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The effect of product category on consumer brand relationships

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Abstract

Purpose – This paper aims to investigate the effect of product category on consumer brand relationships.

Design/methodology/approach – Based on a total of 800 consumers, respondents evaluated their relationship with their favorite brand in one of the four product categories studied (soft drink, mobile phone, shoes, cars). EFA, subsequent CFA, SEM and ANOVA were used to assess these relationships and the product category effect.

Findings – The authors find that brand love positively influences brand loyalty and both, influence positively WOM and purchase intention. Looking at the directionality of these relationships, the results show no product category differences. However, the authors found significant differences in terms of their intensity and their effect on the explanation power of the brand outcome variables WOM and purchase intention.

Research limitations/implications – The survey was conducted in Brazil and future research should assess the same product categories in other cultural settings as well as consider other product categories to assess the external validity of these results.

Practical implications – This paper demonstrates that consumer brand relationships are not product category specific. However, certain product categories tend to have more intense relationships than other product categories.

Originality/value – Despite the importance of the product category effect in the branding literature, this study shows that consumer brand relationship theory can be applied to different product categories. This suggests, the product category is less important in the study design than the unit of analysis which requires to be consumer's favorite brands.

Keywords Brand love, Brand relationships, Product category

Paper type Research paper

An executive summary for managers and executive readers can be found at the end of this issue.

1. Introduction

Marketing research has a long tradition in the study of business relationships between manufacturers and suppliers. Only in the past decade it has been expanded to the assessment of the relationships between consumers and their brands (Fournier, 1998; Keller and Lehmann, 2006). Consumer brand relationships research is multi-disciplinary, complex, dynamic and "many unresolved issues and conundrums remain" (Fournier, 2009, p. 5). Brands have been identified as relationship partners (Keh *et al.*, 2007) with many different constructs used (Fournier, 1998) where this relationship can have a spectrum of intensities of emotional bonds (Ashworth *et al.*, 2009; Pavlos, 2012). Terms such as brand loyalty (Jacoby and Chestnut, 1978), brand trust (Chaudhuri and Holbrook, 2001), brand passion (Bauer *et al.*, 2007), brand attachment (Park *et al.*, 2010; Thomson *et al.*, 2005; Belaid and Behi, 2011) brand romance (Patwardhan and Balasubramanian, 2011), brand fidelity (Hess *et al.*, 2011) and even brand love (Ahuvia, 2005a; Albert *et al.*, 2008a; Batra *et al.*, 2012; Hwang and Kandampully, 2012) have been used to distinguish among various types and intensities of emotions and relationships consumers have with brands (Carroll and Ahuvia, 2006; Reimann and Aron, 2009).

Brand love is one of the least researched topics in consumer brand relationships. The seminal work by Fournier (1998) identified love as one key dimension of consumer brand relationships. Several studies offer empirical evidence for the feeling of love toward brands (Aggarwal, 2004; Monga, 2002; Swaminathan *et al.*, 2007). Current brand love studies either assess the conceptualization and dimensionality of brand love (Carroll and Ahuvia, 2006; Thomson *et al.*, 2005; Batra *et al.*, 2008; Albert *et al.*, 2008b; Batra *et al.*, 2012) or focus on the relationships theory consumers have with brands (Albert *et al.*, 2008a; Batra *et al.*, 2008; Ahuvia, 2005; Fetscherin and Conway Dato-on, 2012). Despite the effect of product category in the branding literature, little is known whether

brand love is universally applicable to any product category or if it is product category specific.

The role of the product category has been studied in the branding literature for decades. Its effect has been noted for example to the importance on brand extension (Broniarczyk and Alba, 1994), the number of acceptable and unacceptable brands within a product category (Newman and Dolich, 1979), brand personality (Aaker, 1997), or consumer product variety seeking behavior (Van Trijp et al., 1996). Psychological theories on exploratory behavior (Fiske and Maddi, 1961) or the intrinsic motivation theory (Deci and Ryan, 1985) provides a base to explain product category differences in variety-seeking behavior (Van Trijp et al., 1996). The schema and categorization theory (Sujan, 1985) indicates that product-category characteristics influence the brand-level effects consumers have (Chaudhuri and Holbrook, 2001). Chaudhuri and Holbrook (2001, p. 83) argue, these "theories suggest that product-category cognitions are likely to precede thoughts and feelings about brands within the product category". Please note that Chaudhuri and Holbrook (2001) use the word "suggest" and "likely" and therefore provide no conclusive results. Current consumer brand relationship research diverges about the product category effect. For example, Kressmann et al. (2006) show product category involvement leads to higher perceived brand relationship quality. However, Valta (2013, p. 101) finds empirical evidence that "product category involvement does not significantly impact brand relationship quality". Current brand love studies either look at brands from one product category (Hayes et al., 2006; Swaminathan et al., 2007; Batra et al., 2012) or brands from multiple product categories without specifically analyzing if there are any product category differences (Ji, 2002; Carroll and Ahuvia, 2006; Smit et al., 2007; Albert et al. 2008a; Mai and Conti, 2008; Breivik and Thorbjørnsen, 2008; Bergkvist and Bech-Larsen, 2010).

