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Brand gender and consumer-based brand equity on Facebook: The mediating role of consumer-brand engagement and brand love

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ABSTRACT

Brand gender has been suggested as a relevant source of consumer-based brand equity (CBBE). The purpose of this paper is to deepen understanding of the relationship between brand gender and CBBE by analyzing the mediating role of consumer–brand engagement (CBE) and brand love (BL) on this relationship. This research was conducted on Facebook, the dominant global social media platform. The hypotheses were tested using structural equation modeling. Results support 6 of the 9 hypotheses, with a significant relationship between analyzed constructs. This study advances prior work by showing that brand gender has an indirect and relevant impact on CBBE through BL and CBE. Therefore, this research confirms the advantages of clear gender positioning and extends prior research by suggesting that brands with a strong gender identity will encourage BL and CBE.

1. Introduction

Since Grohmann's (2009) seminal work on brand gender, a growing stream of research on this topic has been developed. Brand gender refers to the individual personality traits associated with masculinity and femininity that are both applicable and relevant for brands, and comprises two independent and universal dimensions, masculine brand personality traits (MBP) and feminine brand personality traits (FBP) (Grohmann, 2009). In recent years, the relevance of brand gender for the success of a brand has been well documented in the branding literature. Research has shown that the positioning of a brand as either masculine or feminine can lead to critical consumer–brand-related responses (Azar, Aimé, & Ulrich, 2018; Grohmann, 2009; Lieven, Grohmann, Herrmann, Landwehr, & Tilburg, 2015; Ulrich, 2013; van Tilburg, Lieven, Herrmann, & Townsend, 2015), and ultimately influence consumer-based brand equity (CBBE) (Lieven, Grohmann, Herrmann, Landwehr, & van Tilburg, 2014; Lieven & Hildebrand, 2016).

Although previous research has examined the main effects of brand gender on CBBE, showing that highly masculine and highly feminine

brands generate greater CBBE, evidence on the underlying sources of this relationship is still scarce. The main aim of this study is to deepen understanding of the relationship between MBP, FBP and CBBE by analyzing the underlying mechanisms that account for the effects of MBP and FBP.

Further, this study seeks to investigate the relationship between the two brand gender personality traits (i.e., MBP and FBP dimensions) and CBBE in the specific context of Facebook. This is particularly relevant since Facebook pages have become critical channels in brands' marketing efforts (Brodie, Ilic, Biljana, & Hollebeek, 2013; Simon & Tossan, 2018). Indeed, firms are devoting an increasing portion of their marketing budgets to social media, and this investment should continue to grow (CMOSurvey.org, 2017). Facebook is the dominant global social media platform in terms of both number of active users (Statista, 2018a) and marketing investment; 84% of Fortune 500 companies have a Facebook brand page, with many having over one million fans (Statista, 2018b). Moreover, the link between brand gender personality traits and consumer responses to the brand on Facebook has not yet been empirically tested. In order to provide further support for the relationship between brand gender and CBBE on Facebook, this

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research advances prior work on brand gender effects, and bridges the gap between research on brand gender and consumer responses to brands on social media.

Since Facebook is the context of this research, it is critical to investigate the role of consumer–brand engagement (CBE) in the relationship between brand gender and CBBE. CBE is a key concept that is frequently considered in social media studies (e.g., Brodie et al., 2011 and 2013; Gummerus, Liljander, Weman, & Philström, 2012; Simon & Tossan, 2018). Previous research has shown that CBE in social media opens up many important opportunities for brands to create value, allowing them to deliver relevant, timely and engaging content, and stimulate cocreation and crowdsourcing of new ideas (Azar, Machado, Vacas-de-Carvalho, & Mendes, 2016; Kabadayi & Price, 2014). Engagement with a brand via social media can favorably influence brand evaluations and purchase intentions, and lead to the building of significant relationships and hence to the creation of brand equity (Algesheimer, Dholakia, & Herrmann, 2005; Beukeboom, Kerkhof, & de Vries, 2015; Naylor, Lamberton, & West, 2012; Schau, Müniz, & Arnould, 2009; Tsai & Men, 2013).

Ultimately, we aim to study the role of brand love (BL) as a mediating factor in the relationship between brand gender and CBBE on Facebook. BL has been the topic of several recent studies (e.g. Albert & Merunka, 2013; Bergkvist & Bech-Larsen, 2010; Carroll & Ahuvia, 2006; Langner, Bruns, Fischer, & Rossiter, 2016; Loureiro, Ruediger, & Demetris, 2012), and is emerging as a strategic construct in brand management (Kohli, Melewar, & Yen, 2014). Moreover, in social media platforms BL is significantly stimulated as a reflection of consumers' emotional responses to the brand (e.g., through the “like” button on Facebook or the “heart” icon on Instagram), and is regarded as a critical intermediate outcome of brand strategies (Vernuccio, Pagani, Barbarossa, & Pastore, 2015). Hence, it is relevant to explore the role of BL as an underlying mechanism in the relationship between MBP and FBP and CBBE on Facebook.

More specifically, this research addresses the following questions:

Q1. What is the effect of brand gender on CBBE on Facebook?

Q2. Is the relationship between brand gender and CBBE mediated by CBE on Facebook?

Q3. Does love towards the brand have a relevant mediating effect on the relationship between brand gender and CBBE on Facebook?

The remainder of the paper is structured as follows: we next review relevant literature on brand gender and consumer–brand responses on Facebook and propose hypotheses; subsequently, the research methodology is presented; finally, the findings are discussed and future research directions outlined.

2. Theoretical background and hypotheses

Several researchers have applied metaphors to effectively understand consumer perceptions and behaviors to brands (e.g., Aaker, 1997; Azar, 2013 and 2015; Fournier, 1998; Grohmann, 2009; Puzakova, Kwak, & Rocereto, 2009). This approach assumes that consumers may think of brands as living, humanlike entities, maintaining demographic traits, such as age and sex (Azar, 2015; Darpy & Levesque, 2001), personality traits (Aaker, 1997) and behavioral traits (Fournier, 1998; Veloutsou, 2007). In this paper, we are particularly interested in consumers' brand gender perceptions. Brand gender is an essential brand personality characteristic that complements Aaker's model of brand personality (Aaker, 1997; Grohmann, 2009) and may positively influence consumer affective, attitudinal and behavioral responses to brands (Grohmann, 2009). Indeed, gender is regarded as a critical organizing construct in branding, as consumers create, enhance or accomplish their gender identity through the brands they choose and use (Avery, 2012; Lorber, 1994).

