Effect of Stress, Materialism and External Stimuli on Online Impulse Buying

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ABSTRACT:

The purpose of the study was to examine the impact of stress, materialism, and external stimuli on impulsive online buying. A total of 156 usable surveys were collected online. Stress was manipulated by presenting participants with solvable and unsolvable anagram tests. The study's results indicated that consumers under stress displayed a higher online impulse-buying tendency after viewing the second image relative to those consumers under no stress regardless of stimuli presented. This implies that there was a delay in participants' reaction to the stress. This suggests that the first image likely served as a primer. In addition, there was a positive correlation between materialism and the impulse tendency, and that external stimuli did not influence online impulse-buying tendencies. This study provides better understanding of impulsive shopping manifested by dejection-related emotions.

KEY WORDS:

Impulse Buying, Stress, Materialism, External Stimuli

Introduction

Impulse buying refers to a sudden urge to buy something without planning and deliberating on all information, and is motivated by immediate gratification (Rook and Fisher 1995; Verplanken and Sato 2011; Vohs and Faber 2007). Impulse buying accounts for a substantial amount of goods sold every year. An impulse-buying tendency is the degree to which an individual is likely to make unintended and immediate purchases (Jones 2003). Impulse buying differs from both unplanned buying - which is characterized by situational memory and utilitarian function - and compulsive buying - which is related to chronic, excessive, and addictive purchases. Although impulse buying share similar characteristics of these buying behaviours, impulse buying mainly focuses on hedonic and spontaneous desire for immediate self-fulfilment.

According to Vohs and Faber (2007), the questions addressed in early research on impulse buying were “what” and “where”: what products could be best classified as impulse items and where retail environments could promote impulse buying. In the 1980s, research then focused on the question of “who” engages in impulse buying and on categorizing people as either impulsive or nonimpulsive purchasers. Finally, in the 1990s researchers began to ask “when” and “why” impulse buying occurs, examining the consumer and whether their spending behaviour was dictated by mood or willpower.

Impulse-buying research needs to consider broad and comprehensive factors, including consumers’ situational inner states, their personal traits, and external stimuli.

However, little research has examined the relationships simultaneously between these factors on online impulse-buying tendency, especially among the Millennials. The current study focuses on three concepts: stress (situationally-determined internal state) materialism (consumers' personal traits), and external stimuli (website environments that promote impulse buying). Online consumers tend to be more impulsive than other shoppers, and impulsive purchases account for at least a quarter of online transactions (LaRose and Eastin 2002). This study proposes that consumers cope with and alleviate stress by involving in impulse purchases, which is associated with consumers' self-discrepancies. A self-discrepancy occurs when an individual observes a difference between the ideal self and the actual self in their self-concept. This study tested whether the individual seeks to counterbalance his or her perceived discrepancy by purchasing products following a threat to the individual's sense of self. The purposes of this study were to examine the effect of stress, materialism and external stimuli on impulse-buying tendencies in an online environment.

Literature Review and Hypotheses

Symbolic Self-Completion

According to symbolic self-completion theory, people who have an incomplete self-concept compensate that part of the self by acquiring and displaying symbols associated with it (Wicklund and Gollwitzer 1982). Status symbols enable individuals to elicit a response from the general public regarding their self-concept: to show position and to express

lifestyles, opinions, and values (Carr and Vignoles 2011; Chernev et al. 2011; Sivanathan and Pettit 2010). Examples of people validating their self-concept may be found in various aspects of life, not only in consumption situations. In the case of sorority pledges and how they self-symbolized in Arthur's (1997) study, newest members of the sorority more frequently adopted the idealized images and symbols associated with the sorority they were joining. Braun and Wicklund (1989) found that law students believed they were more recognizable as lawyers based on their external characteristics than did practicing lawyers. They also found that younger students reported owning more items exhibiting their university logo than did older students. These studies support that individuals compensate symbolically for deficient self-views.

