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### Websites in brand communication: interactivity and cross-media effects

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# Websites in Brand Communication: Interactivity and Cross-Media Effects

Hilde Voorveld

Websites in Brand Communication

Hilde Voorveld

This dissertation gives insight into two elements that are critical for expanding our understanding of the websites of brands. The first element represents the key characteristic of websites: interactivity. The dissertation investigates two forms of interactivity: actual and perceived interactivity.

It also disentangles the relationship between these constructs on the websites of the top 100 global brands.

The second element is related to the role of websites in marketing communication campaigns: its contribution to cross-media effects. The dissertation shows why cross-media campaigns are more effective than single medium campaigns. It also investigates the role of media sequence and product involvement in cross-media campaigns using websites in combination with TV commercials.

# **Websites in Brand Communication: Interactivity and Cross-Media Effects**

**Hilde A.M. Voorveld**

Websites in brand communication: Interactivity and cross-media effects  
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# **Websites in Brand Communication: Interactivity and Cross-Media Effects**

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# Introduction, Summary, and Conclusion

## Introduction

Global internet penetration grew 380% between 2000 and 2009 (Internet World Stats, 2009). Currently, in the United States 74% of the population uses the internet, while in the Netherlands the internet is used by 86% of the population (Internet World Stats, 2009), for an average of 7 hours a week (STIR, 2009). Furthermore, in 2008 the internet was the only medium with an increase in consumption time compared to 2007, while time spent on TV, radio, and magazines all decreased (STIR, 2009). Advertisers and marketers want to capitalize on this increasing and intensive internet use, by integrating the medium into their marketing communication efforts. As a result, online advertising expenditures have risen tremendously during the past decade (IAB, 2009), and currently nearly all brands are active on the internet.

Consumers are confronted with brands in a variety of ways in the online environment. Brands are present when searching for information using search engines, when playing online games, when watching favourite television shows online, and when staying in touch with friends through social network sites. Brands also send us messages directly, for example via e-mail newsletters or electronic magazines. We also actively search for information on brands and get engaged with brands, for example by reading and writing online consumer reviews or visiting the websites of brands.

This dissertation focuses on the websites of brands, not only because of their popularity but also because of their potential to persuade (CRM Metrix, 2009; Liu & Shrum, 2009). This persuasive potential is determined by the interactive possibilities of the websites, a typically long and voluntary exposure (Liu & Shrum, 2009), a high level of trust in the websites of brands (Nielsen, 2009), and the opportunity to pass through the entire sales cycle. Due to their potential, websites have become an important tool for marketers and advertisers. They frequently use websites as a supplement to advertising in traditional mass media (Greenspan, 2004; Song & Zinkhan, 2008). Given the popularity of the websites of brands, both for consumers and advertisers, it is important to know how consumers respond to these websites in isolation and in conjunction with marketing communication campaigns. Two key elements of websites are investigated in this dissertation; the next section will elaborate on these.

## **Problem Statement**

This dissertation addresses two elements that are critical for expanding our understanding of websites. The first element represents the key characteristic of websites: interactivity. The second element is related to the role of websites in marketing communication campaigns: its contribution to cross-media effects. This dissertation starts with a literature review that gives a state-of-the-art overview of factors influencing consumer response to the websites of brands in chapter 2.

### **Interactivity**

In this dissertation, interactivity is defined as: “the degree to which two or more communicating parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized” (Liu & Shrum, 2002, p. 54). The three dimensions of interactivity are: two-way communication, active control, and synchronicity. The focus on interactivity is based on two grounds. First, interactivity is often seen as the defining difference between traditional and new media (Chung & Zhao, 2004), and thus between websites and advertising in traditional media (like TV commercials). Second, interactivity is widely acknowledged as a vital component of successful online advertising. It is almost generally accepted that interactivity has a positive influence on persuasive processes and outcomes (Liu & Shrum, 2002; Macias, 2003; Sicilia, Ruiz, & Munuera, 2005). Thus, studying interactivity of websites in brand communication will expand our understanding of a crucial, decisive factor in effective online brand communication.

Whereas research on the consequences of interactivity is abundant, and hence the effects of interactivity are generally known, research on the determinants of interactivity is scarce. Until now, there is still no comprehensive knowledge about what website features comprise website interactivity and we still do not know what makes a website perceived as interactive by its visitors. This dissertation aims to fill these gaps in the literature. To do so, this dissertation builds on two theoretical approaches that are central in the interactivity literature: actual interactivity and perceived interactivity. Actual interactivity is objectively assessed interactivity (Song & Zinkhan, 2008) and can be measured by observing the number and type of interactive features of a website. Alternatively, perceived interactivity is subjectively experienced by users and can be measured by asking consumers about their feelings or experiences during their website visit (Liu & Shrum, 2002).

The study described in chapter 3 deals with actual interactivity by developing and testing a new coding instrument to measure actual interactivity and giving insight into the actual interactivity of the websites of the top 100 global brands. Chapter 4 deals with the determinants of perceived interactivity by relating the presence of interactive website features (i.e. actual interactivity) to interactivity perceptions.

### **Cross-Media Effects**

The second element that is critical for expanding our understanding of the websites of brands is related to the role of websites in marketing communication campaigns. As websites are often used in combination with traditional media in a campaign, it is vital to gain insight into cross-media effectiveness. In so called multimedia or cross-media campaigns, marketers seek to maximize the effectiveness of their budgets by exploiting the unique strengths of each medium. The ultimate goal of such cross-media campaigns is to induce synergy, whereby the combined effect of multiple media activities exceeds the sum of the individual effects (Naik & Raman, 2003). Although some empirical research has indicated that using combinations of media in a campaign is more effective than using only one medium (e.g., Dijkstra, 2002; Chang & Thorson, 2004; Havlena, Cardarelli, & De Montigny, 2007), several issues have remained unstudied or require further research. The first question that is partly unanswered is *why* cross-media campaigns are more effective than single medium campaigns. Although some cross-media studies implicitly assume that certain mechanisms or psychological processes can explain the more positive effects of cross-media campaigns (Edell & Keller, 1989; Keller, 1996), the influence of the mechanisms has almost never been tested (with the exception of Dijkstra, 2002). Therefore, chapter 5 deals with underlying mechanisms that can explain why campaigns using multiple media (including websites) are more persuasive than campaigns using only one medium.

A second issue that has remained unstudied is the effect of different media sequences within cross-media campaigns. To date, no study has systematically focused on comparing the effectiveness of different media sequences in cross-media campaigns, while from other fields it is known that the sequence in which people are exposed to persuasive messages influences their responses to these messages (Haugtvedt & Wegener, 1994; Loda & Coleman, 2005). A third issue that is completely neglected in the cross-media literature is under what circumstances cross-media effects are stronger or are more likely to occur. An important factor that may influence cross-media effects is product involvement because consumers' information search may be affected

by the importance of the product (Okazaki & Hirose, 2009), and because product involvement is an important moderator of the amount and type of information processing elicited by a persuasive communication message (Petty, Cacioppo, & Schumann, 1983). Chapter 6 therefore reports a study on the role of sequence of exposure and product involvement in cross-media campaigns using the websites of brands in combination with advertising in a traditional medium.

### **Dissertation Outline**

The five studies of this dissertation are presented in five succeeding chapters. All chapters are published as individual papers or are submitted for publication. Being self-contained, each chapter has its own abstract, introduction, and reference list. This section provides a summary of each chapter.

