

Shopping online? The role of imagination and gender

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Abstract

Purpose – This study aims to examine gender differences in the impact of imagining product use on purchase decisions. The authors argue that while imagination can enhance purchase intention for female consumers, it can be detrimental to male consumers. This study explores the conditions under which imagination can be turned into a positive device for male consumers.

Design/methodology/approach – Three experimental studies were conducted. The first two studies illustrate the differential effects of imagination on males vs females. Given the negative effect found among males, the third study focused exclusively on male consumers to identify conditions under which the negative impact of imagination on these consumers can be alleviated.

Findings – Studies 1 and 2 show that while an imagination tactic has positive or no effect on female consumers, a generic imagination request lowers male consumers' purchase intention. Focusing on potential ways of alleviating this negative effect, Study 3 shows that for males without prior brand ownership experience, imagining product use in a less-typical context can increase purchase intention.

Research limitations/implications – The results provide evidence that gender impacts the effectiveness of imagination in improving product evaluation. Furthermore, the context of imagination and previous brand experience can be used together to determine how male consumers respond to imagination.

Practical implications – The study's findings warn against the blind use of imagination tactics. Instead, retailers need to customize imagination tactics based on gender, previous brand experience and product usage context.

Originality/value – To the best of the authors' knowledge, this is one of the first papers to examine the impact of gender on the influence of imagination on product evaluation.

Keywords Fashion, Behavior, Mental simulation, Imagination, E-commerce/internet retailing, Retail consumer behavior

Paper type Research paper

Introduction

Although convenient, the online retail environment lacks the richness of cues available in offline retail settings such as the ability to feel or try the products. This limits online retailers' ability to influence and persuade consumers with vivid details. Newest technologies such as virtual 3D and augmented reality have been devised to address such shortcomings. However, in their nascent stage, such technologies are still rather cumbersome to use and quite costly to implement for the average retailer. Fortunately, the human mind is rather nimble and can frequently be relied on to fill in the missing details. Specifically, when important details are missing, human beings can frequently make out what is missing through their own imagination (Elder and Krishna, 2012;



Taylor *et al.*, 1998). Hence, even though consumers are not able to try on a pair of shoes discovered online, they can imagine how that pair of shoes may look on their feet and make the purchase decision accordingly.

Previous research has recognized the potential importance of imagination and has examined its effects on consumers, most commonly in the contexts of advertising (Bone and Ellen, 1992; Elder and Krishna, 2012; Escalas, 2004) and new product evaluation and adoption (Dahl and Hoefler, 2004; Zhao *et al.*, 2014). This stream of research suggests that the effect of imagination on consumer processing of marketing information is not straightforward. Instead, it is contingent on various factors such as self- vs other-referencing (Bone and Ellen, 1992), temporal orientation of the imagination (Krishnamurthy and Sujana, 1999; Zhao *et al.*, 2014), the nature of the product involved in the imagination (Zhao *et al.*, 2009) and individual differences in imagery ability (Ostinelli and Böckenholt, 2017).

One important gap in this research stream is the lack of consideration of gender differences in how consumers respond to imagination in a marketing setting. Although the psychology literature suggests that females and males differ in their tendency and ability to imagine (Weisberg *et al.*, 2011; Wood, 1966), marketing research on mental simulation so far has not differentiated between the two genders and instead have treated males and females as one homogeneous group. This failure to consider gender is surprising and unfortunate as gender is one of the most frequently used variable in segmentation strategies. It is easily identifiable, and gender segments are accessible and large enough to be profitable (Darley and Smith, 1995). The evidence for gender segmentation is even more apparent in the retail environment, where online retail stores are frequently organized based on gender such as women's vs men's apparel, gifts for him vs for her and toys for boys vs for girls.

Addressing this gap, the current research investigates how males and females respond differently to imagination tactics in a product evaluation setting. Through three empirical studies, we show that prompting consumers to imagine the use of a product is not always beneficial. While women have a stronger tendency to engage in fantasy than men (Wood, 1966, 1987) and can benefit more readily from imagination, male consumers' purchase decisions can be significantly hampered by a generic instruction to imagine (Studies 1 and 2). This negative effect is undesirable to marketers wishing to leverage the power of imagination. To address this problem, Study 3 builds on previous research on self-referencing and gender differences in information processing to examine ways in which this negative effect of imagination among males can be mitigated. Specifically, providing a concrete context for the imagination task neutralizes male consumers' negative response to imagination. Moreover, compared with no imagination, imagining product use in a less-typical context can improve the purchase intention of male consumers who do not have prior experience with the brand.

By establishing the aforementioned relationships, our research contributes to marketing research and practice in several ways. First, although research abounds on gender differences in shopping behavior, little is known about how imagination helps male vs female consumers' process beyond the information that is explicitly given about a product. We show distinct reactions from the two genders, with male consumers experiencing a higher level of difficulty with imagination and are generally less receptive to such tactics. We further demonstrate how previous experience and context of the imagination task can compensate for male consumers' lower receptivity to imagination. Second, research on imagination, also referred to as mental simulation or visualization, has repeatedly suggested a need to further study the impact of consumers' imagination focus or content (Escalas, 2004; Zhao *et al.*, 2009). To this end, we introduce the idea that consumers can be externally directed to imagine about a specific context, and show that the optimal context depends on

the availability of existing schema associated with the product and the brand. Finally, from a practical standpoint, by understanding how the use of imagination tactics can be effectively adapted based on the target consumers' gender, our research can help retailers leverage the power of imagination to overcome the lack of rich cues in the online environment and be more effective in persuading consumers of the value of their products.

Conceptual background

Mental simulation

Humans possess a remarkable ability of imagining the future and regulating emotions and behavior to realize the vision (Taylor *et al.*, 1998). As a compelling case for the effect of imagination, when homeowners were asked to imagine experiencing the benefits of a cable television service, they were subsequently more likely to subscribe to the service than those who were merely presented with information about the service (Gregory *et al.*, 1982). In another study, researchers found that imagining the sensory experience associated with eating can be used to experience satiation with smaller food portions (Petit *et al.*, 2017). Imagining the future and creating the means for realizing that vision is done through mental simulation (Taylor *et al.*, 1998), which can be described as the “cognitive construction of hypothetical scenarios” (Taylor and Schneider, 1989, p. 175). Mental simulations are generally in the form of stories or narrative that we create by imagining ourselves as the main character and simulating our behavior in given situations (Fiske, 1993; Kim *et al.*, 2017). Therefore, when engaged in a mental simulation we might find ourselves transported into the self-generated story (Escalas, 2004). This can result in strong affective response, which can in turn increase persuasion. For example, Jeong and Jang (2016) found that when consumers are encouraged to imagine being healthy, they are likely to have more positive beliefs and purchase intentions toward advertised healthy menu items.

Mental simulation and product evaluation

Within the context of consumer research, the persuasive effects of mental simulation have been examined by various researchers (Elder and Krishna, 2012). We summarize this research stream in Table I and contrast the existing studies with our research. Phillips *et al.* (1995) note that mental simulations of future consumption situations, which they refer to as “consumption visions,” motivate consumption behavior as these visions narrate self-referencing, detailed, product-related behaviors. For example, Nielsen *et al.* (2018) found that when consumers encounter really new products, they spontaneously generate mental simulation which enhances product evaluation. Furthermore, Bone and Ellen (1992) found that an ad that encourages consumers to imagine using a product has a stronger impact on attitude toward the ad, as compared to an ad portraying someone else using the product. They attributed the results to the ease of accessing rich, well-developed cognitive schema of oneself vs others. Escalas (2004) examined the underlying emotional and cognitive effects of ad-encouraged mental simulation. They found that mental simulation led to strong affective response and lower critical analysis of the ads, which in turn resulted in positive attitude and brand evaluations. Each of the studies discussed above points to the value of mental simulation on product and brand evaluation. To provide a broader context of the mental simulation, an overview of relevant mental simulation literature is provided in Table I.

As a further step, several researchers sought to understand what may facilitate or impede the effect of imagination on consumer attitude and product evaluation. They suggest that marketing messages can interact with consumers' imaginative thoughts about products. For example, Elder and Krishna (2012) showed that the way product depiction is oriented in an advertisement can facilitate or impede mental simulation. As another