Grohmann (2009, p. 106) defines brand gender as “the set of human personality traits associated with masculinity and femininity applicable and relevant to brands.” We tend to perceive gender as two

independent dimensions, MBP and FBP, resulting in brand profiles that might be masculine (high in masculinity and low in femininity), feminine (high in femininity and low in masculinity), undifferentiated (low in masculinity and in femininity) or androgynous (high in masculinity and in femininity) (Azar, 2015; Grohmann, 2009; Lieven et al., 2014). Hence, MBP and FBP are two distinct and independent sub-dimensions of brand personality.

At this point, it is important to clearly distinguish gender from sex, as, even though these concepts are often used interchangeably, they represent different constructs (Carr, 2005). While sex is a demographic trait referring to the biological sex (i.e. classifying human beings as males or females), gender is a social or psychological construct reflecting the degree of masculinity or femininity of an individual (Bem, 1985; Oakley, 1972; Pryzgodka & Chrisler, 2000; Spence & Helmreich, 1978). The social vision of gender stresses the social learning of what it means to be a woman or a man (Bourdieu, 1998), and the psychological approach highlights the relevance of individual experiences and the self in the development of gender (Azar, 2015). Gender is regarded as one of the most salient and accessible individual personality characteristics (Dion, Berscheid, & Walster, 1972), and thus people often use masculine and feminine traits to describe others (Lippa, 2005). As consumers apply principles of social perception to brands (Aaker, 1997; Fournier, 1998), it is likely that they associate MBP and FBP with brands (Grohmann, 2009), along with other personality traits (Aaker, 1997).

According to previous research, brand personality has a positive impact on brand loyalty (Carroll & Ahuvia, 2006; Roy, Khandeparkar, & Motiani, 2016) and willingness to pay (Kim, Han, & Park, 2001)—both components of CBBE. Furthermore, research has suggested that brands with high levels of masculinity or femininity tend to be associated with higher CBBE (Grohmann, 2009; Lieven et al., 2014, 2015), regardless of the gender perceptions associated with the product category. Moreover, brand gender contributes to brand equity above and beyond other personality dimensions (Lieven et al., 2014). More recently, Lieven and Hildebrand (2016) tested brand gender effects across countries and cultures, and also showed that an increase in the masculinity or the femininity of a brand increases its brand equity. Although these studies were not developed on social media, we can apply their findings to the social media context, and, particularly, to Facebook. Thus, considering the results of prior research, we assume that the greater the extent to which consumers perceive the brand as feminine or masculine, the higher its CBBE, on Facebook. Thus, we propose:

H1a. Masculine brand personality traits (MBP) have a positive influence on CBBE on Facebook.

H1b. Feminine brand personality traits (FBP) have a positive influence on CBBE on Facebook.

Previous research has suggested that strongly gendered brands positively influence the likelihood of recommending the brand to friends and of talking about the experience with the brand to others (Grohmann, 2009). Therefore, a clear brand gender positioning (i.e. high levels of brand masculinity or brand femininity) should also positively influence consumer–brand interactions on Facebook. These interactions between consumers and brands, and also among consumers, are usually referred to as consumer engagement (Schamari & Schaeffers, 2015).

CBE has been receiving increasing attention in the marketing literature in the last decade (Hollebeek, Glynn, & Brodie, 2014). Despite this considerable interest, there seems to be a lack of consensus on what consumer engagement is (Dessart, Veloutsou, & Morgan-Thomas, 2015), with some authors emphasizing the psychological process that occurs due to the experience with an object (e.g. a brand) (Brodie et al., 2011; Hollebeek, 2011; Hollebeek et al., 2014) and others focusing on the behavioral aspects of this relationship (e.g. van Doorn et al., 2010). Authors adopting a more comprehensive, multidimensional perspective on CBE (e.g. Brodie et al., 2011, 2013; Hollebeek, 2011; Hollebeek

et al., 2014; Leckie, Nyadzayo, & Johnson, 2016) have conceptualized engagement as a construct with a cognitive, an affective and a behavioral dimension. Following this approach, CBE is defined as a “consumer’s positively valenced cognitive, emotional and behavioural activity during or related to focal consumer–brand interactions” (Hollebeek et al., 2014, p. 154).

In this study, we are particularly interested in the behavioral approach to CBE, and follow van Doorn et al.’s (2010, p. 254) conceptualization that CBE involves “customer’s behavioural manifestations that have a brand or a firm focus, beyond purchase, resulting from motivational drivers.” Even though the three-dimensional conceptualization of engagement is the most widely accepted, behavioral consumer engagement has appeared in several studies (e.g. Gummerus et al., 2012; Schamari & Schaeffers, 2015; van Doorn et al., 2010), particularly those on CBE in social media. Hence, consumer–brand interactions and consumer-to-consumer communications about the brand are considered critical indicators of CBE on Facebook (Gummerus et al., 2012; van Doorn et al., 2010).

Liking a brand page on Facebook can be considered a first step towards consumer engagement, and previous research has suggested that there is a causal effect of liking the brand on Facebook on brand evaluations (Beukeboom et al., 2015). Consumers who like a brand page expose themselves to brand messages they otherwise would not have encountered and can consume and contribute to brand-related content. Consuming and contributing are generally regarded as two critical types of consumer engagement with brand pages (Heinonen, 2011; Muntinga, Moorman, & Smit, 2011; Shao, 2009).