#### **Chapter 2: Literature Review**

The second chapter presents an extensive overview of the existing empirical studies on the websites of brands (Voorveld, Neijens, & Smit, 2009a, 2009b). By systematically reviewing the literature that has been published so far, we aimed (a) to provide an integrated literature review of factors influencing consumers' responses to the websites of brands, (b) to describe the state of research in the past ten years and, (c) to give an overview of the theories used in studies on the websites of brands. Using a vote-counting procedure, we synthesized more than 700 findings from 50 empirical studies. In a vote-counting analysis the number of positive and negative significant relations between the same two variables is compared to the number of non-significant relationships (Hedges & Olkin, 1980). The analysis revealed that responses to the website are influenced both by person-related factors and website-related factors. Person-related factors or individual differences that affect responses to the websites include the level of involvement with the website or the brand, the perceived interactivity of a website, and the level of flow that was felt. Website-related factors that affect consumers' responses include the actual interactivity of a website, the usability of the website, the types of modality used on the site, and the degree of fit between the brand image and the image of the website. The study showed that responses to the brand are predominantly influenced by website-related factors, while person-related factors do not have a direct effect on these brand effects. Important website-related factors are the actual interactivity of a site and the number of functionalities used on the site. In addition, the review confirmed the mediating role of attitude toward the

website in the process through which websites influence attitudes toward a brand included on the website. To explain these findings many studies successfully integrated new theoretical concepts (e.g., interactivity) into traditional theories. Furthermore, the review showed that the current state of research is limited by forced exposure, student samples, and a focus on measurement of affective responses.

### **Chapter 3: Interactivity of the Websites of the Top Global Brands**

The study described in the third chapter maps the level of interactivity of the websites of top global brands (Voorveld, Neijens, & Smit, in press-a; in press-d). In the study a new coding instrument to examine the interactivity of the websites of brands was developed, because no up-to-date, theoretically linked coding instrument was available. The new instrument contains 47 interactive functions and is directly linked to theories on interactivity. To test the applicability of the instrument and to give insight in the level of interactivity of the websites of the top 100 global brands, the interactivity of 66 American and 66 Dutch websites was investigated by means of a content analysis. Results showed that the instrument could be applied in a valid and reliable way in different contexts. In addition, the content analysis disclosed interesting differences between American and Dutch websites, and between the websites of different types of products. It showed that American websites were somewhat more interactive than their Dutch counterparts and that websites of durable goods and services were more interactive than websites of non-durable goods. The instrument can be used in future research to investigate the effects of interactivity. Practitioners can also use the instrument to assess the interactivity of their own websites.

### **Chapter 4: The Link between Actual and Perceived Interactivity**

The study described in chapter 4 uses the instrument developed in chapter 3 to investigate the relationship between objectively assessed interactivity and interactivity perceptions (Voorveld, Neijens, & Smit, 2010). Although it is suggested that increasing the quantity of interactive functions on a website results in a higher perceived interactivity (Macias, 2003; Sicilia, Ruiz, & Munuera, 2005), there is also evidence that this may not be the case (McMillan, 2002; Song & Zinkhan, 2008). Strikingly, there has been little research on examining which interactive functions determine the perceived interactivity of a website. To investigate the relationship between actual and

perceived interactivity to learn what makes the websites of brands truly interactive, the study in chapter 4 combines a content analysis of interactive functions on the websites of the top 100 global brands with a survey (N = 715) in which the perceived interactivity of the same websites is measured. The main findings are: (1) there is great incongruence between the level of actual and perceived interactivity, (2) adding interactive functions to a website does not guarantee a strong perception of interactivity, (3) six unique website characteristics contribute positively to interactivity perceptions.

### **Chapter 5: Psychological Processes in Cross-Media Campaigns**

As websites are often used in combination with traditional media, it is vital to study the effectiveness of campaigns incorporating websites and other media. Generally, among researchers there is some consensus that cross-media campaigns reveal more positive audience reactions than campaigns using only one medium (e.g., Edell & Keller, 1989; Naik & Raman 2003; Dijkstra, Buijtsels, & Van Raaij, 2005; Chang & Thorson, 2004). Still unanswered is the question *why* cross-media campaigns are more effective than single medium campaigns. Therefore, the aim of the study described in chapter 5 is: (a) to investigate which psychological processes are present when people are exposed to cross-media campaigns, and (b) to examine to what extent these processes contribute to campaign results (Voorveld, Neijens, & Smit, in press-b). Three psychological processes are: forward encoding (i.e., the ad in the first medium primes interest in the ad in the second medium); image transfer (i.e., mentally replaying the ad previously viewed during exposure to the ad in the second medium); and multiple source perception (i.e., believing the brand is good and popular because of the amount of advertising from multiple sources). To identify the role of these processes, 219 participants were exposed to one of four media conditions containing websites and/or TV commercials (two cross-media conditions and two repeated media conditions). The results showed that two processes were present when participants were exposed to the cross-media combinations: forward encoding and multiple source perception. We also found support for the hypothesis that these two processes contributed to campaign results. However, the third process, image transfer, was present in all conditions and did not add to the explanation of cross-media effects.

## **Chapter 6: Sequence Effects and the Role of Product Involvement in Cross-Media Campaigns**

The study described in chapter 6 deals with two issues that remained completely unstudied in the cross-media literature: the role of media sequence and product involvement. The aim of the study is (1) to investigate consumers' responses to different media sequences, and (2) to provide insight into the role of product involvement in the relationship between media sequences and cross-media effects (Voorveld, Neijens, & Smit, in press-e). To do so, we conducted an experiment in which we studied the effects of combinations of TV commercials and websites (TV commercial-website vs. website-TV commercial). The results indicated a consistent interaction effect of media sequence and product involvement on three possible campaign targets: attitudes toward the ad, interest in the ad and message evaluation. These interaction effects showed that while a TV commercial-website sequence was effective for informing consumers about both high and low involvement products, the website-TV commercial sequence was only effective for informing consumers about high involvement products. The main conclusion of the study is that sequence of exposure is vital in cross-media campaigns, especially when taking product involvement into account.

### **Main Conclusions**

In general, the five studies in this dissertation add the following seven conclusions to the field.

First, the dissertation shows that two types of factors influence how consumers respond to the websites of brands (e.g., attitude toward the website): person-related and website-related factors. It is striking that in particular website-related factors have a direct influence on consumers' responses to the brand (e.g., attitude toward the brand). In addition, the dissertation confirms the mediating role of attitude toward the website in the process through which websites influence attitudes toward a brand included on the website.

Second, this dissertation gives insight into what website features exactly comprise website interactivity by using a newly developed coding instrument to map the objectively assessed interactivity of the websites of the top 100 global brands. Interactive functions facilitating active control over the experience on the website are most prevalent on the websites of top global brands, followed by functions facilitating two-way communication and functions facilitating a fast response.

Third, this dissertation shows that the websites of American top global brands are slightly more interactive than Dutch websites. In addition, the websites of durable goods and services are somewhat more interactive than the websites of non-durable goods.

Fourth, this dissertation convincingly shows a great incongruence between actual and perceived interactivity. Furthermore, it shows that not the mere number of interactive features, but the number of *unique* interactive features is the decisive factor in determining interactivity perceptions.

Fifth, this dissertation advances our understanding of *why* cross-media campaigns including the websites of brands are more persuasive than single medium campaigns. The dissertation reveals that two psychological processes account for the superior effectiveness of cross-media campaigns. (1) In cross-media campaigns the ad in the first medium serves as a 'teaser' to attract attention to, arouse interest in, and increase curiosity for the ad in the second medium; (2) advertising in multiple media, which are perceived as independent, is seen as more expensive than repetitive advertising in the same medium and therefore perceived as more credible.

Sixth, the dissertation shows that when the websites of brands are used in cross-media campaigns, sequence of exposure to media is a vital factor influencing consumers' responses to such campaigns.

Seventh, product involvement is a key moderator in the relationship between cross-media sequences and interest in advertisements, attitude towards advertisements, and evaluation of the message. While a TV commercial-website sequence is effective for informing consumers about both high and low involvement products, the website-TV commercial sequence is only suitable for informing consumers about high involvement products. Thus, the sequence of media exposure is particularly important when taking product involvement into account.