Table I.
Overview of relevant
mental simulation
literature

<i>Source</i>	<i>Key finding</i>	<i>Independent variable</i>	<i>Dependent variable</i>	<i>Context</i>
Walters <i>et al.</i> (2007)	Concrete pictures and text, and instructions to imagine increase elaboration and quality of consumer vision.	Picture and text (concrete, no picture/text), <i>instruction to imagine</i> (present vs absent)	Consumption vision (elaboration and quality)	Advertisement
Babin and Burns (1997)	Concrete picture and instructions to imagine are effective in stimulating vivid and elaborate imagery processing and favorable attitude	Picture (concrete, less concrete, no picture), <i>instruction to imagine</i> (present vs absent)	Imagery (vividness, quantity, elaboration), attitude	Advertisement
Bone and Ellen (1992)	Focal character and imagined scene impact the degree of imagery and attitude	Focal character (self vs others), plausibility (low, moderate, high)	Imagery (vividness, quantity/ ease), attitude, <i>behavioral intentions (purchase)</i>	Advertisement
Burns <i>et al.</i> (1993)	Visual imagery vividness and style of processing impacts attitude and intentions	Text (concrete vs abstract), brand (familiar vs unfamiliar), <i>instruction to imagine</i> (present vs absent), <i>style of processing</i> (visualizer vs verbalizer)	Attitude, <i>behavioral intentions (purchase)</i>	Advertisement
Jeong and Jang (2016)	Mental simulation impacts attitude and purchase intention toward healthy menu items	<i>Instruction to imagine</i> (present vs absent), information strength (strong vs weak), menu healthiness (healthy vs less healthy)	Attitude, <i>behavioral intentions (purchase)</i>	Advertisement
Liang and Kale (2012)	When exposed to abstract ads, East Asians generate more mental images than Westerners	Culture (East Asian vs Westerner), ad (abstract vs concrete)	Imagery generation (quantity)	Advertisement
Nielsen <i>et al.</i> (2018)	Consumers spontaneously generate mental simulations when they encounter really new products, which results in more positive product evaluation	Product (really new vs incrementally new), prior product knowledge (high vs low)	<i>Mental simulation</i> , transportation, product evaluation	Advertisement
Petrova and Ciardini (2005)	Lower imagery ability has a negative impact on persuasiveness	<i>Imagery ability</i> (low vs high), vividness of product depiction (low vs high)	Persuasiveness of imagery appeal	Advertisement
Ostinelli and Böckenholt (2017)	Negative effect of lower imagery ability on persuasiveness and product evaluations can be overcome through process priming	<i>Imagery ability</i> (low vs high), imagery process priming	Persuasiveness of imagery appeal	Advertisement

(continued)

Source	Key finding	Independent variable	Dependent variable	Context
Isaac and Marks (1994)	Females reported more vivid imagery than males	Gender	Vividness of visual imagery	Psychology
Schwartz et al. (1980)	Females produce stronger magnitude facial EMG patterns and experience stronger emotions in response to affective imagery	Gender, affective imagery	Facial EMG patterns, emotions	Psychology
Blair et al. (2001)	Engaging in counter-stereotypic mental imagery vs neutral, stereotypic or no mental imagery resulted in weaker implicit stereotypes	Counter-stereotypic mental imagery vs neutral, stereotypic or no mental imagery, gender*	Implicit stereotype	Psychology
Childers et al. (1985)	Psychometric development and assessment of indicators of visual information ability and preference	–	Style of processing (visual vs verbalizer)	Consumer psychology
Lee and Qui (2009)	Positive uncertain prospects that are higher (vs lower) in imagery-evoking qualities generate positive emotions. This effect is mediated by imagery elaboration	Uncertainty (present vs absent), prospect imageability (low vs high-imagery product), instruction to imagine (present vs absent)	Emotions, imagery elaboration (mediator)	Consumer psychology
Yoo and Kim (2014)	Concrete pictures lead to greater elaboration of mental imagery and behavioral intentions. Visualizers (vs verbalizer) experience greater elaboration of imagery on concrete (vs solid) background, pictures and text	Background, pictures, text (concrete vs solid) style of processing (visualizer vs verbalizer)	Mental imagery (elaboration and quality), emotion, behavioral intention (purchase, recommend, revisit)	Retail
This study	Gender impacts the effectiveness of imagination in improving product evaluation	Gender, instruction to imagine (present vs absent), imagination context (typical vs less-typical), product experience	Behavioral intention (purchase intention)	Retail

Note: *Gender was not the primary focus of the study. Gender differences were analyzed to understand an interaction effect in Experiment 4 of the study

Table I.

example, [Krishnamurthy and Sujan \(1999\)](#) found that details in an ad can facilitate self-relevant thoughts about the future and as a result enhance brand attitudes and intentions, but the opposite is true for self-relevant thoughts about the past. Interestingly, [Zhao et al. \(2014\)](#) showed that concrete product information impedes future-oriented imagination and negatively impacts the evaluation of radically new products. Together, these studies indicate that external information has a bearing on the impact of imagination on product evaluation.

Besides external influences, individual characteristics can also influence how consumers engage in and react to imagination. In an exploratory qualitative study, [Phillips et al. \(1995\)](#) note that some consumers may be more likely to form mental simulations of future consumption situations than others and that consumers may also differ in the level of details of their mental simulation. Although such conjectures about possible individual differences in the effect of imagination on consumption have been made for some time now, few follow-up studies have empirically explored such differences ([Liang and Kale, 2012](#); [Petrova and Cialdini, 2005](#); [Ostinelli and Böckenholt, 2017](#)). Especially lacking is the consideration of gender as an individual difference variable in imagination effects, despite its significance in marketing theory and practice. Addressing this gap, the current research focuses on how male vs female consumers respond differently to imagination encouragement tactics and how such tactics should be adapted to different genders. In doing so, we also extend previous consumer imagination studies' primary focus on an advertising context to address the online retail setting ([Table I](#)), where product purchase decision is potentially much more proximal along the various stages of the consumer journey ([Richardson, 2010](#)). In the following sections, we first demonstrate male vs female's differential reaction to an imagination encouragement tactic beyond the typical supply of two-dimensional product information found in online retailing. Then we investigate how the imagination tactic should be adapted to maximize the power of imagination for male consumers.

Gender differences in mental simulation

Social psychology literature is abundant with research confirming gender differences in a variety of contexts, including information processing, emotion, communication, problem-solving, creativity and nurturing behavior ([Belansky and Boggiano, 1994](#); [Eagly and Johnson, 1990](#); [Eagly and Wood, 1991](#); [Darley and Smith, 1995](#); [Kring and Gordon, 1998](#); [Richard et al., 2010](#); [Rosa et al., 2014](#)). A number of studies have examined the differences between males and females in shopping behavior. For example, researchers have examined male/female differences in information processing and product evaluation ([Laroche et al., 2003](#); [Meyers-Levy and Maheswaran, 1991](#); [Meyers-Levy and Sternthal, 1991](#)). Specifically, [Laroche et al. \(2003\)](#) examined gender differences in product evaluation difficulty and found that females experience greater level of difficulty in evaluating product as compared to males. [Meyers-Levy and Sternthal \(1991\)](#) examined the threshold at which men and women engage in elaborative processing and found that women have a lower threshold for elaborating on message cues, and in such cases women's judgment reflects greater consideration of message cues as compared to men.

Although a number of studies in consumer research have examined the role of imagination in product evaluation, none of these studies have focused on gender differences ([Table I](#)). Instead, they treat males and females as a single group and assume the same underlying processes and reactions from both genders. However, psychology literature on personality differences acknowledges gender differences related to the tendency to engage in imagination. Within the openness/intellect domain of the Big Five personality domains, men tend to score higher on the intellect trait characterized by perceived intelligence and

intellectual engagement, whereas women tend to score higher on the openness trait characterized by aesthetics and fantasy (Weisberg *et al.*, 2011).

A limited number of empirical studies have examined and corroborated the assertion that women are more likely to fantasize than men. For example, Wood (1966) asked male and female participants to describe 12 photographs portraying different facial expressions of the same person. She found that men were more likely to describe objective features, such as the eyebrow position or which direction the eyes were focusing on. In contrast, women were more likely to provide a description characterized by creativity and imagination, such as:

It looks like he's staring off into space he's thinking about something and he could be looking at something that's above him also I think well if he was outdoors he could be looking up into a tree at a bird[. . .] (Wood, 1966, p. 128).

These findings confirm that women are more inclined toward imagination whereas men are more inclined toward objective information. In another study, Isaac and Marks (1994) examined the developmental changes in imagery ability and found that in general females report more vivid visual imagery than males.

Not only are females more likely to engage in mental simulation but they also tend to respond more strongly to such activities. For example, Schwartz *et al.* (1980) measured facial electromyographic (EMG) activity while participants were asked to imagine 48 happy, sad, angry or fearful situations. They found that females produced greater EMG activity and reported stronger emotional response to affective imagery situations. In a similar vein, Dimberg and Lundquist (1990) showed participants four images of different stimulus faces (happy and sad faces). During the exposure, they measured facial EMG activity and found that females were more facially reactive to the stimuli, suggesting a stronger emotional response from females as compared to males. In another study focusing on stereotypes, Blair *et al.* (2001) examined the impact of engaging in counter-stereotypic mental imagery in controlling implicit stereotypic responses (e.g. female stereotypes). They found that counter-stereotypic mental imagery did not have any effect on the implicit stereotypes held by males, but for females, counter-stereotypic mental imagery resulted in significantly weaker implicit stereotype. This finding suggests that mental simulation can be particularly effective among females in forming impressions and judgments.

Hypotheses development

The aforementioned studies can indirectly inform how male and female consumers may react differently when they are encouraged to imagine themselves using a product. However, this possibility has not been formally examined in existing marketing research. Addressing this gap, we integrate the above research with information processing theory to explain how the two genders may respond differently to imagination tactics in a marketing setting. From an information processing theory perspective, the effectiveness of a message is an outcome of a series of processes including attention to a message, cognitive processing and evaluative judgment (Pappas *et al.*, 2017). Previous research supports the efficacy of information processing theory in understanding persuasion in online retailing (Pappas *et al.*, 2017). Applied to the current context, effective communication regarding a product, such as asking the consumer to imagine using the product, will draw attention to the product and initiate cognitive processes, which will then lead to evaluative judgment of the product. We propose that there is a gender effect that impacts the sequential process proposed by information processing theory. Corroborating this view, Darley and Smith (1995) found that

female consumers' attitude toward an advertisement and the focal brand as well as their purchase intentions are based on evaluation of both objective and subjective cues, whereas male consumers use selective heuristic processing to form ad and product related judgment. This is in line with prior research findings that females engage in elaborate processing while males seek efficiency. Based on the above discussion, we present our proposed conceptual framework in [Figure 1](#).

