Branded Apps: Explaining Effects of Brands' Mobile Phone Applications on Brand Responses

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Abstract

Branded apps have attracted an increasing amount of attention as a marketing communication platform. With branded apps, companies try to create value for their brands among prospective and current customers by providing entertainment and information content. The aim of this study was to examine a) whether branded apps influence consumers' cognitive and affective brand responses, b) whether this effect is moderated by the type of branded app (i.e., information vs. entertainment), and c) to what extent enjoyment and elaboration are explanatory mechanisms for these effects. An experiment demonstrated that 1) branded apps enhanced brand responses, 2) an entertainment app evoked higher levels of enjoyment, which in turn enhanced affective brand responses, and 3) an informational app evoked higher levels of elaboration, which enhanced cognitive brand responses. Theoretical and practical implications for branded app designers and mobile advertisers are discussed.
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Keywords: Mobile marketing; Branded apps; Information; Entertainment; Brand equity; Online engagement; Elaboration

Introduction

In recent years, mobile phone applications have generated substantial interest among marketers (Bellman et al. 2011; Gill, Sridhar, and Grewal 2017; Zhao and Balagué 2015), who began to create so-called branded apps: apps that "display a brand identity, often via the name of the app and the appearance of a brand logo or icon, throughout the user experience" (Bellman et al. 2011, p. 191). Driven by the rapid global adoption of smartphones (eMarketer 2016), brands have embraced branded apps as a new form of marketing communication to attract new customers and increase brand loyalty among existing customers (Wang, Kim, and Malthouse 2016). Brands increasingly offer such engagement initiatives to facilitate brand–consumer interactions, or interactions among customers (Gill, Sridhar, and Grewal 2017). Though social media, games, video, and music apps dominate the app penetration lists (App Annie

2017; ComScore 2017; Forbes 2016), consumers increasingly communicate via (branded) apps and less via mobile web browsers or desktop browsers. Recent years especially demonstrated growth in the retail, financial, and travel sectors. Two examples are that 50% of UK online sales for Domino's comes through its app, and easyJet's app handled 20% of its bookings. Most global top brands have at least one app (Distimo 2011), and marketers are increasingly investing in branded apps as an advertising tool (e.g., Breij 2011). Moreover, top brands, such as Gucci and Ikea, invest in augmented reality features in their apps to enhance the customer experience. Clearly branded apps become an increasingly critical channel for consumer business in all industries (App Annie 2017).

Branded apps provide a variety of content and services across a broad range of product categories for mobile phone users (Kim, Lin, and Sung 2013). For example, branded apps provide weather information and recipes, can be used as a travel planner, or offer entertaining games (Zhao and Balagué 2015). Branded apps are unique, as they can be accessed anywhere and at any time, providing advertisers the opportunity to

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continuously engage with consumers. Additionally, unlike with other advertising formats that are often resisted by consumers (e.g., Fransen 2013), branded apps are unique because users voluntarily and deliberately download and install an app and spend minutes if not hours using it. In fact, consumers are eager to embrace branded apps because they are of use to them (Bellman et al. 2011) and because these apps provide entertainment. For these reasons, branded apps have the potential to be persuasive marketing tools (Wang, Kim, and Malthouse 2016).

Despite the proliferation of branded apps, their uniqueness, and their potential persuasive impact, empirical research on this marketing communication channel is very limited (Ahmed, Beard, and Yoon 2016; Kim, Lin, and Sung 2013; Kim, Wang, and Malthouse 2015). So far, mobile application studies have centered mainly around the question of why consumers adopt mobile applications, focusing on mobile services and the adoption of mobile commerce but not on branded apps. These studies examined predictors derived mostly from the Technology Acceptance Model, the Uses & Gratifications approach and the Customer Perceived Value approach (e.g., Kim, Yoon, and Han 2016; Peng, Chen, and Wen 2014; Wei, Karlis, and Haught 2012). Only a handful of studies have examined the value of branded apps for the brand, demonstrating that branded app use increases interest in the brand and product categories (e.g., Bellman et al. 2011), subsequent spending on a brand (Kim, Wang, and Malthouse 2015) and specific cognitive and affective brand responses (Ahmed, Beard, and Yoon 2016). However, other consumer responses to branded apps that are important in marketing communications, including brand memory, brand relationships and brand beliefs, have not yet been studied. Moreover, it remains unclear *how* branded app effects can be explained. Therefore, the first aim of this study is to extend previous research and to provide insights into the effects of branded apps on consumer responses that were not previously examined, including affective (i.e., consumers' brand attitudes and perceived relationship with the brand) and cognitive brand responses (i.e., brand cognition and brand beliefs, Franzen 2007; Yoo and Donthu 2001). The second aim is to uncover the mechanisms that explain these effects based on transportation theory (Green and Brock 2000) and Information Processing Models.

In examining branded app effects on brand responses and explanatory mechanisms, we argue that it is important to take into account the diversity of branded app contexts. In particular, the distinction between entertainment and information contexts is essential (Bellman et al. 2011; Pihlström and Brush 2008; Zhao and Balagué 2015), as research suggests that this distinction is important for persuasion outcomes (Bellman et al. 2011; Novak, Hoffman, and Duhachek 2003; Pihlström and Brush 2008; Sánchez-Franco and Roldán 2005). Several researchers have called for further investigation of the persuasiveness of these different types of apps (e.g., Pihlström and Brush 2008). We postulate that entertainment (versus information) branded apps evoke a higher level of enjoyment, which in turn positively influences *affective* brand responses. Second, we hypothesize that information (vs. entertainment)

apps evoke a higher level of elaboration, which in turn positively influences *cognitive* brand responses. In sum, the third aim of this study is to analyze the differential impact of entertainment versus information apps on cognitive and affective brand responses and to illuminate which explanatory mechanisms play a role in these effects.