In addition to these conclusions, this dissertation provides a significant contribution to the interactivity literature by developing an up-to-date and theoretically linked coding instrument which can be used in a reliable way to map the actual interactivity of the websites of brands in various contexts.

## Implications

### Theoretical Implications

The research in this dissertation contributes to the development of theories on interactivity. It was already established that interactivity is an essential element of successful online brand communication, as in general, interactivity has a positive influence on persuasive processes and outcomes (for

an overview see Liu & Shrum, 2002). However, theoretical knowledge on the determinants of interactivity was scarce until now. The dissertation contributes to this field by investigating the relation between the characteristics of websites and interactivity perceptions. This dissertation establishes that actual and perceived interactivity are not simply linearly related. While some researchers already stated that this could be the case (e.g., McMillan, 2002; Song & Zinkhan, 2008), this dissertation investigates this issue over a wide range of websites and a large number of interactive website features. This dissertation also states that the uniqueness of interactive website features could be an underlying variable in the relationship between interactive website features and interactivity perceptions. This also means that what is perceived as interactive now will not necessarily be perceived as interactive in the future, due to the habits of consumers. Additional research should further validate this claim.

This dissertation also contributes to the development of theories on cross-media effectiveness. In existing cross-media theories it was already established that campaigns using multiple media are generally more effective than campaigns using only one medium. The results of this dissertation call for incorporating two theoretical concepts in cross-media theories: sequence of exposure and product involvement. From research in other fields it was already known that the order in which consumers are exposed to information can affect their evaluations (Haugtvedt & Wegener, 1994; Loda & Coleman, 2005). This dissertation confirms the importance of this concept in cross-media effectiveness. This dissertation shows that, when taking product involvement into account, sequence of exposure influences consumer response to ads and the messages in these ads. By doing so, this dissertation answers the call for research on this issue from Ephron (2000), Bronner (2006), and Havlena, Kalluff, and Cardarelli (2008).

This dissertation also makes a theoretical contribution to the understanding of *why* cross-media campaigns are more effective than single medium campaigns. It goes beyond the work of Edell and Keller (1989; 1999) and Bronner (2006) who discussed the role of several processes without empirically testing their role in determining cross-media effects. In this dissertation the role of two psychological processes, forward encoding and multiple source perception has been confirmed. This dissertation therefore provides further evidence (in line with a study of Dijkstra, 2002) that these processes should be incorporated into cross-media theories.

## **Practical Implications**

The main conclusions of this dissertation provide useful implications for practitioners who want to incorporate a website in their brand communication or optimize its effects. These implications are fourfold. Two implications are related to the interactivity of the websites of brands and two implications are related to the role of websites in cross-media campaigns.

First, in the literature it is widely acknowledged that interactivity plays a crucial role in determining the effectiveness of websites as it is generally accepted that interactivity has a positive influence on persuasive processes and outcomes. In view of this crucial role of interactivity, advertisers can use the developed coding instrument to map the interactivity of their own websites and compare it to the websites of their competitors and the websites of the top global brands. They could also use the instrument to detect or develop a unique interactivity point (UIP).

A second implication concerns ways to enhance the perceived interactivity of the websites of brands (Voorveld, Neijens, & Smit, in press-c). The dissertation shows that simply adding interactive features to a website does not guarantee that consumers also perceive high levels of interactivity. It shows that especially unique interactive features contribute to interactivity perceptions of consumers. Thus, marketers should carefully monitor consumers' expectations on interactivity and technological developments and tailor the interactive features on their website to these expectations and developments.

The third implication of this dissertation deals with incorporating websites in campaigns. The dissertation shows that the simultaneously usage of websites and TV commercials in a campaign can result in more effective campaigns than when only one medium is used twice. It also revealed two psychological processes that account for these effects: forward encoding (i.e., the ad in the first medium primes interest in the ad in the second medium) and multiple source perceptions (i.e., believing the brand is good and popular because of the amount of advertising from different sources). The occurrence of these processes could potentially be stimulated by advertisers by, for example, stimulating overlap between ad executions or increasing curiosity to stimulate forward encoding. They could also encourage the use of traditional media, such as TV commercials, next to advertising in new media to provoke multiple source perceptions.

Fourth, media planners should also consider the sequence in which media are used in a campaign. A sequence of TV commercials followed by websites is proven to be effective for both high and low involvement products. Consequently, when generalizing the results of our experimental study to a

real-life situation, it could be a safe option to put the emphasis on TV commercials early in a campaign, while adding websites at a later stage. Concerning high involvement products, websites could also be used earlier in the campaign, because the website-TV commercial sequence is only effective for high involvement products.

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# Consumers' Responses to Brand Websites: An Interdisciplinary Review<sup>1</sup>

### Abstract

The aims of this study are (a) to provide an integrated literature review of factors influencing consumers' responses to brand websites, (b) to describe the state of research in the past ten years and, (c) to give an overview of the theories used in brand website studies. Using a vote-counting procedure, more than 700 findings from 50 empirical studies were synthesized. The analysis revealed which individual-specific factors (e.g., involvement or flow) and execution factors (e.g., usability or interactivity) influenced responses to websites and brands. To explain such responses many studies integrated new theoretical concepts (e.g., interactivity or telepresence) into traditional theories. Furthermore, the review showed that the current state of research is limited by the use of forced exposure, student samples and the measurement of affective responses.

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## Introduction

The media landscape has changed considerably since the development of the internet, which is also visible in the field of marketing communication. In particular, brand websites have become an important tool for advertisers (Song & Zinkhan, 2008). Brand websites provide various functionalities. Consumers can read product or brand information, watch TV commercials, customize virtual products, download music, chat with other visitors, or have a direct dialogue with the organization behind the brand. By supplying a broad range of functionalities, these websites provide the brand with a platform to foster relationships with potential and actual customers, based on a continuous dialogue (Florès, 2004; Christodoulides & De Chernatony, 2004; Dou & Krishnamurthy, 2007; Holland & Baker, 2001).

Given the popularity of brand websites, it is important to know how consumers respond to these websites and which factors influence such responses. To address this, in the past ten years an increasing number of academic studies from various fields (e.g., marketing, communication, advertising, and information systems) have shed light on this subject. To make optimal use of the findings of these studies, it is necessary to make an interdisciplinary, state-of-the-art overview of the findings. The aim of our study is to do this and to provide an integrated overview of the literature on consumers' responses to brand websites.

Our study will not only give a thorough overview of factors influencing consumers' responses to brand websites, but will also give insight in the (methodological) state of research. Knowledge about the state of research is important, because it helps us to assess the validity of the findings up to now and to improve the quality of future research. Furthermore, the review gives an overview of the theories used in the past to explain consumers' responses to brand websites. Knowledge of the theories that were used or ignored can guide future researchers in their work. Describing the applied theories is especially interesting because of the interdisciplinary nature of the review which provides a chance to look over the borders of each discipline to see which theoretical principles are used in other fields. Thereby the review substantively improves our knowledge of the topic.

In sum, our literature review is important for three reasons. First, it will show which factors and theories have been studied in the past and which have been ignored. Second, by accumulating earlier findings the review will give insight in the factors influencing effectiveness of brand websites. Third, the review will help us assessing the quality of earlier research to assess the validity

of the findings up to now. Obviously, our literature review will help both researchers and managers in the future.

The following research questions guide our research synthesis:

**RQ1:** What is the current state of research in the area of brand websites?

**RQ2:** Which factors influence consumers' responses to brand websites?

**RQ3:** Which theories are used in articles about consumers' responses to brand websites?

To date, no earlier review of brand website studies has been conducted. Some other reviews (e.g., Cho & Kang, 2006; Kim & McMillan, 2008) only provided reviews of internet research in general. Others provided a review of online advertising research but excluded marketers' own websites while recognizing its importance (Ha, 2008).