Compared with males, females' proneness toward fantasy and imagination in everyday life makes such an imagination task familiar and easy to process. Previous research has shown that ease of processing alone can enhance attitude and preference toward a target object ([Schwarz, 2004](#); [Wänke et al., 1997](#)). But besides the general perception of ease, female consumers' extended experience with imagination makes it likely that they will generate vivid visual imageries, which can enrich available factual product information and aid in decision-making ([Elder and Krishna, 2012](#)). Furthermore, as imagination tends to elicit stronger emotional response from female consumers, it can enhance retention of persuasive information ([Baird et al., 2007](#)) and satisfy females' general proclivity toward a hedonic shopping experience ([Arnold and Reynolds, 2012](#)). This further increases the possibility that imagining using a focal product will enhance product evaluation among female consumers.

In contrast, male consumers are known to prefer objective information that is simple, comparative and attribute-based ([Wood, 1966](#); [Putrevu, 2004](#)). They have a higher threshold for message elaboration ([Meyers-Levy and Sternthal, 1991](#)), spend less time on a website ([Danaher et al., 2006](#)) and generally seek efficiency and time-energy conservation rather than a hedonic experience in the shopping process ([Bakewell and Mitchell, 2006](#)). Lacking a strong motivation to process in detail and a general tendency to stick to the facts rather than using imagination to fill in the details, male consumers may react to an imagination tactic as being superfluous. The relative difficulty and lack of motivation involved in completing such a task may cause decreased evaluation of the target product and lower the purchase intention and willingness to pay ([Wänke et al., 1997](#)). Furthermore, [Petrova and Cialdini \(2005\)](#) found that a mismatch between the type of product description and processing strategy (analytical processing vs imagination) can lead to negative product evaluation. Therefore, we propose the following hypothesis:

- H1.* Gender moderates the relationship between imagination and purchase intention, such that females will exhibit higher purchase intention when imagining using the product vs not imagining using the product, whereas the opposite will be true for males.

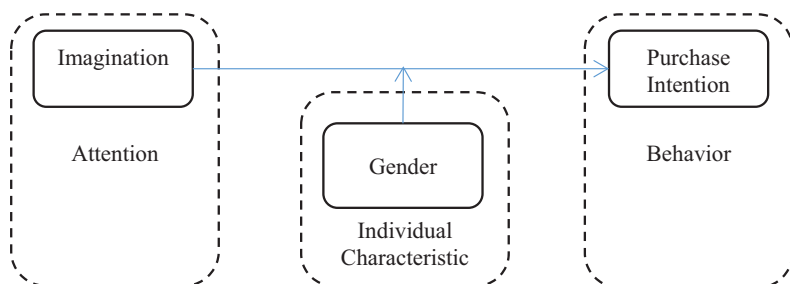


Figure 1.
Proposed conceptual
framework

Study 1

Sample and procedures

To establish the differential effect of imagination for male and female consumers in a retail setting, we conducted an online experiment featuring two experimental conditions: product description only and product description with imagination. As noted by [Hong and Toner \(1989\)](#) using male- or female-oriented product can introduce bias in the results; therefore, we used Converse sneakers as the study context for their universal appeal across the general population and for both male and female consumers. A total of 185 valid responses were collected through an online consumer panel.

Each participant was randomly assigned to one of the two experimental conditions. All participants first reported their likelihood of purchasing a variety of products in the next three months, with sneakers being one of the products in the list. This is to control for different pre-existing tendencies toward buying something like Converse sneakers at the time of the study. Participants were then given an introduction to the experimental stimuli. Those in the product description only condition were told that they would be presented with information about a pair of sneakers and that they should acquaint themselves thoroughly with the information and then answer the rest of the questions. Participants in the imagination condition saw a similar introduction, but in their version, they were also asked to imagine what it would be like to wear the product as they read the product description. Both groups of participants then proceeded to the product page containing description of a pair of Converse sneakers, which was taken from the product's listing from an online shoe store.

After perusing the product page, participants reported their purchase intention for the shoes. We measured purchase intention by asking participants "How likely is it that you will purchase the product," using a seven-point scale anchored at "Unlikely/Likely." Participants were also asked if they already owned the shoes displayed on the product page. A total of 39 consumers answered yes to the question and were excluded from the study as they could be remembering their actual use of the product instead of imagining it, which would interfere with imagination effects. This left a final sample size of 146 consumers ($M_{\text{age}} = 33.80$, $SD_{\text{age}} = 10.98$; 57 per cent females; 55 per cent work full time and 21 per cent work part time). Following the purchase intention and shoe ownership questions, participants were asked, "When you were reading the information about the Converse shoes, how much did you try to imagine yourself wearing them?" They provided their answer on a seven-point scale anchored at "I did not try to imagine at all"/"I tried my best to imagine". This served as a manipulation check. Finally, participants completed a few demographic questions.

Results

To ensure the manipulation was effective, we compared participants response regarding how much they tried to imagine wearing the shoes while reading the product information across the two conditions. Those in the imagination condition imagined significantly more than those in the product description only condition [$M_{\text{imagination}} = 5.78$ vs $M_{\text{no-imagination}} = 4.90$; $t(144) = 3.20$, $p = 0.002$], suggesting successful manipulation. Next we examined participants' purchase intention. Across participants, purchase intention ranged from 1 to 7, with the mean being 3.74 ($SD = 1.95$). To test $H1$, we conducted a two-way analysis of covariance (ANCOVA) with purchase intention as the dependent variable, and imagination, gender and their interaction as the independent variables. Pre-existing likelihood to purchase sneakers in the next three months as reported at the beginning of the study was included as a covariate. [Table II\(a\)](#) shows the ANCOVA results, and [Table III\(a\)](#) shows the

	Variables	DF	Mean SS	F-value	p
	<i>Study 1 ANCOVA results (domain = shoes; mall intercept)</i>				
	Imagination	1	0.001	0.00	0.98
	Gender	1	0.01	0.003	0.96
	Imagination \times gender	1	26.39	7.14	0.008
	Pre-existing intention to buy sneakers	1	4.85	1.31	0.25
	Residuals	141	3.69		
	<i>Study 2 ANCOVA results (domain = hotel; online)</i>				
	Imagination	1	1.87	1.30	0.26
	Gender	1	4.22	2.93	0.09
	Imagination \times gender	1	5.74	3.98	0.05
	Pre-existing intention to book hotel	1	27.82	19.27	<0.001
	Residuals	189	1.44		
	<i>Study 3 ANCOVA results (domain = shoes; online)</i>				
	Imagination	2	0.93	0.31	0.73
	Previous brand experience	1	76.20	25.62	<0.001
	Imagination \times previous brand experience	2	11.11	3.74	0.03
	Pre-existing intention to buy sneakers	1	39.69	13.34	<0.001
	Residuals	107	2.97		

Table II.
ANCOVA results for
all studies

detailed results for each cell. Consistent with *H1*, we found a significant interaction between imagination and gender [$F(1, 141) = 7.14, p = 0.008$]. [Figure 2](#) illustrates the means under each condition. Planned comparisons show that imagination led to higher purchase intention for female participants [$M_{female, imagination} = 4.13$ vs $M_{female, no imagination} = 3.40, t(141) = 2.10, p = 0.038$]. In contrast, male participants reported lower purchase intention under imagination ($M_{male, imagination} = 3.31$) than under no-imagination [$M_{male, no imagination} = 4.30, t(141) = -2.22, p = 0.028$]. No other effect was significant from the analysis.

Discussion

Study 1 shows that in a relatively context-deprived shopping environment with no physical product interaction, imagination could be beneficial to female consumers. They reported higher purchase intention for the focal product when they were asked to imagine what it would be like to wear the product. The opposite was true for male participants. Imagination had a negative effect on male consumers' purchase intention compared to no imagination. Given the support in existing literature regarding women's proclivity to imagine and stronger emotional reaction to affective imagery ([Dimberg and Lundquist, 1990](#); [Isaac and Marks, 1994](#)), we attribute our results to female consumers' general ease with imagination, much like the try-on experience in a physical store. Male consumers, in contrast, may find imagination difficult, which can influence their fluency judgment, and the imagination task may occupy so much cognitive resource as to interfere with product information processing ([Petrova and Cialdini, 2008](#)). Although we suggest the difference in imagination ease between males and females, this study did not explicitly measure and test whether such a difference indeed exists. Study 2 aims to address this issue and to generalize the findings to another product category