Applications of symbolic self-completion theory in consumer research have examined how discrepant self-beliefs influence purchasing of material possessions (Braun and Wicklund 1989; Carr and Vignoles 2011). When faced with powerlessness and threats to their self-image, consumers are generally willing to pay more for an item that is status-related, and show a strong preference for self-expressive brands (Carr and Vignoles 2011; Chernev et al. 2011; Kim and Rucker 2012; Sivanathan and Pettit 2010). These brands symbolize some desirable trait that will receive approval and increase an individual's status or restore his or her perception and self-image. Previous research in the context of impulse-buying behaviour studies found that people purchase material goods to compensate for their perceived inadequacies (Dittmar et al. 1996) and to symbolize a part of the individual's

self-identity (Dittmar 2005; Dube and Black 2010; Kennett-Hensel, Sneath, and Lacey 2012; Sneath et al. 2009).

Stress

Stress is defined as a situation that is considered by the person as having demands that exceed his or her resources for coping (Folkman 2013); such a situation requires an individual to change his or her behaviour patterns due to environmental, social, or internal demand (Lee et al. 2007). Life challenges are typically beyond an individual's control and are potentially stressful. In a stress and coping framework, stress involves a transaction between the individual and their environment. Stress involves an evaluation process which determines the significance of a situation and options for coping. The evaluation process creates various emotions such as anger, sadness, anxiety and fear (Folkman 2013). For example, when people believe that they have failed to attain desired goals and hopes, they experience agitation-related emotions and feel stressed (Higgins 1987). Stress that is associated with self-discrepancies generates emotional discomfort including tension, unpleasantness, pressure, conflict, and disappointment (Strauman and Higgins 1987). When individuals feel dejection from perceived lack of effectiveness or self-fulfilment, they cope to alleviate negative emotions by using strategies that include distancing, seeking emotional support, and escape-avoidance (Folkman 2013).

Several investigations in material consumption support the proposition that impulse buying alleviates stress and negative emotions (Atalay and Meloy 2011), elevates

excitement and pleasure (Verplanken and Sato 2011), and evokes hedonistic high-arousal emotions (Ramanathan and Menon 2006). Individuals substitute material objects to compensate for an unstable self-concept. In a situation of harm and loss, disaster victims used impulse buying in order to repair or augment damaged self-concepts (Sneath et al. 2009). By buying back "comfort items," these individuals filled the void in their self-identity that was taken from them by the traumatic incident. Ruvio, Somer, and Rindfleisch (2014) found that Israeli residents in a high stress environment reported higher levels of coping and maladaptive consumption behaviours (i.e., impulsive buying and compulsive consumption) compared to a group exposed to lower levels of stress. Based on the literature, this study proposed the following hypothesis:

> H1: Consumers under stress will have a higher online impulse-buying tendency than those under no stress.

Materialism

As individuals move from childhood to adolescence, self-definition evolves from acquiring possessions to engaging in activities related to an identity (Belk 1985). However, material goods still express a consumer's ideal identity and lifestyle, which helps some consumers complete their sense of self. Those material goods express an individual's personality and status to others (Chernev et al. 2011; Goldsmith and Clark 2012; Richins 2013). Materialism is defined as the importance a consumer attaches to attaining worldly possessions (Belk 1985; Richins 2013). When materialism is highly important in one's value

system, possessions become a main focus. Richins and Dawson (1992) analysed materialism with three aspects: (1) making acquisition of material possessions a central focus in his or her life, (2) making the pursuit of material possessions his or her main source of life satisfaction, and (3) viewing possessions as a marker for success. A central belief of materialism is that contentment can be achieved through possessions (Kasser 2002). However, materialism is associated with negative indicators of well-being and related to unmet psychological needs (Tsang et al. 2014). Further, individuals who possess high materialism are more likely to be depressed (Mueller et al. 2011), lonely (Pieters 2013), and have lower self-esteem (Christopher et al. 2009; Richins and Dawson 1992).

Previous research has examined how materialistic individuals believe that object acquisition will help them establish a sense of security and enhance their well-being. In Kasser's study (2002), children who felt insecure expressed their feelings in materialistic pursuits. Kasser (2002) concluded that these children were particularly susceptive to consumer messages promising security and happiness through consumption, and were also more likely to rely on the approval of others to feel good about themselves. Taken as a whole, these traits ultimately lead to the pursuit of material possessions. Materialism encourages consumers to be conscious of their status and invest a disproportionate amount of their resources into acquiring goods (Goldsmith and Clark 2012; Silvera et al. 2008). Therefore, the literature leads to the following hypothesis:

H2: Highly materialistic consumers will have a higher tendency of impulse buying compared to their counterparts.

