browsing, and impulsive buying behavior. The results support the model and confirm that the online store elements influence impulsive buying behavior via consumers' emotions and browsing behavior. As such, this research sheds light on the influence of the online

store in impulsive purchase situations, and demonstrated that its role may go beyond a cognitive driver of rational purchase processes.

The results showed that the urge to buy had a significant and strong influence on impulse buy ($\beta = 0.45$, $p < 0.001$), and explained 20% of its observed variance. Consistent with our expectations, the urge to buy was significantly affected by positive affect ($\beta = 0.29$, $p < 0.001$), browsing ($\beta = 0.26$, $p < 0.001$) and negative affect ($\beta = 0.14$, $p < 0.01$). The three constructs accounted for 17% of the urge to buy variance. Positive affect and browsing could be labeled as rather strong determinants, whereas the influence of negative affect was quite weak. Possibly, the lower impact of negative affect may be attributed to the context of our study. Purchasing fashion goods is a typical hedonic activity. In such situations consumer behavior is likely to be dominated by positive affect [11] and experienced interaction with the information system [25].

The four online store characteristics together accounted for 36% of the positive affect variance, 8% of the browsing variance, and 16% of the negative affect variance. The path coefficients led to mixed support for our assumptions. Merchandise loaded significantly and strongly on positive affect ($\beta = 0.37$, $p < 0.001$) and negative affect ($\beta = -0.34$, $p < 0.001$). Having a symmetric affect on both positive and negative affective reactions, merchandise seems to be a typical *performance factor* [5]. Surprisingly, ease of use had no significant effects on either positive affect, browsing or negative affect. Possibly, ease of use only contributes negatively to affect and behavior when rated as poor, and no longer plays any role once a certain threshold level is reached. This explanation adds to previous findings in online consumer behavior research (e.g. [46]), where ease of use was found to function as

dissatisfier or *basic factor* [12] and not as motivator in the formation of online behavior.

Computation of mean scores (see Appendix) indicated a very good evaluation of the usability of the online fashion store ($M=5.82$, $SD= 0.924$), which makes it plausible to assume that the threshold level had been reached.

With respect to the low task-relevant cues, the results demonstrate a significant and quite strong effect of enjoyment on browsing ($\beta = 0.29$, $p < 0.001$) and significant but rather weak influences of enjoyment ($\beta = 0.16$, $p < 0.05$) and website style ($\beta = 0.15$, $p < 0.05$) on positive affect. The assumed effects of enjoyment and website style on negative affect were insignificant. We believe this may be attributed to the low-task relatedness of the two cues. It seems plausible to believe that consumers are very sensitive to positive evaluations of high task-relevant cues such as merchandise as these directly diminish the likelihood of potential frustrations associated with the task itself (i.e. the online purchase). Low task-related cues such as enjoyment and website style, however, do enhance the overall shopping experience but a better evaluation of these cues is unlikely to reduce negative affect associated with the task to be completed. Given that enjoyment and website style do lead to positive affect, both seem to be typical *excitement factors* (cf. [12]). Such pleasurable attributes have no impact on negative affective reactions but may lead to positive affective reactions if delivered [5].

In sum, this paper shed light on the influence of the online store on the online impulse buying process. Our findings validate the theorized impulse buying process in online settings, confirm the applicability of emotions and browsing behavior as precursors of online impulse buying, and demonstrate second-order effects of online store characteristics on consumer impulse buying. The results indicate that both high

task and low task store elements may contribute to impulse buying via emotions and browsing. These findings support the work of [21] who suggested relationships between online store atmospherics and emotions, and the literature on impulsive decision-making claiming direct effects of emotions (e.g. [37, 39, 54] and browsing behavior (e.g. [7]) on impulse buying. Drawing upon the β values, merchandise and enjoyment are labeled as strongest predictors.

From a practical perspective, our findings indicate that online store managers can stimulate impulse purchases by investing in product selection and enjoyable online store experiences. A large, acceptably priced selection, which is aligned to the interests of most visitors, stimulates positive affect and diminishes negative affect, and as such may lead to impulse buying. An attractive, funny site, which is a great pleasure to browse through, triggers visitors' positive emotions and makes them to spent time at the online store without any specific reason, hereby enhancing the likelihood of impulse purchasing. As one realizes that online store merchandise and online store enjoyment have been demonstrated to influence rational purchases as well [45], the value of our findings seems to be even more comprehensive than initially thought. By investing in these two online store characteristics, managers have the opportunity to influence *both* impulsive *and* rational buying behavior in a rather efficient way.