Against this background, this paper contributes to the nascent consumer brand relationships theory by investigating the effect of the product category onto consumer's relationship with the brand. Our results show on one hand they supports the findings by Valta (2013) as we did not found any product category effect if we consider the directionality of the relationships between the different construct studies. On the other hand, our study also supports the findings of Kressmann et al. (2006) as we did find that the intensity of these relationships and the explanation power of the brand outcome variables WOM and purchase intention are different between product categories.

2. Theoretical framework and hypotheses

2.1 Brand love
Busacca and Castaldo (2003) suggested that the lowest intensity of a relationship between a consumer and its brands is brand satisfaction which results from the consumer's positive experiences with the brand (Ha and Perks, 2005). As the intensity of the relationship continues, brand satisfaction may result in brand trust (Horppu et al. 2008) and then brand loyalty. Brand satisfaction has been identified as a major driver of brand trust and brand trust as one of brand loyalty (Garbarino and Johnson, 1999; Lau and Lee, 2000; Chaudhuri and Holbrook, 2001; Berry, 2000). This relationship has been extensively empirically supported

(Kraft et al., 1973; Newman and Werbel, 1973; LaBarbera and Mazursky, 1983; Garfein, 1987; Kasper, 1988; Bloemer and Lemmink, 1992; Fournier and Yao, 1997). Much less is known about the relationship between brand love and brand loyalty. Aaker (1991) describes a consumer's relationship with a brand on five levels, brand loyalty being the last and the strongest. Later, Fajer and Schouten's (1995) show in their brand relationship typology that consumers have different levels of relationship from low-order relationship such as brand liking to high-order relationships such as brand loyalty. The few brand love studies (Carroll and Ahuvia, 2006; Batra et al. 2012) show that brand love precedes brand loyalty. In line with previous research we expect a positive relationship between brand love and brand loyalty:

H1. Brand love positively influences brand loyalty.

As stated by Miniard et al. (1983, p. 206), "the prediction of purchase intention is a central concern in marketing" and the authors argue that purchase intention is influenced by the attitude towards the brand. More recently, Eagly and Chaiken (1993) also indicate that the consumer's satisfaction with a brand influences the willingness to buy this brand. Furthermore, several studies demonstrated the positive relationship between brand loyalty and purchase intention (Jacoby and Kyner, 1973; Jacoby and Chestnut, 1978; Tellis, 1988; Krishnamurthi and Raj, 1991; Srinivasan et al., 2002). Since brand love precedes brand loyalty (Carroll and Ahuvia, 2006) we expect that brand love positively influences purchase intention and state the following hypothesis:

H2. Brand love positively influences purchase intention.

Many studies have focused on the antecedents and consequences of word-of-mouth (WOM) including extreme (dis)satisfaction (Maxham and Netemeyer, 2002), commitment to the product (Dick and Basu, 1994), effects of word of mouth (WOM) on the receiver's attitudes and intentions (Wangenheim and Bayón, 2004), or length of the relationship with the brand (Wangenheim and Bayón, 2004). Bowman and Narayandas (2001) showed that self-described loyal consumers of a brand were significantly more likely to engage in positive WOM. Most recently, Batra et al. (2012, p. 1) confirms that brand love is "associated with positive word of mouth (Carroll and Ahuvia, 2006; Fournier, 1998; Thomson et al., 2005)". Therefore, it is expected that brand love positively influences (positive) word-of-mouth and state:

H3. Brand love positively influences word of mouth.

2.2 Brand loyalty
Bloemer and Kasper (1995) clearly outlined the difference between brand loyalty and purchase intention, suggesting purchase intention is the buying of a brand where actual behavior prevails, regardless of the consumer's degree of commitment or loyalty to the brand. Many researchers have explored the positive relationship between brand loyalty and purchase intention (Jacoby and Kyner, 1973; Jacoby and Chestnut, 1978; Tellis, 1988; Krishnamurthi and Raj, 1991; Srinivasan et al., 2002) or repurchase intention (Hellier et al. 2003). Keller (1993) argued that brand loyalty exists when favorable attitudes toward a brand results in a purchase. Therefore, we expect a positive relationship between brand loyalty and purchase intention and state:

H4. Brand loyalty positively influences purchase intention.