This paper offers four substantive contributions to the literature. First, by linking the use of different types of apps to various types of brand responses, this study provides insights into the importance of differentiating between branded app contexts for persuasion outcomes. Second, by examining other key variables of marketing communication – that is, cognitive and affective brand responses – than previous studies did, this study offers new insights. Additionally, focusing on what the app does for the brand instead of on the user value of the app extends our current knowledge on branded apps as an advertising tool. Third, this study discusses and empirically examines the underlying mechanisms of the persuasiveness of entertainment and information branded apps, providing knowledge on how branded app effects can be explained and building knowledge on information processing of branded app content. Fourth, from a practical point of view, this study provides insights into how one might be able to adapt marketing strategies for each type of branded app (Pihlström and Brush 2008).

Literature Review and Hypotheses

Branded App Use and Brand Responses

In digital media and online advertising, practitioners measure consumer interactions in multiple ways. Examples are downloads, opens, clicks, re-visits, likes, comments, volume of reviews, and shares. App analytics tools provide such metrics to analyze consumer interactions within the app. When consumers interact with brands or brand-generated content, such interactions are theoretically conceptualized as online consumer–brand interactions (e.g., Hamilton, Kaltcheva, and Rohm 2016).

The opportunity for consumers to interact with branded apps comes from the interactive character of the medium. Interactive media allow for real-time two-way communication with for example feedback options or share buttons and for user control in the communication process with for example navigational features and language customization (e.g., Liu 2003; Liu and Shrum 2002). A content analysis of 106 branded apps demonstrated that two-way communication and control features are often integrated in branded apps, illustrating the interactive nature of branded apps (Kim, Lin, and Sung 2013).

Based on interactivity theory and empirical research, one could further argue that because of the interactive nature of branded apps, such apps have a persuasive impact on the consumer. Ample empirical studies in the context of interactive marketing communication platforms demonstrate that interactivity results in persuasion outcomes. For example, in the context of brand websites of various types of brands (e.g., sport shoes, coffee, political parties, cameras, and so on), studies

showed that website interactivity translates not only into more positive attitudes towards the site itself (e.g., Wu 2005) but also into positive brand attitudes (e.g., Liu and Shrum 2009; Macias 2003; Sundar, Kalyanaraman, and Brown 2003), brand images and brand relationships (Voorveld, Van Noort, and Duijn 2013), and into enhanced cognitive responses (i.e., brand-related thoughts) and behavioral intentions (i.e., website referral, website revisit and spending on the brand; Van Noort, Voorveld, and Van Reijmersdal 2012). Similarly, when consumers interact with a branded app this might result in brand responses.

In examining brand responses we differentiate between affective and cognitive responses in line with the dominant construal of consumer responses in marketing (e.g., Pluzinski and Qualls 1986). In line with this construal of responses, Franzen (2007) argues that brand value or brand equity is multidimensional and has a cognitive and affective basis. Cognitive brand equity relates to brand cognitions (awareness, recall and recognition, see Yoo and Donthu 2001) and brand beliefs (i.e., what the consumer thinks about the brand in terms of attributes such as performance and advantages, see Franzen 2007). Affective brand equity relates to feelings and emotions with regard to the brand (i.e., brand attitude) and the emotional connection or relationship a consumer experiences with the brand (e.g., Fournier 1998; Franzen 2007; Keller 1993).

Though interactivity research and branded app studies suggest that interacting with a branded app enhances affective and cognitive response, we propose that interacting with different types of branded apps, might not result in the same brand responses. Previous studies on branded apps have examined mainly the impact of a specific branded app (Ahmed, Beard, and Yoon 2016; Kim, Wang, and Malthouse 2015) or of a group of branded apps (Bellman et al. 2011). The latter studies lump together all sorts of branded apps. We argue that this broad-brush approach to examining branded apps will not provide a thorough understanding of their persuasive impact. Building on media context research (e.g., De Pelsmacker, Geuens, and Anckaert 2002; Moorman, Neijens, and Smit 2002), demonstrating that media contexts influence persuasion outcomes, we posit that it is important to consider branded app type when examining the impact of these apps on brand responses.

Different Types of Branded Apps

Media context research has convincingly demonstrated that media context matters. How people respond to advertising depends on the media context in which it is embedded. The characteristics of the context, whether objective (e.g., genre) or subjective (e.g., perceived informational value), carries over to or influences the perception of the brand message (e.g., De Pelsmacker, Geuens, and Anckaert 2002; Moorman, Neijens, and Smit 2002). While using a branded app, consumer–brand communication does not occur in a vacuum, either; in fact, it occurs within a certain context or environment: the specific context of the branded app or creative execution style.

Therefore, we argue that the branded app context influences responses to the brand.