A first contribution to the field is made by Constantinides (2004). He gave a significant review of the factors which influence consumers' online shopping experiences. However, Constantinides (2004) only described the different factors but did not address the relative importance of each factor; our review goes one step further and will also judge the relative strength of each factor. Another difference is that Constantinides (2004) investigated online shopping websites while our review investigates brand websites. Thereby our review acknowledges that marketers' websites are not only used for e-commerce but also for communicating, entertaining, and interacting with customers and other stakeholders (Chakraborty, Lala, & Warren, 2002).

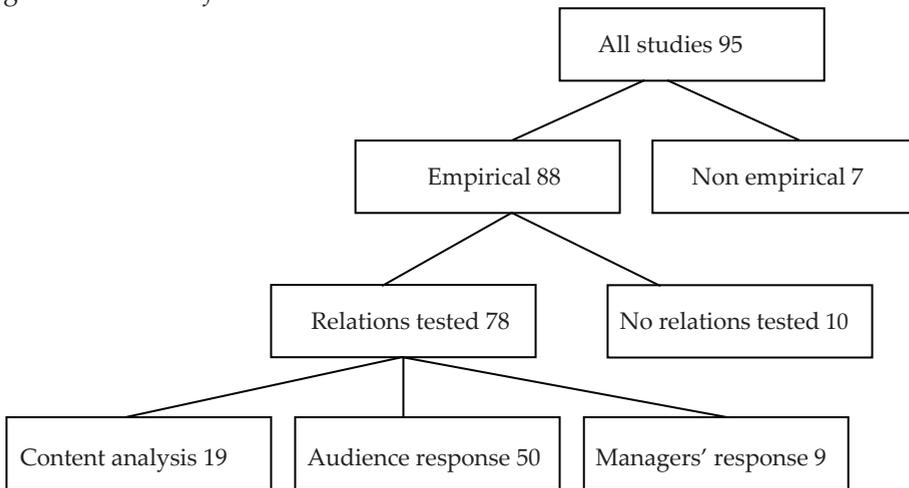
There is no common accepted definition of "brand website" in the literature, though the term is used more and more often (e.g., Müller, Florès, Agrebi, & Chandon, 2008; Dou & Krishnamurthy, 2007; Florès, 2004; Macias, 2003; Thorbjornson & Supphellen, 2004; Müller & Chandon, 2003). Dou and Krishnamurthy (2007, p. 193) simply described brand websites as: "websites that are dedicated to brands." Tung, Moore, and Engelland (2006, p. 94) provided a more detailed description, defining brand websites as "web sites that are designed to be an integral part of the firm's overall advertising campaign, with the objective of brand building." To focus our analysis, this review is restricted to studies on business to consumer (B to C) websites that have persuasion as the most important goal. Thus, we excluded studies on e-commerce websites, user generated content websites, and search engines.

## Method

### Literature Search

To acquire the studies for our review, a keyword search was used to identify as many relevant studies from peer-reviewed journals as possible. Several databases (Academic Search Premier, Business Search Premier, Communication and Mass Media Complete, PsychInfo and Web of Science) were searched using the keywords “web site(s)” or “website(s)” in combination with the keywords “advertising” or “marketing”. In addition to this keyword search, a reference search was conducted by reviewing the references of the collected studies. The literature search was finished in March 2008. Only empirical studies that used significance tests to analyze relationships between independent variables and consumers’ responses to brand websites were included. As shown in Figure 1, this selection resulted in 50 studies.

Figure 1. Selection of studies about brand websites



The review examines both consumers’ responses to the website (e.g., attitude toward the website or clicking behavior on the website) and responses to the brand (i.e., brand effects, such as memory of the brand name, attitude toward the brand, and purchase intention). The distinction between responses to the ad (in this case the website) and responses to the brand is often made in traditional advertising effect research (Vakratsas & Ambler, 1999).

## Coding

The fifty studies tested a total of 730 relations. All these statistically tested relationships were coded and included in a database. For each relationship, the following characteristics were coded: independent variable, dependent variable and direction and significance of the relationship ( $p < .05$ ). If present, control variables, moderators and mediators were included. For each study we also coded the method that was used and the type and number of respondents. We also coded which theory was applied or tested to explain consumers' responses.

## Vote-Counting

We used a formal vote-counting analysis to synthesize the literature. This is a formalized quantitative technique used for integrating research studies (Hedges & Olkin, 1980). A vote-counting analysis is believed to be the most appropriate and accepted method of research synthesis when a literature is heterogeneous, as in the case of empirical literature about consumers' responses to brand websites (Bushman, 1994). In a vote-counting analysis the number of positive and negative significant relations between the same two variables is compared to the number of non-significant relationships. We did not perform a meta-analysis for two reasons. First, the literature on brand websites is very heterogeneous, only a small number of studies tested exactly the same relationships. Second, not all studies provided all information that is needed to perform a meta-analysis. For these methodological reasons it was not possible to perform a meta-analysis.

# Results

## Characterization of the Studies

The studies included in our vote-counting analysis were published in 27 academic journals. The journals can be divided into three types: marketing journals, advertising journals, and other journals, like the *Journal of Human-Computer Interaction* or *Internet Research*, mainly journals on information systems. Most of the studies were published in the *Journal of Advertising* ( $n = 6$ ), followed by the *Journal of Interactive Marketing* ( $n = 5$ ), the *Journal of Interactive Advertising* ( $n = 5$ ) and the *Journal of Current Issues and Research in Advertising* ( $n = 5$ ). The number of studies published in ISI-ranked journals was relatively high: 62%. The oldest study included in our analysis was published in 1999, so our paper reviews the past decade of research.

## State of Research

Three observations can be made from the present studies into brand website effects. First, the respondents were forcefully exposed to the websites in about 80% of the studies. Involuntary exposure was used both in experiments and in surveys. The majority of the studies applied an experimental method, in which independent variables were manipulated to study consumers' responses to brand websites ( $n = 32$ ). Only 16 studies utilized a survey, in half of these cases in combination with forced exposure. In addition, two-thirds of the studies utilized a student sample. The use of forced exposure and the use of student samples might have implications for the validity of the conclusions about the effects of brand websites. We will come back to this in the discussion.

Second, by far the largest part of the studies in the field of brand websites examined affective responses towards websites or brands. Only a few studies explored behavioral effects such as purchase intention in addition to these affective responses. In addition, most researchers (with the exception of Keng & Lin, 2006; Goldsmith & Lafferty, 2002; Sicilia, Ruiz, & Reynolds, 2006; and Karson & Fisher, 2006), overlooked measuring cognitive dependent variables, such as memory or attention. The lack of studies considering cognitive reactions is probably related to the use of forced exposure, because measuring responses like recall of recognition is probably of less value when participants were forcefully exposed to a website only a few of minutes before. Nonetheless, the limited number of dependent variables has implications for the conclusions that can be drawn about the effects of brand websites

Third, the literature review revealed many contradictory results. For example, interactivity led to a positive effect on affective responses to the website in some studies (e.g., Ko, Cho, & Roberts, 2005; Sicilia, Ruiz, & Munuera, 2005), while in other studies this effect was absent or even negative (e.g., Nysveen & Pedersen, 2004; Coyle & Thorson, 2001; Chung & Zhao, 2004). While this observation is not in itself special, our review showed that almost no factor led to univocal results. The contradictory results could be caused by several factors like the use of different product categories or different types of participants (e.g., students versus a random sample of the whole population) or other background variables that varied between different studies. We will come back to this in the discussion section of our article. The next section describes the factors that affect consumers' responses to brand websites.