The relationship between brand loyalty and word-of-mouth is less researched. Dick and Basu (1994) found that brand loyalty can add to positive word-of-mouth. Frank (1997) and Hagel and Armstrong (1997) further confirmed this. Srinivasan *et al.* (2002) found that even e-loyalty has a positive impact on word-of-mouth. The positive and direct relationship between brand loyalty and (positive) word-of-mouth finds further support by Reichheld (2003, 2006) and more recently by Walsh and Beatty (2007). Therefore, we expect a positive relationship between brand loyalty and (positive) word of mouth and state:

H5. Brand loyalty positively influences word-of-mouth.

2.3 Product category

As mentioned in the introduction, the role of the product category has been extensively studied in the branding literature. Its effect has been noted for example to the importance on brand extension, (Broniarczyk and Alba, 1994), the number of acceptable and unacceptable brands within a product category (Newman and Dolich, 1979) or the influence of the product- category characteristics onto the brand-level effects consumers have (Chaudhuri and Holbrook, 2001). Current consumer brand relationship research diverges about the product category effect. For example, Kressmann *et al.* (2006) show product category involvement leads to higher perceived brand relationship quality whereas Valta (2013, p. 101) shows "product category involvement does not significantly impact brand relationship quality".). Also Albert *et al.* (2008a, p. 1074) argue in their brand love study that "consumers *may* treat product categories differently in terms of their ability to generate love feelings" and even suggest that "a formal study of this phenomenon should help practitioners develop specific marketing programs toward consumer segments" no brand love assesses this. As there no empirical study assessing the effect of product category on the brand love relationship consumers have, we were reluctant do develop specific hypotheses concerning what cross-category difference and similarities which might be. We therefore state the following hypothesis:

H6. Product category influences the relationship between consumers and their loved brands.

3. Research method

3.1 Measurement items

Independent variables
Brand love: we take the items from the "Love Attitude Scale" developed by Hendrick and Hendrick (1986) to measure love relationship consumers have with brands. *Brand loyalty:* Jacoby and Kyner (1973) suggested attitudinal and behavioral aspects to be incorporated in any measurement of brand loyalty. We therefore use the items developed by Quester and Lim (2003) which includes three items to measure attitudinal aspects and two items for behavioral aspects for brand loyalty.

Dependent variables
Purchase intention: two aspects were considered, purchase intention and purchase probability. Purchase intention scales are widely used in marketing research. Two items from Kumar *et al.* (2009) to ascertain purchase intention were used. Purchase probability captures another aspect of purchase intention. Like many other studies we use the widely-used Juster Scale (Juster, 1966), an 11-point probability scale developed by the Bureau of the Census (Juster, 1966) and subject to a variety of validation studies (Clawson, 1971; Day *et al.*, 1991; Pickering and Isherwood, 1974) (see Figure 1). *Positive word-of-mouth:* The literature includes different WOM scales, from single-item (Singh, 1990; Swan and Oliver, 1989) to multi-item scales by Bone (1992) or Carroll and Ahuvia (2006). We use the same four items as the Carroll and Ahuvia (2006) used in their brand love study. Appendix 1 provides a summary of the items used in the study. If not mentioned otherwise, all items were measured along a five-point Likert scale where respondents expressed their agreement or disagreement (1 = strongly disagree to 5 = strongly agree). In order to prevent ecological fallacy[1] and atomistic fallacy[2], we averaged the responses and compare our results between the four product categories (see Monga and Lau-Gesk, 2007).

3.2 Sample and data collection

Carroll and Ahuvia (2006) used the product categories like "soft drinks", "cereals". Albert *et al.* (2008a) studies brands from the product categories of "shoes", "cars", "lingerie", "watches", and "perfumes". Bergkvist and Bech-Larsen (2010) looked at "clothes brand", "soft drink", and "toothpaste" among others. We selected "soft drinks", "mobile phones", "(running) shoes", and "cars" as the product categories for the following two main reasons. First, by using these product category, category equivalence was guaranteed as all product categories and subsequent brands were widely available in the country surveyed (Buil *et al.* 2008; Bensaou *et al.* 1999). Second, these product categories have been used in previous brand love studies but no study has compared if there are any product category differences. By using these product categories, our study complements current research and shed some light to what extend there are product category differences.