Media context effects have been demonstrated for various media and brand messages, such as TV commercials (e.g., Gunter, Furnham, and Frost 1994), magazine ads (e.g., De Pelsmacker, Geuens, and Anckaert 2002; Malthouse, Calder, and Tamhane 2007), and brand placements (e.g., Van Reijmersdal, Smit, and Neijens 2010). Media context is generally categorized in functional/utilitarian/informational versus experiential/hedonic/entertainment (e.g., Rossiter and Percy 1997; Van den Putte 2008). Research suggests that this distinction in entertainment and information contexts is essential (Pihlström and Brush 2008) because it is important for persuasion outcomes (Bellman et al. 2011; Novak, Hoffman, and Duhachek 2003; Pihlström and Brush 2008; Sánchez-Franco and Roldán 2005). According to a study by Bellman et al. (2011), branded apps can be categorized into entertainment and information apps. This distinction between informational and experiential grew out of the distinction between styles of advertising, based on Rossiter and Percy (1997), who revised the FCB grid (Ratchford 1987), which consists of four quadrants based on two dimensions: level of involvement and a thinking–feeling dimension. Thinking ads should encourage cognitive effort, and very likely self-reported cognitive elaboration. Feeling ads would encourage positive or negative affective responses, with spillover effects on ad liking and brand attitude. Likewise, whereas entertainment apps (e.g., apps offering an advergame) provide intrinsic enjoyment and/or entertainment and are experiential and game-like in nature, information apps (e.g., banking apps providing banking facilities) offer convenience and provide utilitarian and/or information-gathering needs. According to the content analysis of branded apps conducted by Kim, Lin, and Sung (2013), these creative execution styles are equally present, although entertainment content was somewhat more present in branded apps for product brands (e.g., automotive, fast-moving consumer goods, electronics, and apparel) than for service brands (e.g., financial services and transportation).

Several researchers have called for further investigation (e.g., Pihlström and Brush 2008) of the persuasiveness of these types of apps. Previous studies have shown that branded apps may affect brand responses through dual mediation, that is that evaluations of the context, in this case the app, spill over to evaluations of the brand (Ahmed, Beard, and Yoon 2016). However, so far, specific processes that are related to app type have not been taken into account in relation to branded apps. This study discriminates between entertainment and information branded apps to shed more light on the mechanisms by which branded apps influence consumers.

Different Types of Branded Apps Result in Different Persuasive Outcomes

To our knowledge, one previous study indicated that discriminating between media contexts is important when examining the persuasive impact of branded apps as a form of interactive advertising. Bellman et al. (2011) compared

responses to 4 entertainment branded apps with responses to 4 information branded apps (i.e., for 8 different brands). They found that by analyzing differences between responses before and after using the app, information apps performed better in shifting the purchase intent. We expect that different processes that depend on the type of branded app explain persuasive outcomes of branded apps: enjoyment and elaboration.

Branded apps can elicit various experiences (Calder, Malthouse, and Schaedel 2009; Malthouse, Calder, and Tamhane 2007). Entertainment apps, for example, provide an intrinsic enjoyable experience, whereas information branded apps provide a utility or convenience experience (Bellman et al. 2011). Entertaining apps are likely to contain a game element and a narrative, and are therefore enjoyable. Informational apps lack such a narrative and game element, but are likely to have a high informational value, just like TV programs in the same genre (e.g., Van Reijmersdal, Smit, and Neijens 2010).

Media experience research effectively demonstrated that experiences with the medium spill over or transfer to responses to advertisements that are displayed in the medium. This effect was demonstrated for various media, including offline media (Bronner and Neijens 2006; Malthouse, Calder, and Tamhane 2007), online media (Calder, Malthouse, and Schaedel 2009), and social media (Voorveld et al. 2016), which means that both types of branded apps may result in brand responses, but because of the nature of the experience, we expect different processes and different brand outcomes.

Based on transportation theory (Green and Brock 2000, 2002), we argue that entertainment apps result in higher levels of enjoyment than information branded apps. According to transportation theory, a key element of an enjoyable media experience is that it engages consumers leaving less cognitive resource available for cognitive processing of the message (Green, Brock, and Kaufman 2004; Lang 2000). Thus, while smartphone users presumably experience intrinsic enjoyment in entertainment branded apps, users of informational branded apps likely do not have the experience of being transported, absorbed and engaged in the medium but rather experience only the utility of the app. Therefore, entertainment content may result in higher levels of enjoyment. We argue that entertainment-induced enjoyment is more likely to translate into affective responses than into cognitive responses (Green and Brock 2000; Wang and Calder 2006, 2009). The intrinsically enjoyable experience is expected to initiate positive feelings, which, according to affect transfer theory, may translate into positive affective brand responses via mechanisms of affect transfer and spill over (Grigorovici and Constantin 2004; Kim, Lim, and Bhargava 1998; Raney et al. 2003).

Spillover theory proposes that the experience of an appreciated context, such as an enjoyable app experience, spills over to affective responses to the embedded brand. In other words, the evaluation of the brand embedded in the enjoyable context benefits from the positive feelings associated with that context. Relating this point to entertainment apps would imply that an enjoyable, positive experience with an entertainment branded app may carry over or may be misattributed to evaluations of the brand in the app. Thus, based on interactivity theory and branded app studies we argued that interacting with branded apps has a persuasive impact, and based on media experience and transportation theory we further argue that interacting with an entertainment branded app in comparison with no interaction (control group) results in *affective* brand responses in particular. In sum, we argue that entertainment branded apps are more likely to lead to enjoyment by the smartphone user, which in turn is expected to generate predominantly positive affective brand responses and not necessarily affect cognitive brand responses. We hypothesize the following:

H1. An entertainment (vs. information) branded app evokes higher levels of enjoyment, which in turn a) evoke more positive *affective* brand responses (i.e., brand attitude and brand relationship), but b) do not influence *cognitive* brand responses (i.e., brand memory and brand beliefs).