External Impulse-buying Stimuli

As more individuals rely on the internet to inform and navigate their lives, marketers invest to reach digitally connected consumers. Previous psychological research suggests that if a web page can create a visually appealing form for viewers, they will be more likely to have a pleasant experience in web navigation and give more positive evaluations to the brand and product represented. The appeal of these websites is based on the processing fluency (Winkielman and Cacioppo 2001). Fluency has been found to strongly influence evaluations, enhancing clarity and ease of understanding due to the potentially quick viewing time on a web site. Fluency is a combination of two factors, perceptual fluency and conceptual fluency. Perceptual fluency relates to basic stimulus identification processes and involves the processing of physical features (Jacoby, Kelley, & Dywan 1989). For example, perceptual fluency can be influenced by a number of inherent variables such as colour coordination, harmony and other aesthetic factors on the web page. On the other hand, conceptual fluency relates to higher-order interpretational and reasoning processes. It involves the ease with which the object comes to one's mind and relates to the processing of meaning (Lee & Labroo 2004). While effective websites include design attractiveness, content availability, and structure of information (Chen and Lee 2008), retail websites also employ particular external stimuli to encourage spending.

Specific external stimuli in an online context include promotions and suggestion cues (Dawson and Kim 2010). Promotion stimuli may consist of buy one-get one free deals, coupons, free shipping, and lower price than initially suggested. Suggestion stimuli include new styles, featured items, and suggested articles that a customer would like to acquire along with the original item. In addition to products, Madhavaram and Laverie (2004) identified effective elements on website that may influence impulse purchasing behaviour such as graphics, text, pop-up windows, audio, colour, e-mail, streaming video, and product usage demonstration. These external triggers catalyse an impulse-buying decision (Jones et al. 2003; Madhavaram and Laverie 2004). Therefore, this study also examines the atmospheric cues that influence impulse shopping, suggesting the following hypothesis:

H3: Consumers who are exposed to external impulse stimuli will have higher online impulse-buying tendencies than those that are unexposed.

Method

Participants and Design

One hundred fifty-six female undergraduate students participated in this study in exchange for partial course credit. Participant ages ranged from 18 to 27, with a mean age of 21. Seventy-six percent of respondents were between the ages of 18 and 22. The majority of respondents (88.5%) were in their sophomore, junior, or senior year of college.

To test the hypotheses, a 2 (stress vs. non-stress) x 2 (external stimuli presented vs. no external stimuli presented) between-subjects design was employed. Participants' stress condition was manipulated by completing an intelligence (anagram) test. The tests were not used to measure intelligence, but to induce frustration and stress. The participants in the experimental group (stress) had a set of ten insolvable anagrams, while the participants in the control group (non-stress) had a set of ten solvable anagrams. This study also manipulated external stimuli by presenting participants with four different web images (Figure 1) before evaluating their impulse-buying tendencies. Based on online external triggers identified by Dawson and Kim (2010), this study created a photo image containing a promotion stimulus as well as a photo containing a suggestion stimulus. The promotion external stimuli included a 25% discount and a sign for everyday free shipping. The suggestion stimuli showed how a product would coordinate with other items that a consumer might purchase.

In order to check the stress manipulation, undergraduates (n = 103) rated how much stress they felt after trying to solve the anagrams on a 10-point rating scale of 1 (low stress) to 10 (high stress) (Zellner et al. 2006). Then, dejection-related questions were asked to monitor self-discrepancy manipulation (Higgins 1987). The questions included "I am very satisfied with myself and my accomplishments" (reversed scoring), "I am always making full use of my potential abilities" (reversed scoring), and "I am uncertain of my ability to achieve goals" on a 5-point sale that ranged from strongly disagree (1) to strongly agree (5). As

expected, results from a *t*-test showed that the participants who were in the unsolvable anagram group experienced higher stress (M = 5.9) than those who were in the solvable anagram group (M = 4.33) (t = 4.18, df = 101, $p < 0.001$). In addition, a self-discrepancy level was significantly higher for the participants who were in the unsolvable anagram group (M = 2.98) than their counterparts (M = 2.39) (t = 4.33, df = 101, $p < 0.001$). Within the solvable anagram group, respondents correctly answered 82 percent of the solvable anagrams. Respondents who completed more correct answers experienced lower stress levels (r = -0.34, $p < 0.05$); similarly, these respondents displayed lower self-discrepancy levels (though not meeting statistical significance).