For our survey in Brazil, we used a translation-back-translation method by two independent translators to establish translation equivalence[3] (Douglas and Craig, 2007; Mullen, 1995; Bensaou *et al.* 1999). Local trained field workers conducted first a pre-test with 20 respondents to uncover any potential question-based issues. We then randomly selected consumers at a shopping mall in a major city in Brazil. We introduced the objectives of the study and gave them one of the four surveys. Through unaided brand recall, respondents were asked to mention three brands within the specific product category assigned to them and then to declare their favorite brand. This indicated not only that they had some brand knowledge but that they were aware of the brand itself and had a certain brand image and brand awareness.

Sekaran (1983) and later Erdem *et al.* (2006, p. 37) identify two ways to get sample comparability, "drawing nationally representative samples or selecting matched samples on the basis of some set of characteristics of interest". Due to budget constraints that prevent representative samples, we recruited four convenient consumer samples in the same location and matching the samples on size, gender and age distribution (Table I). Our data collection efforts yielded 800 consumer respondents with each product category having 200 respondents. Our sample size is well above the suggested minimum of 17 observations per cell by Cohen (1988), 20

Figure 1 Research model
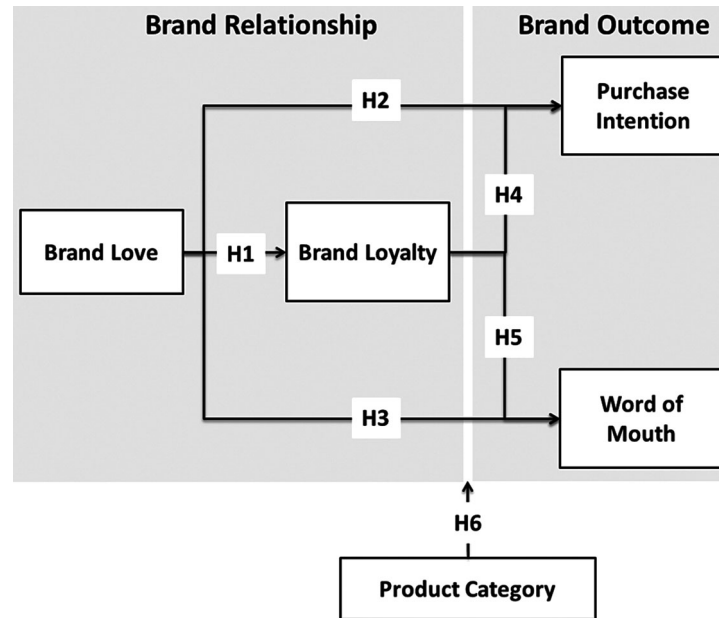
observations by Hair *et al.* (1998), ten subjects per item by Nunally (1967) or Hinkin (1995), or suggested minimum sample size from 100-200 by Spector (1992). As the objective of the study was to assess the impact of product category on brand love and subsequent constructs, a convenience sample of consumers was considered adequate for that purpose.

4. Analysis and results

4.1 Descriptive statistics and preliminary analysis

Table I provides descriptive statistics on the composition of our four samples.

We also calculated the number of different brands mentioned as the favorite brand within each product category and reported its percentage. In order to measure the degree of concentration of the brands in each product category, we calculated a concentration index. This calculation is derived from the commonly accepted

Herfindahl–Hirschman Index (HHI) which is defined as the sum of the squares of the market shares of the largest firms within an industry. We calculated a proxy for our "brand concentration index" that characterizes the distribution of the brand market share in the mind of the respondents. Similar to other studies (Putsis, 1997), the calculated HHI gives a proxy of the perceived degree of brand concentration (Rubio and Yagüe, 2009). A lower HHI indicates this product category is not "dominated" by a particular brand and has a higher degree of brand dispersion (Putsis, 1997). A higher HHI indicates a higher concentration of brands within a product category. Table II summarizes for each product categories the different "brand concentration index".

The descriptive statistics from our samples clearly indicate that the product categories for mobile phones and for soft drinks are in the mind of respondents dominated by fewer brands. Not only the percentages of the most mentioned brands (66 percent for mobile phones with "Nokia" and 64 percent for soft drinks with "Coca-Cola") are very high but also brand concentration indices are very high with respective values of 4,674 and 4,238.