Informational media content, on the other hand, is more likely to induce elaboration of the content, which is associated predominantly with cognitive responses (e.g., Andrews and Shimp 1990). Again, several theoretical and empirical considerations support this argument. For example, Van Reijmersdal, Smit, and Neijens (2010) examined how media context influenced consumer responses to brand placements in TV programs. Such brand placements are somewhat comparable to branded apps because brand placements are placements of a brand in editorial content (e.g., entertainment or informational). Similarly, in branded apps, the brand and the brand message are embedded in the context of the mobile application. These authors demonstrated that placements in informational programs evoked more cognitive brand responses than less informational programs, reflecting more elaboration.

In a similar vein, information branded apps may evoke higher levels of elaboration than entertainment branded apps. Bellman et al. (2011) argue that because information apps (as opposed to entertainment apps) help consumers to solve problems and provide some utility, consumers are more focused on the content of the app, trying to make decisions and plans in relation to the brand. Therefore, information apps are more likely to stimulate cognitive processing of the informational content in the branded app. Moreover, again building on transportation theory (Matthes, Schemer, and Wirth 2007), we could argue that consumers are less transported by, or engaged in, information apps than they are in entertainment apps, leaving more cognitive capacity to elaborate on branded app content. Finally, it can be argued that when using an information app, consumers are eager to seek information (Van Reijmersdal, Smit, and Neijens 2010) and put effort into processing the contents of the branded app. Thus, based on interactivity theory and branded app studies we argued that interacting with branded apps has a persuasive impact, and based on the arguments above we further argue that interacting with an information branded app in comparison with no interaction (control group) results in *cognitive* brand responses in particular. Overall, we argue that information branded apps induce higher levels of elaboration, resulting in enhanced

cognitive brand responses, but not in enhanced affective responses.

H2. An information (vs. entertainment) branded app evokes higher levels of elaboration, which in turn a) evoke more positive *cognitive* brand responses (i.e., brand memory and brand beliefs), but b) do not influence the *affective* brand responses (i.e., brand attitude and brand relationship).

Method

Design

The experiment employed a single-factor (branded app: entertainment vs. information) between-subjects design with a control group. In the control group, participants were not exposed to a branded app. This control group served as a baseline to test whether interacting with a branded app, either informational or entertaining, influenced brand responses.

Stimuli and Pretest

The information app consisted of brand-related information regarding a car brand. In this app, participants could read information about the product or see pictures of the products by clicking on the in-app icons (e.g., second hand and show room). In general, this app informs consumers about the cars sold by the brand. The entertainment app was executed as a game, more specifically, as a sliding blocks puzzle. In the opening window of this app, a car from the brand drives in a virtual village. In the next window, this car sits between other cars in a parking lot. The aim is to get the branded car out of the parking lot by moving cars (by sliding fingers over the mobile screen).

A pre-test was conducted to ensure that the information branded app was perceived as informative and pursuing a utilitarian goal and that the entertainment app was perceived as enjoyable and pursuing an entertainment goal. A small sample of participants (N = 10) who did not take part in the actual research was asked to interact with either the information or entertainment app. The apps were rated on four items on a 7-point scale (1 = disagree, 7 = agree), indicating the extent to which the apps were considered as *informational*, *utilitarian*, *enjoyable*, and *entertaining*. The mean score of the informational and utilitarian items represents the extent to which the branded app is perceived as informational, and the mean score of the enjoyable and entertaining items represents the extent to which the branded app was perceived as entertaining. ANOVAs with the type of app as a factor and the scores on these two measures as dependent variables demonstrated that the entertainment app was perceived as more entertaining ($M =$ 5.88; $SD = 1.31$) than informational ($M = 3.60$; $SD = 1.14$; F $(1,7) = 7,75$; $p < .05$) and that the information app was perceived as more informational ($M = 5.50$; $SD = 1.27$) than entertaining ($M = 1.88$; $SD = .75$; $F(1,7) = 24,97$; $p < .001$). Thus, both apps were perceived as intended.

Sample and Procedure

Participants in this study included 122 smartphone owners between the ages of 18 and 50 ($M = 27.58$; $SD = 8.19$). Participants were recruited by sending invitations to participate in the study to an initial sample of smartphone owners, asking them to forward the invitation to their contacts (a snowball technique). Participants were asked to interact with an entertainment or information app (from the same car brand) for 3 minutes; participants in the control group did not interact with an app. After interaction with the app, participants were asked questions about the content of the app to ensure that they actually interacted. Next, questions unrelated to this study were posed to provide a delay between the interaction with the app and the questions that were relevant for this study (Till and Baack 2005). After the unrelated questions, questions were posed regarding the mediators: the level of enjoyment and level of self-reported elaboration. Then, questions were posed to measure cognitive brand responses (i.e., recall, recognition and brand beliefs) and affective brand responses (i.e., relationship with the brand and brand attitude). In the control condition, only brand beliefs and affective brand responses were measured. Next, control variables such as "prior app use" and "product category involvement" were measured, and the effectiveness of the manipulation was checked. Finally, participants were thanked for their participation.