7. Limitations and recommendations

Our research has been subject to a number of limitations. A first limitation concerns the gender bias in our sample. The vast majority of the respondents were women. It is well known that women are more sensitive to impulse buying than men, probably because they are more likely to use shopping as strategy to make oneself feel better

[18]. Future research will have to demonstrate the generality of our findings by cross-validating the model on different, more male dominated samples. Second, our focus on fashion goods can be seen as a limitation. Fashion clothing has a defining role in society as it represent symbolic values such a self-image and status [34]. For that reason consumers usually are highly involved when purchasing fashion goods, which makes these goods relatively susceptible to impulse buying [18, 27]. As reflected in the Elaboration Likelihood Model [36] consumers that are highly involved with the product are likely to focus on task-related cues. In situations of low product involvement in contrast one is more likely to focus on peripheral and low task-related content such as entertaining elements [20]. When applying this logic to our model it is well conceivable that the selected product category may have had an upward biasing effect on a high task-related cues such as merchandise while reducing the effects of low task-related cues such as enjoyment and website style. Future replications with low involvement products should follow. Third, the variables included in our model were restricted to particular online store characteristics and are by no means complete. The amount of variance explained reveals opportunities for further extension. Such extension may include personality characteristics as previous research demonstrated that impulse buying behavior is likely to be rooted into personality (e.g. [50, 51]). Fourth, our research focused on the general impulse buying process. This is not to say that various kinds of impulse buying behavior do not exist. Stern [43], for example, identified impulse buying types such as the pure impulse buy, the reminder impulse buy and the suggestion impulse buy. It would be interesting to map the differences between these types and translate them into preferences for online store characteristics. This is an additional way in which our research can be extended.

References

- [1] T. Adelaar, S. Chang, K.M. Lancendorfer, B. Lee and M. Morimoto, Effects of Media Formats in Emotions and Impulse Buying Intent, *Journal of Information Technology* 18 (2003) 247-266.
- [2] M.L. Agrawal and M. Schmidt, Listening Quality of the Point of Service Personal (PSPS) as Impulse Trigger in Service Purchase: A Research Framework, *Journal of Services Research* 3(1) (2003) 29-43.
- [3] I. Ajzen and M. Fishbein, *Understanding Attitudes and Predicting Social Behavior* (Prentice Hall, Englewood Cliffs, New Jersey, 1980).
- [4] J.C. Anderson and D.W. Gerbing, Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach, *Psychological Bulletin* 103(3) (1988) 411-423.
- [5] A. Arbore and B. Busacca, Customer Satisfaction and Dissatisfaction in Retail Banking: Exploring the Asymmetric Impact of Attribute Performances, *Journal of Retailing and Consumer Services* (2009) forthcoming.
- [6] R.P. Bagozzi, M. Gopinath and P.U. Nyer, The Role of Emotions in Marketing, *Journal of the Academy of Marketing Science* 27(2) (1999) 184-206.
- [7] S.E. Beatty and M.E. Ferrell, Impulse Buying: Modeling its Precursors, *Journal of Retailing* 74(2) (1998) 169-191.
- [8] R.C. Becherer and D. Halstead, Characteristics and Internet Marketing Strategies of Online Auction Sellers, *International Journal of Internet and Enterprise Management* 1 (1) (2004) 24-37.
- [9] P. Berthon, L. Pitt, M. Ewing and C.L. Carr, Potential Research Space in MIS: A Framework for Envisioning and Evaluating Research Replication, Extension, and Generation, *Information Systems Research* 13(4) (2002) 416-427.
- [10] J.R. Bettman, *An Information Processing Theory of Consumer Choice* (Addison Wesley Publishing, Reading, MA, 1979).
- [11] E. Bridges and R. Florsheim, Hedonic and Utilitarian Shopping Goals: The Online Experience, *Journal of Business Research* 61(4) (2008) 309-314.
- [12] B. Busacca and G. Padula, Understanding the Relationship Between Attribute Performances and Overall Satisfaction: Theory, Measurement and Implications, *Marketing Intelligence & Planning* 23(6) (2005) 543-561.
- [13] A. Chauduri, Product Class Effects on Perceived Risk: The Role of Emotion, *International Journal of Research in Marketing* 15(2) (1998) 157-168.