	<i>No imagination</i>	<i>Imagination</i>	<i>Contrast</i>	
<i>Study 1 (domain = shoe, mall intercept)</i>				
Purchase intention (PI), females	3.40 (1.05) <i>n</i> = 43	4.13 (1.95) <i>n</i> = 40	$t(141) = 2.10, p = 0.038$	
PI, males	4.30 (1.61) <i>n</i> = 27	3.31 (1.85) <i>n</i> = 36	$t(141) = -2.22, p = 0.028$	
<i>Study 2 (domain = hotel, online)</i>				
PI, females	5.56 (1.34) <i>n</i> = 59	5.77 (1.02) <i>n</i> = 48	$t(189) = 0.90, p = 0.37$	
PI, males	5.69 (1.04) <i>n</i> = 36	5.08 (1.47) <i>n</i> = 51	$t(189) = -2.16, p = 0.03$	
<i>Study 3 (domain = shoe, online)</i>				
	<i>No imagination</i>	<i>Imagination-typical context</i>	<i>Imagination-less-typical context</i>	<i>Pairwise contrasts</i>
PI, males with prior brand experience	4.88 (1.68) <i>n</i> = 41	4.95 (1.47) <i>n</i> = 20	4.58 (2.22) <i>n</i> = 19	(1) Between less-typical context and no imagination: $t(107) = -0.58, p = 0.56$; (2) Between less-typical context and typical imagination: $t(107) = -0.62, p = 0.54$; (3) Between typical and no imagination contexts: $t(107) = 0.16, p = 0.87$;
PI, males without prior brand experience	2.15 (1.77) <i>n</i> = 13	2.67 (1.50) <i>n</i> = 9	4.42 (2.19) <i>n</i> = 12	(1) Between less-typical context and no imagination: $t(107) = 2.85, p = 0.005$; (2) Between less-typical context and typical imagination: $t(107) = 2.05, p = 0.04$; (3) Between typical and no imagination contexts: $t(107) = 0.71, p = 0.48$;

Table III.
Detailed results for
all studies

Note: The numbers in parentheses are standard deviations

Study 2

Sample and procedures

Study 2 aimed to replicate the findings from Study 1 and to examine imagination ease explicitly. It featured the same no-imagination (product description only) vs imagination conditions as in Study 1. To generalize the findings from the previous study, we picked another product category, hotel, which should be relevant for both male and female consumers. A total of 194 valid responses were collected through an online consumer panel. The average age of the participants was 40.25 (SD = 13.13), and 55 per cent of the participants were females. In all, 74 per cent of the participants had full-time jobs and 14 per cent worked part time.

The procedure for the study was similar to Study 1 with a few exceptions. First, participants saw the description of a hotel, which was taken from the text descriptions of different hotels on an online travel website. Instead of using a real brand, we used a fictitious brand (Hotel Ariane) in this study. Analogous to most hotel descriptions found online, we

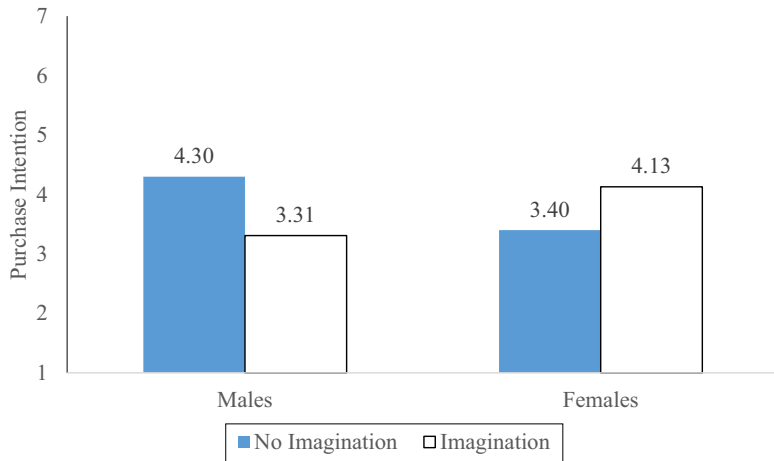


Figure 2.
Gender ×
imagination
interactions in
Study 1

provided a general description of Hotel Ariane and its key features and amenities (see Study 2 Hotel Description for a screenshot). For participants in the imagination condition, they received an instruction to “imagine what it would be like to stay at the hotel” while they read the hotel description. Second, we added a thought listing task immediately after participants read the product description as an alternative manipulation check measure (Lee and Qui, 2009). We asked the participants to list between three and five thoughts that came to their mind after reading the product description. Third, we asked them in the imagination condition, “How difficult did you find the imagination task to be,” on a seven-point scale anchored at extremely easy/extremely difficult (Bone and Ellen, 1992). This was used to confirm that males indeed have more difficulty with the imagination task than females.

Hotel Ariane is a beautiful three-star hotel located in the heart of downtown. It offers the style and soul of a boutique hotel at a reasonable price.

(1) *Key features and amenities:*

- great city views;
- classically styled guest rooms in soothing earth tones;
- separate walk-in shower and bath tub;
- premium mattresses and deluxe bedding;
- 36-inch flat-screen TV with HBO, ShowTime and ESPN sports package;
- large work desk with ergonomic chairs;
- complimentary high-speed internet access and Wi-Fi throughout the hotel;
- business center equipped with cutting-edge technology; and
- within 10-min walk to the downtown business district and famous landmarks.

Results

We used thought listing to check the imagination manipulation as suggested by Lee and Qui (2009). On average, participants listed 3.81 thoughts. Each of the thoughts that participants listed was coded as either an imagery related thought or a non-imagery related thought. An imagery related thought is one that reflected vicarious consumption and sensory experiences, such as “I was picturing myself swimming in a pool at the hotel.” A non-imagery related thought are statement of facts or evaluations that did not involve vicarious consumption or sensory experiences, e.g. “I wonder what price range it is.” The number of imagery related thoughts was then divided by the total number of thoughts to create an imagery index for each participant. We compared this imagery index between the two experimental conditions. Results show that participants in the imagination condition engaged in a higher portion of imagery thoughts ($M_{\text{imagination}} = 0.35$) than those in the no imagination condition [$M_{\text{imagination}} = 0.15$; $t(192) = 5.93$, $p < 0.001$]. Hence, the imagination manipulation was deemed successful.

To test *H1*, we conducted a two-way ANCOVA with purchase intention as the dependent variable, and imagination, gender and their interaction as the independent variables. Pre-existing likelihood to book a hotel room in the next three months as reported at the beginning of the study was included as a covariate. Results from the ANCOVA are reported in Table II(b), and Table III(b) shows the mean and standard deviation for each cell. We found a significant interaction between imagination and gender [$F(1, 189) = 3.98$, $p = 0.048$]. Planned comparisons show that imagination did not have a significant effect on female participants’ purchase intention [$M_{\text{female, imagination}} = 5.77$ vs $M_{\text{female, no imagination}} = 5.56$, $t(189) = 0.90$, $p = 0.37$]. In contrast, imagination lowered purchase intention for male participants [$M_{\text{male, imagination}} = 5.08$ vs $M_{\text{male, no imagination}} = 5.69$, $t(189) = -2.16$, $p = 0.03$], as was the case in Study 1. Therefore *H1* was partially supported. Besides the significant two-way interaction, the ANCOVA also revealed a significant effect of pre-existing intention [$F(1, 189) = 19.27$, $p < 0.001$].

To confirm the difference in imagination ease between males and females, we compared the reported difficulty level with the imagination task between the two genders. Consistent with our arguments, male participants in the imagination condition reported a higher level of difficulty ($M_{\text{male}} = 2.45$) than female participants in the imagination condition [$M_{\text{female}} = 1.79$; $t(97) = 2.45$, $p = 0.016$].

Discussion

Using hotel as the focal product category, Study 2 attempted to replicate the results of Study 1 in an online setting. Different from Study 1, we did not find a significant effect from imagination among female consumers in this setting. This could be because of the different product descriptions offered in the two studies. The product description in Study 1 contained images of the shoes from three different angles, whereas in this study, no image of the hotel or the room was shown. Previous research shows that the benefit of imagination is more likely to realize with vivid product depiction, and the use of pictures has been shown to improve the quality of consumption vision (Walters *et al.*, 2007). Hence, the less vivid product description in Study 2 may explain why female consumers did not experience an increase in purchase intention from imagination as they did in Study 1.

For male consumers, we confirm that they indeed experience more difficulty imagining than female consumers. Furthermore, we replicate the results from Study 1 and find a negative effect of imagination. That is, a simple suggestion to imagine staying at the hotel reduced male participants’ intention to book the hotel. While previous research has often demonstrated the benefits of imagination (Petrova and Cialdini, 2008), our results suggest

that imagination may not be beneficial across all consumers and may even be harmful for male consumers. These findings are aligned with a more general line of research, suggesting that males and females approach online shopping in distinct ways because of differences in information processing approaches (Richard *et al.*, 2010). Specifically, the two hemispheres in human brain have been found to be more unified in females and more specialized in males (Everhart *et al.*, 2001; Richard *et al.*, 2010). Therefore, men process information in a piecemeal fashion, whereas females process information more holistically. Richard *et al.* (2010) cite these differences to explain their findings regarding gender differences in Web navigation, wherein males were found to be less exploratory and involved as compared to females. Another study focusing on shopping for clothing in an online environment corroborated these findings, as females were found to be significantly more “shopping for fun” oriented whereas males were “quick shoppers” (Hansen and Jensen, 2009). The benefit of imagination, when activated by internal or external stimuli, is likely to become an aspect of the overall shopping experience among females, wherein they engage in a more exploratory and imaginative “shopping for fun” experience.