4.2 Measurement validation

First, an explorative factor analysis (EFA) was conducted in order to assess the underlying structure of our data and to compare it with our theoretical framework. The principle components extraction method with varimax rotation was used to test whether the items loaded on the expected factors

Table I Description of respondent datasets

	Soft drinks	Mobile phones	Shoes	Cars
Number of respondents	200	200	200	200
Gender				
Male (%)	67	54	64	57
Female (%)	33	46	36	43
Marital status[a]				
Single (%)	92	85	94	78
Married (%)	8	15	6	22
Age				
Min years[b]	18	19	18	18
Max years	58	76	59	62
Mean years	25	27	24	28

Notes: [a] Marital status also included a category "divorced/other" which nobody checked as an answer; [b] Age of 18 was required to survey adults

Table II Description of product categories

	Soft drinks	Mobile phones	Shoes	Cars
Number of brands mentioned	18	11	21	26
Most mentioned brand (%)	64	66	41	24
Brand concentration index	4,238	4,674	2,495	1,102

as the literature suggests (Appendix 2, Table AI, provides the EFA's for the sample). As expected, the results reveal four factors with Eigen values greater than 1. Each one of the 19 items loaded only on one of the four primary factors with a factor load greater than 0.5 and none had cross loadings higher than 0.5 on two or more factors. This is in perfect agreement with our theoretical framework in Figure 1.

Second, our measurement validation approach consisted of three steps. First, content validity was addressed initially by consulting with marketing professors who reviewed the measurement items to ensure they were based on established and validated scales. Second, we examined the goodness of fit of the overall measurement model with four samples. We got a Chi-square/df of 3.88, Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI) are all higher than the threshold of 0.9 and our RMSEA is below the threshold of 0.09 (Table III). Third, we assessed the validity of each construct of the measurement model based on four criteria:

1   Do the items measure the same concept? Our convergent validity measured shared variance, magnitude of cross-loadings, and error correlations (Table IV)
2   Is the constructs measuring distinct concepts? Our discriminant validity measured average shared variance relative to interconstruct correlations (Table IV).
3   Is the construct reliable? This question was answered with the Cronbach's α metric (Table IV).
4   Do we have nomological validity? Magnitudes of interconstruct correlations relative to our theory were evaluated (Table IV)

Our confirmatory factor analysis (CFA) led to drop one item associated with purchase intention (PB3). The results of our analysis with a measurement model of 18 items are presented in Tables III and IV.

The nomological validity was achieved as all estimated correlations between constructs are positive as expected. The only challenging part of the measurement model appears to be the loyalty construct. It has a low average variance extracted of 0.42, indicating that the five items of loyalty do not "converge" very well, i.e. that they do not share a high proportion of variance in common. Contrarily to what we saw with the indicator PB3 of purchase intention, there is no single indicator nor a set of two indicators of loyalty that, if removed, would improve significantly the model. We decided to keep all five items.

Table III Goodness of fit measures

	CFA results	Threshold
Chi-square/df	3.88	≤ 5.00
Tucker-Lewis Index (TLI)	0.94	≥ 0.90
Comparative Fit Index (CFI)	0.95	≥ 0.90
RMSEA	0.06	≤ 0.09

Various authors (Malhotra et al. 1996; Aulakh and Kotabe, 1993; Roth, 1995; Bensaou et al., 1999) asks for measurement equivalence including calibration equivalence (not applicable), translational equivalence (see previous section), and metric equivalence (Malhotra et al. 1996). Metric equivalence needs equality of factor structure and loadings to make comparison of the inferences about relationships between variables in the samples. In that respect, since we have four different samples, each one used for a different product category, we also conducted an explorative factor analysis (EFA) for each product category separately and assessed the number of factors and items that load on each factor. We got similar results across the samples (Ryan et al., 1999). Although the factor loadings weights varied slightly across the samples, each EFA yielded the same number of factors with similar item loadings. The results above confirm that the research model in Figure 1 is well specified and that our hypotheses can be tested with our model.

4.3 Hypotheses testing

We use a structural model (SEM) to assess the relationships linking the hypothesized model's constructs as illustrated in Figure 1. The results are presented in Tables V and VI respectively. The Chi-square/df for each of the four models is below the threshold of 3.0 (Schumacker, 1992; Schumacker and Lomax, 1996). The goodness of fit criteria with TLI, CFI are all, except one, higher than the threshold of 0.9. The RMSEA are all, except one, below the threshold of 0.09.

Five main observations can be drawn from our Table V and Table VI.

1   For all product categories, the model is overall well specified Looking at Table VI, we are able to explain with our model, depending on the product category, between 31-40 percent of the positive word of mouth and 17-27 percent for purchase intention.
2   Looking at H1 and H3, for the all product categories, we got a significant and positive relationship between brand love and brand loyalty (H1) ranging from (0.41; $p < 0.01$) to (0.61; $p < 0.01$) as well as between brand love and positive word of mouth (H3) with values between (0.32; $p < 0.01$) to (0.41; $p < 0.01$). This suggests that if consumers love a brand, independently of the product category, this influences positively brand loyalty and positive word of mouth.
3   As for H2, we also got all positive values, but not all relationships between brand love and purchase intention are significant. It was insignificant for the soft drinks (0.10; $p > 0.10$) and cars (0.09; $p > 0.10$) but significant for mobile phones (0.18; $p < 0.05$) and shoes (0.22; $p < 0.01$). This suggests that there seems to be some category specific difference between brand love and purchase intention where brand love leads to higher purchase intention for mobile phone and shoes.