## Synthesizing the Results of the Original Studies

The second aim of this study is to give an integrated and comprehensive overview of factors influencing consumers' responses to brand

websites. To give an integrated overview of the 730 relations we need to group the variables of the original studies into a smaller amount of factors. The independent variables were structured into person-related factors (e.g., demographics and need for cognition) and website-related factors (e.g., interactivity and design) (Balasubramanian, Karrh, & Patwardhan, 2006).

The person-related factors, or individual differences are factors that cannot be changed by marketers. We can make a further distinction into general user characteristics and psychological user characteristics. Website-related factors are factors on which marketers can exercise influence (Constantinides, 2004). These factors were further structured into website characteristics, message characteristics and exposure characteristics.

The dependent variables are organized into three categories proposed by the hierarchy of effects model (Barry, 1987): cognitive responses (e.g., recall), affective responses (e.g., attitudes), and behavioral responses (e.g., purchase intention or clicking behavior). Relations described in the 50 studies that could not be categorized under these types of independent and dependent variables were left out of the analysis (i.e. Chen & Rodgers, 2006; Wu, 2006). All specific relations between the factors and consumers' responses can be found in the appendixes, accompanied by the references to the articles that addressed the specific relation.

### **Factors that Influenced Consumers' Responses**

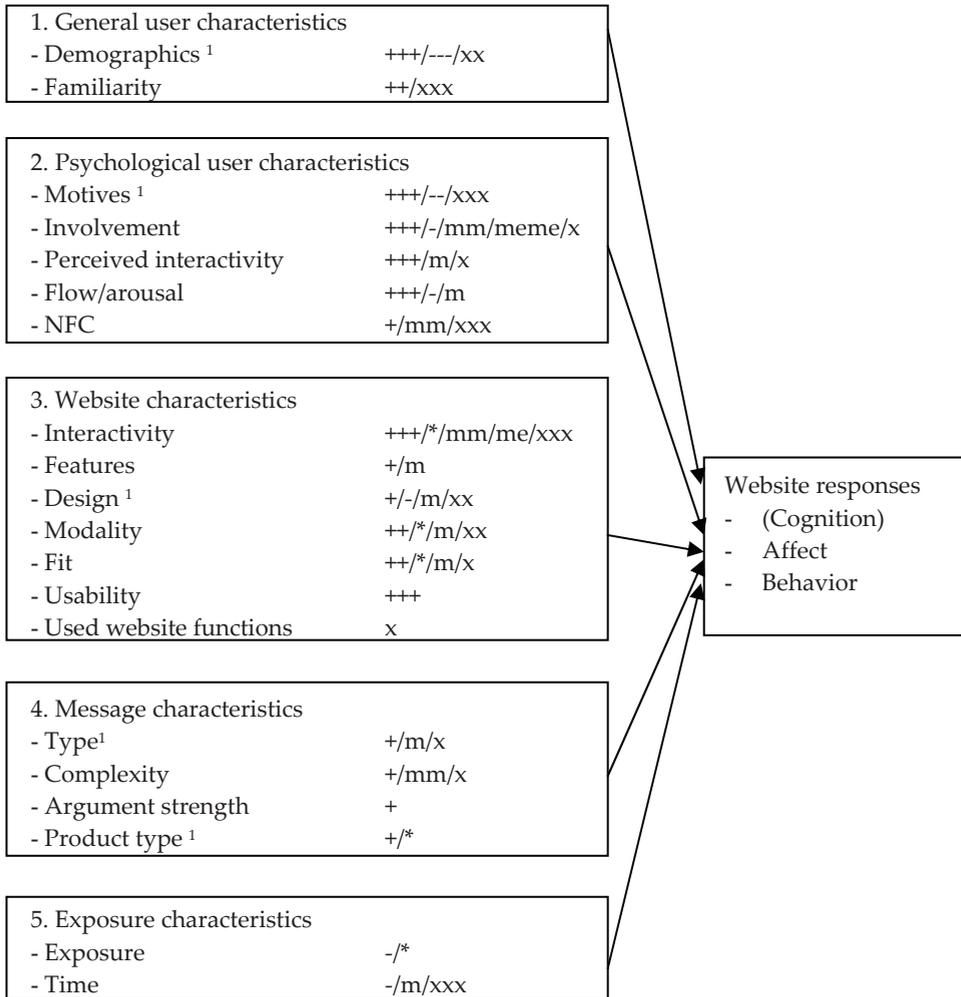
Figure 2 gives an overview of factors that influenced consumers' responses by portraying the direction and frequency of the relations found. Figure 2 portrays the relations between the various factors and responses to the website (e.g., attitude toward the website and clicking behavior on the website).

### **Responses to the Website as a Dependent Variable**

Figure 2 shows that responses to the website were influenced by both person-related factors and website-related factors. When we explore the general tendencies by looking at the number of symbols in Figure 2, we find a number of factors that clearly affect responses to the website.

## Chapter 2

Figure 2. Overview of factors influencing responses to the website



*Note.* + = positive relation; - = negative relation; m = moderated relation; me = mediated relation; \* non linear relation; x = not significant relation; . = not studied. The number of symbols indicates the frequency of the relations with that outcome: one symbol (+) = 1-3 relations, two symbols (++) = 4-8 relations, three symbols (+++) = more than eight relations. Factors 1 and 2 are person-related variables; factors 3, 4 and 5 are website-related variables. <sup>1</sup> These variables are composites of several nominal variables; since our analysis did not find any univocal results for these variables, we do not describe them.

*Person-related factors.* The first factor that clearly affected consumers' responses to websites was involvement. The higher the level of involvement, the more positively consumers responded to the website (Karson & Kargaonkar, 2001; McMillian, Hwang, & Lee, 2003; Fortin & Dholakia, 2005; Dahlén, Rasch, & Rosengren, 2003; Wu, 2007). Consumer involvement is widely recognized as a major variable relevant to the effectiveness of commercial communication (Dahlén et al., 2003; Zaichkowsky, 1985). Consumers devote more cognitive effort to processing information when they are highly involved, for example in the product category. Dahlén et al. (2003) state that this effect is less prevalent in traditional advertising media, such as TV commercials, because consumers have no control over exposure to the message. On websites, however, consumers are in control because websites are internally paced. Consumers decide which information they want to access and how long they want to expose themselves to the message (Dahlén et al., 2003). Therefore, Dahlén et al. (2003) expected that "visits to high-involvement-product websites are longer and generate more clicks than visits to low-involvement-product websites". This line of reasoning seems to be right because our review showed that the level of involvement with the website or the brand was positively related to both affective and behavioral responses to the website.

A second important factor was the perceived interactivity of the website. Perceived interactivity is defined as "a psychological state experienced by a site-visitor during the interaction process" (Wu, 2005, p 48). Perceived interactivity is subjectively experienced by users and is therefore measured by asking consumers about their feelings or experiences during their website visit. Perceived interactivity is not the same as actual (i.e., objectively assessed) interactivity. The results for actual interactivity will be described later. The review showed that the perceived interactivity of the website positively influenced affective responses to the website. When consumers perceived a website as more interactive, they also had a more positive impression of that website (McMillian et al., 2003; Jee & Lee, 2002; Chung & Zhao, 2004; Wu, 2005).

The third factor that influenced website responses was the amount of flow felt by the participants. Our review showed that a higher level of flow was positively related to affective responses and to the number of return visits to the website (Raney, Arpan, Passhupati, & Brill, 2003; Tung, et al., 2006; Sicilia, et al., 2005; Sicilia & Ruiz, 2007; Fortin & Dholakia, 2005; Nel, Van Niekerk, Berthon, & Davies, 1999). Flow refers to the degree to which a person is fully immersed in what he or she is doing (Csíkszentmihályi, 1975). Flow could have a positive influence on the information processing of a website because it is associated with high levels of attention and concentration. Flow also enhances the feelings

of control over a website experience. "Having control over the information exchanged increases the pleasure of the event itself" (Sicilia & Ruiz, 2007, p. 2) and it is likely that the pleasant feeling influences the attitude toward the website (Sicilia & Ruiz, 2007).