Consuming brand-related content can involve watching brand-related videos, viewing brand-related pictures or reading comments (Muntinga et al., 2011). Lurkers who just “consume” brand-related content, assuming a more “voyeuristic” engagement, are also critical for brands (Utz & Beukeboom, 2011) as they actively use the brand page and are a relevant target for brand communication (Azar et al., 2016). Indeed, lurking is a participative and valuable form of consumer behavior in social networking sites (SNS) (Edelmann, 2013; Shao, 2009), and it contributes to an explanation of brand loyalty that goes beyond involvement (Shang, Chen, & Liao, 2006). However, it is critical for brands to stimulate lurkers to become more active users (Sun, Rau, & Ma, 2014). Contributing to brand-related content represents user-to-content and user-to-user interactions with brands, and may involve commenting on and sharing brand-related content, but also producing and uploading publications about the brand (Hoffman & Fodor, 2010; Muntinga et al., 2011). According to previous research on social media metrics (e.g. de Vries, Gensler, & Leeflang, 2012; Hoffman & Fodor, 2010; Peters, Chen, Kaplan, Ognibeni, & Pauwels, 2012), and specifically on consumer–brand interactions on Facebook, these behaviors cover the relevant types of interactions consumers may have with brands.

Liking, commenting and sharing are equivalent to word-of-mouth communication, because when a user clicks the “like” button, comments on or shares a post, the message is automatically posted to his/her personal Facebook newsfeed and is likely to appear instantaneously in his/her friends’ newsfeeds as well (Swani, Milne, & Brown, 2013). These behaviors allow Facebook users to signal their affinity for a brand and share that with their personal network on Facebook (Wallace, Buil, & De Chernatony, 2012).

Previous research has suggested that individual personality traits influence online activities in general, and SNS use in particular (Amichai-Hamburger, 2002; Amichai-Hamburger & Ben-Artzi, 2000; Ehrenberg, Jukes, White, & Walsh, 2008). These studies focused on the “Big Five” model (Goldberg, 1981) and concluded that three out of the five personality traits—namely extraversion, neuroticism and openness to experience—predict the use of SNS (Correa, Hinsley, & De Zuniga, 2010; Ross et al., 2009) and are related to individuals’ liking and commenting behaviors on Facebook (Kabadayi & Price, 2014). Moreover, past research has analyzed the role of consumer biological sex,

among other demographic characteristics, as a moderator of consumer participation in social-media-based brand communities (Kamboj & Rahman, 2016) on the motivations to use SNS, and on the type of SNS usage (Barker, 2008; Rohm, Kaltcheva, & Milne, 2013), or on consumer brand evaluations and purchase intentions based on consumer–brand interactions on social media (Naylor et al., 2012). Regarding studies on brand personality, Haarhoff and Kleyn (2012) analyzed the brand personality of the highest-ranked open-source brands using Aaker’s (1997) framework. However, there is a lack of empirical studies on brand personality in the online context, and to our knowledge no research has specifically addressed how the two gendered personality traits associated with brands influence consumer behaviors on Facebook.

The current research extends previous findings by Grohmann (2009) attesting to the link between the gendered dimensions of brand personality and behavioral brand-related consumer responses by analyzing the relationship between MBP, FPB and CBE on Facebook. The following hypotheses were formulated:

H2a. MBP have a positive influence on CBE on Facebook.

H2b. FPB have a positive influence on CBE on Facebook.

Previous research, focusing on Aaker’s conceptualization of brand personality, has suggested that brand personality significantly influences brand affect (Sung & Kim, 2010), increases consumer preference (Sirgy, 1982), evokes positive brand emotions (Lee, Back, & Kim, 2009; Yik & Russel, 2001) and influences emotional attachment to brands (Fournier, 1998; Orth, Lemon & Rose, 2010). Furthermore, research on the gendered dimensions of brand personality has shown that a clear brand gender positioning should positively influence affective responses to the brand, including brand affect and brand preference (Grohmann, 2009).

Carroll and Ahuvia (2006, p. 81) defined BL as “the degree of passionate emotional attachment a satisfied consumer has for a particular trade name.” BL can lead to critical consumer responses that have key outcomes for firms (Batra, Ahuvia, & Bagozzi, 2012), and is considered to be a relationship between consumers and their brands that involves a long-lasting, deep affection for the brand (Langner et al., 2016). BL is usually regarded as qualitatively distinct from liking and as a more intense affective response (Carroll & Ahuvia, 2006), but it is still related to liking (Sternberg, 1987). Thus, we expect that a clear brand gender positioning will also positively influence BL. Moreover, research on the antecedents and outcomes of BL has highlighted that love for the brand will be higher if it fits consumers’ personality and helps them express their self-concept (Bergkvist & Bech-Larsen, 2010; Bıçakcıoğlu, İpek, & Bayraktaroğlu, 2016; Carroll & Ahuvia, 2006; Rauschnabel, Ahuvia, Ivens, & Leischnig, 2015). Recent research has also shown that perceptions about brand personality significantly influence BL (Roy et al., 2016). Although these studies were not developed on social media, we can apply their findings to the social media context. Hence, we postulate the following hypotheses:

H3a. MBP have a positive influence on BL on Facebook.

H3b. FPB have a positive influence on BL on Facebook.

Few studies have focused on the role of BL (antecedents and outcomes), especially regarding the online context (Albert & Merunka, 2013; Bergkvist & Bech-Larsen, 2010; Carroll & Ahuvia, 2006; Roy, Eshghi, & Sarkar, 2013). Considering the offline context, Algesheimer et al. (2005) stated that participation in a brand community increases members’ affection for the brand. Other authors have also argued that favorable brand experiences over time, outside social media, lead to the development and maintenance of BL (Langner et al., 2016; Roy et al., 2013), and that non-controlled brand communications are positively related to BL (Roy et al., 2013). Regarding the online context, Hudson, Huang, Roth, and Madden (2016) stated that consumers who engage with their favorite brands using social media have stronger

relationships with those brands compared with consumers who do not interact with their favorite brands using social media. Likewise, Brodie et al. (2013), as well as Gummerus et al. (2012), have shown that high levels of positive engagement with a brand improve attitudes to the brand and lead to favorable online or social media behavior. Moreover, research on customer engagement behaviors has highlighted that engagement with the brand on SNS contributes to the development of stronger emotional bonds with the brand (Brodie et al., 2011; Brodie et al., 2013), and should enhance consumer affective responses (Dholakia, Bagozzi, & Pearo, 2004). Wallace, Buil, and Chernatony (2014) reported that consumers who engage with self-expressive brands through Facebook's "like" feature have higher levels of BL. Vernuccio et al. (2015) also showed that CBE favorably influences BL, highlighting that consumers will tend to develop more intense emotional bonds with brands that are able to foster consumer interaction and participation on the brand fan page. Hence, we assume that CBE on Facebook will also favorably influence BL. Thus, we hypothesize:

H4. CBE has a positive influence on BL on Facebook.