- [14] S. Chea and M.M. Luo, Post-Adoption Behavior of E-service Customers: The Interplay of Cognition and Emotion, *International Journal of electronic Commerce* 12(3) (2008) 29-56.
- [15] J.S. D'Antoni and H.L. Shenson, Impulse Buying Revisited: A Behavioral Typology, *Journal of Retailing* 49(1) (1973) 63-76.
- [16] F.D. Davis, Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology, *MIS Quarterly* 13(3) (1989) 319-339.
- [17] L. DePaoli and D.C. Sweeney, Further Validation of the Positive and Negative Affect Schedule, *Journal of Social Behavior and Personality* 15 (2000) 561-568.
- [18] H. Dittmar, J. Beattie and S. Friese, Objects, Decision Considerations and Self-image in Men's and Women's Impulse Purchases, *Acta Psychologica* 93(1-3) (1996) 187-206.
- [19] R. Donovan and J. Rossiter, Store Atmosphere: An Environmental Psychology Approach, *Journal of Retailing* 58(1) (1982) 34-57.
- [20] M.T. Elliott and P.S. Speck, Factors that Affect Attitude Toward a Retail Web Site, *Journal of Marketing Theory and Practice* 13(1) (2005) 40-51.
- [21] S.A. Eroglu, K.A. Machleit and L.M. Davis, Atmospheric Qualities of Online Retailing: A Conceptual Model and Implications, *Journal of Business Research* 54(2) (2001) 177-184.
- [22] J. Ethier, P. Hadya, J. Talbot and J. Cadieux, B2C Web Site Quality and Emotions During Online Shopping Episodes: An Empirical Study, *Information & Management* 43(5) (2006) 627-639.
- [23] D.W. Gerbing and J.C. Anderson, An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment, *Journal of Marketing Research* 25(2) (1988) 186-192.
- [24] F. Hansen, *Consumer Choice Behavior: A Cognitive Theory* (The Free Press, New York, 1966).
- [25] M-H. Huang, Web Performance Scale, *Information & Management* 42(6) (2005) 841-852.
- [26] S.A. Jeffrey and R. Hodge, Factors Influencing Impulse Buying During an Online Purchase, *Electronic Commerce Research* 7(3-4) (2007) 367-379.
- [27] M.A. Jones, K.E. Reynolds, S. Weung and S.E. Beatty, The Product-Specific Nature of Impulse Buying Tendency, *Journal of Business Research* 56(7) (2003) 505-511.

- [28] J.J. Kacen and J.A. Lee, The Influence of Culture on Consumer Impulsive Buying Behavior, *Journal of Consumer Psychology* 12(2) (2002) 163-176.
- [29] D.T. Kollat and R.P. Willet, Customer Impulse Purchasing Behavior, *Journal of Marketing Research* 4 (1967) 21-31.
- [30] F.J.M. Laros and J-B.E.M. Steenkamp, Emotions in Consumer Behavior: A Hierarchical Approach, *Journal of Business Research* 58(10) (2005) 1437-1445.
- [31] J.A. Lee and J.J. Kacen, Cultural Influences on Consumer Satisfaction with Impulse and Planned Purchase Decisions, *Journal of Business Research* 61 (2008) 265-272.
- [32] K. Matzler, M. Waiguny, A. Toschkov and T. Mooradian, Usability, Emotions and Customer Satisfaction in Online Travel Booking, in: M. Hitz, M. Sigalla and J. Murphey, Eds., *Information Technologies in Travel and Tourism*, 135-147 (Springer, Wien, 2006).
- [33] R.G. Netemeyer, W.O. Bearden and S.S. Sharma, *Scaling Procedures: Issues and Applications* (Sage Publications, Thousand Oaks (CA), 2003).
- [34] A. O’Cass, An Assessment of Consumers Product, Purchase Decision, Advertising and Consumption Involvement in Fashion Clothing, *Journal of Economic Psychology* 21(5) (2000) 545-576.
- [35] D.V. Parboteeah, J.S. Valacich and J.D. Wells, The Influence of Website Characteristics on a Consumer’s Urge to Buy Impulsively, *Information Systems Research* 20(1) (2009) 60-78.
- [36] R.E. Petty and J.T. Cacioppo, The Elaboration Likelihood Model of Persuasion, *Advances in Experimental Social Psychology* 19 (1986) 123-205.
- [37] F. Piron, A Comparison of Emotional Reactions Experienced by Planned, Unplanned and Impulse Purchases, in: L. McAlister and M.L. Rothschild, Eds., *Advances in Consumer Research* 20 341-344 (Association for Consumer Research, Provo, UT, 1993
- [38] P.M. Podsakoff, S.B. MacKenzie and J.-Y. Lee, Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies, *Journal of Applied Psychology* 88 (5) (2003) 879–903.
- [39] D.W. Rook, The Buying Impulse, *Journal of Consumer Research* 14(2) (1987) 189-199.
- [40] D.W. Rook and S.J. Hoch, Consumer Impulses, in: E.C. Hirschman and M.B. Holbrook, Eds., *Advances in Consumer Research* 12 23-27(Association for Consumer Research, Provo, UT, 1985).

