

**The Effects of Product and Brand Designs on Gender Perceptions and  
Consumer Responses: A Study of Cross-Gender Line Extensions**

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## ABSTRACT

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Siriluksamee Rangthong

Extending an existing brand within the same product category to attract a consumer segment consisting of an opposing gender is known as *cross-gender line extension*. This research explores the effectiveness of brand and product designs as means to change consumers' perceptions of brand masculinity and femininity in a cross-gender line extensions context. Building on prior work on brand and product gender, this research explicates the effect of masculinity and femininity evoking brand and product designs on visual aesthetic value, brand attitudes, and purchase intent. Two experimental studies consider the joint effects of brand and product designs on gender perceptions and, ultimately, consumer responses for cross-gender line extension by using a between-subject design involving existing brands of personal care products. Results suggest that product design is an important source of masculinity and femininity perceptions, which in turn enhance aesthetic value, positive attitude, and purchase intention. Aesthetic value mediates the effect of gender perceptions on purchase intention. These findings have theoretical contributions to the brand and product design, cross-gender line extension, and consumer behavior literatures. They furthermore provide managerial implications for the consideration of brand and product (re)designs for cross-gender line extensions. Limitations and direction for future study are also discussed.

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## INTRODUCTION

Historically, numerous brands targeted only male or female consumers. In order to position themselves to be attractive to their target segments, these brands used brand elements such as logo, brand communication such as advertising and spokespeople, and brand behavior such as a usage experience (Batra, Lehmann, & Singh, 1993) to create associations with masculinity or femininity in consumer's mind. For instance, Chanel, Estee Lauder, and Triumph are positioned as feminine brands, while Porsche, Hugo Boss, and Gillette are known as masculine brands. At the same time, consumers also hold an impression of product gender, which is often evoked by spokespeople used in a product category (Debevec & Iyer, 1986) or the gender of the product's typical consumers (Allison et al., 1980).

Recent marketing research demonstrated that even with very limited information regarding the brand and the product, femininity and masculinity perceptions can be elicited through brand (Lieven et al., 2015; Grohmann, 2016) and product designs (van Tilburg et al., 2015). Research suggests that in terms of brand design, features like logo shape, type font, and color enhance perceived masculinity and femininity (Lieven et al., 2015). In terms of product design, product form expressed in specific proportions, shape, lines, as well as product color influence masculinity and femininity perceptions (van Tilburg et al., 2015). Both brand and product gender perceptions can elicit positive consumer responses (van Tilburg et al., 2015; Grohmann, 2009; Lieven et al., 2011; Lieven et al., 2015; Grohmann, 2016).

More recently, cross-gender line extensions have become a growing trend. Cross-gender line extensions consist of the extension of a brand within a product category in order to attract consumers of a gender that is opposite to that of the original brand positioning. Examples include Chanel Allure Homme, Nivea for Men, Armani Woman, and Adidas Woman. Cross-gender line extensions allow brands to target a new market segment with a minimum of product development and introduction costs, and reduced risks. However, the emergence of cross-gender line extensions raises the following question: How do cross-gender line extensions create masculinity and femininity perceptions and ensure positive consumer responses even if they are essentially incongruent with the brand's original gender positioning?

This research aims to examine product and brand designs as a source of masculinity and femininity perceptions of the cross-gender line extensions. It investigates whether such masculinity and femininity perceptions will in turn lead to positive consumer responses including brand attitudes and purchase intentions. Even though brand and product gender has recently garnered attention in the academic field, research has not investigated such effects in a cross-gender line extension domain. In addition, there is a scarcity of research considering both brand and product designs simultaneously. The current research seeks to address these issues. This research extends the cross-gender line extensions,

brand and product gender, and consumer behavior literature. This research explores whether feminine-to-masculine and masculine-to-feminine line extensions are well-liked by consumers by considering product and brand designs that evoke masculinity and femininity perceptions. For managerial practice, by considering the role of both product and brand design elements in cross-gender line extensions simultaneously, this research seeks to provide guidelines for a careful (re)design of brand and product appearances.

## LITERATURE REVIEW

### Gender Perception

Consumer associate brands and products with personality traits (Aaker, 1997). These personality traits are of interest to managers and researchers as the consumers tend to form relationship with the brand that evoke personality traits that reflect and thus help express or enhance their self-concept (Aaker, 1997; Epley, Waytz, & Cacioppo, 2007). Given that gender is a salient characteristic in human interaction (Dion, Berscheid, & Walster, 1972; Deaux & Lewis, 1984) and given that consumers tend to anthropomorphize objects by attributing human personality traits and characteristics to non-human beings such as brands and products (Epley, Waytz, & Cacioppo, 2007), gender is an important aspect that consumers tend to associate with a brand (Grohmann, 2009) and the product (Allison, 1980). Importantly, product and brand gender perceptions are significant as they can enhance consumer responses to the brand and the product (Grohmann, 2009; van Tilburg et al., 2015; Lieven et al., 2011, Lieven et al., 2015, Grohmann, 2016).

Prior work examines how consumers perceive brand gender or product gender (Lieven et al., 2015; Grohmann, 2016; van Tilburg et al., 2015). Brand gender is elicited by brand appearance (i.e., logo), brand communication (i.e., advertising or spokesperson), and brand behavior (i.e., usage experience with a brand's products; Batra, Lehmann, & Singh, 1993). Product gender is evoked through gender of product spokespeople (Debevec & Iyer, 1986) and gender of the product's typical consumers (Allison et al., 1980). More recent research found that even with very limited information about the brand and the product, consumers make gender inferences based on brand design (Lieven et al., 2015; Grohmann, 2016) and product design (van Tilburg et al., 2015).

Evolutionary psychology (EP) is used as a conceptual framework to explain how physical characteristics of brand and product appearance may induce masculinity and femininity perceptions regarding brands among consumers (Lieven et al., 2015). According to EP, humans make inferences



regarding the level of masculinity and femininity as traits of potential partners based on physical appearance cues. For example, capability and physical fitness are required for a desirable male mate, whilst health and productiveness are required for a desirable female mate. These different characteristics allow humans to compete with other same-sex individuals and attract opposing-sex mates. Moreover, salient gender characteristics signaled by masculine and feminine features influence perceived attractiveness – regardless of the perceiver’s sex (Kaplan & Gangestad, 2005; Grammer & Thornhill, 1994). These evolutionary principles influence the human cognitive processing (Buss, 1994). Given that humans perceive certain physical features and use them as criteria for judging masculinity and femininity of a desirable mate (Buss, 1994), consumers apply similar criteria when judging gender of the brand and the product based on brand design (Lieven et al., 2015) and product design, respectively (van Tilburg et al., 2015). EP posits that strong gender features enhance attractiveness, which consequently leads to more favorable evaluations of a person (Symons, 1979). Similarly, prior works found that strong brand gender can result in favorable brand evaluation while strong product gender enhances purchase intention (Lieven et al., 2015; van Tilburg, et al., 2015; Grohmann, 2016).

### **Cross-Gender Line Extensions and Brand/Product Design**

At a time where cross-gender line extensions have become a growing trend (Jung & Lee, 2006), it is important to understand how consumers evaluate the brand and the product when changes in designs targeted at a different gender segment are opposed to a brand’s original gender positioning. In the last decade, instead of launching a new brand, a number of brands used this strategy to expand to new market segments with a minimum product development and introduction costs, and low risks (Ulrich, 2013). Specifically, *cross-gender line extension* refers to an extension under the established brand name within an existing category to gain access to an opposing gender market. It is estimated that introducing a new brand can cost a business up to \$200 million (Kotler & Armstrong, 2004). In contrast, by using cross-gender line extensions, brands do not only lessen cost and risk, but also allow consumers to easily accept the new product due to their notably existing brand names. Nevertheless, cross-gender line extensions risk distorting attitudes towards the existing brand due to dilution (Loken & Roedder, 1993), and is in fact sometimes unsuccessful (Avery, 2012). For instance, when Porsche launched new Cayenne SUV, the first non-sport car, to attract a female market segment, it was criticized by male consumers for a perceived shift of brand gender, while female consumers found difficulty in associating themselves with the masculine brand (Avery, 2012). It is therefore essential to consider how cross-gender line extensions affect the masculinity and femininity perceptions and consumer responses toward a brand that was previously associated with a different brand gender.

As prior works demonstrated that brand design or product design is a source of gender perception, which in turn, influences positive consumer responses, it is plausible that physical features of brand design elements (logo shape, type font, and color) and product design elements (product form, and product color) convey masculinity and femininity of the cross-gender line extension even if it is incongruent with original brand gender, and subsequently lead to positive brand attitudes and purchase intention. Brand and product genders are evoked by brand and product designs (Lieven et al., 2015; van Tilburg et al., 2015). EP-based marketing research indeed demonstrated that consumer can perceive brand and product gender on the basis of physical features signaling masculinity and femininity represented in brand design, including name, logo, color, and font (Lieven et al., 2015; Grohmann, 2016), and product design, including form, color, and material (van Tilburg et al., 2015). Most importantly, brand and product gender perceptions entail positive consumer responses towards the brand and the product (Grohmann, 2009; Lieven et al., 2011, Lieven et al., 2015; van Tilburg et al., 2015). This research therefore develops predictions regarding brand and product design elements and their impact on perceived masculinity/femininity of the extension and subsequent consumer responses.