Measures

Enjoyment

Enjoyment of the app was measured with a 6-item scale based on previous research on (online) engagement (Calder, Malthouse, and Schaedel 2009; Green and Brock 2000; Wang and Calder 2009). Items were measured on a 7-point disagree/agree scale. Example items were "using the app was entertaining/using the app was fun" ($EV = 4.39$, $\alpha = .93$, $M =$ 3.96, $SD = 1.54$). Higher scores represent higher levels of enjoyment.

Self-reported Elaboration

Level of self-reported elaboration was assessed with four items on a 7-point scale previously used by Tormala and Petty (2004), adapted from Petty, Briñol, and Tormala (2002). These authors showed that self-reported elaboration can successfully be used as an alternative for number of thoughts. These items asked participants how motivated they were to understand the aim of the app, how much attention they paid to the app, how much effort they put into understanding the app, and how deeply they had thought about the brand displayed in the app. Items were measured on a 7-point scale (1 = *not at all*, 7 = *very much*; $\alpha = .84$, $M = 3.81$, $SD = 1.50$). Higher scores represent higher levels of self-reported elaboration.

Cognitive Brand Responses

Cognitive brand responses were operationalized as brand recall, brand recognition and brand beliefs. Recall and recognition were not measured in the control condition, where

participants did not interact with an app. Brand beliefs, however, were measured in this condition, as participants could have an opinion about the brand without using it. *Brand recall* was measured by asking participants to list the brand they had seen in the app (Till and Baack 2005). In total, 93% recalled the brand correctly. To measure *brand recognition*, participants were asked to select the brand in the app from a list of brands. All participants correctly recognized the brand. The high scores for brand recall and recognition made it impossible to analyze the impact of app type. Thus, for cognitive brand responses, only the impact on brand beliefs was analyzed. *Brand beliefs* were measured with five items based on Franzen (2007) and in line with past operationalizations (e.g., Engel, Blackwell, and Miniard 1990; Fishbein and Ajzen 1975). Participants were asked to rate on a 7-point scale the extent to which they perceived the brand as relevant, of high quality, better than other brands, reliable, and satisfying ($EV = 3.94$, $\alpha = .92$, $M = 5.07$, $SD = 1.28$).

Affective Brand Responses

Brand attitude was measured with a four-item, 7-point semantic differential scale (Ajzen and Fishbein 1977; Chang and Thorson 2004). Participants indicated to what extent they considered the brand as being "not very likeable/very likeable," "not interesting/interesting," "bad/good," and "not appealing/appealing" ($EV = 3.35$, $\alpha = .93$, $M = 5.18$, $SD = 1.32$). Relationship with the brand was measured with two items (based on Franzen 2007): "I feel connected with the brand" and "I feel passionate about the brand." Responses were measured on a 7-point scale (1 = strongly disagree, 7 = strongly agree; $r = .86$, $p < .001$; $M = 3.37$, $SD = 1.74$).

Control Variables

Control variables were prior branded app use, and product category involvement. Prior branded app use was assessed by asking participants whether they used the branded app that they used in this study before taking part in this study (1 = not at all, 7 = very often; $M = 1.10$, $SD = .60$). Product category involvement was assessed using a 5 item 7-point semantic differential

scale (items taken from Zaichkowsky 1994). Participants indicated to what extent they found the product category cars unimportant/important, irrelevant/relevant, not beneficial/beneficial, non-essential/essential, and worthless/valuable ($EV = 3.71$, $\alpha = .91$, $M = 4.17$, $SD = 1.33$).

Manipulation Check

Similar to the pretest, a manipulation check was conducted to test whether the apps were perceived as intended. The apps were rated on four items on a 7-point scale (1 = disagree, 7 = agree), indicating the extent to which the apps were considered as informational, utilitarian, enjoyable, and entertaining. The mean score for "informational" and "utilitarian" represents the extent to which the branded app is perceived as informational ($M = 3.44$, $SD = 2.05$, $r = .88$, $p < .01$), and the mean score for "enjoyable" and "entertaining" represents the extent to which the branded app was perceived as entertaining ($M = 4.05$, $SD = 1.86$, $r = .92$, $p < .01$).

Results

Manipulation Check, Confound Check, Factor Analysis, and Collinearity Test

The entertainment app was perceived as more entertaining ($M = 5.22$, $SD = 1.46$) than the information app ($M = 3.01$, $SD = 1.54$; $F(1,74) = 41.00$, $p < .001$). Moreover, the information app was perceived as more informational ($M = 4.90$, $SD = 1.62$) than the entertainment app ($M = 1.82$, $SD = .97$; $F(1,74) = 98.07$, $p < .001$), which means that the manipulation was successful.

Correlation analyses, including control variables, demographic variables and the dependent variables (see Table 1), revealed that of the control variables only product category involvement correlated significantly and positively with brand beliefs, brand attitude, and brand relationship. Additionally, gender correlated with brand attitude and brand relationship. Male participants had higher scores on these variables. Further, age correlated significantly but weakly with brand attitude.

Table 1
Correlations between dependent, mediating and control variables.