- [41] D.W. Rook and R.J. Fisher, Normative Influences on Impulsive Buying Behavior, *Journal of Consumer Research* 22(3) (1995) 305-313.
- [42] K.N. Shen and M. Khalifa, System Design Effects on Online Impulse Buying, Twenty Eighth International Conference on Information Systems, Montreal (December 2007).
- [43] H. Stern, The Significance of Impulse Buying Today, *Journal of Marketing* 26(2) (1962) 59-62.
- [44] User Interface Engineering, What Causes Customers To Buy on Impulse?, E-commerce White Paper (2001), available online: <http://www.uie.com/publications/whitepapers/ImpulseBuying.pdf>
- [45] H. Van der Heijden and T. Verhagen, Online Store Image: Conceptual Foundations and Empirical Measurement, *Information & Management* 41(5) (2004) 609-617.
- [46] H. Van der Heijden, T. Verhagen and M. Creemers, Understanding Online Purchase Intentions: Contributions from Technology and Trust Perspectives, *European Journal of Information Systems* 12(1) (2002) 41-48.
- [47] W.M. Van Dolen, J.G.A.M. Lemmink, J. Mattsson and I. Rhoen, Affective Consumer Responses in Service Encounters: The Emotional Content in Narratives of Critical Incidents, *Journal of Economic Psychology* 22 (2001) 359-376.
- [48] W.M. Van Dolen, K. de Ruyter and S. Streukens, The Impact of Humor in Electronic Service Encounters, *Journal of Economic Psychology* 29(2) (2008) 160-179.
- [49] T. Verhagen and W.M. Van Dolen, Online Purchase Intentions: A Multi-Channel Store Image Perspective, *Information & Management* 46(2) (2009) 77-82.
- [50] B. Verplanken and A. G. Herabadi, Individual Differences in Impulse Buying Tendency: Feeling and No Thinking, *European Journal of Personality* 15 (2001) 71-83.
- [51] B. Verplanken, A.G. Herabadi, J.A. Perry and D.H. Silvera, Consumer Style and Health: The Role of Impulse Buying in Unhealthy Eating, *Psychology and Health* 20(4) (2005) 429-441.
- [52] D. Watson, A. Clark and A. Tellegen, Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales, *Journal of Personality and Social Psychology* 54 (1988) 1063-1070.
- [53] D. Watson and A. Tellegen, Toward a Consensus Structure of Mood, *Psychological Bulletin* 98 (2) (1985) 219-235.