### **Brand Logo Shape**

Lieven and colleagues (2015) demonstrated that physical cues such as heaviness versus lightness, and roundness versus angularity represented in a brand logo induce perceptions of brand masculinity and brand femininity. A heavier and angular logo shape is perceived as more masculine, while a slender and rounder logo shape is perceived as more feminine. Thus, the modification of logo shape for cross-gender line extension to the more/less extent of heaviness and angularity is expected to change existing brand masculinity and femininity perceptions.

*H1. Logo shape influences gender perceptions of cross-gender line extensions, such that a bolder and more angular brand logo shape is perceived as more masculine, and a slimmer and rounder brand logo shape is perceived as more feminine, compared to the original brand logo.*

### **Type Font**

Like logo shape, type font features such as angular versus round, and bold versus slim are associated with masculinity or femininity, respectively (Lieven et al., 2015). Type fonts with these features should therefore influence brand masculinity and femininity perceptions.

*H2: Type font influences gender perceptions of cross-gender line extensions, such that a bolder and more angular type font is perceived as more masculine, and a slimmer and rounder type font is perceived as more feminine, compared to the original brand type font.*

### **Brand Logo Color**

In the context of brand logos, lighter colors are perceived as more feminine, while darker colors are perceived as more masculine (Lieven et al., 2015). In addition, based on gender stereotyping of color hues, pink and red are associated with femininity, whereas blue is perceived as masculine (Lieven et al., 2015). Recent research suggested, however, that blue was perceived as a neutral color, whereas black was perceived as masculine (Zhang, 2015). Therefore, we expect that logos of darker tones and black/grey hues influence masculinity perceptions, whereas lighter tones and pink/red hues influence femininity perceptions of a cross-gender line extension.

*H3: Logo color influences gender perception of cross-gender line extensions, such that darker tones and black/grey hues is perceived as more masculine, and lighter tones and pink/red hues is perceived as more feminine, compared to the original brand logo color.*

### **Product Form**

Recent work demonstrated that product gender is affected by product design elements such as form and color (van Tilburg et al., 2015). Masculinity and femininity perceptions are influenced by product shape, lines, and proportions (van Tilburg et al., 2015). Round shape, smooth lines, and slim proportions evoke the tenderness and delicacy of femininity. In contrast, angular shape, vertical lines, and solid proportions signal the dynamism and strength of masculinity (Schmitt & Simonson, 1997; Lieven et al., 2015; Moss, Gunn, & Heller, 2006).

*H4: Product form influences gender perception of cross-gender line extensions, such that a more angular shape, vertical line, and solid proportion is perceived as more masculine, and rounder shape, rounded lines, and slim proportion is perceived as more feminine, compared to the original product form.*

### **Product Color**

Recent work investigated product gender perception by using the following three dimensions of product color: tones, more versus fewer colors, and reflection (van Tilburg et al., 2015). As the number of colors and level of reflection did not have effects on gender perception for certain product categories (van

Tilburg et al., 2015), the current research only examines the effect of product color tone. In line with prior findings (van Tilburg et al., 2015), it is suggested that:

*H5: Product color influences gender perceptions of cross-gender line extension, such that a darker product color is perceived as more masculine, and lighter product color is perceived as more feminine, compared to the original product color.*

### **The Effect of Gender-Evoking-Designs on Consumer Responses**

Researchers started to examine the role of brand and product design as sources of brand and product genders, which influence consumer reactions including brand preference, brand equity, purchase intent, and likelihood to recommend (van Tilburg et al., 2015; Lieven et al., 2015; Grohmann, 2016; Lieven et al., 2011). This line of research indicates that brand and product designs that elicit high levels of masculinity or femininity are evaluated as more positively than the less gendered ones. In terms of brand design, the previous findings showed that brand masculinity perceived on the basis of angular and bold logo, angular and heavy type font, and darker color of existing brands, or brand femininity perceived on the basis of opposite features of these brand design elements increases brand preferences (Lieven et al., 2015) and likelihood to recommend (Grohmann, 2016). In addition, the use of multiple brand design elements that consistently signal masculinity/femininity such as the use of masculine/feminine brand name paired with masculine/feminine type fonts creates stronger masculinity or femininity perceptions, which enhance brand preferences (Lieven et al., 2015). Another compelling finding is that the modification of brand design elements in brand communication (i.e., print advertisements) by using opposite gender cues can effectively change brand gender perceptions of existing brands (Lieven et al., 2015).

In terms of product design, van Tilburg and colleagues (2015) revealed that the masculinity and femininity perceptions that are evoked by form and color lead to higher purchase intentions. The significant effect of product gender perception on purchase intention was mediated by affective attitude, aesthetic value, and functionality (van Tilburg et al., 2015). For instance, higher masculinity and femininity perceptions lead to greater purchase intentions by also positively impacting affective attitude, aesthetic value, and functionality, which all have mediating roles. Among these mediators, aesthetic value had the most significant mediation effect. A product appearance that conveys masculinity and femininity can lead to appreciation of that product, which then leads to higher purchase intentions.

The focus of previous research was either on brand design or product design, but not on both as joint sources of gender perception. However, owing to previous findings on brand and product designs, it is plausible that the use of both brand and product designs for cross-gender line extensions that give consistent cues of masculinity/femininity will result in strong gender perceptions, which in turn, should

positively affect brand attitudes and purchase intentions. Moreover, aesthetic value has a potential mediating role in the effect of gender perceptions on purchase intentions.

*H6: Brand and product designs with consistent masculinity/femininity related cues evoke greater masculinity/femininity perceptions compared to inconsistent designs.*

*H7: Greater (vs. lower) perceived femininity/masculinity increases visual aesthetic value and subsequent purchase intentions.*

*H8: Greater (vs. lower) perceived femininity/masculinity increases purchase intentions.*

*H9: Greater (vs. lower) perceived femininity/masculinity increases brand attitude.*

## METHOD

### Overview

In order to examine the effects of the brand designs and product designs of cross-gender line extensions on gender perceptions, aesthetic value, brand attitudes, and purchase intentions, a pretest and two studies were implemented. As the main focus of this research was within the cross-gender line extension domain, the perception of both pre-existing brands and the extensions were examined. Thus, instead of using fictitious brands like previous brand design research, this research used existing brands. To control for familiarity and experience effects, brand familiarity was measured as a control variable. All participants in this research were adult consumers recruited by an online panel. The pretest identified neutral product categories and feminine and masculine brands for each product category. Study 1 created masculine/feminine-evoking brand designs consisting of logo, type font, and color, which were created based on Lieven and colleagues (2015), and masculine/feminine-evoking product designs consisting of product form and product color based on van Tilburg and colleagues (2015). The brand and product designs were combined into fictitious cross-gender line extension designs to examine the effect of brand design elements and product design elements on gender perception (H1-H5). Study 2 tested the effects of both brand design and product design on gender perception, aesthetic value, brand attitudes, and purchase intentions (H6-H9).

### Pretest

**Design.** This pretest determined neutral product categories and perceived femininity and masculinity of existing brands. Several criteria were considered in the selection for product categories and established

brands that were used in this pretest. First, four product categories, shampoo, shower gel, deodorant, and fragrance were chosen based on the frequently used product categories found in prior papers on brand gender and product gender (Grohmann, 2009; Jung & Lee, 2006; Lieven et al., 2015; Ulrich, 2013; van Tilburg et al 2015). Second, these product categories used packaging that would allow the manipulation of product design elements for study one and two. Third, well-known established brands for each product category were selected. However, brand familiarity was measured to ensure that the participants were familiar with the brands to a similar extent. This also allowed for the control of potential familiarity effects (Aaker & Keller, 1990).

**Procedure.** After providing informed consent, participants were presented with a lists of product categories and were asked to complete a product usage scale (measured on 5-point scale: 1= never use, 5= always use) and a product gender scale for each product category (measured on a 7-point scale: 1 = feminine, 4 = neutral, 7 = masculine). Then, they were randomly assigned to two product categories and asked to rate brand familiarity (measured on 5-point scale: 1=not familiar at all, 5 = extremely familiar) and gender perception of four brands in each product category (measured on two 7-point MBP/FBP scales, Grohmann, 2009).

**Sample.** Ninety-five adult consumers who were recruited by a consumer panel completed the questionnaire and were compensated by the panel provider. In the data screening process, data of participants with responses on the same scale point on all items (i.e., invariant responses) was removed. As a result, the sample size  $N = 86$  (48.8% female,  $M_{age} = 44.55$ ,  $SD_{Age} = 15.44$ ).

**Results.** Among the four product categories, deodorants ( $N = 86$ ,  $M = 4.41$ ,  $SD = 1.078$ ) and shampoo ( $N = 86$ ,  $M = 4.48$ ,  $SD = 0.967$ ) were highly used by both men and women (*Deodorant*:  $N = 86$ ,  $M = 4.41$ ,  $SD = 1.01$ , *Shampoo*:  $N = 86$ ,  $M = 4.48$ ,  $SD = 0.97$ ) and were perceived as gender neutral product categories (*Deodorant*:  $N = 86$ ,  $M = 4.12$ ,  $SD = 1.60$ , *Shampoo*:  $N = 86$ ,  $M = 3.83$ ,  $SD = 1.45$ ). Moreover, based on one-sample t-test on gender perceptions, there was no significance difference from the scale midpoint for deodorants ( $t(85) = 0.675$ ,  $p > 0.50$ ) and shampoo ( $t(85) = -1.117$ ,  $p > 0.27$ ).