	1	2	3	4	5	6	7	8	9
Dependent									
1. Brand attitude	1.00								
2. Relationship with the brand	.58 **	1.00							
3. Brand beliefs	.46 **	.18	1.00						
Mediating									
4. Enjoyment	.39 **	.37 **	−.57 **	1.00					
5. Self-reported elaboration	−.37 **	−.31 **	.54 **	−.51 **	1.00				
Control									
6. Prior branded app use	−.04	−.04	−.06	−.08	.19	1.00			
7. Product category involvement	.42 **	.45 **	.39 **	.01	.01	.09	1.00		
8. Gender	−.23 *	−.31 *	−.12	−.04	.16	−.05	−.40 **	1.00	
9. Age	−.23 *	−.09	−.12	−.12	.17	−.05	−.09	.09	1.00

Notes.
** $p < .01$ (two-tailed).
 * $p < .05$ (two-tailed).

Table 2
Factor analysis for dependent measures.

	Component		
	1	2	3
Brand beliefs			
Satisfying	.92		
Better than other brands	.89		
Reliable	.89		
High quality	.86		
Relevant	.73		
Brand attitude			
Bad/good		.89	
Not likeable/likeable		.87	
Not appealing/appealing		.87	
Not interesting/interesting		.73	.42
Relationship with the brand			
Passionate about the brand			.88
Connected with the brand			.88

Note. Principal component analysis with Varimax rotation, loadings below .4 were suppressed. First component explained 52% of the variance, the second component 22%, the third component 9%.

However, analyses of variance, with the type of app as factor and the control variables as dependent variables, revealed that these variables did not vary between conditions (all Fs < 1). Therefore, the variables were not included as covariates in the remaining analyses.

Further, because the dependent measures moderately covary, a factor analysis was conducted with Varimax rotation, to check whether the measures are discriminant. This factor analysis clearly demonstrated that the items for the three measures load on three different components (see Table 2).

Finally, regression analyses with the experimental conditions and the mediating variables as predictors and the brand responses as dependent variables demonstrated that all VIF scores were below 1.36. Thus collinearity is no problem in the mediation analyses.

Hypotheses Testing

Prior to testing the hypotheses, we examined whether a branded app influences persuasion outcomes. Therefore, a MANOVA was conducted with the conditions (entertainment app vs. information app vs. control group) as a factor, and with the variables that were measured in all conditions (i.e., brand beliefs, brand attitude and brand relationship) as dependent variables. The analyses showed a multivariate effect of condition (Wilk's Lambda = .767, F(6, 234) = 5.53, p < .001, partial eta^2 = .124). The results of the post hoc test demonstrated that the two app conditions did not consistently outperform the control group, implying that it is relevant to distinguish between types of apps. More specifically, only the information app condition outperformed the control condition for brand beliefs, and the entertainment app (marginally) outperformed the control condition for brand attitude and brand relationship; see Table 3.

Bootstrapping procedures (Hayes 2013; model 4; 1,000 samples) were used to test our mediation hypotheses (H1 and H2). For each dependent variable, brand attitude, brand

Table 3
Percentages and mean scores for the dependent variables per condition.

	App type		
	Entertainment	Information	Control group
Brand recall	91.7	95	–
Brand recognition	100	100	–
Brand attitude	5.60[a]	5.07[ab]	4.96[b]
	(.97)	(1.37)	(1.45)
Brand relationship	3.89[a]	3.40[ab]	2.96[b]
	(1.91)	(1.76)	(1.50)
Brand beliefs	4.67[a]	5.64[b]	4.90[a]
	(1.12)	(.97)	(1.48)

Note: percentages of brand recall and recognition are portrayed. Other figures are means with standard deviations between parentheses. – means not measured for this group.
[ab] means with different superscripts in the same row differ significantly in post hoc Bonferroni tests at p < .06.

relationship and brand beliefs, a separate analysis was conducted with the type of app (entertainment = 0, information = 1) as the independent variable and both the level of self-reported elaboration and enjoyment as mediating variables. The analyses demonstrated that the two processes – level of enjoyment and level of self-reported elaboration – explained the effects of the type of branded app on the consumer's brand responses in the expected direction.

With respect to H1a, the analysis showed a significant indirect effect of app type on brand relationship (b = −.66, SE = .27, 95% BCACI [−1.30, −.23]) and brand attitude (b = −.37, SE = .22, 95% BCACI [−.95, −.06]) through enjoyment. As predicted, the entertainment app resulted in higher levels of enjoyment (b = −1.60, SE = .30, t = −5.28, p < .001) than the information app, which in turn resulted in more positive brand relationships (b = .41, SE = .16, t = 2.57, p = .01) and in more positive brand attitudes (b = .23, SE = .11, t = 2.19, p = .03). Thus, as predicted by H1, enjoyment explains the positive effects of an entertainment app on affective brand responses.

With respect to H1b, unexpectedly, the analyses also showed a significant indirect effect of app type on brand beliefs through enjoyment (b = .43, SE = .16, 95% BCACI [.18, .83]). As previously explained, the entertainment app resulted in higher levels of enjoyment, but these resulted in lower levels of brand beliefs (b = −.27, SE = .08, t = −3.23, p = .002). In other words, the information app resulted in less enjoyment, which positively affected the cognitive brand response (i.e., brand beliefs), thus rejecting H1b.