Table IV Construct validity

	Brand love	Brand loyalty	WOM	PI	Threshold
Average variance extracted (AVE)	0.73	0.42	0.61	0.82	≥ 0.50
Reliability (Cronbach α)	0.95	0.78	0.86	0.9	≥ 0.70
Discriminant validity	Yes	Yes	Yes	Yes	AVE $>$ all squared interconstruct correlation estimates (SICs)

Table V Summary model fit

	Soft drinks	Mobile phones	Shoes	Cars	Threshold
Chi-square/df	1.954	1.777	2.504	2.056	≤ 3.0
Tucker-Lewis Index (TLI)	0.935	0.928	0.882	0.920	≥ 0.9
Comparative Fit Index (CFI)	0.946	0.939	0.901	0.933	≥ 0.9
RMSEA	0.077	0.069	0.095	0.081	≤ 0.09

Table VI Summary results and hypotheses testing

	Soft drinks	Mobile phones	Shoes	Cars	All product categories
Summary results (R^2)					
Brand loyalty (%)	28	17	21	37	22
Purchase intention (PI) (%)	23	25	17	27	20
Word of mouth (WOM) (%)	31	35	40	32	30
Hypotheses testing					
H1. Brand love $\rightarrow$ Brand loyalty	0.53 ***	0.41 ***	0.46 ***	0.61 ***	0.47 ***
H2. Brand love $\rightarrow$ PI	0.10	0.18 **	0.22 ***	0.09	0.21 ***
H3. Brand love $\rightarrow$ WOM	0.32 ***	0.41 ***	0.32 ***	0.35 ***	0.39 ***
H4. Brand loyalty $\rightarrow$ PI	0.42 ***	0.40 ***	0.26 ***	0.46 ***	0.31 ***
H5. Brand loyalty $\rightarrow$ WOM	0.32 ***	0.30 ***	0.42 ***	0.28 **	0.24 ***

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

4 We tested *H4* and *H5*. For both, the relationship between brand loyalty and purchase intention (*H4*) with values between (0.26; $p < 0.01$) to (0.46; $p < 0.01$) and for brand loyalty and positive word of mouth *H5* with values between (0.28; $p < 0.05$) to (0.42; $p < 0.01$) respectively were positive and significant. This suggests, and in line with existing literature, brand loyalty positively influences purchase intention and positive word of mouth.

5 As for *H6*, a first observation is that all models have the same sign and directionality of the relationship between the various constructs suggesting there are no product category differences. The main differences with the current results are their intensity of relationship. For example the relationship between brand love and brand loyalty is the strongest for cars, followed by soft drinks, shoes and mobile phone[4].

4.4 Analysis of variance

In order to further analyze the impact of product category on brand love and subsequent constructs, we conducted an analysis of variance (ANOVA). Table VII illustrates the ANOVA results and reveals significant main effect of the product category for all constructs, brand love $[F(3,786) = 5.358, \quad p < 0.005]$, brand loyalty $[F(3,795) = 8.328, \quad p < 0.01]$, word of mouth $[F(3,788) = 12.972, \quad p < 0.001]$ and purchase intention $[F(3,770) = 7.648, \quad p < 0.001]$. For our ANOVA, we

performed the Levene's test for equality of variance. For most variables (3 of the 4) it was non-significant at the 1 percent level. As the Levene's test was significant for purchase intention, we use the F-Welch test to test the significance of product category that takes into consideration different variances in our samples for that variable. Table VII provides the sum of squares, degrees of freedom (*df*), and mean square values along with the appropriate F-value.