In terms of brand familiarity, the findings showed that for deodorants, participants were moderately familiar with all four brands ( $N = 35$ ,  $M_{Degree} = 3.54$ ,  $SD_{Degree} = 1.50$ ,  $M_{Dove} = 3.71$ ,  $SD_{Dove} = 1.49$ ,  $M_{Speedstick} = 3.54$ ,  $SD_{Speedstick} = 1.29$ ,  $M_{Axe} = 3.37$ ,  $SD_{Axe} = 1.54$ ). For shampoo, participants were moderately familiar with Dove, L'Oreal , and Head & Shoulders ( $N =$

37,  $M_{Dove} = 3.70, SD_{Dove} = 1.22; M_{H\&S} = 3.41, SD_{H\&S} = 1.18, M_{Loreal} = 3.00, SD_{Loreal} = 1.33$ ), but were not familiar with Schwarzkopf ( $M_{Schwarzkopf} = 1.62, SD_{Schwarzkopf} = 1.16$ ).

A paired-samples t-test was implemented to compare the difference of masculinity (MBP) and femininity perceptions (FBP) among all brands. Among the four brands of deodorant, Speedstick and Axe were perceived as more masculine and less feminine ( $N_{Speedstick} = 32, M_{MBP} = 5.68, SD_{MBP} = 1.89, M_{FBP} = 3.60, SD_{FBP} = 1.94, t(31) = 3.51, p < 0.001, N_{Axe} = 28, M_{MBP} = 5.47, SD_{MBP} = 1.06, M_{FBP} = 3.95, SD_{FBP} = 1.96, t(27) = 4.37, p < 0.001$ ) while Dove was perceived as more feminine and less masculine ( $N_{Dove} = 30, M_{MBP} = 3.93, SD_{MBP} = 1.69, M_{FBP} = 5.08, SD_{FBP} = 1.42, t(29) = -4.55, p < 0.001$ ). For shampoo, Dove and L'Oreal were perceived as less masculine and more feminine ( $N_{Dove} = 35, M_{MBP} = 3.61, SD_{MBP} = 1.78, M_{FBP} = 4.3, SD_{FBP} = 1.41, t(34) = -2.39, p < 0.05, N_{Loreal} = 31, M_{MBP} = 3.61, SD_{MBP} = 1.55, M_{FBP} = 4.33, SD_{FBP} = 1.51, t(30) = -2.14, p < 0.05$ ), while Head & Shoulders was perceived as more masculine and less feminine ( $N_{H\&S} = 36, M_{MBP} = 4.34, SD_{MBP} = 1.48, M_{FBP} = 3.80, SD_{FBP} = 1.47, t(35) = 2.152, p < 0.05$ ).

**Discussion.** Deodorants and shampoo were selected as product categories, as they were gender neutral product categories and were used by men and women to the same extent. Moreover, Speedstick and Dove were chosen as masculine and feminine brand stimuli, respectively, for the deodorant product category, as they were perceived as the strongest masculine and feminine brands. Because Dove was selected as a brand in the deodorant product category, L'Oreal, which was perceived as the second strongest feminine brand, was selected for shampoo product category. Hence, L'Oreal and Head & Shoulders were retained as feminine and masculine brands for the shampoo product category.

## Study 1

**Design and Stimuli.** A 4 (Brands: Dove, Speedstick, L'Oreal, and Head & Shoulders)  $\times$  2 (Designs: original and adjusted) between-participants design was used. This study included the original design of existing brands, and adjusted designs based on the findings of Lieven and colleagues (2015) and van Tilburg and colleagues (2015).

First, the original *brand design* for Dove deodorant included a slim logo and type font, light gold logo (RGB 150, 130, 80) and blue type font (RGB 0, 85, 170), while the adjusted brand design included a more solid logo and type font, and dark grey logo (RGB 35, 35, 40) and grey type font (RGB 0, 0, 5). The original *product design* for Dove deodorant featured a curvy shape and white (RGB 225, 225, 225) and pink color (RGB 200, 150, 150), whereas the adjusted product design included a solid/angular shape and grey (RGB 70, 70, 75) and blue color (RGB 85, 170, 200). Second, the original *brand design* for
















*Speedstick* deodorant included bold and angular type font with a black (RGB 0, 0, 0) and grey (RGB 185, 190, 200) logo, whereas the adjusted brand design included slender and smooth type font with pink (RGB 210, 25, 65) and white (RGB 251, 251, 251) logo color. Additionally, the original *product design* for *Speedstick* consisted of a bold/angular form and blue (RGB 30, 70, 130) and grey color (RGB 170, 170, 170), while a slim/rounded form and pink color (RGB 230, 95, 115) were presented as the adjusted product design. Third, the original *brand design* for *L'Oreal* had a bold/angular shape type font in black color (RGB 9, 9, 9) whilst the adjusted brand design included bolder and more angular shape in white color (RGB 255, 255, 255) contrasting with a black background (RGB 0, 0, 0). Moreover, the original *product design* for *L'Oreal* included a slim form and red (RGB 150, 0, 0) and white color (RGB 250, 250, 250), while the adjusted product design combined solid/angular form and black (RGB 20, 25, 25) and blue color (RGB 115, 215, 215). Last, the original *brand design* for *Head & Shoulders* consisted of a round logo shape, bold type font, and blue color (RGB 0, 95, 195) for both logo and type font, while the adjusted brand design consisted of round logo, airy/round type font, and pink color (RGB 255, 100, 135) for logo and type font. In addition, the original *product design* included a combined unsymmetrical round and angular form, and dark blue (RGB 0, 135, 255), white (RGB 255, 255, 255), and gray color (RGB 125, 125, 125), while a round/slim form and pink (RGB 245, 100, 175) and white color (RGB 255, 255, 255) were used for the adjusted design. The designs are shown in Figure 1.

**Procedure.** Participants were randomly assigned to either the original or adjusted design for each brand. The random assignment to one design for each brand reduced demand cues. Participants were asked to rate logo and type font shape on heaviness (1=bold/sold, 11=airy/delicate) and angularity (1=angular/sharp, 11=round/smooth). They rated each brand design element on 7-point masculinity and femininity scales (1= not at all masculine, 7= very masculine, 1= not at all feminine, 7= very feminine) and to evaluate each product design element on two 7-point masculinity/femininity product gender (MPG: 1= not at all masculine, 7= very masculine, FPG: 1= not at all feminine, 7= very feminine, Alison et al., 1980). Afterward, they were asked to rate the overall brand design on the brand masculinity (MBP) and femininity (FBP) scales (Grohmann, 2009; MBP  $\alpha$ = 0.928, FBP  $\alpha$ = 0.935), and the overall product design on the 7-point masculinity (MPG) and femininity (FPG) product genders (Alison et al., 1980).

**Sample.** A total of 164 participated in this study. Responses were discarded if they were invariant across all scales, or if survey completion time was too short or too long. The average completion time after excluding two extreme outliers was 946 seconds, the standard deviation was 450 seconds.



Figure 1. Stimuli – Study 1

Original Brand Design	Adjusted Brand Design	Original Product Design	Adjusted Product Design
			
			
			
			

Responses that had a completion time lower than one standard deviation below the average were removed, leaving 106 participants in total ( $N = 106$ , 50.9% female,  $M_{Age} = 43.78$ ,  $SD_{Age} = 15.82$ ).

**Results.** To analyze the effect of brand and product design elements on brand and product gender perceptions, and to validate the selection of masculine/feminine evoking designs, the data across participants were aggregated such that a randomly assigned design (original vs. adjusted) of each of four brands across 106 participants generated 424 cases for the sub-analyses.

For logo shape, two manipulation check ANOVAs were conducted by using heaviness and angularity as dependent variables with brand and design serving as independent variables. The results indicated that there was a significant interaction between brand and design on heaviness ( $F(3,416) = 9.539$ ,  $p < 0.001$ ) and on angularity ( $F(3,416) = 6.949$ ,  $p < 0.001$ ) such that the adjusted logos of the masculine brands Speedstick and Head & Shoulders were perceived as more airy/delicate ( $M_{Speedstick} = 5.45$ ,  $SD_{Speedstick} = 2.99$ ,  $M_{H\&S} = 7.66$ ,  $SD_{H\&S} = 3.52$ ) and rounder ( $M_{Speedstick} = 6.55$ ,  $SD_{Speedstick} = 3.47$ ,  $M_{H\&S} = 7.43$ ,  $SD_{H\&S} = 3.35$ ) than the original logos (Heaviness:  $M_{Speedstick} = 4.73$ ,  $SD_{Speedstick} = 3.07$ ,  $M_{H\&S} = 5.23$ ,  $SD_{H\&S} = 2.96$ , Angularity:  $M_{Speedstick} = 5.19$ ,  $SD_{Speedstick} = 2.89$ ,  $M_{H\&S} = 6.06$ ,  $SD_{H\&S} = 2.79$ ). The adjusted logos of the feminine brands Dove and L'Oreal were perceived as bolder/more solid ( $M_{Dove} = 5.60$ ,  $SD_{Dove} = 3.27$ ,  $M_{Loreal} = 4.42$ ,  $SD_{Loreal} = 3.13$ ) and more angular ( $M_{Dove} = 5.85$ ,  $SD_{Dove} = 3.02$ ,  $M_{Loreal} = 4.25$ ,  $SD_{Loreal} = 2.80$ ) than the original logos (Heaviness:  $M_{Dove} = 7.49$ ,  $SD_{Dove} = 3.20$ ,  $M_{Loreal} = 5.51$ ,  $SD_{Loreal} = 3.37$ , Angularity:  $M_{Dove} = 7.62$ ,  $SD_{Dove} = 3.18$ ,  $M_{Loreal} = 5.12$ ,  $SD_{Loreal} = 3.28$ ).