With respect to H2, the analyses showed a significant indirect effect of app type on brand beliefs through the level of self-reported elaboration (b = .34, SE = .14, 95% BCACI [.13, .67]). As predicted in H2a, the information app resulted in higher levels of self-reported elaboration (b = 1.42, SE = .31, t = 4.63, p < .001), which, in turn, had a positive effect on brand beliefs (b = .24, SE = .08, t = 2.88, p = .005). Thus, confirming H2a, the analyses showed that level of self-reported elaboration explains the positive effect of an information app (vs. an entertainment app) on cognitive brand responses (i.e., brand beliefs). With respect to H2b, the analyses showed that branded app type also had an indirect effect on brand attitude through

self-reported elaboration (b = −.28, SE = .18, 95% BCACI [−.74; −.01]). Self-reported elaboration had a marginally significant negative effect on brand attitude (b = −.20, SE = .10, t = 1.89, p = .06), which means that an information app led to more self-reported elaboration, which consequently resulted in more negative brand attitudes. In other words, the entertainment app elicited less self-reported elaboration, which positively affected brand attitude. As expected in H2b, there was no significant indirect effect of app type on brand relationship through self-reported elaboration (b = −.34, SE = .25, 95% BCACI [−.89; .09]). Thus H2b is partially accepted.

Conclusion and Discussion

In spite of the proliferation of branded apps as a promising communication strategy, empirical research on this marketing communication channel is limited (Kim, Lin, and Sung 2013; Kim, Wang, and Malthouse 2015). As the appetite for apps continues to grow, research that provides insights into the effectiveness of such apps is needed. The current study aimed to contribute to the existing research on branded apps by examining the impact of consumer interaction with two types of branded apps: information or entertainment apps. It was hypothesized that branded apps enhance cognitive and affective brand responses. More specifically, we expected that entertainment branded apps resulted in more positive affective brand responses through mechanisms of enjoyment, while a branded information app was expected to result in enhanced cognitive responses through mechanisms of information elaboration. These hypotheses were tested in an experimental design in which participants used either an information branded app or an entertainment branded app for a car brand.

Three main conclusions regarding the effects of branded apps can be drawn. First, interacting with a branded app, as compared to no interaction with a branded app, influenced cognitive and affective brand responses; however, the impact differed per app type: the information app enhanced cognitive responses, while an entertainment branded app enhanced affective responses. Persuasion outcomes of consumer–branded app interactions thus differ according to the types of context or execution styles, which is in line with the conclusion by Bellman et al. (2011) that creative execution style makes a difference. They observed that this was specifically the case for purchase intent. This study adds to these findings by demonstrating that it also makes a difference for affective (i.e., brand relationship and attitude) and cognitive (i.e., brand beliefs) brand responses. Clearly, by examining the impact of branded apps on an aggregated level without distinguishing between types of branded apps or media context variables, information might be lost.

Second, the results provide important insights into the mechanisms explaining these effects of app type: for entertainment branded apps, affective mechanisms that positively influence affective brand responses are activated, whereas information branded apps trigger cognitive elaboration, which results in enhanced cognitive brand responses. In other words, processes of enjoyment explained the effectiveness of

entertainment apps in enhancing affective brand responses, while increased self-reported elaboration explained effects of information branded apps on enhancing cognitive responses. These findings seem to imply that the two app types elicit separate processes (i.e., cognitive versus affective) that underlie different types of effects. Earlier research indicated that enjoyment is stimulated mostly by entertaining contexts (Green and Brock 2000; Green, Brock, and Kaufman 2004; Wise et al. 2008). The current study extends these findings by demonstrating that enjoyment is also important in explaining the effectiveness of branded apps. Moreover, previous research showed that the level of elaboration, enhanced by informational contexts (e.g., Ruiz and Sicilia 2004; Sicilia, Ruiz, and Munuera 2005), influences brand responses (Matthes, Schemer, and Wirth 2007; Puto and Wells 1984; Van Reijmersdal, Smit, and Neijens 2010). The current study extends these findings by demonstrating that informational branded apps affect persuasion outcomes through elaboration as well; however, this is true only for cognitive brand responses.

Third, the results showed that enjoyment did play a role in cognitive brand responses, although we expected that there would be no effect. We found that enjoyment plays opposite roles in explaining effects on affective versus cognitive brand responses: enjoyment enhances affective responses but simultaneously diminishes cognitive brand responses. Based on this finding, we conclude that an information branded app leads to *lower* levels of app enjoyment, which enhances cognitive responses. Put another way, because an entertainment branded app results in higher levels of enjoyment than an information branded app, the entertainment app seems to hinder the enhancement of cognitive responses.

These effects can be explained by limited cognitive capacity models (e.g., Buijzen, Van Reijmersdal, and Owen 2010; Lang 2000) and previous studies on entertainment-education in which persuasive messages are also embedded into entertaining content (Moyer-Gusé and Nabi 2010; Murphy et al. 2011). According to these models and studies, people have a limited pool of cognitive resources available to process media messages. When they are engaged in an entertaining app, all of their cognitive resources are likely to be devoted to the entertainment rather than to the brand information (Moyer-Gusé and Nabi 2010). Therefore, they do not have any cognitive capacity left to elaborate on the brand message, leaving their brand beliefs unaffected. This seems exactly what happened in our study: the brand beliefs of the people who used the entertainment app are similar to the brand beliefs of people who were not exposed to any app, but these were less positive than of those exposed to the informational app. Thus because of processes of enjoyment, less cognitive capacity seems available to process the brand message, leaving the brand beliefs unaffected. These unexpected findings seem to support the idea that entertainment branded apps only seem to enhance affective brand responses through affective processes (i.e. enjoyment) which require relatively little cognitive responses (Buijzen, Van Reijmersdal, and Owen 2010).