Prior research has suggested that BL is able to fortify the existing bonds between consumers and brands, to nurture the relationship and to strengthen the beliefs in the brand; however, it might also increase brand loyalty and purchase intention (Bergkvist & Bech-Larsen, 2010; Carroll & Ahuvia, 2006; Loureiro et al., 2012; Roy et al., 2016). Since brand loyalty is one of the outcomes of BL and one of the components of brand equity, we maintain that BL will also influence CBBE on Facebook. Hence, we hypothesize:

H5. BL has a positive influence on CBBE on Facebook.

According to Keller (2001), CBBE can be created through six building blocks, of which consumer–brand resonance is the most valuable. One of the components of brand resonance is consumer active engagement. Furthermore, previous research has shown that consumer engagement with a brand in SNS can increase the likelihood of future brand purchases, lead to the building of significant relationships, and contribute to the creation of higher levels of trust and commitment between consumers and the brand, and hence to the creation of value for both consumers and marketers (Algesheimer et al., 2005; Bagozzi & Dholakia, 2006; Brodie et al., 2011; Schau et al., 2009; Tsai & Men, 2013; van Doorn et al., 2010). Brodie et al. (2013) explored consumer engagement in virtual brand communities, and also found that engaged consumers show higher brand loyalty, satisfaction, connection, trust and commitment. More recently, research on the impact of brand communication on brand equity has shown that social media brand communication on Facebook—both firm created and user generated—has a positive effect on brand equity (Schivinski & Dabrowski, 2015). Considering the findings of prior research, we assume that CBE on Facebook will positively influence CBBE. Hence, we postulate:

H6. CBE has a positive influence on CBBE on Facebook.

Therefore, we present the research model shown in Fig. 1.

3. Methodology

3.1. Sample and procedure

After a pilot test with 20 Facebook users, data were collected in France through the administration of an online questionnaire. We used a non-random convenience sampling technique (McDaniel Jr. & Gates, 2006). The data analysis is based on 614 completed questionnaires. Sample demographics and characteristics are presented in Tables 1a and 1b.

Our sample was heterogeneous in terms of the time respondents spend daily on Facebook, and consisted mainly of females (60.1%). The majority of our respondents were under 29 years old (52.1%), and the average age was 29.89. The profile of our respondents was suitable for

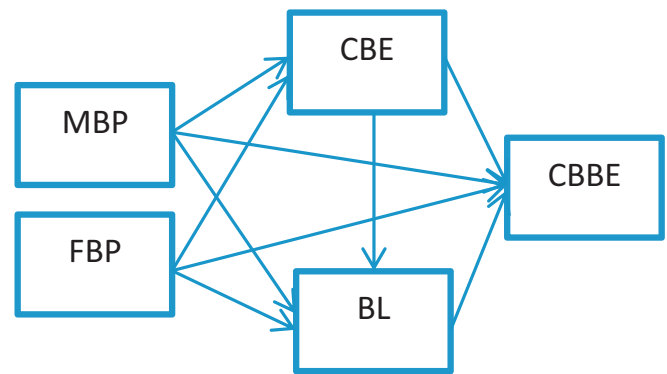


Fig. 1. Research model.

this study since it is in line with Facebook users' demographics (Statista, 2016) and recent research findings showing that consumers who like brand pages on Facebook are significantly younger than regular consumers of the brand (Lipsman, Mudd, Rich, & Bruich, 2012). The majority of our respondents were full-time workers (50.2%), and 42.8% were students. Students' representation is important in this kind of research, as highlighted in previous studies conducted on Facebook (Azar et al., 2016; Patterson, 2011; Wallace et al., 2012).

In order to answer the questionnaire, respondents were first asked to answer general questions related to their use of the Internet and Facebook. We then asked them to connect to their personal Facebook page in order to report the number of Facebook brand pages they liked and identify the product/service categories they belonged to.

We then invited respondents to identify and report their favorite Facebook brand page. For the rest of the questionnaire, respondents were asked to answer the questions keeping in mind that favorite brand.

3.2. Measures

All the constructs were measured using scales from prior studies, with some minor changes to fit the SNS context of our research. Scales were translated into French, and then back into English, using a translation and back-translation procedure. This procedure was conducted by two French-national English teachers. Back-translation was used to ensure that the items in French communicated similar information to those in English (Brislin, 1970; Sekaran, 1983), meaning that conceptual equivalence was assured.

All items were measured using a seven-point Likert-type response scale. We measured brand gender using a 12-item scale developed by Grohmann (2009). The subscales MBP (six items) and FBP (six items) were used to measure the levels of masculinity and femininity of each brand. BL was measured using the five-item scale adapted by Loureiro et al. (2012). CBE on Facebook was captured as a second-order latent variable developed by Tsai and Men (2013), whose indicators are consuming (three items) and contributing (four items). We eliminated the last item of the consuming subscale ("Liking/joining a company's Facebook page") because we only used respondents who had already liked a Facebook brand page. Finally, to measure CBBE we used the four-item unidimensional measure of overall brand equity scale developed by Yoo and Donthu (2001).

3.3. Measurement checks

Exploratory and confirmatory analyses were conducted to assess the reliability and validity of the variables. Our dataset was first screened for missing data. We also checked the multicollinearity, linearity and normality assumptions for each variable. We then performed exploratory factor analysis to evaluate all items and constructs used in this study. To aid in our interpretation of these six components, we did an oblique rotation on all of the measured items, and checked the data for

Table 1a
Sample demographics.