Then, a MANOVA with logo masculinity perception and logo femininity perception as dependent variables, and brand (i.e., Dove, Speedstick, L'Oreal, Head & Shoulders) and design (i.e., original versus adjusted) as independent variables were conducted. There was a main effect of design on masculinity perception ( $F(3,416) = 5.66$ ,  $p < 0.05$ ), but no main effect of brand ( $p = 1.33$ ). There was also a main effect of design on femininity perception ( $F(3,416) = 10.28$ ,  $p < 0.001$ ), but no main effect of brand ( $p = 0.978$ ). There was a significant effect of brand  $\times$  design on both masculinity perception ( $F(3,416) = 15.520$ ,  $p < 0.001$ ) and femininity perception ( $F(3,416) = 5.128$ ,  $p < 0.01$ ), such that the adjusted logos of perceived masculine brands Speedstick and Head & Shoulders are perceived as less masculine ( $M_{Speedstick} = 3.32$ ,  $M_{H\&S} = 3.19$ ) and more feminine ( $M_{Speedstick} = 3.43$ ,  $M_{H\&S} = 4.30$ ) than the original logos (Masculinity:  $M_{Speedstick} = 4.89$ ,  $M_{H\&S} = 4.09$ , Femininity:  $M_{Speedstick} = 3.09$ ,  $M_{H\&S} = 3.61$ ) and the adjusted logos of perceived feminine brands Dove and L'Oreal are perceived as more masculine ( $M_{Dove} = 4.02$ ,  $M_{Loreal} = 4.22$ ) and less feminine ( $M_{Dove} =$

3.93,  $M_{Loreal} = 3.53$ ) than the original logo designs (Masculinity:  $M_{Dove} = 3.38, M_{Loreal} = 3.64$ , Femininity:  $M_{Dove} = 4.86, M_{Loreal} = 3.60$ ). Therefore, logo shape influences masculinity and femininity perceptions of cross-gender line extensions such that bolder and more angular logo design leads to greater masculinity perceptions, while slimmer and rounder logo design leads to greater brand femininity perception. This supports H1.

For font type, a manipulation check MANOVA for heaviness and angularity with brand and design as the independent variables was performed. There were main effects of brand on heaviness ( $F(3,416) = 7.43, p < 0.001$ ) and angularity ( $F(3,416) = 9.31, p < 0.001$ ). Also, there were main effects of design on heaviness ( $F(3,416) = 6.17, p < 0.05$ ) and angularity ( $F(3,416) = 5.71, p < 0.05$ ). The effects of brand  $\times$  design on heaviness ( $F(3,416) = 5.023, p < 0.05$ ) and angularity ( $F(3,416) = 4.141, p < 0.01$ ) were significant such that the adjusted type fonts of masculine brands Speedstick and Head & Shoulders were perceived as slimmer ( $M_{Speedstick} = 5.15, SD_{Speedstick} = 2.89, M_{H\&S} = 7.79, SD_{H\&S} = 2.47$ ) and rounder ( $M_{Speedstick} = 5.09, SD_{Speedstick} = 2.96, M_{H\&S} = 7.83, SD_{H\&S} = 2.38$ ) than the original type fonts (Heaviness:  $M_{Speedstick} = 4.59, SD_{Speedstick} = 3.06, M_{H\&S} = 5.02, SD_{H\&S} = 2.94$ , Angularity:  $M_{Speedstick} = 4.75, SD_{Speedstick} = 2.57, M_{H\&S} = 5.31, SD_{H\&S} = 2.82$ ) while the adjusted type fonts of feminine brand Dove was perceived as more solid ( $M_{Dove} = 5.67, SD_{Dove} = 3.13$ ) and more angular ( $M_{Dove} = 6.47, SD_{Dove} = 3.19$ ) than the original type font (Heaviness:  $M_{Dove} = 5.91, SD_{Dove} = 3.01$ , Angularity:  $M_{Dove} = 6.51, SD_{Dove} = 3.39$ ). However, it should be noted that the adjusted type font of the feminine brand L'Oreal was perceived as less solid ( $M_{Loreal} = 4.56, SD_{Loreal} = 2.94$ ) and less angular ( $M_{Loreal} = 4.66, SD_{Loreal} = 3.09$ ) than the original type font (Heaviness:  $M_{Loreal} = 4.60, SD_{Loreal} = 3.38$ , Angularity:  $M_{Loreal} = 4.94, SD_{Loreal} = 3.28$ ), which was opposite to the expected result.

Then, a MANOVA for font masculinity perception and font femininity perception with brand and design as the independent variables was conducted. There were main effects of brand on masculinity ( $F(3,416) = 4.85, p < 0.01$ ) and femininity perception ( $F(3,416) = 10.58, p < 0.001$ ). There was a main effect of design on masculinity ( $F(3,416) = 4.93, p < 0.05$ ), but not femininity perception ( $p = 0.25$ ). There was a significant effect of brand  $\times$  design on masculinity perceptions of the font ( $F(3,416) = 6.527, p < 0.001$ ), but not on femininity ( $F(3,416) = 2.52, p = 0.58$ ). This might be because the small differences in terms of font femininity perceptions across the brands original vs adjusted design, and opposing effect of femininity perception for L'Oreal ( $M_{Original} = 3.36, M_{Adjusted} = 3.55$ ) for which the adjusted design was perceived as more feminine than the original. When L'Oreal was removed from the analysis, the effect of the interaction of brand  $\times$  design on font femininity became significant ( $F(2,312) =$

3.811,  $p < 0.05$ ). Thus, type font influences gender perception of cross-gender line extension such that the adjusted type fonts of the masculine brands Speedstick and Head & Shoulders were perceived as more feminine ( $M_{Speedstick} = 3.40, M_{H\&S} = 4.49$ ) and less masculine ( $M_{Speedstick} = 3.84, M_{H\&S} = 3.06$ ) than the original type fonts (Femininity:  $M_{Speedstick} = 3.16, M_{H\&S} = 3.61$ , Masculinity:  $M_{Speedstick} = 4.70, M_{H\&S} = 4.11$ ). The adjusted type font of the feminine brands Dove was perceived as more masculine ( $M_{Dove} = 3.68$ ) and less feminine ( $M_{Dove} = 4.08$ ) than the original type font ( $M_{MBP} = 3.55, M_{FBP} = 4.31$ ). Therefore, H2 is supported for three of the four type fonts.

For brand logo color, a MANOVA for color masculinity perception and color femininity perceptions with brand and design as independent variables indicated that there were main effects of design on color masculinity ( $F(3,416) = 4.59, p < 0.05$ ) and femininity ( $F(3,416) = 7.19, p < 0.01$ ), and the main effect of brand on color femininity ( $F(3,416) = 7.85, p < 0.001$ ), but not on masculinity ( $p = 0.678$ ). However, the effect of brand  $\times$  design interaction on both masculinity and femininity were statistically significant (Masculinity:  $F(3,416) = 11.764, p < 0.001$ , Femininity:  $F(3,416) = 12.069, p < 0.001$ ) such that the adjusted color use of perceived masculine brands Speedstick and Head & Shoulders were perceived as less masculine and more feminine (Masculinity:  $M_{Speedstick} = 3.55, M_{H\&S} = 3.13$ , Femininity:  $M_{Speedstick} = 4.25, M_{H\&S} = 4.75$ ) than the original colors (Masculinity:  $M_{Speedstick} = 4.53, M_{H\&S} = 4.29$ , Femininity:  $M_{Speedstick} = 3.09, M_{H\&S} = 3.67$ ) and for the adjusted color use of a perceived feminine brand Dove was perceived as more masculine ( $M_{Masculinity} = 3.94$ ) and less feminine ( $M_{Femininity} = 3.37$ ) than the original logo designs ( $M_{Masculinity} = 3.54, M_{Femininity} = 4.46$ ). However, the adjusted logo of L'Oreal was perceived as more feminine than the original ( $M_{Adjusted} = 3.45, M_{Original} = 2.98$ ). Nevertheless, the overall results still indicated that the color use influences gender perception of cross-gender line extension, such that darker tones and black/grey hues were perceived as more masculine, and lighter tones and pink/red hues were perceived as more feminine, compared to the original brand logo colors, supporting H3.

To examine whether the overall brand designs consisting of logo shape, type font, and color influence brand masculinity and femininity perceptions, a MANOVA for brand masculinity and femininity perceptions with brand and design as independent variables was carried out. Overall results indicated that there were the main effects of design on masculinity and femininity perceptions ( $F_{MBP}(3,416) = 7.22, p < 0.01, F_{FBP}(3,416) = 4.81, p < 0.05$ ). There was a main effect of brand on femininity perception ( $F_{FBP}(3,416) = 8.78, p < 0.001$ ), but not on masculinity perception ( $p = 0.24$ ). Importantly, the effects of brand  $\times$  design on masculinity perception and femininity perception were statistically significant ( $F_{MBP}(3,416) = 9.30, p < 0.001, F_{FBP}(3,416) = 8.63, p < 0.001$ ). Thus, the

femininity and masculinity perception differed across the original compared to the adjusted design for all brands.