*Website-related factors.* Four website-related factors influenced consumers' responses to the website. The first factor was actual interactivity. Actual interactivity is objectively assessed interactivity which can be measured by observing the number and type of interactive features on a website. Interactivity is often seen as the defining difference between traditional and new media (Chung & Zhao, 2004) and as a crucial element of successful online marketing or advertising (Thorbjornson, Supphellen, Nysveen, & Pedersen, 2002). Although there is a large amount of research into interactivity, there is still no consensus about the definition and dimensions of interactivity (e.g., Liu & Shrum, 2002, Raney et al., 2003; Thorbjornson et al., 2002). Our review also showed some ambiguous results, but in general, our review showed a positive relationship between the actual (i.e., objectively assessed) interactivity and the affective and cognitive reactions to the website (measured by the number of thoughts about the site and the number of thoughts in general) (Sicilia et al. 2005; Ko et al., 2005; Wu, 2005). However, the actual interactivity of a website did not affect behavioral responses (Coyle & Thorson, 2001; Chung & Zhao, 2004; Amichai-Hamburger, Fine, & Goldstein 2004; Amichai-Hamburger, Kaynar, & Fine, 2006). One explanation for this unexpected finding could be the fact that, surprisingly, in all studies interactivity was manipulated by the absence or presence of hyperlinks. According to Liu and Shrum (2002) hyperlinks belong to the "Active control" dimension of interactivity. Other dimensions of interactivity are "Two way communication" and "Synchronicity". It could be that these other dimensions of interactivity will have an influence on behavioral responses. A second explanation could be that the presence of hyperlinks does not influence the perceived interactivity of a website anymore, because nowadays all websites use hyperlinks.

A second website-related factor that clearly influenced responses to the website was its usability. Our review showed that a high usability was positively related to affective responses to the website (Steenkamp & Geyskens, 2006; Singh, Fassorr, Chao, & Hoffman, 2006; Supphellen & Nysveen, 2001). Usability is defined as "the ability to find one's way around the Web, to locate desired information, to know what to do next, and, very importantly, to do so with minimal effort" (Nah and Davis, 2002, p. 99). Usability is considered an important quality criterion for websites (Constantinides, 2004). Therefore, it is

not very surprising that our review showed that usability had a positive impact on consumers' responses.

A third website-related factor influencing website responses was the type of modality used on the website. The review showed that vivid websites with moving images evoked more positive affective responses than static websites (Coyle & Thorson, 2001; Yates & Noyes, 2007; Philips & Lee, 2005). An explanation could be that websites which apply animation, audio or video appeal to multiple senses. As a result, these websites attract attention (Yates & Noyes, 2007) and vividness is improved (Coyle & Thorson, 2001). Consequently, the persuasive power of the website could be enhanced (Yates & Noyes, 2007).

A last website-related factor that was found to influence website responses was "degree of fit" between the brand image and the website. Degree of fit is related to the concept of consistency. Consistency plays an important role in how people respond to advertising or marketing. People prefer consistency and try to avoid inconsistencies (Newman et al., 2004), therefore, one could argue that congruity or fit between the brand image and the website image is an important factor in determining responses to websites. In agreement with this line of reasoning our review showed that a good fit between the brand image and the website resulted in a positive attitude toward the site (Müller & Chandon, 2004), though fit between the content of a banner and the website seemed less important (Newman, Stem, & Sprott, 2004).

## Responses to the Brand as a Dependent Variable

Figure 3 shows the relations between the independent variables in our database and responses to the brand (e.g., attitude toward the brand and purchase intention). The figure shows that responses to the brand were influenced by website-related factors, but not by person-related factors. Furthermore, responses to the website (the outcome measures in Figure 2) also strongly affected responses to the brand. Again, when we ignore subtle differences by looking at the number of symbols in Figure 3, we observe some factors that clearly affect responses to the website.

**Website-related factors.** The first factor that influenced responses to the brand was the actual interactivity of the website. The review showed that interactive websites resulted in higher recall and recognition of the brand name, as well as of the information presented on the website, compared to non-interactive websites (Keng & Lin, 2006). In contrast, interactivity did not influence affective and behavioral measures (Coyle & Thorson, 2001; Jo & Kim, 2003). The original authors did not give an explanation for this absence but it could be that the impact of interactivity is not strong enough to influence such

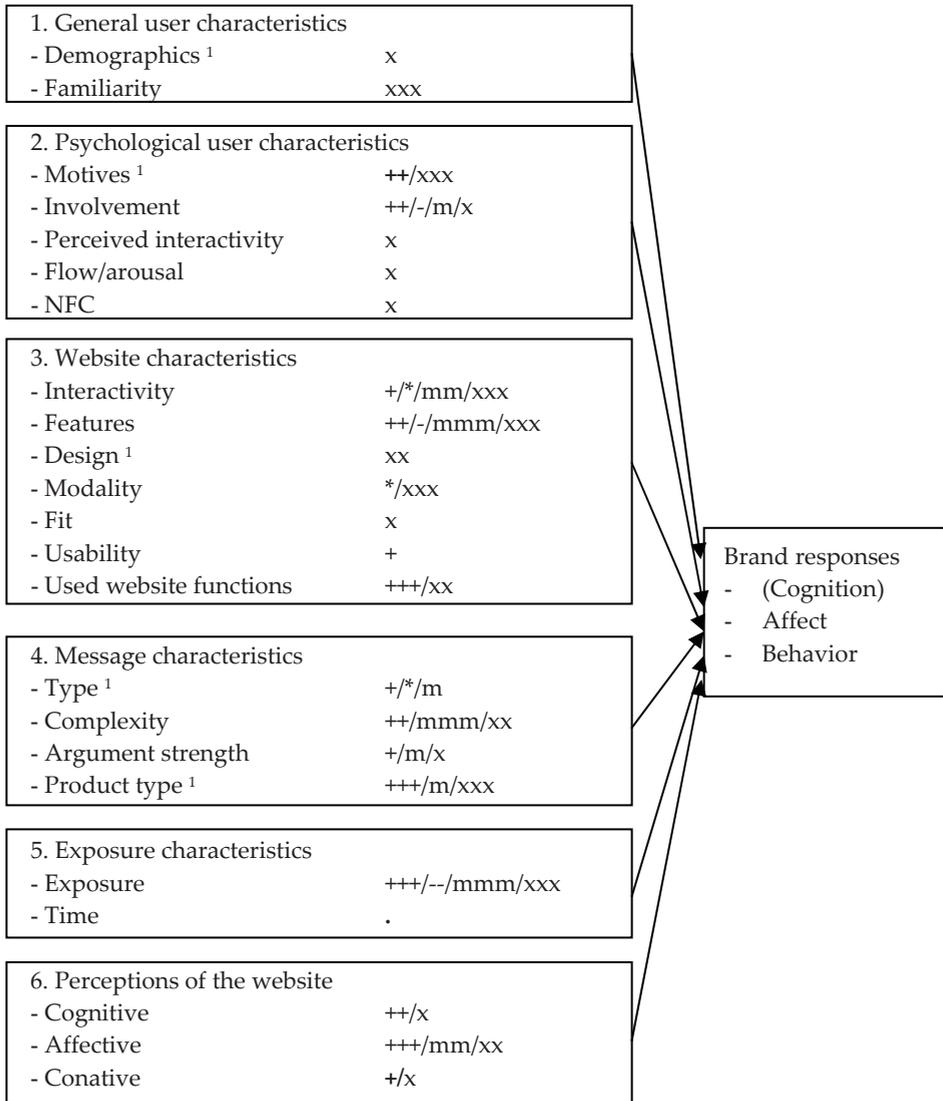
responses directly. Despite the absence of a direct brand impact of interactivity on affective and behavioral responses to the brand, there could be an indirect influence of interactivity via the responses to the website itself. The reason is that, as described earlier, interactivity did influence cognitive and affective responses to the website; these responses could influence affective and behavioral responses to the brand as well.