Our results show the product category differences are threefold. First, product category has an effect on the intensity of the relationship. Second, product categories have an effect on different brand outcome variables word of mouth and purchase intention. Third, also this was not subject to this study, another interesting observation is that our model fits better for product categories where respondents recalled a smaller number of brands and which had a high brand concentration index (Table II) compared to the product categories where respondents recalled a larger number of brands with a lower brand concentration index. For example and as Table II shows, for the product category mobile phones all respondents had only 11 favorite brands where 66 percent of them mentioned "Nokia" as their favorite one. In the mind of the respondents, this product category is dominated by one brand with a brand concentration index (BCI) of 4,674. Looking at Table V, mobile phones also got the best model fit values. However, further research needs to

Table VII ANOVA results

	Sum of squares	df	Mean square	F-Test	Sig.	Welch F-Test	Sig.
Brand love	14.53	3	4.84	5.358	<0.005		
Brand loyalty	15.27	3	5.09	8.328	<0.001		
Word of mouth	29.07	3	9.69	12.972	<0.001		
Purchase intention	19.05	3	6.35			7.648	<0.001

be conducted in that respect. This suggests that within-product category brand concentration may influence more the brand love relationships rather than between-product categories. In sum, our results show there are no product category differences in terms of their relationship directionality but we observe significant differences in terms of their intensity of the relationships and effect on the explanation power of brand outcome variables.

5. Conclusion and limitations

This section consists of three parts. First, we provide a short summary and the study's theoretical contribution. Second, we assess the practical implications for brand managers. Third, we provide a critical evaluation of the study's limitations and suggests opportunities for future research.

The effect of the product category has been extensively studied in the branding literature and has been noted on affecting brand extension decisions (Broniarczyk and Alba, 1994), the number of acceptable and unacceptable brands within a product category (Newman and Dolich, 1979) or brand personality (Aaker, 1997). The schema and categorization theory (Sujan, 1985) suggests product-category characteristics influence the brand-level effects consumers have (Chaudhuri and Holbrook, 2001). The opinions of the product category effect onto the consumer brand relationships diverge where some (Kressmann et al., 2006) argue certain product categories lead to higher perceived brand relationship quality where others (Valta, 2013) find no product category effect onto brand relationship quality. Against this background, this paper contributes to the nascent consumer brand relationships theory by investigating the effect of the product category onto the brand love relationships. In that respect, we compare four different product categories (cars, mobile phones, shoes and soft drinks). Based on a representative consumer sample of 800 Brazilian respondents, a survey was conducted to evaluate their relationship with their favorite brand. Our confirmatory factor analysis shows brand love positively influences brand loyalty. In turn, both influence positively word of mouth (WOM) and purchase intention. Looking at the positive directionality of these relationships, our results show no product category differences. However, our ANOVA reveal significant differences in terms of their intensity of the relationships and their effect on the explanation power of the brand outcome variables WOM and purchase intention. In that respect, our study in fact supports current findings. On one hand, it supports the findings by Valta (2013) as we did not found any product category effect if we consider the sign and directionality of these relationships. However, on the other hand, our study also supports the findings of Christy et al. (1996) or Kressmann et al. (2006) as we did find that the intensity of these relationships is different between product categories.

5.1 Practical implications

From a practical point of view, "building and maintaining strong consumer brand relationships are key factors of business's success" (Valta, 2013, p. 103). In that respect, our study shows that no matter which product category, any brand could theoretically establish and specifically achieve a "love" type relationship with consumers. This has already been practically illustrated with many examples such as

Harley Davidson, Apple or Starbuck. Three loved brands from totally different product categories. Therefore, brand managers should focus on the brand relationship dimension brand love, which leads to stronger brand loyalty and ultimately to more positive word of mouths and increased purchase intention. All ultimately lead to higher sales and profits. This insight helps managers to justify expenditures in product development, pricing strategy as well as promotional campaigns in an effort to intensify the emotional bond consumers have with brands (Valta, 2013).

5.2 Theoretical implications and limitations

This paper provides the following theoretical contributions and outlines limitations in the present study and overcoming them can be a direction of future research.

- *Product category and consumer brand relationship theory.* We demonstrate that consumer brand relationships theory can be applied to different product category as there are no product category differences in terms of the directionality of the relationships between different constructs such as brand love, brand loyalty, word of mouth and purchase intention. This suggests that the brand love relationship is not product category specific and that future brand love studies can use any type of product category.
- *Product category and research method.* We asked consumers to fill out the survey keeping in mind their favorite brand within the specific product category assigned. This suggests that future consumer brand relationships studies are able to get meaningful results as long as the object of study is the consumer's favorite brand. This is important for the research design as our study shows the product category is less important in the study design than that the unit of analysis, in this case the consumer's favorite brand. In other words, when designing a brand relationship study, it is imperative that researcher design the study in a way that respondents can choose their favorite brand. In case researchers want to assess a certain product category or categories, in order to get meaningful results, respondents should be given either the choice of choosing their favorite brand from that product category or if they have no favorite brand in that product category studies, either provide another favorite brand or terminate the survey.

Like any study, there are a number of limitations which provide opportunities for future research.