Variable name	Values	Frequency	%	Variable name	Values	Frequency	%
Age	16–22	219	35.7	Level of education	High school	119	19.4
	23–28	101	16.4		Bachelor's degree	285	46.4
	29–35	123	20.0		Master's degree	199	32.4
	36–45	113	18.4		Other	11	1.8
	46–70	58	9.4		Job status	Full-time	308
Male	245	39.9	Student	263		42.8	
Female	369	60.1	Not working	43		7.1	

Table 1b
Sample characteristics.

Variable name	Values	Frequency	Percentage
Time spent on Internet	Less than 30 min	14	2.3
	Between 30 min and 1 h	92	14.9
	Between 1 and 2 h	156	25.4
	More than 2 h	352	42.6
Time spent on Facebook	Less than 30 min	154	25
	Between 30 min and 1 h	197	32
	Between 1 and 2 h	142	23.1
	More than 2 h	121	19.9
Number of online brand pages liked	Fewer than 10 brand pages	222	36.1
	Between 11 and 20 brand pages	137	22.3
	Between 21 and 30 brand pages	68	11.1
	More than 30 brand pages	187	30.5

the cross-loading items and those with communalities of less than 0.5. We then performed confirmatory factor analyses.

The initial model's psychometric values were chi-square (χ^2)/degrees of freedom (df) = 3.277, TLI = 0.917, CFI = 0.926, GFI = 0.883, AGFI = 0.860, RSMEA = 0.061 and PCLOSE = 0.001. These indices do not ensure a proper fit of the measurement model. To obtain better fit indices, we eliminated three items with weak factor loadings (i.e. standardized parameter estimates less than 0.4). The first two items deleted were “aggressive” (factor loading = 0.396) from the MBP scale and “fragile” (factor loading = 0.444) from the FBP scale. These two items were also problematic in [Lieven and Hildebrand's \(2016\)](#) paper, where they also applied Grohmann's scale to the French culture, as the factor loading for aggressive was 0.17 and for fragile 0.47. The last deleted item belonged to contributing and was “recommending the brand page to my Facebook contacts” (factor loading = 0.301). This procedure yielded reliable scales for analysis on a reduced set of measures; χ^2 is significant and $\chi^2/df = 2.661$, TLI = 0.950, CFI = 0.956, GFI = 0.916, AGFI = 0.896, RMSEA = 0.052 and PCLOSE = 0.230. This represents a suitable goodness of fit, as all the values are within the acceptable range ([Hair, Black, Babin, & Anderson, 2009](#)). The model explained 31.8% of the variance of CBBE and 45.1% of the variance of BL. As for consumer engagement with brands on Facebook, brand gender explains 8.6% of the variance of CBE. The path diagram is illustrated in [Fig. 1](#).

Regarding CBE as a second-order construct, the correlation between the two dimensions “consuming” (CONS) and “contributing” (CONT) is positive, high and significant ($r = 0.485$; $p = .000$). This correlation confirms that both dimensions measure the same construct. This interpretation is supported by a second-order exploratory factor analysis. Both CONS and CONT dimensions load on a single factor, which accounts for 74.25% of the total variance explained, with a composite reliability (CR) of 0.738 and average variance extracted (AVE) of 0.585.

We also tested convergent and discriminant validity for the dimensions used in this study. [Tables 2a and 2b](#) illustrate the correlation

Table 2a
Summary statistics data.

Label	Construct	Mean	SD	Correlation matrix				
				FBP	MBP	CBE	BL	CBBE
FBP	Brand femininity	3.55	1.59	1				
MBP	Brand masculinity	4.90	1.39	.017	1			
CBE	Consumer-brand engagement	4.12	1.41	.071	.207**	1		
BL	Brand love	5.01	1.53	.271**	.392**	.409**	1	
CBBE	Consumer based brand equity	4.50	1.84	.057	.218**	.402**	.459**	1

** Correlation is significant at the .01 level (2-tailed).

matrices and the operationalization of the constructs used. For all measurement models, Cronbach's alpha and CR values are adequate. All standardized regression weights are significant. In support of the discriminant validity, the square roots of the AVE are superior to any correlations between latent variables; these findings follow [Fornell and Larcker's \(1981\)](#) guidelines.

3.4. Common method bias check

As all our data were generated from the same respondents, common method bias may exist ([Podsakoff, MacKenzie, Lee, & Podsakoff, 2003](#)). In order to test for common method bias, we used [Harman's single-factor test \(1976\)](#) as an exploratory approach. To do so, we forced all items used in this study to load on one single factor. This test resulted in 29.71% of variance explained. As this factor did not account for the majority of covariance between the measures, we assume that common method bias is not a pervasive issue in this study ([Chang, van Witterloostuijn, & Eden, 2010](#)). An extraction with eigenvalues above 1 with Varimax rotation confirmed this interpretation as all items loaded highly on their respective scales.

We also used the common latent factor (CLF) approach as a confirmatory method to capture the common variance among all observed variables in the model. Therefore, we added a latent factor to our AMOS model and then connected this to all observed variables. The comparison between the standardized regression weights of the two models (with and without the CLF) showed small differences (that is, less than 0.005 on all dimensions). Therefore, we conclude that there is no evidence of common method bias in this study ([Conway & Lance, 2010](#); [Podsakoff et al., 2003](#)).

3.5. Methodological details and model building

We used AMOS 20 to perform structural equation modeling (SEM), employing maximum likelihood estimation. In order to test our hypotheses, we implemented an incremental model-building approach ([Hair, Wolfinbarger, Ortinau, & Bush, 2010](#)). This approach allows replication of previous research findings, which we build on (i.e. [Grohmann, 2009](#); [Lieven et al., 2014](#); [Lieven & Hildebrand, 2016](#))

Table 2b
Construct measurements.