In the meantime, the negative effect of imagination for male consumers is an undesirable outcome and can limit the scope in which imagination tactics can be applied. It is therefore important to understand conditions wherein males may find imagination to be a useful tactic as well in product evaluation. How can marketers counter the negative effect of imagination among male consumers? Are there ways that marketers can turn imagination into a positive device for these consumers? We address these questions in the next section and through our last study.

Previous brand experience, mental simulation context and male consumers

Studies 1 and 2 find that the imagination tactic backfired on male consumers and decreased their purchase intention for the focal product. Although the negative impact of imagination experienced specifically by male consumers has not been examined, previous studies within other contexts have proposed a number of factors that can moderate imagination effectiveness such as self vs other referencing, simultaneous demand on cognitive resources and dispositional imagery vividness (Bone and Ellen, 1992; Petrova and Cialdini, 2005). For example, Petrova and Cialdini (2005) show that using imagery appeals decreased product evaluation for consumers with lower dispositional imagery vividness.

Extending previous research, we examine how the negative impact of imagination on male consumers can be alleviated. In doing so, we differentiate between two groups of male consumers: those who have prior experience with the brand and those who do not. A recent study by Nielsen *et al.* (2018) shows that experienced consumers' evaluation of an incrementally new product is not driven by mental simulation. They argue that these consumers may be relying on more analytical processing of product attributes rather than mental simulation to evaluate the product. Although these findings were based on the general population, we believe they may be particularly true for male consumers. This is based on previous research showing that males are more likely to limit product evaluation to observable objective information (Laroche *et al.*, 2003; Meyers-Levy and Maheswaran, 1991) and that they are more likely to evaluate an advertising message by referring to their existing schema (Meyers-Levy and Maheswaran, 1991; Sujan and Bettman, 1989). These results suggest that male consumers who have prior brand experience are less likely to be affected by imagination. Instead, they are more likely to engage in retrospective self-referencing involving past auto-biographical experiences with the brand when evaluating product information (Krishnamurthy and Sujan, 1999).

For male consumers with no prior brand experience, they are less likely to rely on existing schema to process the new information and instead are more likely to engage in anticipatory self-referencing involving imagined future experiences (Krishnamurthy and Sujan, 1999). This makes them more susceptible to the influence of imagination. How can the negative effect of imagination we found in the first two studies be alleviated for these consumers? We argue that providing the right contextual details can be one way to address the problem. In an advertising context, contextual detail has been shown to facilitate anticipatory self-referencing (Krishnamurthy and Sujan, 1999). While male consumers may find it ineffective to imagine wearing the focal product, the task may become more useful if they are provided with a specific context in which they are to imagine using the product.

Contextual details are not always beneficial; however, when the context impedes processing goals, it could lead to negative evaluations (Jiang *et al.*, 2014; Krishnamurthy and Sujan, 1999). Therefore, the key question is what context may be beneficial to male consumers with no prior brand experience when they imagine potential future use of the product. We propose that these consumers are more likely to react positively to imagination using an atypical product usage context. The value of imagining a novel context is demonstrated by Zhao *et al.* (2009) in a radically new product setting, where encouraging mental simulations of a known use scenario is less effective than imagining a novel use of the same product. Although this finding was based on a radically new product, we believe a novel context can also be beneficial for a more mundane product among males with no prior experience with the brand.

We base our reasoning on the way in which male consumers make purchase decisions. Male consumers are known to have a higher elaboration threshold and often engage in selective processing and simplified decision-making (Bakewell and Mitchell, 2006; Meyers-Levy and Sternthal, 1991). However, when the elaboration threshold is reached, male consumers are also likely to process information more carefully (Meyers-Levy and Sternthal, 1991). Applied to the current situation, a typical use context is likely to conform to existing schema associated with the use of similar products, despite the lack of prior experience with the specific brand. This enables these male consumers to draw parallel inferences from existing schema associated with similar products from other brands in product evaluation and decision-making. As a result, imagination may not lead to enhanced processing of product information. In contrast, when an atypical context is used, the novelty of the context may prompt attention above male consumers' relatively higher threshold of elaboration (Meyers-Levy and Sternthal, 1991) and cause male consumers to benefit from enhanced elaboration from the imagination task. This leads to the following hypothesis:

- H2.* For male consumers, previous ownership and context of imagination moderate the relationship between imagination and purchase intention, such that for male consumers with prior brand experience, imagining product use in a specific context (typical or not typical) has no effect on purchase intention, compared with no imagination, whereas for male consumers with no prior brand experience, imagining product use in a less-typical context will lead to higher purchase intention than no imagination or imagination in a typical context.

Study 3

Pretest

We conducted a pretest to identify what may be considered a typical vs a less-typical usage context among male consumers for the shoes we used in Study 1. Specifically, we explored two likely uses of the shoes: a task context (taking walks) vs a social context (meeting up

with friends). A total of 45 males from an online consumer panel ($M_{Age} = 27.4$, $SD_{Age} = 4.37$; 73 per cent full-time employed and 9 per cent part-time employed) took part in the pretest for a small financial incentive. Each respondent was shown the same information page about the shoes as in Study 1. They were asked how likely it was that they would wear the shoes they saw for taking short walks and meeting up with friends, on an 11-point scale anchored at highly unlikely and highly likely. We also asked them to rate on a seven-point scale (anchored at very difficult/very easy) how easy it would be for them to imagine themselves wearing the shoes in each of the two situations. A paired comparisons *t*-test showed that male consumers were significantly more likely to wear the shoes to meet up with friends ($M = 8.24$) than to take short walks [$M = 6.62$; $t(43) = 2.54$, $p = 0.01$]. Furthermore, imagining the more typical use context was considered easier ($M = 5.31$) than imagining the less-typical usage context [$M = 4.80$; $t(43) = 2.14$, $p = 0.04$], possibly because of existing schema from similar products that can be drawn in a typical context.

Sample and procedures

Study 3 aimed to test *H2* with a 3 (imagination: no imagination vs imagination with a typical context vs imagination with a less-typical context) \times 2 (prior brand experience: yes vs no) design, with the imagination factor manipulated and prior brand experience measured. A total of 134 male consumers from an online consumer panel participated in the study in exchange for a small financial incentive. We used the same shoes from Study 1 as the product for this study. And, just like in Study 1, 20 consumers who already owned the exact shoes were excluded, resulting in a final sample size of 114 (Mean_{Age} = 28, SD_{Age} = 4.78; 57 per cent were employed full-time and 17 per cent were employed part-time).

Each participant was randomly assigned to one of the three imagination conditions. As before, all participants first reported their likelihood of purchasing a variety of products (including sneakers) in the next three months. Following that, participants in the no-imagination condition received the same product description as in Study 1. For those in the two imagination conditions, instead of receiving a generic imagination task as we did in Study 1, we instructed them to imagine while reading the shoe description what it would be like to wear the shoes to either casual social gatherings (typical context) or to take short walks (atypical context).

After the participants had a chance to examine the product information, they were asked to list the thoughts that went through their mind when they were reading the product description, as in Study 2. They then reported whether they already owned the shoes shown and their intention to purchase the shoes on the same seven-point scale as in Study 1. Finally they were asked if they ever had their own Converse shoes, together with a few demographic questions.

Results

To verify that our imagination manipulations indeed led to more imagery-related thoughts compared with no imagination, we coded participants' thoughts and calculated an imagery index for each participant as we did in Study 2. On average, each participant provided 3.49 thoughts. A one-way ANOVA with imagery index as the dependent variable and imagination condition as the independent variable revealed a significant effect of imagination condition [$F(2, 111) = 4.60$, $p = 0.01$]. Paired comparisons show that the typical context imagination condition yielded a higher portion of imagery thoughts ($M_{typical} = 0.23$) than the no imagination condition [$M_{no-imagination} = 0.09$; $t(111) = 2.65$, $p = 0.009$]. The atypical context imagination also yielded more imagery thoughts than the no imagination condition [$M_{less-typical} = 0.20$; $t(111) = 2.13$, $p = 0.04$]. There was no significance difference

between the typical and less-typical imagination conditions on the proportion of imagery thoughts [$t(111) = 0.39, p = 0.70$].

To check the manipulation of the imagination context, we further coded the thoughts of participants in the two imagination conditions. If participants in the social context indeed were considering wearing the shoes in a social context, their thoughts should be directed more toward look-related product attributes (color, design, etc.) that were more relevant to such a context, whereas those in the task context should be more directed toward functional attributes (comfort, durability, etc.). We coded each thought as being related to look attributes, functional attributes or something else. We then calculated the portion of look- and function-related thoughts for each participant. Although both groups of consumers reported a higher portion of look-related thoughts, those that imagined task-oriented use reported a higher percentage of function-related thoughts ($M = 0.30$) than those that imagined social-oriented use [$M = 0.14; t(58) = 2.28, p = 0.03$]. The reverse was true for look-related thoughts, which was higher for those in the social use condition ($M = 0.49$) than for those in the task use condition [$M = 0.30; t(58) = 2.74, p = 0.01$]. Overall the manipulations were considered successful.

To test *H2*, we ran an ANCOVA with purchase intention as the dependent variable and imagination condition, previous brand ownership and their interaction as the independent variables. Likelihood to purchase sneakers in the next three months as reported at the beginning of the study was included as a covariate. The results from the ANCOVA are shown in [Table II\(c\)](#). The analysis revealed a significant main effect of previous brand experience [$F(1, 107) = 25.62, p < 0.001$], a significant effect of pre-existing intention to buy sneakers [$F(1, 107) = 13.34, p < 0.001$] and a significant interaction between imagination condition and previous brand experience [$F(2, 107) = 3.74, p < 0.027$].