In the introduction of our article we already mentioned that brand websites can offer various functionalities. Consumers can, for instance, read information, watch video's or download music. Only one study investigated whether offering such functionalities also resulted in more positive responses to the brand and this study showed clear results. The number of functions that were offered on a website did indeed influence responses to the brand. The more functions participants used, such as the use of several information sections, or the option to participate in a contest, the more positive their affective responses to the brand (Ha & Chan-Olmsted, 2004).

Our analysis also showed that even a single exposure to a website was able to change attitudes toward the brand or brand images (Müller & Chandon, 2003, 2004). This effect was moderated by the type of product that was promoted on the website. The change in brand image and attitude toward the brand was larger for functional products (e.g., mobile phones and household electrical appliances) than for value-expressive products, such as luxury clothes and food, which are defined by their social and emotional values (Müller & Chandon, 2003). The reason could be that value-expressive products are more difficult to evaluate online than functional products for which much information on the product's features is available (Müller & Chandon, 2003). Unfortunately, no studies investigated whether repeated exposure resulted in more positive effects than a single exposure, while it is generally acknowledged that repetition affects recall, comprehension, attitudes, and purchase intentions in traditional advertising (Pechmann & Stewart, 1989).

***Responses to the website.*** In the past, researchers have suggested that consumers' responses to advertisements are good indicators of the ad's success in strengthening responses to brands like attitudes towards the brand and purchase intentions (Raney et al., 2003, Brown & Stayman, 1992). Researchers in the field of brand websites have suggested that websites can also be seen as advertisements and that responses to websites will influence responses to brands in a similar way as in traditional advertising contexts. Our review did indeed show that responses to the brand were strongly affected by the responses to the website (the dependent variables in Figure 1). This influence was very strong. When people had a positive attitude or other affective reaction

Figure 3. Overview of factors influencing responses to the brand



Note. + = positive relation; - = negative relation; m = moderated relation; \* non linear relation; x = not significant relation; . = not studied. The number of symbols indicates the frequency of the relations with that outcome: one symbol (+) = 1-3 relations, two symbols (++) = 4-8 relations, three symbols (+++) = more than eight relations. Factors 1 and 2 are person-related variables. Factors 3, 4 and 5 are website-related variables. <sup>1</sup>These variables are composites of several nominal variables; since our analysis did not find any univocal results for these variables, we do not describe them in detail.

to the website, this almost inevitably resulted in more positive cognitive, affective, or behavioral responses to the brand (Goldsmith & Lafferty, 2002; Karson & Fisher, 2006; Ko et al., 2005; Müller & Chandon, 2003, 2004; Raney et al., 2003; Sicilia et al., 2006; Jo & Kim, 2003; Fortin & Dholakia, 2005; Chiou & Cheng, 2003; Lee, Hong, & Lee, 2004; Singh et al., 2006; Sicilia & Ruiz, 2007; Sicilia et al., 2005).

### **Theoretical Scope in Brand Website Studies**

The third aim of our study is to learn which theories were used to explain consumers' responses to brand websites. In general, almost all studies used a theoretical background to investigate consumers' responses to brand websites. However, the theoretical bases of the studies were not very rigorous. Several studies only applied a few theoretical concepts (like involvement) to their studies without further explaining the theoretical frameworks behind these concepts. Using such concepts without a fundamental theoretical base can prevent further theoretical development or expansion. When summarizing the theories that were used in the past ten years, the 50 studies can be divided into two groups. In the first group, studies applied traditional theories to the new field of brand websites, in the second group, studies applied theoretical concepts that reflect the new nature of brand websites, for example its interactivity.

*Application of classical theories in brand websites studies.* Two theories prevailed in studies of consumers' responses to brand websites. The first theory is the Elaboration Likelihood Model (ELM) (Karson & Kargaonkar, 2001; Singh & Dalal, 1999; Sicilia et al., 2006; Dahlén et al., 2003; Karson & Fisher, 2005; Tung et al., 2006; McMillan et al., 2003; Sicilia et al., 2005; Chiou & Cheng, 2003; Sicilia & Ruiz, 2007; Chung & Zhao, 2004; Fortin & Dholakia, 2005; Martin, Sherrard, & Wentzel, 2005; Amichai-Hamburger et al., 2006; Supphellen & Nysveen, 2001). The ELM (Petty & Cacioppo, 1986) is a theory about attitude formation and change. The theory distinguishes a central and a peripheral route to persuasion. According to the ELM, a message will be processed through the central route when people have the ability and motivation to elaborate on the content of the message. Processing through the peripheral route of persuasion takes place when people are not motivated or able to elaborate on the content of the message. This route relies more on superficial characteristics of the message, like source credibility or likeability of the message. The theory states that attitudes formed through the central route of persuasion are stronger than attitudes formed through the peripheral route of persuasion. It is not surprising that many researchers used the ELM in their studies: the ELM is a theory about

attitude change and, as stated before, the majority of the studies measured affective consumers' responses to brand websites, mostly attitudes. Despite the widespread use of the model, one critical note about the application of the ELM should be made. The ELM is a very extensive model with a broad range of variables. Though many authors mention the ELM in their studies most authors only applied a few variables incorporated in the model to their work, like involvement, motivation, and need for cognition. Only one study applies the whole ELM (Karson & Kargaonkar, 2001).

The second cluster of theories that were used to explain consumers' responses to brand websites focus on the construct 'attitudes towards ads' (MacKenzie, Lutz, & Belch, 1986). The dual mediation hypothesis and the affect transfer hypothesis are well-known theories around this construct. For advertising in traditional media advertising there is evidence that attitudes toward ads do carry over to attitudes toward brands. Therefore, it is generally believed that attitude toward the ad is a strong mediator of advertising effectiveness (MacKenzie et al., 1986; Brown & Stayman, 1992). A majority of the studies in our database applied and adopted the mediating role of attitude toward the ad in their research. By substituting attitude toward the ad for attitude toward the website the studies tried to extend the applicability of the construct to an online context.

Some of the studies described and used the dual mediation framework or affect transfer hypothesis explicitly. The main goals of these studies were to test the extension of the models to an online context and to investigate the exact role of attitude toward the website (Karson & Fisher, 2005; Sicilia et al., 2006). However, most studies only mention and measure the construct of attitude toward the website, to test the process through which it influences brand attitudes and purchase intention (e.g., Ko et al., 2005; Dahlén et al., 2003; Lee et al., 2004; Goldsmith & Lafferty, 2002).

*Application of contemporary constructs to brand websites studies.* The studies in our review also applied some constructs that are more or less distinctive for communication in new media to investigate consumers' responses to brand websites. One of the unique characteristics of communication through brand websites as compared to communication through traditional media is the possibility for interactivity on websites (Pavlik, 1998). A large number of studies investigated the concept of interactivity, thereby participating in the ongoing debate (Liu & Shrum, 2002) about the topic (Ko et al., 2005; Raney et al., 2003; Thorbjornson et al., 2002; Macias, 2003; Tung et al., 2006; McMillan et al., 2003; Nysveen & Pedersen, 2002; Wu, 2005, 2006 and 2007; Sicilia et al., 2005; Jee & Lee, 2002; Coyle & Thorson, 2001; Keng & Lin,

2006; Chung & Zhao, 2004; Sohn, Ci, & Lee, 2007; Griffith & Chen, 2004; Jo & Kim, 2003; Fortin & Dholakia, 2005; Chung & Ahn, 2007, Philips & Lee, 2005; Amichai-Hamburger et al., 2006; Amichai-Hamburger et al., 2004).