Construct	Mean	SD	Estimate	Composite reliability	AVE
Brand femininity (FBP, adapted from Grohmann, 2009)	3.55	1.59		.892	.632
Sensitive	3.64	1.89	.796		
Graceful	2.62	1.73	.679		
Express tender feelings	4.18	1.91	.552		
Sweet	3.71	2.00	.932		
Tender	3.61	1.97	.945		
Brand masculinity (MBP, adapted from Grohmann, 2009)	4.90	1.39		.854	.540
Adventurous	4.92	1.79	.716		
Brave	4.92	1.71	.818		
Daring	5.09	1.64	.783		
Dominant	4.95	1.77	.685		
Sturdy	4.62	1.88	.660		
Brand engagement (CBE, second order)	4.12	1.41		.738	.585
Consuming	5.09	1.55	.784		
Contributing	3.14	1.72	.745		
Consuming (CONS, adapted from Tsai & Men, 2013)	5.09	1.55		.824	.610
Viewing pictures on companies' Facebook pages	5.29	1.70	.800		
Reading companies' posts, user comments or product reviews	5.03	1.83	.780		
Watching videos on companies' Facebook pages	4.95	1.88	.763		
Contributing (CONT, adapted from Tsai & Men, 2013)	3.14	1.72		.821	.605
Engaging in conversations on companies' Facebook pages (e.g. commenting, asking and answering questions)	2.87	1.90	.758		
Sharing companies' Facebook posts on my own Facebook page (e.g. videos, audios, pictures, texts)	3.52	2.07	.805		
Uploading product-related videos, audios, pictures or images	3.04	2.03	.769		
Brand love (BL, adapted from Loureiro et al., 2012)	5.01	1.53		.922	.704
This is a wonderful brand	5.43	1.55	.857		
This brand makes me feel good	5.40	1.55	.876		
This brand makes me feel happy	5.15	1.74	.914		
This brand is a delight	4.68	1.90	.781		
I am passionate about this brand	4.42	2.05	.758		
Consumer-based brand equity (CBBE, adapted from Yoo & Donthu, 2001)	4.50	1.84		.935	.783
It makes sense to buy the products or use the services of brand X instead of any other brand, even if they are the same	4.56	1.98	.851		
Even if another brand has the same features as brand X, I would prefer to buy the products or use the services of brand X	4.59	2.03	.942		
If there is another brand as good as X, I prefer to buy the products or use the services of brand X	4.50	2.04	.872		
If another brand is not different from X in any way, it seems smarter to purchase the products or use the services of brand X	4.34	2.01	.871		

Table 3
Sequential model comparison.

Model	χ^2	Df	$\Delta\chi^2$	Δdf	$\chi_{.001}^2(\Delta df)$
Model 1	209.896	74	–	–	–
Model 2 v/s. Model 1	699.964	263	490.068	189	254.817

before testing a more complex model with two mediators. The first model tested the impact of the two independent dimensions of brand gender, namely MBP and FBP, on CBBE (Model 1). We then added other latent and observed variables to the initial model: since we have multiple mediators, we simultaneously tested the impact of the mediating effects of both BL and CBE on the relationship between brand gender and CBBE (Model 2). The advantage of testing these simultaneously is that it allowed us learn whether the mediation was independent of the effect of the other mediator (Kenny, Kashy, & Bolger, 1998). We therefore tested whether the addition of mediation variables led to better fit indices, as well as an increase in the percentage of variance explained of our dependent variable CBBE. In order to decide whether the model fit indices improved significantly between the two models, we analyzed the χ^2 value and the df of each model. Model 2 was considered to be better than Model 1 when $\Delta\chi^2$ between the two models was significant at a 0.01% error margin. As reported in Table 3, our second model improves the overall model fit when compared to the first model: Model 2 ($\Delta\chi^2 = 490.068 > \chi_{.001}^2(189) = 254.817$). Moreover, Model 2 explains 31.8% of the total variance of CBBE, whereas Model 1 explains only 6.3% of the total variance of CBBE. The Cohen's f^2 effect size is a good indicator in a hierarchical multiple regression study; here, it is equal to 0.373 and shows that the effect size attributable to the addition of the two mediators to the original model has a large effect.

Therefore, simultaneously adding the two mediators significantly improves the model fit and the total variance explained of CBBE (31.8%). In the findings section, we therefore analyze the outcomes of Model 2.

In order to test for mediating effects and assess specific indirect effects, we used the bootstrapping method (5000 iterations) with 95% bias-corrected confidence intervals (Preacher & Hayes, 2008). This approach is recommended by some researchers as it is based on a non-parametric resampling approach (Hayes, 2009; MacKinnon et al., 2004; Preacher, Rucker, & Hayes, 2007). An indirect effect is considered to be significant if its 95% bootstrapped confidence intervals do not include zero. In order to get indirect effects values, we developed a “user-generated estimand” using Visual Basic programming on AMOS. In the following section, we report the non-standardized regression weights.

4. Results

In order to test H1a and H1b, we conducted a systematic test. This approach allowed us to build from previous research findings, adding complexity with the two mediators studied in this research. Model 1 replicates previous research findings (Lieven et al., 2015), testing the direct impact of brand gender on CBBE. At this level, only MBP had a significant impact on CBBE. After the addition of the two mediators, neither MBP (path coefficient = 0.009; $p > .05$) nor FBP (path coefficient = -0.045 ; $p > .05$) reached a statistically significant level, leading us to reject H1a and H1b (see Table 4). However, the indirect impact between those two variables through the mediators was supported for both dimensions of brand gender. Further analysis shows that the indirect impact of brand masculinity on CBBE is mediated by BL and CBE, whereas the indirect impact of brand femininity on CBBE is mediated by BL only, as reported in Table 5. Therefore, we assume that

Table 4
Incremental model building.

Hypothesis	Parameters	Model 1		Model 2	
		Estimate	SE	Estimate	SE
H3a	BL ← MBP			.380*	.053
H3b	BL ← FBP			.191*	.030
H4	BL ← CBE			.609*	.083
H2a	CBE ← MBP			.241*	.049
H2b	CBE ← FBP			.055 ^{ns}	.029
H5	CBBE ← BL			.375*	.068
H6	CBBE ← CBE			.495*	.100
H1a	CBBE ← MBP	.326*	.062	.009 ^{ns}	.061
H1b	CBBE ← FBP	.066 ^{ns}	.038	-.045 ^{ns}	.036
	% of variance explained	CBBE	6.3%	31.8%	
		CBE		8.6%	
		BL		45.1%	

Note: ns, not significant.
* p < .001.

Table 5
Bootstrap analysis and statistical significance of indirect effects.