Procedure

Participants received an e-mail invitation to be a part of the study and were given a link to a survey. All experimental procedures were conducted with internet-enabled computers. Participants were encouraged to complete the survey in a private setting at home or on personal computers because anonymity plays a role in shopping pleasure, allowing consumers to make purchases without fear of observation or judgment. They were asked to complete an intelligence (anagram) test as described previously. Participants were informed that anagram tests are a type of popular intelligence test frequently used by psychologists to measure verbal intelligence, an important indicator of a person's future success. They were also told that individuals who do well on anagram tests are successful in their careers and in their lives in general. Participants in the stress group were expected to

fail; their perceived failure resulted in higher levels of stress for them (Zellner et al. 2006). Following the anagram test, participants were randomly assigned two web pages. Each web page showed one of the four conditions containing different external stimuli. While viewing each web page, participants answered a set of questions on an Impulse Buying Tendency scale (Weun et al. 1998). Following the external stimulations, participants completed a materialism survey. The study concluded with a short section on demographics and a debriefing section.

Measurement

Impulse tendency. Impulse tendency induced by a situation was measured on a 5-point Likert-type scale (e.g., 1 = strongly disagree; 5 = strongly agree) with five items (e.g., If I were shopping on this website right now…., "I would buy things I had not intended to purchase," "When I see something that really interests me, I buy it without considering the consequences") adopted from Weun et al.'s (1998) scale (Cronbach's α = 0.89). A principal component factor analysis among these items resulted in one factor and these five items were aggregated into one variable.

Materialism. Materialism was measured on a 5-point Likert-type scale (e.g., 1 = strongly disagree; 5 = strongly agree) with 14 items (e.g., "I'd be happier if I could afford to buy more things," "Some of the most important achievements in life include acquiring material possessions") adopted from Richins' (2004) scale (Cronbach's α = 0.84). In the same

way as the impulse tendency measurement, a principal component factor analysis resulted in one factor and 14 items were aggregated into one variable (see Table 1).

Figure 1: Web pages containing different external impulse stimuli

Image of promotion (no stimuli)

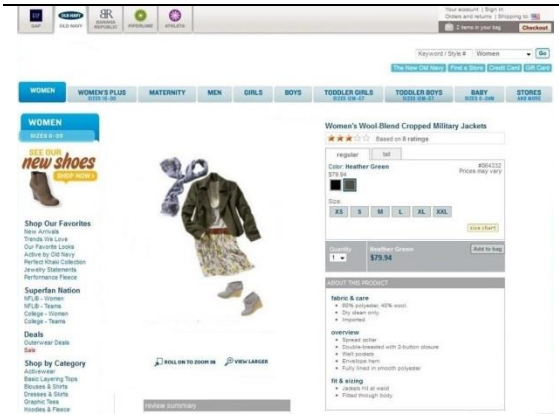

Image of promotion (with stimuli)

Image of suggestion (no stimuli)

Image of suggestion (with stimuli)

Table 1: Factor loadings for Impulse Tendency.

Items	Factor loading	Cronbach's *α*
I would buy things I had not intended to purchase.	0.84	0.89
I would think it was fun to buy spontaneously.	0.78	
I would make unplanned purchases.	0.87	
I see something that really interests me and would buy it without considering the consequences.	0.82	
I see something new that really interests me and would buy it without hesitation.	0.86	
Eigenvalue	3.47	
Percentage of variance	69.31	

Factor loadings for Materialism.

Items	Factor loading	Cronbach's *α*
I admire people who own expensive homes, cars, and clothes.	0.74	0.84
Some of the most important achievements in life include acquiring material possessions.	0.67	
The things I own say a lot about how well I'm doing in life.	0.69	
I like to own things that impress people.	0.75	
Buying things gives me a lot of pleasure.	0.43	
I like a lot of luxury in my life.	0.68	
My life would be better if I owned certain things I don't have.	0.60	
I'd be happier if I could afford to buy more things.	0.55	
It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.	0.59	
I don't place much emphasis on the amount of material objects people own as a sign of success. (r)	0.61	
I try to keep my life simple, as far as possessions are concerned. (r)	0.41	
I put less emphasis on material things than most people I know. (r)	0.36	
I have all the things I really need to enjoy life. (r)	0.34	
The things I own aren't all that important to me. (r)	0.41	
Eigenvalue	4.64	
Percentage of variance	33.14	