For product form, a MANOVA for masculinity and femininity with brand and design as independent variables was tested. Overall, the results showed that there were main effects of brand on perceptions of product form masculinity and femininity ( $F_{MPG}(3,416) = 22.95, p < 0.001, F_{FPG}(3,416) = 28.69, p < 0.001$ ). There was a main effect of design on product form masculinity ( $F(3,416) = 6.71.95, p < 0.05$ ), but not on femininity ( $p = 0.106$ ). The brand  $\times$  design interaction effect on product masculinity and femininity perceptions were statistically significant ( $F_{MPG}(3,416) = 57.32, p < 0.001, F_{FPG}(3,416) = 37.83, p < 0.001$ ) such that the adjusted product forms of Dove and L'Oreal were perceived as more masculine ( $M_{Dove} = 5.97, M_{Loreal} = 5.56$ ) and less feminine ( $M_{Dove} = 2.55, M_{Loreal} = 2.93$ ) than the original designs ( $MPG: M_{Dove} = 2.67, M_{Loreal} = 3.63, FPG: M_{Dove} = 4.96, M_{Loreal} = 4.38$ ) while the adjusted product forms of Speedstick and Head & Shoulders were perceived as less masculine ( $M_{Speedstick} = 4.63, M_{H\&S} = 2.29$ ) and more feminine ( $M_{Speedstick} = 3.40, M_{H\&S} = 5.90$ ) than the original product designs ( $MPG: M_{Speedstick} = 5.63, M_{H\&S} = 4.43, FPG: M_{Speedstick} = 2.40, M_{H\&S} = 4.09$ ). Thus, H4 was supported. Product form enhance gender perceptions of cross-gender line extensions.

For product color, a MANOVA for product color masculinity and femininity with brand and design as independent variables was conducted. The result demonstrated that there were main effects of brand on masculinity and femininity perceptions ( $F_{MPG}(3,416) = 6.829, p < 0.001, F_{FPG}(3,416) = 11.746, p < 0.001$ ), main effects of design on masculinity and femininity perceptions ( $F_{MPG}(3,416) = 4.113, p < 0.05, F_{FPG}(3,416) = 8.518, p < 0.01$ ), and significant brand  $\times$  design interaction effects on masculinity ( $F_{MPG}(3,416) = 125.288, p < 0.001$ ) and femininity perceptions ( $F_{FPG}(3,416) = 94.973, p < 0.001$ ). Thus, in support of H5, the adjusted product color of Dove and L'Oreal products were perceived as more masculine ( $M_{Dove} = 5.97, M_{Loreal} = 5.43$ ) and less feminine ( $M_{Dove} = 2.60, M_{Loreal} = 3.28$ ) than the original designs ( $MPG: M_{Dove} = 2.67, M_{Loreal} = 3.27, FPG: M_{Dove} = 5.10, M_{Loreal} = 5.02$ ) while the adjusted product color of Speedstick and Head & Shoulders were perceived as less masculine ( $M_{Speedstick} = 1.93, M_{H\&S} = 1.98$ ) and more feminine ( $M_{Speedstick} = 6.02, M_{H\&S} = 6.33$ ) than the original product colors ( $MPG: M_{Speedstick} = 5.63, M_{H\&S} = 5.02, FPG: M_{Speedstick} = 2.44, M_{H\&S} = 3.85$ ). Thus, product color influences gender perceptions of cross-gender line extension.

**Table 1.** Masculinity and Femininity Perceptions Arising from Brand Design Elements – Study 1

<b>Brand Elements</b>	<b>Brands</b>	<b>Designs</b>	<b>Masculinity Perception</b>	<b>SD<sub>Mas</sub></b>	<b>Femininity Perception</b>	<b>SD<sub>Fem</sub></b>	
Logo shape	Dove	Original	3.38	1.69	4.86	1.31	
		Adjusted	4.02	1.58	3.93	1.51	
	Speedstick	Original	4.89	1.21	3.09	1.67	
		Adjusted	3.32	1.44	3.43	1.52	
	L'Oreal	Original	3.64	1.51	3.60	1.61	
		Adjusted	4.22	1.58	3.53	1.70	
	Head&Shoulders	Original	4.09	1.49	3.61	1.65	
		Adjusted	3.19	1.50	4.30	1.59	
	Type font	Dove	Original	3.55	1.73	4.31	1.58
			Adjusted	3.68	1.49	4.08	1.58
		Speedstick	Original	4.70	1.39	3.16	1.76
			Adjusted	3.84	1.49	3.40	1.50
L'Oreal		Original	3.72	1.38	3.36	1.56	
		Adjusted	4.20	1.49	3.55	1.69	
Head&Shoulders		Original	4.11	1.47	3.61	1.65	
		Adjusted	3.06	1.56	4.49	1.50	
Color		Dove	Original	3.54	1.53	4.46	1.41
			Adjusted	3.94	1.65	3.37	1.53
		Speedstick	Original	4.53	1.38	3.09	1.70
			Adjusted	3.55	1.47	4.25	1.46
	L'Oreal	Original	3.48	1.50	2.98	1.59	
		Adjusted	4.18	1.51	3.45	1.75	
	Head&Shoulders	Original	4.29	1.40	3.67	1.63	
		Adjusted	3.13	1.51	4.75	1.22	

**Table 2.** Masculinity and Femininity Perceptions Arising from Product Design Elements – Study 1

Product Elements	Brands	Designs	MPG	SD <sub>MPG</sub>	FPG	SD <sub>FPG</sub>	
Product form	Dove	Original	2.67	1.76	4.96	1.75	
		Adjusted	5.97	1.43	2.55	1.80	
	Speedstick	Original	5.63	1.62	2.40	1.52	
		Adjusted	4.63	1.78	3.40	1.81	
	L'Oreal	Original	3.63	1.68	4.38	1.56	
		Adjusted	5.56	1.48	2.93	1.75	
	Head&Shoulders	Original	4.43	1.50	4.09	1.59	
		Adjusted	2.29	1.54	5.90	1.50	
	Product color	Dove	Original	2.67	1.94	5.10	1.72
			Adjusted	5.97	1.08	2.60	1.52
		Speedstick	Original	5.63	1.57	2.44	1.70
			Adjusted	1.93	1.65	6.02	1.63
L'Oreal		Original	3.27	1.84	5.02	1.57	
		Adjusted	5.43	1.73	3.28	1.84	
Head&Shoulders		Original	5.02	1.55	3.85	1.45	
		Adjusted	1.98	1.68	6.33	1.28	

To validate the overall masculine/feminine evoking product designs, a MANOVA for masculinity and femininity of overall product designs with brand and design as independent variables was used. It indicated that there were the main effects of brand on overall perceived product masculinity and femininity ( $F_{MPG}(3,416) = 8.47, p < 0.001, F_{FPG}(3,416) = 11.40, p < 0.001$ ). There was a main effect of design on femininity ( $F(3,416) = 5.53, p < 0.05$ ), but not on masculinity ( $p = 0.07$ ). The brand  $\times$  design interaction effects on masculinity ( $F(3,416) = 120.557, p < 0.001$ ) and femininity

( $F(3,416) = 94.973, p < 0.001$ ) were significant. Thus, femininity and masculinity perceptions differed across the original vs adjusted design for all brands.

**Discussion.** Study 1 shows that masculinity/femininity-evoking brand and product design features elements used by existing brands in cross-gender line extensions enhance masculinity and femininity perceptions. Thus, H1-H5 were supported. This is in line with prior findings on the effects of brand designs on brand gender perceptions (Lieven et al., 2015) and on the influences of product designs on product genders (van Tilburg et al., 2015).

This study suggested challenges related to the original and adjusted brand designs of L’Oreal. Although L’Oreal as a brand was rated as highly feminine in the pretest, its original brand design was perceived as more masculine and less feminine than the adjusted design using masculinity-evoking brand design elements. This may be due to the presence of an angular shape and black color in the original brand design, which are essentially masculine cues. The perceptions of brand femininity of L’Oreal are thus likely shaped by marketing activities other than brand design. For Study 2, an exclusion of L’Oreal was therefore considered. As Study 2 aimed to examine both masculine-to-feminine line extension and feminine-to-masculine line extension within the same product category, the exclusion of L’Oreal necessitated the exclusion of the shampoo product category. As a result, only masculine/feminine-evoking brand and product designs for Dove and Speedstick in the deodorant product category were retained for Study 2.

## Study 2

**Design and Stimuli.** This study aimed to test the effect of brand design and product design of cross-gender line extensions on brand gender perceptions, aesthetic value, brand attitudes, and purchase intentions. Thus, a 2 (line extension: feminine-to-masculine extension vs masculine-to-feminine extension)  $\times$  2 (brand design: masculine vs feminine evoking design)  $\times$  2 (product design: masculine vs feminine evoking design) between-participants design was utilized. Stimuli are shown in Table 3.