Similarly, we found that elaboration elicited by the information branded app enhanced cognitive responses but led to significantly lower affective responses than the entertainment branded app, although we expected no effects on affective responses. The information branded app led to more elaboration in the sense that people paid more attention to the information in the app and devoted more thought to the brand in the app, which negatively impacted brand attitude but enhanced brand beliefs. This implies that more elaboration leads to more critical evaluations of the brand or – in other words – to more affective resistance. At the same time, the information branded app cognitively persuades people due to increased elaboration. This finding adds evidence to our conclusion that two separate processes are elicited by the two app types.

Limitations and Future Research

The current study examined the persuasive impact of consumers' branded app interactions in an experimental setting. Although this setting has several advantages over a natural setting in terms of control over extraneous and unwanted variables, research also suggests that this forced-exposure setting might hinder a realistic evaluation of medium context (i.e., in this study, the branded app context) effects (Moorman, Neijens, and Smit 2007). Future research could therefore attempt to examine persuasive impact in a more realistic setting – for instance, collaborating with a branded app publisher – that allows for a branded-app-embedded survey, while mobile phone users use the app.

Additionally, this study focused on what happens after customers adopt and use one specific branded app for one specific brand. This study does not investigate why apps are downloaded in an app store. Future research could focus on whether engagement motivations (Calder, Malthouse, and Schaedel 2009) to download or use branded apps differ for various types of branded apps. Also, the results are for one brand, in one specific product category, and for just one execution of an experiential app and an informational app. Future research could therefore investigate whether the current findings are unique or can be generalized to other product categories and executional styles. Further, future research could take into account additional control variables related to the app. The pretest and manipulation check demonstrated that the tested apps differed on the dimensions of our interest, however, future studies could control for other differences between the apps such as design features.

Moreover, this study investigated persuasion effects for information and entertainment branded apps. However, in branded apps, content features that are more entertaining in nature and content features that are more informative in nature can be combined. Future research could therefore investigate how apps that include both types of content features influence the consumer journey.

The current study examined the impact of branded app use on cognitive responses, while it is suggested that the persuasive impact on awareness (including recognition and recall) is less relevant because smartphone users are unlikely to download and install apps for unfamiliar brands (e.g., Bellman et al. 2011). However, the use of branded apps is often shared in an online social network, for instance, by sharing on Facebook workout updates from any kind of branded workout app. This way, apps from an unfamiliar brand are recommended by peers, which might result in downloads and usage. From this perspective, cognitive responses are very relevant and important. Future research on branded apps should therefore investigate cognitive responses and examine how these are induced among first-time users.

In addition, our findings may hold not only for branded apps, but also for branded content that is integrated in non-branded apps, for example native advertisements in Facebook. The entertaining or informational nature of the non-branded apps may spill over to the advertisements that are integrated. This may be an interesting venue for future research as well.

Theoretical and Practical Implications

This study has several theoretical implications. First, this study implies that entertainment versus information branded apps result in different types of brand responses. Theory on the effectiveness of branded apps should therefore differentiate between different types of branded apps.

Second, the results of this study provide insights into the theoretical mechanisms that explain branded app effects on brand responses. Importantly, this study shows that two separate mechanisms are at work. On the one hand, entertainment branded apps elicit affective mechanisms and therefore enhance affective brand responses but decrease cognitive brand responses. On the other hand, information branded apps increase the cognitive elaboration of information in the apps, which enhances cognitive brand responses and simultaneously decreases affective responses.

The study also provides implications for (mobile) advertisers and branded app developers to strategically leverage branded apps. When advertisers want to promote an existing, familiar brand, the use of branded mobile phone apps contributes to brand beliefs, brand attitudes and the perceived relationship with the brand. However, the two processes of enjoyment and elaboration play a crucial role in determining the effects of information and entertainment apps. Marketers should therefore develop branded apps that stimulate one of these processes so that future branded apps will be more effective in influencing consumers' brand responses. These decisions should truly depend on what kind of consumer brand responses the advertiser wants to initiate; if the advertiser wants to increase positive attitudes towards the brand and feelings of being connected with the brand, it should enhance consumers' enjoyment of the app and develop or promote an entertainment app. Advertisers could, for example, stimulate the process of enjoyment in the app by providing users with relaxation and intrinsic enjoyment, which will transport users to a different place (Calder, Malthouse, and Schaedel 2009). However, if marketers are eager to improve brand beliefs, they should stimulate consumers' elaboration of the app and thus launch or

promote an informational app. Advertisers could enhance elaboration by putting relevant and exciting information in the app. Additionally, the same brand could serve multiple audiences by developing different types of apps tailored to different types of needs or audiences. An example is Nike, which provides a variety of apps, including the Jordan Keyboard, which enables smartphone users to send emojis inspired by Michael Jordan and the brand, and the Nike Training Club app, which provides information about workouts.

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