Results

In order to test H1 (*Consumers under stress will have a higher online impulse-buying tendency than those under no stress)* and H3 (*Consumers who are exposed to external stimuli will have higher online impulse-buying tendencies than those who are unexposed),* a multiple analysis of variance (MANOVA) was conducted. It examined the effects of stress and presence of external stimuli on impulse-buying tendency. Impulse-buying tendency was categorized by 1) presence of the suggestion stimulus, 2) presence of the promotion stimulus, 3) the first shown image, and 4) the second shown image, and 5) an impulse tendency average. The Pillai multivariate test of overall differences were statistically significant for H1 (p = 0.003; eta-square = .09) and for H3 (p = 0.03; eta-square = .06). Although the p values were significant, the effect sizes of these relationships were weak. In order to examine which impulse-buying categories contribute most significantly, subsequent post-hoc ANOVA tests were conducted for each of the dependent variables (impulse-buying categories). Results showed strong statistical evidence for the effect of stress on impulse-buying tendency after seeing the second image, F (1, 154) = 8.81, p = .003 and little evidence for the effect of external stimuli on separate impulse-buying tendencies at p = .05. There was only weak statistical evidence for the effect of external stimuli after seeing the first image, F (1, 154) = 3.12, p = .07. Therefore, H1 was supported and H3 was weakly supported (Table 2).

Regarding H2 (*Highly materialistic consumers will have a higher tendency of impulse buying compared to their counterparts)*, correlations analysis showed that there were strong evidence for positive correlation between materialism and impulse tendency for the suggestion stimuli (r = 0.24, p = 0.002) and between materialism and the impulse tendency average (r = 0.16, p = 0.04). The p values of Levene's tests were not significant and indicated that the assumption of homogeneity of variance was met. Therefore, H2 was supported.

	Impulse Tendency									
	After seeing the image of suggestion		After seeing the image of promotion		After seeing the 1st image viewed		After seeing the 2nd image viewed		Impulse tendency average	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Stress	2.89	0.80	2.87	0.80	2.65	0.80	3.09	0.79	2.88	0.68
No stress	2.78	0.88	2.67	0.85	2.73	0.88	2.71	0.81	2.72	0.75
External Stimuli	2.92	0.81	2.72	0.77	2.81	0.80	2.83	0.80	2.82	0.68
No External Stimuli	2.72	0.88	2.80	0.89	2.57	0.87	3.00	0.85	2.77	0.76

Table 2: Means and Standard Deviations on Stress and External Stimuli

Table 3: Means, standard deviations, and correlations of variables.

	M	*SD*	1	2	3	4	5	6	7	8
1	2.66	.91	1							
2	2.90	.91	.49**	1						
3	2.80	.92	.77**	.71**	1					
4	2.76	.92	.70**	.77**	.47**	1				
5	2.78	.79	.86**	.86**	.86**	.86**	1			
6	2.99	.61	.13	.14	.24**	.04	.16*	1		
7	1.47	.50	-.03	.23**	.08	.11	.11	-.01	1	
8	10.71	2.79	-.16	-.20*	-.21*	-.15	-.20*	-.11	-	1

1.1st image viewed, 2. 2nd image viewed, 3. The image of suggestion, 4. The image of promotion, 5. Impulse tendency average, 6. Materialism, 7. Stress, 8. Year Born.

** $p < 0.01$, * $p < 0.05$

		ANOVA				
	MANOVA	After seeing the image of suggestion	After seeing the image of promotion	After seeing the 1st image viewed	After seeing the 2nd image viewed	Impulse tendency average
	F (3, 152)	*F* (1, 154)	*F* (1, 154)	*F* (1, 154)	*F* (1, 154)	*F* (1, 154)
Stress	4.92‡	0.64	2.25	0.31	8.81‡	1.78
External Stimuli	3.30‡	2.09	0.36	3.12†	0.83	0.25

Table 4: Multivariate and ANOVA *F* ratios

F ratios are Pillai's approximation of *F*s. $^{\dagger}p = .07$, $^{\ddagger}p < .05$.