**Procedure.** After obtaining informed consent and demographic information, participants were randomly assigned to one of the eight conditions. Before being exposed to the stimuli, participants indicated pre-existing brand attitudes (1= dislike/7= like, 1= negative/7= positive, 1= unfavorable/7= favorable;  $\alpha = 0.93$ ) and brand familiarity (1= not at all familiar/7= very familiar). Then, a brief description of the cross-gender line extension of ‘Dove’ or ‘Speedstick’ was provided. Participants then rated the gender perceptions of brand logo, type font, and color, respectively (1= not at all feminine, 7= very feminine) and



of product form and color (1= not at all feminine, 7= very feminine). Finally, they rated overall brand masculinity and femininity (MBP and FBP on 7-point scales; Grohmann, 2009;  $\alpha=0.936$  and  $\alpha=0.947$ , respectively), visual aesthetic value (five item bipolar scale: 1= bad/7= good, 1= unpleasant/7= pleasant, 1= not likable/7= likable, 1= unflattering/7= flattering, 1= unattractive/7= attractive; Cox & Cox, 2002,  $\alpha=0.96$ ), purchase intentions (three items: If you were planning to buy a product of this type, would you choose this product? Would you purchase this product? If friends were looking for a product of this type, would you advise him or her to purchase this product? 1= very unlikely/7= very likely; Berens, van Riel, & van Bruggen, 2005;  $\alpha=0.95$ ) and brand attitude toward the line extension (three items: 1= dislike/7= like, 1= negative/7= positive, 1= unfavorable/7= favorable;  $\alpha=0.97$ ). Appendix 1 shows the full questionnaire.

**Sample.** A total of 587 responses were collected online from an American consumer panel. Cases with the failed attention checks and those that had the completion time below 180 seconds or above 1000 seconds were screened-out, leaving 545 responses in total (56% female,  $M_{age} = 41.58$ ,  $SD_{Age} = 14.83$ ).

**Results.** To investigate the joint effects of brand and product designs on brand masculinity and femininity perceptions, a MANOVA of line extension, brand design, and product design on brand masculinity and femininity perceptions was conducted. The overall findings showed that brand design and product design individually had main effects on both brand masculinity ( $F_{brand}(1,537) = 5.67, p < 0.05$ ,  $F_{product}(1,537) = 36.85, p < 0.001$ ) and brand femininity perceptions ( $F_{brand}(1,537) = 7.76, p < 0.01$ ,  $F_{product}(1,537) = 57.24, p < 0.001$ ). The line extension had a main effect on brand femininity perception ( $F(1,537) = 8.04, p < 0.01$ ), but not on brand masculinity perception ( $p = 0.65$ ). In terms of two-way interaction effects, there were no clear effects of brand design  $\times$  product design, and line extension  $\times$  brand design on the measured variables (*all p values*  $> 0.05$ ). The line extension  $\times$  product design had a significant effect on brand masculinity perceptions ( $F(1,537) = 8.10, p < 0.01$ ), but not brand femininity perceptions ( $p = 0.59$ ). The line extension  $\times$  brand design  $\times$  product design three-way interaction had a significant effect only on brand femininity perception ( $F(1,537) = 4.15, p < 0.05$ ), but not on brand masculinity perception ( $p = 0.08$ ).

The follow-up two-way MANOVAs of brand design and product design on masculinity and femininity perceptions were separately conducted for Dove for Men (feminine-to-masculine line extension) and Speedstick for Women (masculine-to-feminine line extension). For Dove, overall results showed that brand design had a significant main effect on brand masculinity and femininity (*Wilk's  $\Lambda$*  = 0.97,  $F(2,256) = 3.82, p < 0.05$ ), and products design had a significant main effect on dependent

measures ( $Wilk's \Lambda = 0.66, F(2,256) = 64.90, p < 0.001$ ). The interaction of brand design  $\times$  product design had a significant effect on the dependent measures ( $Wilk's \Lambda = 0.97, F(2,256) = 3.71, p < 0.05$ ). Second, the results for Speedstick showed that despite the significant main effects of brand design ( $Wilk's \Lambda = 0.92, F(2,279) = 13.21, p < 0.001$ ) and product design ( $Wilk's \Lambda = 0.81, F(2,279) = 33.22, p < 0.001$ ) on the dependent measures, the interaction effect brand design  $\times$  product design on dependent measures did not reach significance ( $Wilk's \Lambda = 0.98, F(2,279) = 0.31, p = 0.73$ ). However, the findings still supported the previous MANOVAs in that the main effects of brand design and product design on both dependent measures were significant.

For Dove, in a univariate analysis with masculinity as the dependent measure, product design had a significant main effect ( $F(1,257) = 42.571, p < 0.001$ ), but that was not the case for brand design ( $p = 0.38$ ). The brand design  $\times$  product design interaction reached the significance ( $F(1,257) = 5.63, p < 0.05$ ). For Dove, in an univariate analysis with femininity, there were significant effects of brand design ( $F(1,257) = 4.13, p < 0.05$ ), product design ( $F(1,257) = 34.44, p < 0.001$ ), and brand design  $\times$  product design ( $F(1,257) = 4.86, p < 0.05$ ).

For Speedstick, in a univariate analysis with brand masculinity serving as the dependent variable, there were main effects of brand design ( $F(1,280) = 6.03, p < 0.05$ ) and product design ( $F(1,280) = 4.95, p < 0.05$ ). However, the brand design  $\times$  product design interaction did not reach significance ( $p = 0.86$ ). For Speedstick, in a univariate analysis with brand femininity serving as the dependent variable, product had a clear main effect ( $F(1,280) = 23.91, p < 0.001$ ), but this was not the case for brand design ( $p = 0.055$ ). In addition, the brand design  $\times$  product design interaction did not reach significance ( $p = 0.47$ ).

To summarize, product design had main effects on both brand masculinity and femininity perceptions. Although the three-way MANOVA with line extension, brand design, and product design, and follow-up two-way MANOVAs with brand design and product design for either Dove or Speedstick showed that brand design had main effects on both brand masculinity and femininity perceptions, the univariate analysis showed that brand design did not significantly influence brand masculinity perceptions for Dove, and brand femininity perceptions for Speedstick. Importantly, the line  $\times$  brand design  $\times$  product design interaction emerged as significant only for brand femininity perceptions, but not brand masculinity perception. Thus, H6 was supported only with regard to brand femininity perceptions. Both brand and product designs enhance brand femininity perception for the cross-gender line extensions such that the use of consistent feminine cues on brand and product designs leads to higher femininity perception ( $M_{Dove} = 4.78, SD_{Dove} = 1.30, M_{Speedstick} = 3.98, SD_{Speedstick} = 1.86$ ) compared to other designs.

**Table 3.** Masculinity and Femininity Perceptions of Cross-Gender Line Extensions – Study 2

	Brand Design	Product Design	Stimuli	Means Masculinity Perception	SDs Masculinity Perception	Means Femininity Perception	SDs Femininity Perception
Dove for Men	Masculine	Masculine		4.71	1.39	3.17	1.93
	Masculine	Feminine		2.97	1.70	3.91	1.74
	Feminine	Masculine		4.07	1.53	3.13	1.58
	Feminine	Feminine		3.26	1.60	4.78	1.30
Speedstick for Women	Masculine	Masculine		4.28	1.62	2.53	1.54
	Masculine	Feminine		3.86	1.62	3.72	1.71
	Feminine	Masculine		3.81	1.85	3.09	2.00
	Feminine	Feminine		3.32	1.84	3.98	1.86

To analyze effects on visual aesthetic value, purchase intentions, and brand attitudes, a MANOVA with line extension, brand design, product design as independent variables and visual aesthetic value, purchase intentions, and brand attitudes as dependent variables was performed. The results were mixed. Only line extension had main effect on all the dependent measures (*all ps* < 0.01). Among the two-way interaction effects, only line extension × brand design reached significance with regard to aesthetic value ( $F(1,537) = 4.76, p < 0.05$ ). Brand design × product design had no effects on any dependent measure (*all ps* > 0.05), whereas line extension × product design had significant effects on aesthetic value ( $F(1,537) = 31.95, p < 0.001$ ), purchase intention ( $F(1,537) = 27.27, p < 0.001$ ), and brand attitude ( $F(1,537) = 4.77, p < 0.05$ ). The interaction of line × brand design × product design did not reach significance (*all ps* > 0.6).

Two follow-up two-way MANOVAs of brand design and product design on the same dependent measures were carried out for line extension (i.e., Dove for Men or Speedstick for Women). Firstly, the results for Dove showed that brand design had a significant main effect on visual aesthetic value ( $F(1,257) = 4.91, p < 0.05$ ), while product design had significant main effects on aesthetic value ( $F(1,257) = 14.08, p < 0.001$ ) and purchase intention ( $F(1,257) = 16.93, p < 0.001$ ). For Speedstick, only product design had significant main effects on all dependent measures: visual aesthetic value ( $F(1,280) = 18.18, p < 0.001$ ), purchase intention ( $F(1,280) = 10.95, p < 0.001$ ), and brand attitude ( $F(1,280) = 4.48, p < 0.05$ ). However, brand design and the interaction of brand design × product design did not reach significances (*all ps* > 0.05 for the brand design and *all ps* > 0.30 for the interaction).