Parameters	Estimate	Lower bounds (BC)	Upper bounds (BC)	p
CBBE ← CBE ← FBP	.027	-.001	.068	.055
CBBE ← BL ← FBP	.072	.041	.113	.000
CBBE ← BL ← CBE ← FBP	.012	.000	.030	.058
CBBE ← BE ← MBP	.119	.062	.205	.000
CBBE ← BL ← MBP	.142	.084	.224	.000
CBBE ← BL ← CBE ← MBP	.055	.030	.095	.000
CBBE ← BL ← CBE	.228	.140	.355	.000

Notes: BC, Bias Corrected.

the impact of brand gender on CBBE is fully mediated by the two added mediators (Zhao, Lynch, & Chen, 2010).

As illustrated in Table 4, FBP had no significant impact on CBE on Facebook (path coefficient CBE = 0.055, p > .05). Only MBP had a significant positive impact on CBE on Facebook (path coefficient = 0.241, p < .001). Therefore, the impact of brand gender on CBE was partially supported as H2a was supported while H2b was rejected. Although not hypothesized, an in-depth analysis was conducted to understand how MBP impacts each dimension of CBE. MBP had a positive and significant impact on consuming and contributing behavior.

Additionally, as expected, FBP and MBP had a significant positive impact on BL (path coefficient for FBP = 0.191, p < .001; path coefficient for MBP = 0.380, p < .001). Therefore, the impact of brand gender on BL was fully supported, as both H3a and H3b were supported. An in-depth analysis showed that only MBP had a positive indirect impact on BL through CBE. These findings are reported in Table 5.

Regarding the link between CBE and BL, the results supported H4, as CBE (path coefficient = 0.609; p < .001) had a positive and significant impact on BL. The results also showed that BL has a significant direct impact on CBBE (path coefficient = 0.375, p < .001). Therefore, H5 was also supported.

With respect to the impact of CBE on CBBE, this hypothesis was also supported as the contribution of CBE to CBBE was positive and significant (path coefficient = 0.495, p < .001). Although not hypothesized, a more in-depth analysis was conducted to better understand how each dimension of CBE impacted CBBE: only contribution had a positive direct impact on brand equity (path coefficient = 0.281, p < .001), as consuming did not reach a statistically significant level (path coefficient = 0.067, p = .252). Moreover, the indirect impact of CBE on CBBE through BL was significant (see Table 5).

5. Discussion and conclusion

The present study investigated how the two gender dimensions of brand personality influence CBBE on Facebook. Moreover, the study demonstrates the role of BL and CBE as mediating variables in these relationships. In the following sections, we discuss the theoretical contributions and managerial implications of our study.

5.1. Theoretical contributions

Previous research (Lieven et al., 2015; van Tilburg et al., 2015) has suggested that MBP and FBP have a direct effect on brand equity, such that more masculine and more feminine brands elicit higher brand equity. The first finding of this research advances prior work by showing a full mediation impact of brand gender on CBBE through BL and CBE: our model explains 31.8% of the total variance of CBBE, whereas the model without the mediators explains only 6.3% of the total variance of CBBE. Hence, this research contributes to a better theoretical understanding of the impact of brand gender on CBBE, which adds to the brand gender literature (Grohmann, 2009; Lieven et al., 2015; van Tilburg et al., 2015). This first result explains the underlying process regarding the development of CBBE.

Second, even though brand gender does not have a direct impact on CBBE, the results confirm that brand gender is salient to consumers, and underline the advantages of clear brand gender positioning (Grohmann, 2009; Lieven et al., 2014, 2015), highlighting that gender continues to exert a significant influence on consumers' responses to brands. In this regard, the results show that part of the indirect impact on CBBE is mediated by CBE (i.e. brand gender contributes to explaining 8.6% of the variance of CBE). Therefore, this study offers an important contribution to the current body of literature on brand personality, and the emerging literature on brand gender, by analyzing the process through which the effects of brand gender influence consumer responses and CBBE in the particular context of social media, and more specifically Facebook. While previous studies have discussed the motivations for consumer-brand interactions on social media (e.g. Rohm et al., 2013), or the effects of engagement for brand performance in terms of satisfaction (e.g. Jahn & Kunz, 2012), our study focuses on the factors that enable engagement with consumers. This paper contributes to the literature by shedding light on the asymmetrical importance of the two dimensions of brand gender; it demonstrates the particular importance of the masculine dimension of brand gender in developing consumer engagement with brands on Facebook, as it generates both consuming and contributing online behaviors (though the strength of this impact is low). These results are in line with those of previous research (Avery, 2012; Azar et al., 2018; Jung & Lee, 2006; Neale, Robbie, & Martin, 2016) suggesting that masculine brands are more effective than feminine gendered profiles, as women tend to accept masculine brands, while men tend to resist and reject feminine brands.

Third, the detailed analysis that we conducted on the two dimensions of CBE (i.e. consuming and contributing) provides relevant insights into how each dimension influences CBBE. The results demonstrate that only the most visible type of engagement (i.e. contributing to a Facebook brand page) has a significant and positive impact on CBBE. Hence, it is critical for brands to stimulate “lurkers” to become active users of the brand fan page on Facebook. However, this study highlights that even the more “voyeuristic” engagement is key for brands, since consuming brand-related content on Facebook also mediates the effect of MBP on brand equity. These findings contribute to the literature on CBE in social media by highlight that “lurking” is a participative and valuable form of social media behavior, and that, although less visible, lurkers are a valuable target for brand communications on Facebook (Azar et al., 2016; Edelmann, 2013; Shang et al., 2006; Shao, 2009). Again, this finding is consistent with prior literature, highlighting the major role of MBP on consumer behavioral responses to gendered brands (Azar et al., 2018; Neale et al., 2016).