Table 5: Hypotheses and Results

Hypotheses	Results
H1: Consumers under stress will have a higher online impulse-buying tendency than those under no stress.	Supported
H2: Highly materialistic consumers will have a higher tendency of impulse buying compared to their counterparts.	Supported
H3: Consumers who are exposed to external impulse stimuli will have higher online impulse-buying tendencies than those that are unexposed.	Weakly supported

Conclusions

Discussions

This study examined the effect of stress, materialism, and external stimuli on online impulse-buying tendency. Results show that participants were more likely to impulse buy the items in the second image when stress was present. Consumers under stress had a higher online impulse-buying tendency than those under no stress, but only after viewing the second image. Directly after taking the intelligence (anagram) test, the participants were shown the first image and answered questions regarding their impulse tendency for the image. There were no significant results with the first image regardless of the presence or absence of external stimuli. However, stress did play a significant role with the second image viewed by participants. This suggests that the first image may have been served as a prime. A priming task non-consciously carries over to subsequent tasks. This spillover effect could explained higher impulse-buying tendency on the second image after they exposed to a prime, the first image. In addition, the significant role of stress with the second image also suggests a form of delayed stress response. Figley and Sprenkle (1978) used delayed stress response syndrome (DSRS) to diagnose and support Vietnam combat veterans. Delayed stress response syndrome affects a person who has experienced a catastrophic event. After the initial trauma, there is a state of numbness where the individual does not respond to what just happened (Figley and Sprenkle 1978). These two effects may explain why participants were more likely to impulse buy the second image.

The analysis of correlation indicated that the degree of materialism is positively related to both the average impulse tendency and the impulse tendency after viewing the suggestion stimuli. The results of the current study confirm and extend the research that

has examined materialism in buying behaviour (Dittmar 2005; Richins 2013; Ruvio et al. 2014). Richins (2013) concluded that high-materialism consumers showed hedonic elevation due to the expected transformation of their lives through obtaining the desired product. This correlation suggests that participants that value material objects respond well to the suggestion stimuli. The suggestion stimuli is when a retailer will show how one article of clothing will look as an outfit or show other products that a consumer may like if they like the original article. In a study conducted in U.K., Dittmar (2005) examined gender, age, and materialistic values as key predictors in impulse-buying behaviour and stated that materialistic value is the strongest predictor of an individual's impulse-buying. The results of the current study support that materialism plays an important role in excessive buying especially among younger consumers, who have a larger gap between their real and ideal selves and are more inclined to buy in order to strengthen their image and validate their self-concept.

Limitations, implications, and future studies

This study recruited only female shoppers; additional research is recommended to examine a gender effect on online impulse shopping. Regarding effective online shopping features, previous research stated that each gender has different expectations. Compared to females, male online shoppers significantly value accurate descriptions, transparent pricing, easy tracking of shipments, and a wide range of products (Ulbrich et al. 2011).

Female online shoppers value return labels, sizing information, and quick-loading pages significantly more than their male counterparts (Ulbrich et al. 2011).

Despite its limitations, this study represents possibly the first effort to examine the effect of stress, materialism and external stimuli on online impulse purchases within a single study. Here, consumers' situational inner state (stress) and their personal traits (materialism) had stronger effects on impulsive buying tendencies compared to external stimuli. This study validates the symbolic self-completion theory, which suggests that when people's self-concept are threatened they seek to correct their self-discrepancy (Sivanathan and Pettit 2010; Wicklund and Gollwitzer 1982). The conceptual framework helps integrate information from prior research on impulse buying, highlights their similarities and differences, and provides a better understanding of the impulse behaviour. In the current study, alleviation of discrepancies and dejection-related emotions was manifested by impulsive shopping.

Marketers often try to influence consumers' behaviour by using stimuli such as website ambience and coupons. The current study only used two types of external stimuli (promotions and suggestion stimuli). Although these external stimuli weakly influenced on-line impulse buying, more research examining other types of external stimuli including graphics, text, pop-up windows, audio, and streaming video is warranted. Additional research is required to examine hedonic oriented and utilitarian oriented websites, which would differently induce online impulse purchases. Further investigation on these areas is

likely to yield valuable insight into whether other types of external stimuli would have a strong effect on impulsive buying tendencies. Additional impulse purchase research is required to examine interactions between the concepts studied here and to explore the role of materialism as a key antecedent. The findings of this study may apply to other maladaptive consumptions such as compulsive consumptions, binge eating, and credit card abuse.

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