- [54] P. Weinberg and W. Gottwald, Impulsive Consumer Buying as a Result of Emotions, *Journal of Business Research* 10(1) (1982) 43-57.
- [55] S.J. Wilde, S.J. Kelly and D. Scott, An Exploratory Investigation into E-tail Image Attributes Important to Repeat, Internet Savvy Customers, *Journal of Retailing and Consumer Services* 11(3) (2004) 131-139.
- [56] M. Wolfinbarger and M.C. Gilly, eTailQ: Dimensionalizing, Measuring and Predicting Etail Quality, *Journal of Retailing* 79(3) (2003) 183-198.
- [57] H.R. Yen, E.Y. Li and B.P. Niehoff, Do Organizational Citizenship Behaviors Lead To Information System Success? Testing the Mediation Effects of Integration Climate and Project Management, *Information & Management* 45(6) (2008) 394-402.
- [58] S. Youn and R.J. Faber, Impulse Buying: Its Relation to Personality Traits and Cues, in:
S.J. Hoch, R.J. Meyer, Eds., *Advances in Consumer Research* 27 179-185
(Association for Consumer Research, Provo, UT, 2000).
- [59] X. Zhang, V.R. Prybutok and C.E. Koh, The Role of Impulsiveness in a TAM-based Online Purchasing Behavior Model, *Information Resources Management Journal* 19(2) (2006) 54-68.
- [60] X. Zhang, V.R. Prybutok and D. Strutton, Modeling Influences on Impulse Purchasing Behaviors During Online Marketing Transactions, *Journal of Marketing Theory and Practice* 15(1) (2007) 79-89.

Appendix: Measurement Scales

Merchandise (Seven point semantic differential; response categories: very-quite-some-neutral- some, quite, very; [49, 55]). Mean (SD) = 5.15 (0.870).

1. little value for money – much value for money
2. uninteresting offers – interesting offers
3. bad alignment with my interests – good alignment with my interests
4. little products – many products

Ease-of-use (Seven point semantic differential; response categories: very-quite-some-neutral- some, quite, very; [45]). Mean (SD) = 5.82 (0.924).

1. hard to use – easy to use
2. hard to navigate the site – easy to navigate the site *⁴
3. unorganized layout-organized layout
4. hard to learn how to use the site – easy to learn how to use the site

Enjoyment (Seven point semantic differential; response categories: very-quite-some-neutral- some, quite, very; [45]). Mean (SD) = 5.64 (1.056).

1. boring site – fun site
2. little pleasure to browser through – great pleasure to browse through
3. unattractive site – attractive site

Website Style (Seven point semantic differential; response categories: very-quite-some-neutral- some, quite, very; [45]). Mean (SD) = 5.49 (0.831).

1. calm –pushy
2. unfriendly – friendly
3. less knowledgeable – very knowledgeable

Browsing (Seven point Likert scale ranging from highly disagree to highly agree; [7]). Mean (SD) = 4.68 (1.471).

1. The percent of my time I spent just looking around on the trip was fairly high.
2. I would say that I was primary “just looking around” on this trip.
3. I devoted most of my attention to the items I planned to buy in this trip
<reverse> *

Positive affect (Seven point Likert scale ranging from highly disagree to highly agree; [7]). Mean (SD) = 5.39 (1.021).

1. While shopping at the <name store > website I was excited.
2. While shopping at the <name store > website I was enthusiastic.
3. While shopping at the <name store > website I was proud. *
4. While shopping at the <name store > website I was inspired.

Negative affect (Seven point Likert scale ranging from highly disagree to highly agree; [7]). Mean (SD) = 1.77 (1.141).

1. While shopping at the <name store > website I was distressed.
2. While shopping at the <name store > website I was upset.
3. While shopping at the <name store > website I was irritable.

⁴ * means dropped after validity/reliability analysis

Urge to buy (Seven point Likert scale ranging from highly disagree to highly agree; [7]). Mean (SD) = 4.24 (1.670).

1. I experienced a number of sudden urges to buy things
2. I had not planned to purchase in this trip *
3. On this trip, I saw a number of things I wanted to buy even though they were no on my shopping list
4. I experienced no strong urges to make unplanned purchases on this trip <reverse> *
5. On this trip, I felt a sudden urge to by something.

Impulse buy (Seven point Likert scale ranging from highly disagree to highly agree; [28, 29, 39, 41, 54]). Mean (SD) = 4.25 (1.906).

1. My purchase was spontaneous.
2. My purchase was unplanned.
3. I did not intend to do this purchase before this shopping trip.
4. Before visiting the site, I did not have the intention to do this purchase.
5. I could not resist to do this purchase at the site.