- Our study was conducted in Brazil and future research should assess other product categories in Brazil to provide external validity.
- Related to the previous point, future studies should also assess the same product categories in other countries to provide cross-cultural validation. As Albert et al. (2008a) stated, brand love and its expression are culturally grounded. By extending the research beyond the present Brazilian samples, researchers could examine whether our results hold in other cultures and provide cross-cultural validation or need adaptation. This would further help the external validity of the results.
- Although there is extensive support for the use of convenience consumer samples, surveying a larger, more diverse pool of respondents would further allow the generalization of our findings.

- The proposed model could be expanded by incorporating other factors that might influence and further explain the concept of brand love. For example, one could add moderating variables (e.g., genre, age, religion) which might explain any possible difference between product categories.
- Most consumer brand relationships studies focus on tangible product brands (e.g. Carroll and Ahuvia, 2006) but more recent research has investigated the consumer service emotional relationship (Paulssen and Fournier, 2007; Yim *et al.*, 2008). Future research could therefore investigate brand love in the context of product categories from the service sector and assess whether there are product category differences.
- Finally, another interesting finding from our study was that our model fit was higher for product categories where respondents recalled fewer brands and this product category was dominated by a brand leading to a higher "brand concentration index".

This suggests brand competitiveness within a product category may also impact brand relationships which is another avenue for future research.

Notes

1 Ecological fallacy: drawing inferences at the individual level based on group level data (Robinson, 1950).
2 Atomistic fallacy: drawing inferences between groups based on individual level data (Alker, 1969).
3 "Translational equivalence implies that questionnaire items can be translated in a way that does not alter the item's meaning. Translation equivalence is essential in testing construct validity and in cross-validating measures across groups" (Lopez *et al.*, 2009, p. 597).
4 It should be mentioned that for the Brazilian sample, the i-phone was not available at the point in time of the survey.

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Appendix 1. Measurement items

Independent variables

Brand love items (Hendrick and Hendrick, 1986; based on Lee, 1977):

BLo1 When I think of this brand, it is hard for me to say exactly when the friendship turned into love for this brand.

BLo2 In truth, the love I have for this brand required friendship first.

BLo3 I expect to always be friends with this brand.

BLo4 The love I have for the brand is the best kind because it grew out of a long friendship.

BLo5 The friendship with the brand merged gradually into love over time.

BLo6 The love relationship is really a deep friendship, not a mysterious, mystical emotion.

BLo7 The love relationship is the most satisfying because it developed from a good friendship.

Brand loyalty items (Quester and Lim, 2003):

BL1 I am committed to this brand.

BL2 I pay more attention to this brand than to other brands.

BL3 I am more interested in this particular brand than in other brands.

BL4 It is very important for me to buy this brand rather than another brand.

BL5 I always buy the same brand because I really like it.

Dependent variables

Purchase intention items (Kumar *et al.*, 2009; Juster, 1966):

PB1 I intend to buy this brand.

PB2 I plan to buy this brand.

PB3[*] Taking everything into account, what are the chances of you personally buying this brand in the next five years? (11 probability scale).

Word-of-mouth items (Carroll and Ahuvia, 2006):

WOM1 I have recommended this brand to lots of people.

WOM2 I "talk up" this brand to my friends.

WOM3 I try to spread the good word about this brand.

WOM4 I give this brand tons of positive word-of-mouth advertising.

[*]Item removed following confirmatory factor analysis (CFA) due to low loading and low reliability value.

Appendix 2

Table AI Explorative factor analysis (EFA)

	Component			
	1	2	3	4
BLo4	*0.892*	0.139	0.141	0.055
BLo2	*0.880*	0.123	0.133	0.049
BLo7	*0.854*	0.163	0.135	0.059
BLo5	*0.853*	0.186	0.161	0.063
BLo1	*0.843*	0.201	0.134	0.088
BLo6	*0.796*	0.165	0.213	0.057
BLo3	*0.769*	0.223	0.129	0.139
WOM2	0.207	*0.815*	0.044	0.167
WOM1	0.172	*0.787*	0.142	0.206
WOM4	0.177	*0.785*	0.195	0.032
WOM3	0.298	*0.775*	0.107	0.093
BLb5	0.075	−0.045	*0.743*	0.158
BLb4	0.246	0.108	*0.726*	0.076
BLa1	0.249	0.100	*0.696*	0.059
BLa2	0.170	0.208	*0.661*	0.110
BLa3	0.040	0.139	*0.650*	0.082
PIa1	0.169	0.339	0.092	*0.822*
PIa2	0.179	0.423	0.099	*0.763*
PIb1	0.004	0.096	−0.334	−0.664

Notes: Extraction method: principal component analysis; Rotation method: Varimax with Kaiser Normalization

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