The means for each condition and the planned comparison results are reported in [Table III\(c\)](#) and plotted in [Figure 3](#) below. Consistent with our expectation, for male participants who had not previously owned a Converse pair, they reported higher intention to buy the shoes under the less-typical imagination context ($M_{no-experience, less-typical} = 4.42$) than under both the typical imagination context [$M_{no-experience, typical} = 2.67; t(107) = 2.05, p = 0.04$] and the no imagination condition [$M_{no-experience, no-imagination} = 2.15; t(107) = 2.85, p = 0.005$]. In contrast, male consumers with prior Converse experience reported similar

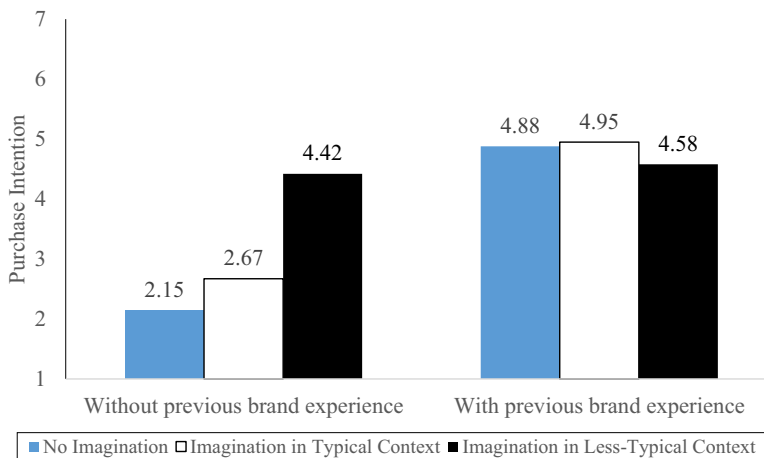


Figure 3.
Imagination ×
previous brand
experience interaction
in Study 3

likelihood of purchasing the shoes across conditions [$M_{with\ experience, less-typical} = 4.58$, $M_{with-experience, typical} = 4.95$, and $M_{with-experience, no-imagination} = 4.88$; all $p > 0.10$, see [Table III\(b\)](#) for full paired comparison results]. Overall, $H2$ was supported.

Discussion

Focusing on male consumers, Study 3 shows that marketers can alleviate the negative impact of imagination found in previous studies by providing a concrete context for the imagination task. Providing an imagination context led to purchase intention that was at least on par with the no-imagination scenario, hence erasing the negative effects of imagination found previously. Furthermore, imagining product use in a less-typical context led to higher purchase intention than no imagination, thereby turning imagination into a positive device for marketers among male consumers. However, this positive impact occurred only among those with no prior experience with the brand. We speculate that these results are likely because of the lack of brand experience and a novel context causing male consumers' elaboration threshold to be surpassed, allowing imagination to enhance the processing of product information. In contrast, it is plausible that male consumers with previous brand experience are more likely to engage in retrospective self-referencing using their prior experiences with the brand and hence are not affected by imagination.

General discussion

Conclusions

Mental simulations have been shown to impact consumption behavior in a number of studies ([Bone and Ellen, 1992](#); [Phillips et al., 1995](#); [Taylor et al., 1998](#)). However, the role of gender differences in imagining future consumption situations is unclear. Across three experimental studies, we manipulated whether and how consumers are instructed to imagine themselves using the product while reading the focal product description and measured their purchase intention as the outcome. We provide evidence that encouraging consumers to form mental simulations regarding the usage of a product can be beneficial for retailers when gender differences are taken into consideration. In Studies 1 and 2 we show that imagining oneself using a product has positive or no effect on females' purchase intention toward the focal product. But the same imagination task proves detrimental to male consumers, who react better to product information only with no imagination tactic attached. In Study 3 we highlight the role of imagination context and prior brand experience in mitigating the negative reactions from male consumers. We show that when a specific context is provided with the imagination task to male consumers, the negative effect from imagination dissipates. Furthermore, imagining product use in a novel context proves superior to no imagination for male consumers who have had no prior brand experience. These results provide important theoretical and practical implications.

Theoretical implications

Researchers have examined various underlying mechanisms that regulate the impact of imagination on product evaluation, such as self vs other-focused imagination, temporal dimension of imagination, imagination-led transportation and degree of concreteness of product information in the imagination ([Petrova and Cialdini, 2008](#)). However, the impact of individual differences on the likelihood to form mental imagery and how such mental imagery influences product evaluation across individuals are not well understood ([Phillips et al., 1995](#)). Limited research in this area has examined individual differences in dispositional imagery vividness, style of processing, culture and prior product knowledge ([Table I](#)). One important missing factor is gender. Although psychology research has

revealed significant gender differences in propensity to engage in imaginative activities, to date no research has explored how such gender differences may translate into different product evaluation and purchase decisions. Our research fills this gap and provides evidence that gender indeed moderates the impact of imagination on purchase decisions. Our empirical findings confirm that females find it easier to imagine than males and that this translates into opposite reactions to a generic imagination task between the two genders. While females are likely to find mental “try on” through imagination useful in forming purchase intentions, males’ purchase intention is negatively affected by imagination.

From an information processing perspective, males have been found to be naturally disposed to using schema-based processing and to be more selective in the information that they pay attention to and process (Meyers-Levy and Maheswaran, 1991; Wänke *et al.*, 1997). However, despite a higher elaboration threshold and a tendency to rely on schemas, males have also been shown to engage in more detailed processing when a message prompts attention above the threshold of elaboration (Meyers-Levy and Sternthal, 1991). Our research extends this line of research by establishing that males’ limited proclivity to visualize can be overcome when they do not have previous experience with the brand and when they are provided with a novel usage context. In such situations, male consumers do not have well-organized self-related schema regarding the product, and imagination can be helpful in forming purchase intentions. This finding extends Ostinelli and Böckenholt’s (2017) work suggesting that ineffectiveness of imagination appeals in advertising can be overcome by showing stimuli that trigger imagery processing. We demonstrate that the context of imagination and prior brand experience can also serve as effective boundary conditions that enhance imagination’s effectiveness among males.

Practical implications

The positive effect of imagination found in previous research is good news for online retailers, who often cannot provide the same try-on and vivid shopping experience as offline retailers but can make up for the disadvantage by leveraging consumers’ imaginative capabilities. Before online retailers engage in tactics to stimulate imaginative activities, our research cautions against the potential backlash among male consumers and the need to adapt such tasks to different genders. While female consumers are more prone to react positively to imagination tactics, male consumers evaluate a product more positively as a result of imagination under very limited circumstances. One such instance is when the imagination involves product use in a less-typical use-context for those who have not had previous experience with the brand.

Our findings can be useful in leveraging gender differences in imagination to show targeted messages or ads. Personalized marketing allows retailers to nudge customers toward a purchase by showing the right content at the right time (Helft and Vega, 2010). Specifically, information from customer’ browsing history can be used to improve internet advertising content on external websites (Lambrecht and Tucker, 2013). However, in some cases additional user information can be useful in showing relevant content to the user (Joshi *et al.*, 2011). For example, if a user reads an article about celebrity divorce, showing content regarding divorce lawyers might not be very relevant. Within this context, demographic information has been shown to improve effectiveness of content shown to the consumer (Joshi *et al.*, 2011). In other words, using content that a consumer is viewing to determine product interest and combining this information with demographic information can add another layer of optimization. This form of optimization can be useful when retargeting customers in omni-channel campaigns, wherein retailers leverage multiple channels to

encourage customers to purchase a product that they may have shown interest in via a specific channel. To this end, we show the need for personalization tactics for female vs male consumers or for products targeted at different genders. For example, if a female customer shows interest in a product on a retailer website, using the mobile app or social media to encourage the customer to imagine using the product may nudge the customer to purchase. In comparison, it is necessary to provide a novel context (e.g. a less-typical product use) for imagination for such tactics to work favorably for male customer.

Limitations and future research

Although our findings regarding gender differences in response to imagination in consumer purchase decisions are interesting and practically relevant, there are a number of limitations that should be addressed in future research. First, even though our studies considered two product categories (shoes and hotel), further investigation of other product categories is needed to extrapolate the findings to a variety of situations. Previous research within the advertising context suggests that self-referencing works in persuasion only when consumers are motivated to attend to an ad (Meyers-Levy and Perachio, 1996), such as when involvement level is high. We did not examine the role of product category involvement in forming mental simulations of product use. The two product categories we chose can be considered moderately involving categories. It is possible that when consumers are more involved in a specific product category, they may be inclined to form more vivid images of using the product, which can increase or decrease the gender differences observed here. Future research can confirm if product involvement impacts vividness of mental simulations as well as its role in product evaluation. Additionally, researchers should examine how males and females respond to imagination tactics in product categories with varying levels of product involvement. Relatedly, we have focused primarily on an online retail context in our discussion and empirical studies. We believe the results here should apply to general product evaluation and shopping situations, but they may be particularly relevant to situations where physical examination of the product is not possible, such as in online shopping. These should be verified in future research.