To test H7-H9, a series of regression analyses of brand masculinity and femininity perceptions on aesthetic value, purchase intentions, and brand attitudes were conducted. A regression of masculinity and femininity perception on aesthetic value resulted in a significant  $F(2,542) = 67.55, p < 0.001$  with  $b_{\text{Masculinity}} = 0.29$  and  $b_{\text{Femininity}} = 0.23$  (*all ps* < 0.001). Thus, H7 was supported. Greater perceived femininity and greater perceived masculinity increase visual aesthetic value. Then, a regression of masculinity and femininity perceptions on purchase intention resulted in a significant  $F(2,542) = 126.846, p < 0.001$  with  $b_{\text{Masculinity}} = 0.47$  and  $b_{\text{Femininity}} = 0.30$  (*all ps* < 0.001). Thus, H8 was supported. Greater perceived femininity and greater perceived masculinity perceptions increase purchase intentions. A regression of masculinity and femininity perceptions on brand attitude also resulted in a significant  $F(2,542) = 23.911, p < 0.001$  with  $b_{\text{Masculinity}} = 0.09$  ( $p < 0.05$ ) and  $b_{\text{Femininity}} = 0.22$  ( $p < 0.001$ ). Thus, H9 was supported. Greater perceived femininity and greater perceived masculinity perceptions increase brand attitude.

**Table 4.** Aesthetic Value of Cross-Gender Line Extensions – Study 2

	Brand Design	Product design	Stimuli	Means Aesthetic Value	SDs Aesthetic Value
Dove for Men	Masculine	Masculine		5.72	1.07
	Masculine	Feminine		4.83	1.73
	Feminine	Masculine		5.13	1.56
	Feminine	Feminine		4.55	1.76
Speedstick for Women	Masculine	Masculine		4.12	1.62
	Masculine	Feminine		4.83	1.96
	Feminine	Masculine		4.29	1.88
	Feminine	Feminine		5.37	1.42

**Table 5.** Purchase Intentions for Cross-Gender Line Extensions – Study 2

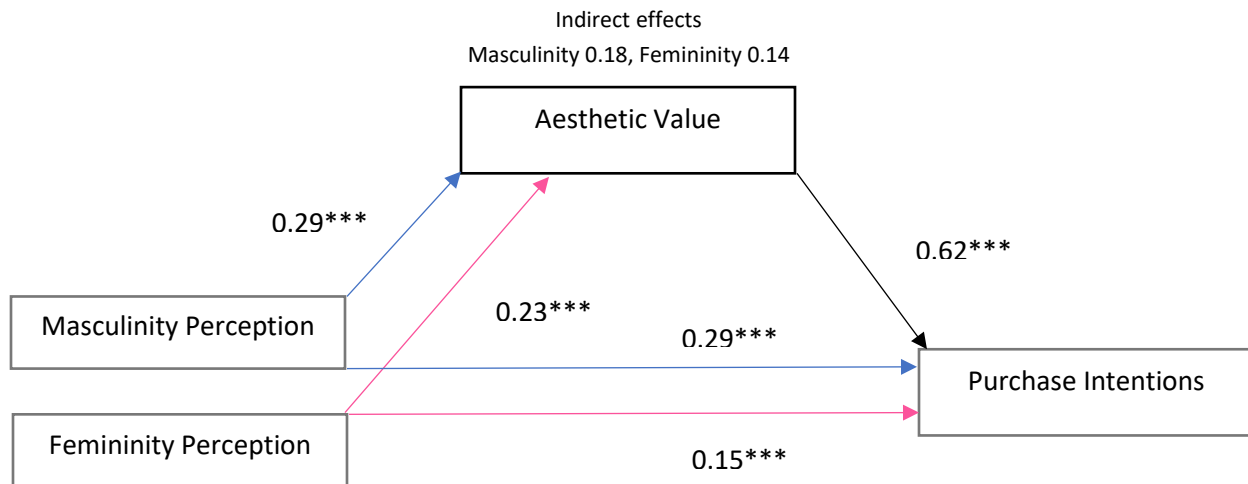
	Brand Design	Product design	Stimuli	Means Purchase Intention	SDs Purchase Intention
Dove for Men	Masculine	Masculine		5.35	1.24
	Masculine	Feminine		4.11	2.06
	Feminine	Masculine		4.65	1.91
	Feminine	Feminine		3.97	2.08
Speedstick for Women	Masculine	Masculine		3.68	1.97
	Masculine	Feminine		4.33	2.02
	Feminine	Masculine		3.68	2.22
	Feminine	Feminine		4.63	1.81

**Table 6.** Brand Attitudes toward Cross-Gender Line Extensions – Study 2

	Brand Design	Product design	Stimuli	Means Brand Attitudes	SDs Brand Attitudes
Dove for Men	Masculine	Masculine		6.19	0.99
	Masculine	Feminine		5.76	1.56
	Feminine	Masculine		5.77	1.46
	Feminine	Feminine		5.88	1.57
Speedstick for Women	Masculine	Masculine		4.67	1.58
	Masculine	Feminine		4.96	1.99
	Feminine	Masculine		4.85	1.88
	Feminine	Feminine		5.46	1.54

To test for the proposed mediation effect, a PROCESS model 4 (Hayes, 2013) was carried out. Overall results showed that there were significant positive effects of masculinity and femininity perceptions on aesthetic value ( $b_{Masculinity} = 0.29, p < 0.001, 95\% CI [0.21, 0.38]$ ,  $b_{Femininity} = 0.23, p < 0.001, 95\% CI [0.15, 0.31]$ ) and there was a significant positive effect of aesthetic value on purchase intention ( $b_{Aesthetic} = 0.62, p < 0.001, 95\% CI [0.54, 0.69]$ ). Thus, aesthetic value partially mediated such effect to high extent. The direct effect of masculinity perception on purchase intention was  $0.29, p < 0.001, 95\% CI [0.21, 0.36]$  and the indirect effect of masculinity perception on purchase intention was  $0.18, p < 0.001, 95\% CI [0.12, 0.25]$ . The direct effect of femininity perception on purchase intention was  $0.15, p < 0.001, 95\% CI = [0.09, 0.22]$  and the indirect effect of femininity perception on purchase intention was  $0.14, p < 0.001, 95\% CI = [0.09, 0.20]$ . Figure 2 summarizes these results.

**Figure 2.** Mediation Model – Study 2



Note:  $***p < 0.001$ ,  $**p < 0.01$ ,  $*p < 0.05$

**Discussion.** In conclusion, H6 was partially supported. Brand and product designs enhance femininity perception in the context of cross-gender line extensions such that the use of consistent feminine cues on brand and product designs leads to higher femininity perception. Consistent cues did not result in greater brand masculinity perceptions. This might be partially due to the manipulation of the Dove brand design used in this study. The neutral or somewhat masculine-evoking colors, blue and gold, are part of the original feminine brand design. A grey color was used in the modified masculine brand design, which resulted in high masculinity perception for both masculine brand design  $\times$  masculine product design and



feminine brand design × masculine product design for Dove for Men. Thus, this manipulation resulted in a small difference in brand masculinity perceptions between the consistent design ( $M_{Mas \times Mas} = 4.71, SD_{Mas \times Mas} = 1.39$ ) and inconsistent design ( $M_{Fem \times Mas} = 4.07, SD_{Fem \times Mas} = 1.53$ ).

In addition, H7, H8, and H9 were supported. Higher level of brand masculinity perceptions and brand femininity perceptions of the extensions resulted in stronger aesthetic value, purchase intentions, and brand attitudes. Moreover, aesthetic value mediated the effect of brand masculinity and femininity perceptions on purchase intentions. This study supported prior findings in product design research (van Tilburg et al., 2015) that stronger masculinity and femininity perceptions enhanced purchase intentions and that aesthetic value mediated such effect.

Interestingly, in considering the joint effect of brand design and product design for cross-gender line extensions, the non-significant effect of line extension × brand design × product design on aesthetic value, purchase intentions, and brand attitudes suggested that the consistent use of feminine/masculine evoking brand design and product design did not lead to more positive consumer responses. This was possibly because of an (in)congruence between the gender target of line extension and the gender evoked by consistent brand and product designs. In fact, the consistent use of gender-evoking-brand and product designs possibly leads to positive consumer responses only if they are congruent with the targeted gender of the line extension. To illustrate, the masculine brand design × masculine product design of Dove for Men, which enhanced brand masculinity perceptions ( $M_{Mas \times Mas} = 4.71, SD_{Mas \times Mas} = 1.39$ ), and the feminine brand design × feminine product design of Speedstick for women, which enhanced femininity perception ( $M_{Fem \times Fem} = 3.98, SD = 1.86$ ) lead to higher aesthetic value ( $M_{Mas \times Mas} = 5.72, SD = 1.07, M_{Fem \times Fem} = 5.37, SD = 1.42$ ), purchase intentions ( $M_{Mas \times Mas} = 5.35, SD_{Mas \times Mas} = 1.24, M_{Fem \times Fem} = 4.63, SD_{Fem \times Fem} = 1.81$ ), and brand attitudes ( $M_{Mas \times Mas} = 6.19, SD = 0.99, M_{Fem \times Fem} = 5.46, SD = 1.54$ ), compared to other designs in the same line extension. However, when consistent designs were incongruent with the target gender of line extension, they are unlikely to lead to those positive consumer responses. Tables 4 to 6 show mean values.