Fourth, the results advance prior work on brand gender perceptions and brand equity (Lieven et al., 2014; Lieven & Hildebrand, 2016) by providing some of the first empirical evidence on the role of BL as an underlying source in this relationship. In this respect, the results show that brand gender has a major indirect impact on CBBE through BL, as brand gender explains 45.1% of its overall variance. Moreover, this research extends our understanding of brand gender personality traits on consumer affective responses by investigating the influence of MBP and FBP on BL. Indeed, previous research has underlined that brand gender should increase brand appeal (Freling, Crosno, & Henard, 2011) and positively influence affective and behavioral responses to the brand (Grohmann, 2009), but thus far no study has considered the influence of brand gender on BL. Therefore, we add nuances to previous findings of Roy et al. (2016) by showing that the two gendered dimensions of brand personality remain central in understanding the impact of brand personality on BL. Furthermore, we extend prior studies on brand gender by suggesting that when brands are able to build a strong identity in terms of brand gender, whether feminine or masculine, they will facilitate consumers' identification with the brand and encourage BL.

Fifth, this research highlights that love towards a favorite brand on Facebook has a positive and strong influence on CBBE, complementing the findings of previous research (e.g. Bergkvist & Bech-Larsen, 2010; Carroll & Ahuvia, 2006; Loureiro et al., 2012) and extending these findings to the context of social media and, particularly, to Facebook.

5.2. Managerial implications

This research also provides relevant managerial implications. The findings underline that managers can significantly benefit from developing strong gender-typed traits for their brands. Specifically, the findings show that by instilling a brand with a masculine or feminine personality, managers will enhance consumer affective (i.e. BL) and behavioral responses (i.e. CBE) to the brand, and thereby increase CBBE.

To effectively highlight masculine or feminine brand personality traits, brand managers can work on the nine brand associations previously reported in the literature (Azar, 2015): (1) target of the brand; (2) brand values; (3) brand name and logo design; (4) quantity and variety of products offered to each targeted sex; (5) brand style and product design; (6) intrinsic product characteristics; (7) product category within which the brand is marketed; (8) people representing the brand and (9) advertising. In this regard, Grohmann (2009) showed that managers can accentuate consumers' perceptions of the masculinity or femininity of a brand using masculine or feminine spokespeople in advertisements, and Lieven et al. (2015) demonstrated how font, colors and different brand-naming strategies could influence brand masculinity and femininity. Marketing managers can also use in-store design, sales representatives' dress or even specific scripts for sales representatives to increase consumers' perceptions of brand gender (Kane & Sherr, 2011). Thus, managers may not only use tailored brand identity signs and communication campaigns, but can also build on a rich set of marketing stimuli that represent the brand in order to enhance preferred brand gender traits.

In the SNS context, it is important that managers understand how Facebook brand page design or the type of brand publication can shape masculine/feminine gender associations. Previous research on gender and web design (e.g. Moss, Hamilton, & Neave, 2007) has highlighted the relevance of designing webpages that typify the aesthetic preferences of the target gender; for example, the types of shapes, colors and images that should be used in the brand's Facebook page to enhance the perception of FBP and/or MBP. In this respect, we should highlight that designs using lighter tones, more colors and more rounded and slender lines, and portraying organic elements (e.g. flowers, fruits, landscapes, faces), enhance the perception of a brand's femininity (Moss et al., 2007; van Tilburg et al., 2015). On the other

hand, designs using darker tones, fewer colors, more vertical and heavier lines, and representing more technical objects, enhance the perception of a brand's masculinity (Moss et al., 2007; van Tilburg et al., 2015). Moreover, the type of language and publications should be strategically used to emphasize preferred brand gender traits. The use of more informal language in a brand's Facebook publications (Moss, Gunn, & Heller, 2006), and of posts conveying feelings of tenderness and care, and appealing to sensitivity, as well as posts highlighting the brand's gracefulness, can help to position the brand as feminine (Grohmann, 2009). Brand publications related to adventure, braveness and other topics associated with masculine personality traits (Grohmann, 2009) should reinforce brand masculinity.

Furthermore, the findings highlight that when brand managers actively encourage interaction and participation on their brand Facebook page, consumers will develop more intense emotional bonds with the brand. Hence, our findings contribute to the debate on the role of Facebook brand pages in the building of consumer affective responses, and confirm that social media brand communities are a critical brand-management tool (Gummerus et al., 2012; Hudson et al., 2016; Vernuccio et al., 2015). When social media managers aim to enhance BL and also induce higher brand equity, they should proactively communicate with fans and deliver entertaining content, but also provide emotionally appealing content that will foster consumers' active engagement with the brand on Facebook.

Moreover, the findings underline that managers should be aware of all opportunities to reinforce emotional bonds with the brand. In social media and offline, BL is an important intermediate outcome that reinforces CBBE, leading consumers to be more open to accepting and repurchasing the brand's products, and to choosing the brand over others (Carroll & Ahuvia, 2006; Loureiro et al., 2012). Therefore, besides effectively stimulating engagement with the brand, managers should actively manage their projected brand gender to develop strong brand love relationships with consumers.

6. Limitations and further research avenues

While this study has interesting implications, we are aware of its limitations. An important limitation pertains to the sampling procedure. We used a convenience, non-random sampling technique (McDaniel Jr. & Gates, 2006). The sample profile could also be considered a limitation, as the data were only collected in France and the sample consisted mainly of young respondents. Although our population is relevant with respect to Facebook users, it is recommended that the research be replicated among older users to explore the generalizability of the findings. Moreover, additional research should test our research model in other cultural contexts so as to shed light on possible cultural differences that influence the relationship between brand gender and CBBE on Facebook.

In addition, in this research we did not study one brand or product category in particular, since the aim was to analyze the influence of brand gender on consumer-brand-related responses on Facebook in general. Future research could include specific brands—namely feminine, masculine, undifferentiated and androgynous brands—to provide a more realistic appraisal of the influence of brand gender on CBE, BL and brand equity dimensions. Furthermore, in this research we did not analyze the impact of brand sex on consumer responses to brands on Facebook. As consumers tend to associate biological sex with brands, and these associations can influence their responses (Azar, 2015), future research might investigate the influence of brand sex on the constructs studied. Ultimately, previous research has found that consumer biological sex is a moderator of consumer-brand responses on social media (Barker, 2008; Kamboj & Rahman, 2016; Naylor et al., 2012). Hence, future studies should explore the influence of consumer biological sex, and also of consumer gender personality traits, as moderators of the relationships studied.

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