Second, we used existing literature to identify detailed processing as the natural processing strategy for females and schema-based processing as the main processing strategy for males. We did not directly measure if these strategies were indeed more (or less) preferred by males and females. Future research can focus on extracting the content of imagination to identify which processing strategy is used and preferred by what consumer groups. This can help extend our findings and apply them to the information processing theory framework and develop connections among imagination, processing goals and product evaluation. Additionally, we did not examine the mediating role of processing. Study 3 showed that male consumers with no brand experience had greater purchase intention when imagining in a less-typical product context. We speculate that the finding may be because of male consumers exceeding their elaboration threshold. However, we did not test elaboration level as a potential mediator. Future research can investigate the role of elaboration through mediation analysis. Relatedly, our research focused on purchase intention as a broad outcome of imagination without examining the evaluative consequence associated with different aspects of the product. But the thought analysis in Study 3 alludes to the possibility that imagination not only influences consumers' extent of elaboration but may also redirect consumers' attention to certain product attributes. Future research should examine such possibilities more explicitly. For example, it may be interesting to investigate how imagination facilitates/impedes evaluation of hedonic vs utilitarian attributes for male vs females.

Third, advertising research suggests that self- vs other-referencing in consumption visions has differential impact on persuasion. But our research design only dealt with self-referencing by asking participants to imagine themselves using the product. It is unclear how visualizing product use by self vs others will impact product evaluation in the retail context. While it is fairly common for retailers to showcase a product on a model or mannequin, recent advances in technology (e.g. augmented reality-enabled mirrors and mobile applications) have made it possible for retailers to encourage consumers to imagine themselves using the product in online and physical store environments without having to physically try on the product (Quoc, 2018). Therefore, future research can examine the role of imagination in enhancing customer experience and product evaluation within the context of visualization technologies and compare self- vs other-referencing in online and physical store environments. Additionally, the moderating role of gender on self- vs other-referencing can be an interesting area to study.

Fourth, using less-typical product use as the imagination context for male consumers without prior brand experience may be only one of the ways to turn imagination into a positive device. Existing research suggests the possibility of other tactics such as orientating products in a more natural way (Elder and Krishna, 2012) and process priming (Ostinelli and Böckenholt, 2017). It would be interesting to test whether these tactics affect male vs female consumers differently and what other tactics may be useful in countering male consumers' aversion to imagination. Additionally, a considerable amount of imagination research has used narrative transportation to manipulate visualization. However, we used a non-narrative instruction to prompt participants to imagine using the product. Even though our manipulation check suggests that participants were imagining using the product, the mental simulations they formed may be different in terms of vividness if narrative transportation were used. Future research examining gender effects using narrative transportation may provide interesting insights regarding the role of narration across genders.

Finally, our research suggests potentially complex interactions between imagination and individual and situational factors. From a methodological perspective, future research can benefit from fuzzy set qualitative comparative analysis (FsQCA), which can identify multiple pathways toward the same outcome (Ragin, 2008). FsQCA is particularly useful for explaining pathways/solutions that are not readily identified by regression models, as they only exist for a small set of cases when using small or splitting samples (Pappas, 2018). Therefore, FsQCA analysis may reveal interesting insights that may otherwise be missed.

References

- Arnold, M.J. and Reynolds, K.E. (2012), "Approach and avoidance motivation: investigating hedonic consumption in a retail setting", *Journal of Retailing*, Vol. 88 No. 3, pp. 399-411.
- Babin, L.A. and Burns, A.C. (1997), "Effects of print ad pictures and copy containing instructions to imagine on mental imagery that mediates attitudes", *Journal of Advertising*, Vol. 26 No. 3, pp. 33-44.
- Baird, T.R., Wahlers, R.G. and Cooper, C.K. (2007), "Non-recognition of print advertising: emotional arousal and gender effects", *Journal of Marketing Communications*, Vol. 13 No. 1, pp. 39-57.
- Bakewell, C. and Mitchell, V. (2006), "Male consumer decision-making styles", *Journal of Business Research*, Vol. 59 No. 12, pp. 1297-1300.
- Belansky, E.S. and Boggiano, A.K. (1994), "Predicting helping behaviors: the role of gender and instrumental/expressive self-schemata", *Sex Roles*, Vol. 30 Nos 9/10, pp. 647-661.

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- Blair, I.V., Ma, J.E. and Lenton, A.P. (2001), "Imagining stereotypes away: the moderation of implicit stereotypes through mental imagery", *Journal of Personality and Social Psychology*, Vol. 81 No. 5, pp. 828-841.
- Bone, P.F. and Ellen, P.S. (1992), "The generation and consequences of communication-evoked imagery", *Journal of Consumer Research*, Vol. 19 No. 1, pp. 93-104.
- Burns, A.C., Biswas, S. and Babin, L. (1993), "The operation of visual imagery as a mediator of advertising effects", *Journal of Advertising*, Vol. 22 No. 2, pp. 71-85.
- Childers, T.L., Houston, M.J. and Heckler, S.E. (1985), "Measurement of individual differences in visual versus verbal information processing", *Journal of Consumer Research*, Vol. 12 No. 2, pp. 125-134.
- Dahl, D.W. and Hoeffler, S. (2004), "Visualizing the self: exploring the potential benefits and drawbacks for new product evaluation", *Journal of Product Innovation Management*, Vol. 21 No. 4, pp. 259-267.
- Danaher, P.J., Mullarkey, G.W. and Essegai, S. (2006), "Factors affecting web site visit duration: a cross-domain analysis", *Journal of Marketing Research*, Vol. 43 No. 2, pp. 182-194.
- Darley, W.K. and Smith, R.E. (1995), "Gender differences in information processing strategies: an empirical test of the selectivity model in advertising response", *Journal of Advertising*, Vol. 24 No. 1, pp. 41-56.
- Dimberg, W. and Lundquist, L.-O. (1990), "Gender differences in facial reactions to facial expressions", *Biological Psychology*, Vol. 30 No. 2, pp. 151-159.
- Eagly, A.H. and Johnson, B.T. (1990), "Gender and leadership style: a meta-analysis", *Psychological Bulletin*, Vol. 108 No. 2, pp. 233-256.
- Eagly, A.H. and Wood, W. (1991), "Explaining sex differences in social behavior: a meta-analytic perspective", *Personality and Social Psychology Bulletin*, Vol. 17 No. 3, pp. 306-315.
- Elder, R.S. and Krishna, A. (2012), "The "visual depiction effect" in advertising: facilitating embodied mental simulation through product orientation", *Journal of Consumer Research*, Vol. 38 No. 6, pp. 988-1003.
- Escalas, J.E. (2004), "Imagine yourself in the product: mental simulation, narrative transportation, and persuasion", *Journal of Advertising*, Vol. 33 No. 2, pp. 37-48.
- Everhart, D.E., Shucard, J.L., Quatrin, T. and Shucard, D.W. (2001), "Sex-related differences in event-related potentials, face recognition, and facial affect processing in prepubertal children", *Neuropsychology*, Vol. 15 No. 3, pp. 329-341.
- Fiske, S.T. (1993), "Social cognition and social perception", *Annual Review of Psychology*, Vol. 44 No. 1, pp. 155-194.
- Gregory, W.L., Cialdini, R.B. and Carpenter, K.M. (1982), "Self-relevant scenarios as mediators of likelihood estimates and compliance: does imagining make it so?", *Journal of Personality and Social Psychology*, Vol. 43 No. 1, p. 89.
- Hansen, T. and Jensen, J.M. (2009), "Shopping orientation and online clothing purchases: the role of gender and purchase situation", *European Journal of Marketing*, Vol. 43 Nos 9/10, pp. 1154-1170.
- Helft, M. and Vega, T. (2010), "Retargeting ads follow surfers to other sites", *The New York Times*, available at: www.nytimes.com/2010/08/30/technology/30adstalk.html (accessed 15 March 2018).
- Hong, S.-T. and Toner, J.F., (1989), "Are there gender differences in the use of country-of-origin information in the evaluation of products?", in Srull, T.K. (Ed.), *NA – Advances in Consumer Research*, Association for Consumer Research, Provo, UT, Vol. 16, pp. 468-472.
- Isaac, A.R. and Marks, D.F. (1994), "Individual differences in mental imagery experience: developmental changes and specialization", *British Journal of Psychology*, Vol. 85 No. 4, pp. 479-500.