Another possible explanation is a smaller degree of differences of gender perceptions between a masculine brand design × masculine product design (Masculinity:  $M_{Mas \times Mas} = 4.71, SD_{Mas \times Mas} = 1.39$ ) and a feminine brand design × masculine product design (Masculinity:  $M_{Fem \times Mas} = 4.07, SD_{Fem \times Mas} = 1.53$ ) that emerged for Dove for Men, and between a feminine brand design × feminine product design (Femininity:  $M_{Fem \times Fem} = 3.98, SD_{Fem \times Fem} = 1.86$ ) and a masculine brand design × feminine product design (Femininity:  $M_{Mas \times Fem} = 3.72, SD_{Mas \times Fem} = 1.71$ ) which emerged for Speedstick for Women. This lesser degree of gender perception differences might contribute to a non-

significant joint effect of brand and product design on aesthetic value, purchase intention, and brand attitudes. The findings suggested that a higher aesthetic value, purchase intentions, brand attitudes might be influenced by the congruence between the target gender of line extension and the gender evoked by product design. That is, the masculine product design for masculine extension and feminine product design for feminine extension with either original brand design or the modified brand design can both possibly result in higher aesthetic value, purchase intentions, and positive brand attitudes. This explanation can be also supported by the significant effect of line extension  $\times$  product design on those dependent measures.

## **GENERAL DISCUSSION**

This research seeks to address whether the use of brand design and product design affects the gender perceptions in the context of cross-gender line extensions of existing brands, and whether such high gender perceptions subsequently influence high aesthetic value, purchase intentions, and brand attitudes. The overall findings demonstrated that brand and product design elements influence gender perceptions of cross-gender line extensions. In considering the joint effect of brand and product designs for cross-gender line extensions, there was limited support for a positive effect of consistent brand and product designs on brand masculinity perception, whereas consistency enhanced brand femininity perception. This research also finds that greater masculinity and femininity perceptions yielded higher aesthetic value, purchase intentions, and brand attitudes. It also demonstrates that aesthetic value partially mediates the effect of brand gender perceptions on purchase intentions.

### **Theoretical Contribution**

This research extends the literature on brand and product gender perceptions (Lieven et al., 2015; van Tilburg et al., 2015). A methodological improvement on Lieven and colleagues (2015) and on van Tilburg and colleagues (2015) by using between-subjects design to preclude the comparison effect and by using the manipulation based on the existing brands instead of fictitious brands to provide the more approximate realistic consumption context, the study provides the replications that brand design elements such as logo shape, type font, and logo color and product design elements such as product form and product color individually had main effects on the masculinity and femininity perceptions. However, in considering the joint effect of brand and product designs of cross-gender line extension, it unveils the different findings of the insignificant main effect of brand design on gender perceptions in the brand-level analysis from that of Lieven and colleagues (2015) while still highlighting the prior works of van Tilburg and colleagues (2015) in that product design is a main source of gender perceptions even for cross-gender

line extension as shown through the main effect of product design on masculinity and femininity perceptions in all analysis. Importantly, it contributes to the cross-gender line extension literature in that it initially points out that the consistent use of gender-evoking-brand and product designs can lead to femininity perception of cross-gender line extensions. In addition, although the research demonstrates the insignificant effect of consistent use of brand and product designs for cross-gender line extension on the aesthetic value, purchase intention, and brand attitudes, it suggests that the congruence between line extension and product design might bring about the positive consumer outcomes as shown through the significant interaction effect of line extension  $\times$  product design on those dependent measures. Therefore, it can be said that the gender-evoking-product designs can be considered as the essential source of the positive consumer outcomes for the cross-gender line extensions.

### **Managerial Contribution**

For a managerial perspective, the research provides suggestions for the existing brands that desire to reposition themselves by targeting the opposing gender, and those that want to redesign the unsuccessful cross-gender line extension. Completely modified brand designs and product designs with the consistent gender cues might not be the only way to create the changed gender perception, that will positively affect the consumer responses. This study suggests that the use of original brand design over time especially for the well-known brands with the masculine/feminine evoking product design matched with the gender of line extension might also result in high aesthetic value, purchase intention and brand attitudes. By the nature of cross-gender line extension, it is to extend the same product category under the established brand. Thus, the brand designs of those brands have appeared consistently over-time in consumer's mind and are well recognized by consumers (Walsh et al., 2010). Thus, to keep the consistent brand design over time but modify the product design can also lead to positive responses. As shown in the findings, it was suggested that for cross-gender line extension, by maintaining the original brand design but modifying product design to be strongly masculine for masculine extension or strongly feminine for feminine extension still resulted in, though not to the highest extent, better aesthetic value, purchase intentions, and brand attitudes.

### **Limitation and Future Research**

This research has limitations that need to be acknowledged. First, by using the between-subject design, participants were only exposed to one stimulus per product category (Study 1) or one stimulus (Study 2). Even though this design can preclude the comparison effect, the participant could not see differences in terms of competing brand designs or product size and weight. For instance, deodorant for men is generally designed to be larger compared to deodorants targeted toward women. As this research

was conducted, only the visual representation of stimuli may have compounded this effect. Thus, designing the experiment so that participants can make a judgement by seeing or touching real products or by providing details about the size and weight should be considered in the future research.

Second, Study 2 only used one product category (i.e., deodorant), as this was the only appropriate category emerging from the results of the pretest and Study 1. Even though the deodorants were tested to be neutral products and to be used to the same extent by men and women, one product category might not bring about generalization to other product categories. It would therefore be informative to include other product categories in future research. Also interesting would be to use product categories that are associated with the masculinity and femininity, such as cigarettes and skincare products, to examine whether gender-evoking brand and product design for cross-gender line extension can evoke positive consumer responses when the gender of product categories is involved.

Third, this study does not focus on the effect of moderators that might have an impact on the effect of brand masculinity and femininity perceptions on positive consumer responses, such as participants sex or sex-role identity. Previously, Lieven and colleagues (2015) found that female participants showed a higher preference for feminine brand logos and male participants exhibited a stronger preference for masculine brand logos. Thus, it is possible that when participants' gender matches the gender of line extension, consumer responses such as purchase intentions could be modulated. Thus, future research should also examine moderating effects.

Fourth, as this is the first research that considered both brand and product design as a joint source of gender perception in the domain of cross-gender line extensions, the adopted experimental design addressed several issues. Study 2 manipulation of cross-gender line extension designs was derived from original and adjusted designs, which were perceived as more or less feminine and masculine compared to the original. As a result, the manipulation of masculine versus feminine brand design and masculine versus feminine product design included the original brand design  $\times$  original product design as a stimulus. Thus, it is possible that participants' recognition and knowledge of the original design associated with perceived gender of the pre-existing brands affected the evaluation of the designs. For instance, participants rated the purchase intention of Dove for men with the feminine brand design  $\times$  feminine product design, which is, in fact, the original design of Dove feminine deodorants even higher than the Speedstick for Women with the feminine brand design  $\times$  feminine product design even though that brand and product design of Dove for men are reversed to the gender of line extension. Furthermore, the descriptive statistics seemed to suggest that the consistent brand and product designs that was congruent with the gender of line extension might lead to the highest masculinity and femininity perceptions, which eventually influenced highest consumer outcomes such as purchase intentions, compared to other designs

in the same cross-gender line extension. However, the experimental design could not fully address this issue. Therefore, the methodological improvement of the design and stimuli should be considered in the future research.

Fifth, because this research used the measure of aesthetic value which has the commonalities with the measure of brand attitudes, it could then possibly cause the biased the correlation upward. That is, the participants may have related these two scales as they shared certain common items.

Lastly, this research used the existing brands instead of fictitious brands to document whether the brands can overcome the existing association. However, this may have created the potential confounds due to the pre-existing brand associations.

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## APPENDIX 1 - QUESTIONNAIRE

Step 1: Giving consent and demographic information

- What is your gender?
- What is the highest education level you have received?
- What is your household income?
- In which country you currently reside?
- How old are you?

Step 2: Rating pre-brand attitudes and brand familiarity for an assigned brand

1. Please rate global evaluation of brand X (7-point scales)

- Dislike/Like
- Negative/ Positive
- Unfavorable/Favorable

2. To what extent do you familiar with brand X (7-point scales)

- Not at all Familiar/ Very Familiar

Step 3: Reading a content: 'Brand X has introduced a new product for men (or women)' and viewing one of the Stimuli for an assigned brand

Step 4: Rating masculinity and femininity perceptions of brand design and product design (Allison et al.,1980), and overall brand gender perception according to the Stimuli (Grohmann, 2009)

1. How well do the following words describe the brand design?

(1=Not at all descriptive/7=Extremely descriptive)

- Masculine
- Feminine

2. How well do the following words describe the product design?

(1=Not at all descriptive/7=Extremely descriptive)

- Masculine
- Feminine



3. How well do the following words describe the overall design?  
(1=Not at all descriptive/7=Extremely descriptive)

Masculinity

- Adventurous
- Aggressive
- Brave
- Daring
- Dominant
- Sturdy

Femininity

- Express tender feeling
- Fragile
- Grateful
- Sensitive
- Sweet
- Tender

Step 5: Rating aesthetic value (Cox & Cox, 2002), purchase intentions (Berens, van Riel, & van Bruggen, 2005), and brand attitudes.

1. What is your overall evaluation of Brand X for men/women?

Aesthetic Value (7-point scales)

- Bad/Good
- Unpleasant/Pleasant
- Not Likable/Likable
- Unflattering/Flattering
- Unattractive/Attractive

2. Please answer the following question about Brand X for men/women?

Purchase Intentions (1=Very unlikely/7=Very Likely)

- If you were planning to buy a product of this type, would you choose this product?
- Would you purchase this product?
- If friends were looking for a product of this type, would you advise him or her to purchase this product?

3. What is your evaluation of Brand X?

Brand Attitudes (7-point scales)

- Dislike/Like
- Negative/ Positive
- Unfavorable/Favorable