-
- Jeong, E.H. and Jang, S. (2016), "Imagine yourself being healthy: the mental simulation effect of advertisements on healthy menu promotions", *International Journal of Hospitality Management*, Vol. 53, pp. 81-93.
- Jiang, Y., Adavel, R., Steinhart, Y. and Wyer, R.S. (2014), "Imagining yourself in the scene: the interactive effects of goal-driven self-imagery and visual perspectives on consumer behavior", *Journal of Consumer Research*, Vol. 41 No. 2, pp. 418-435.
- Joshi, A., Bagherjeiran, A. and Ratnaparkhi, A. (2011), "User demographic and behavioral targeting for content match advertising", in Li, Y., Hanks, S., Shen, D. (Eds), *Proceedings of Data Mining and Audience Intelligence for Advertising*, Association for Computing Machinery, San Diego, pp. 53-60.
- Kim, E., Ratneshwar, S. and Thorson, E. (2017), "Why narrative ads work: an integrated process explanation", *Journal of Advertising*, Vol. 46 No. 2, pp. 282-296.
- Kring, A.M. and Gordon, A.H. (1998), "Sex differences in emotion: expression, experience, and physiology", *Journal of Personality and Social Psychology*, Vol. 71 No. 3, pp. 686-703.
- Krishnamurthy, P. and Sujan, M. (1999), "Retrospection versus anticipation: the role of the ad under retrospective and anticipatory self-referencing", *Journal of Consumer Research*, Vol. 26 No. 1, pp. 55-69.
- Lambrecht, A. and Tucker, C. (2013), "When does retargeting work? Information specificity in online advertising", *Journal of Marketing Research*, Vol. 50 No. 5, pp. 561-576.
- Laroche, M., Cleveland, M., Bergeron, J. and Goutaland, C. (2003), "The knowledge-experience-evaluation relationship: a structural equations modeling test of gender differences", *Canadian Journal of Administrative Sciences/Revue Canadienne Des Sciences de L'administration*, Vol. 20 No. 3, pp. 246-259.
- Lee, Y.H. and Qui, C. (2009), "When uncertainty brings pleasure: the role of prospect imageability and mental imagery", *Journal of Consumer Research*, Vol. 36 No. 4, pp. 624-633.
- Liang, B. and Kale, S.H. (2012), "Cultural differences in imagery generation: the influence of abstract versus concrete thinking", *Journal of Business Research*, Vol. 65 No. 3, pp. 333-339.
- Meyers-Levy, J. and Maheswaran, D. (1991), "Exploring differences in males' and females' processing strategies", *Journal of Consumer Research*, Vol. 18 No. 1, pp. 63-70.
- Meyers-Levy, J. and Perachhio, L.A. (1996), "Moderators of the impact of self-reference on persuasion", *Journal of Consumer Research*, Vol. 22 No. 4, pp. 408-423.
- Meyers-Levy, J. and Sternthal, B. (1991), "Gender differences in the use of message cues and judgments", *Journal of Marketing Research*, Vol. 28 No. 1, pp. 84-96.
- Nielsen, J.H., Escalas, J.E. and Hoeffler, S. (2018), "Mental simulation and category knowledge affect really new product evaluation through transportation", *Journal of Experimental Psychology: Applied*, Vol. 24 No. 2, pp. 145-158.
- Ostinelli, M. and Böckenholt, U. (2017), "Overcoming lower imagery ability through process priming", *International Journal of Research in Marketing*, Vol. 34 No. 4, pp. 799-812.
- Pappas, I.O. (2018), "User experience in personalized online shopping: a fuzzy-set analysis", *European Journal of Marketing*, Vol. 52 Nos. 7/8, pp. 1679-1703.
- Pappas, I.O., Kourouthanassis, P.E., Giannakos, M.N. and Chrissikopoulos, V. (2017), "Sense and sensibility in personalized E-commerce: how emotions rebalance the purchase intentions of persuaded customers", *Psychology and Marketing*, Vol. 34 No. 10, pp. 972-986.
- Petit, O., Spence, C., Velasco, C., Woods, A.T. and Cheok, A.D. (2017), "Changing the influence of portion size on consumer behavior via imagined consumption", *Journal of Business Research*, Vol. 75, pp. 240-248.
- Petrova, P.K. and Cialdini, R.B. (2005), "Fluency of consumption imagery and the backfire effects of imagery appeals", *Journal of Consumer Research*, Vol. 32 No. 3, pp. 442-452.

-
- Petrova, P.K. and Cialdini, R.B. (2008), "Evoking the imagination as a strategy of influence", in Curtis, P., Haugtvedt, P.M. Herr and Kardes, F.R. (Eds.), *Handbook of Consumer Psychology*, Psychology Press, New York, NY, pp. 505-523.
- Phillips, D.M., Olson, J.C. and Baumgartner, H. (1995), "Consumption visions in consumer decision making", in Kardes, F.M. and Sujan, M. (Eds), *NA – Advances in Consumer Research*, Association for Consumer Research, Provo, UT, Vol. 22, pp. 280-284.
- Putrevu, S. (2004), "Communicating with the sexes", *Journal of Advertising*, Vol. 33 No. 3, pp. 51-62.
- Quoc, M. (2018), "10 Retailers leading the way in AR", available at: www.retaildive.com/news/10-retailers-leading-the-way-in-ar/520520/ (accessed 22 October 2018).
- Ragin, C.C. (2008), *Redesigning Social Inquiry: Fuzzy Sets and Beyond*, Wiley Online Library, Chicago.
- Richard, M.O., Chebat, J.-C., Yang, Z. and Putrevu, S. (2010), "A proposed model of online consumer behavior: assessing the role of gender", *Journal of Business Research*, Vol. 63 Nos 9/10, pp. 926-934.
- Richardson, A. (2010), "Using customer journey maps to improve customer experience", *Harvard Business Review*, available at: <https://hbr.org/2010/11/using-customer-journey-maps-to> (accessed 15 March 2018).
- Rosa, J.A., Qualls, W.J. and Ruth, J.A. (2014), "Consumer creativity: effects of gender and variation in the richness of vision and touch points", *Journal of Business Research*, Vol. 67 No. 3, pp. 386-393.
- Schwartz, G.E., Brown, S.-L. and Ahern, G.L. (1980), "Facial muscle patterning and subjective experience during affective imagery: sex differences", *Psychophysiology*, Vol. 17 No. 1, pp. 75-82.
- Schwarz, N. (2004), "Metacognitive experiences in consumer judgment and decision making", *Journal of Consumer Psychology*, Vol. 14 No. 4, pp. 332-348.
- Sujan, M. and Bettman, J.R. (1989), "The effects of brand positioning strategies on consumers' Brand and category perceptions: some insights from schema research", *Journal of Marketing Research*, Vol. 26 No. 4, pp. 454-467.
- Taylor, S.E., Pham, L.B., Rivkin, I.D. and Armor, D.A. (1998), "Harnessing the imagination: mental simulation, self-regulation, and coping", *American Psychologist*, Vol. 53 No. 4, p. 429.
- Taylor, S.E. and Schneider, S.K. (1989), "Coping and the simulation of events", *Social Cognition*, Vol. 7 No. 2, pp. 174-194.
- Walters, G., Sparks, B. and Herington, C. (2007), "The effectiveness of print advertising stimuli in evoking elaborate consumption visions for potential travelers", *Journal of Travel Research*, Vol. 46 No. 1, pp. 24-34.
- Wänke, M., Bohner, G. and Jurkowitsch, A. (1997), "There are many reasons to drive a BMW: Does imagined ease of argument generation influence attitudes?", *Journal of Consumer Research*, Vol. 24 No. 2, pp. 170-177.
- Weisberg, Y.J., DeYoung, C.G. and Hirsh, J.B. (2011), "Gender differences in personality across the ten aspects of the big five", *Frontiers in Psychology*, Vol. 2, p. 178.
- Wood, M.M. (1966), "The influence of sex and knowledge of communication effectiveness on spontaneous speech", *WORD*, Vol. 22 Nos 1/3, pp. 112-137.
- Wood, W. (1987), "Meta-analytic review of sex differences in group performance", *Psychological Bulletin*, Vol. 102 No. 1, p. 53.
- Yoo, J. and Kim, M. (2014), "The effects of online product presentation on consumer responses: a mental imagery perspective", *Journal of Business Research*, Vol. 67 No. 11, pp. 2464-2472.
- Zhao, M., Dahl, D.W. and Hoeffler, S. (2014), "Optimal visualization aids and temporal framing for new products", *Journal of Consumer Research*, Vol. 41 No. 4, pp. 1137-1151.
- Zhao, M., Hoeffler, S. and Dahl, D.W. (2009), "The role of imagination-focused visualization on new product evaluation", *Journal of Marketing Research*, Vol. 46 No. 1, pp. 46-55.

Further reading

- Brown, M., Pope, N. and Voges, K. (2003), "Buying or browsing? An exploration of shopping orientations and online purchase intention", *European Journal of Marketing*, Vol. 37 Nos 11/12, pp. 1666-1684.
- Graham, J.F., Stendardi, E.J., Jr, Myers, J.K. and Graham, M.J. (2002), "Gender differences in investment strategies: an information processing perspective", *International Journal of Bank Marketing*, Vol. 20 No. 1, pp. 17-26.
- Holbrook, M.B. (1986), "Aims, concepts, and methods for the representation of individual differences in esthetic responses to design features", *Journal of Consumer Research*, Vol. 13 No. 3, pp. 337-347.
- Mandler, G. (1982), "The structure of value: Accounting for taste", in Clark, M.S. and Fiske, S.T. (Eds), *Affect and Cognition: The 17th Annual Carnegie Symposium*, Lawrence Erlbaum Associates, Hillsdale, NJ, pp. 3-36.
- Meyers-Levy, J. and Tybout, A.M. (1989), "Schema congruity as a basis of product evaluation", *Journal of Consumer Research*, Vol. 16 No. 1, pp. 39-54.
- Mitchell, V.-W. and Walsh, G. (2004), "Gender differences in German consumer decision-making styles", *Journal of Consumer Behaviour*, Vol. 3 No. 4, pp. 331-346.
- Sweeney, J.C., Hausknecht, D. and Soutar, G.N. (2000), "Cognitive dissonance after purchase: a multidimensional scale", *Psychology and Marketing*, Vol. 17 No. 5, pp. 369-385.

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