Two theories dominated in the debate about interactivity: telepresence theory (Steuer, 1992) and interactivity theory (Rafaeli, 1998). Telepresence theory posits that information is not transmitted directly from sender to receiver but that mediated environments are created by both. According to this theory both characteristics of the medium and characteristics of the user affect interactivity perceptions (Song & Zinkhan, 2008). In other words, "the extent to which a person feels engaged in a mediated environment" (Steuer, 1992, p 76.) influences the perceived interactivity. On the other hand interactivity theory posits that interactivity is a process of message exchange. In this view the quality of the communication affects interactivity perceptions. The more reciprocal a message exchange is, the higher the level of perceived interactivity. Although both theories are mentioned in the studies in our database, interactivity theory is more popular. The two theories have been used to define or measure interactivity, but they have hardly been tested or validated (Song & Zinkhan, 2008), no study in our review compares the validity of both theories.

Related to the concept of interactivity and telepresence (Coyle & Thorson, 2001) is another construct that is applied to the field of brand websites: flow. Only a few studies used this theoretical notion (Tung et al., 2006; Sicilia et al., 2005; Coyle & Thorson, 2001; Sicilia & Ruiz, 2007; Yates & Noyes, 2007, Nel et al., 1999). Consumers who achieve flow when visiting websites are so intensely involved that they become so absorbed in the activity, in this case interaction with the website, that nothing else seems to matter (Novak, Hoffman, & Yung, 2000). Flow and interactivity are related because flow is probably enhanced by telepresence and interactivity (Novak et al., 2000). As stated before, in the studies in this review flow is positively related to affective responses to the website and to the number of return visits.

Strikingly, the Technology Acceptance Model (TAM) was only applied in two studies included in this review. The TAM gives insight in how users come to accept and use a new technology. The most important predictors of the use of the new technology are perceived ease of use and perceived usefulness (Davis, Bagozzi, & Warshaw, 1989). Despite the popularity of the application of the TAM to acceptance of various new technologies, the TAM is not a fundamentally new theory. TAM is an extension of the Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA) (Mathieson, 1991). The technology acceptance measures are grounded in the attitude variables of the TPB and TRA.

## **Conclusion and Discussion**

### **State of Research**

The aim of this literature review was to give a state-of-the-art overview of research on brand websites. Three characteristics of the studies, which hinder an adequate understanding of brand website effects, stand out. The first characteristic is that participants were forced to browse a website in 80% of the studies. This is far from realistic, as one of the most important characteristics of brand websites is its voluntary exposure. Consumers decide for themselves whether they want to visit the website, which pages they view, which functions they use, and how long they stay (Florès, 2004). This important characteristic of websites as compared to traditional media is neglected by using experiments or surveys with forced exposure. This artificial setting could have had a large impact on the results of the studies. Therefore, a first conclusion from our literature review is the need for more real-life studies.

A second characteristic of the brand website studies is that most studies have been conducted using a homogeneous sample, usually composed of students. These samples are mainly young, highly educated and have high levels of experience using internet, computers and websites (Odell, Korgen, Schumacher, & Delucchi, 2000). Probably, this could influence the valence and strength of the effects. Although convenience samples are useful to get an preliminary idea of relationships between variables (Bogaert, 1996), it might be advisable to use more varied samples when studying consumers' responses to brand websites to uncover which consumers are most attracted by brand websites and why these people are more persuaded.

Third, brand website studies have examined a rather narrow scope of outcome measures. Up to now, most researchers have almost neglected to study effects on cognitive dependent variables. Affective brand effects were investigated more often with a focus on attitudes. Although some researchers mentioned brand building and image change as an important advantage of the web (Dou & Krishnamurthy, 2007; Florès, 2004), only two studies have investigated brand image change (Müller & Chandon, 2003; 2004). Therefore, a third recommendation for future research is that researchers extend the scope of the outcome measures to get a more profound understanding of brand websites.

### **Factors Influencing Consumers' Responses**

Our study also aimed to integrate the findings of earlier research to better understand the factors influencing consumers' responses to brand websites. The vote-counting analysis shows that responses to the website are

influenced both by person-related factors and website-related factors. Person-related factors, or individual differences that affect responses to the websites include the level of involvement with the website or the brand, the perceived interactivity of a website, and the level of flow that was felt. Website-related factors that affect consumers' responses include the actual interactivity of a website, the usability of the website, the type of modality used on the site, and the degree of fit between the brand image and the website.

Responses to the brand are predominantly influenced by website-related factors, while person-related factors do not have a direct effect on these brand effects. Important website-related factors are the actual interactivity of a site and the number of functionalities used on the site. In addition, responses to the brand are also clearly affected by responses to the website. Because these responses to the website are also influenced by person-related factors, these person-related factors also affect responses to the brand indirectly.

### **Theoretical Focus in the Past Decade**

The third aim of our study was to give an overview of the theories used in the past ten years to study consumers' responses to brand websites. Looking at the theories mentioned in the 50 studies we notice that most studies applied traditional theories to the field of brand websites. Common traditional theories that were used frequently were the Elaboration Likelihood Model and theories relating to the construct of attitude toward the ad. Our review shows that no new theories had been developed to explain consumers' responses to brand websites. With this conclusion our study shares the findings of other reviews, both on the field of internet in general (Cho & Khang, 2006) and internet advertising (Ha, 2008) in particular. Despite the fact that no completely new theories were developed, several studies integrated new theoretical concepts in their studies, like interactivity, telepresence and flow. Thus, brand website studies successfully incorporated websites in established theoretical frameworks. Despite the interdisciplinary nature of our review, the study shows no large differences between the theories used in the field of marketing, advertising and other.

When we relate the theories used to the findings concerning the factors influencing consumers' responses to brand websites, two conclusions can be drawn. The first conclusion is related to interactivity. The review showed mixed findings concerning the influence of interactivity on consumers' responses to brand websites. Some studies showed positive relations between interactivity and affective responses while other showed no significant or even negative relations. These mixed findings can probably be related to the way the

interactivity concept was operationalized. In some studies interactivity was operationalized on the basis of telepresence theory (e.g., the number of clickable items in the study of Coyle & Thorson, 2001) while other studies measured or manipulated interactivity on basis of interactivity theory (e.g., the presence of two way communication mechanisms in the study of Sicilia et al., 2005) which could have caused the mixed findings. Future research should further investigate the role of the two theories in determining consumers' responses to interactivity, as was done by Song and Zinkhan (2008).

The second conclusion is related to the theories around the concept 'attitude toward the ad'. From the studies that applied this construct to brand websites, it can be concluded that it is possible to extend the validity of the construct to an online context. As stated above the studies in our reviews showed a strong relationship between the affective responses to the website and the responses to the brand. With this finding our study stresses that 'attitude toward the ad' is applicable to brand website studies.

### **Issues for Future Research**

Several avenues for future research have already been mentioned earlier in this conclusion in the section that discusses the current state of research. In this section we want to reveal some specific themes that need attention. Three interesting questions include:

How do the findings of this literature review extend to managerially important dependent variables such as brand loyalty, brand equity or brand image change?

How do the findings change if consumers self select to go to a website instead of being forcefully exposed, as is the case in the majority of previous research?

To what extent do the findings apply to other types of websites, for example e-commerce websites?

### **Limitations of our Study**

Although the study improved our knowledge of consumers' responses to brand websites, some limitations need to be observed. The first is with respect to the vote-counting method. The main advantage of the method is that vote-counting procedures can be used for a larger group of studies, as compared to quantitative meta-analyses because a vote-counting procedure can also be used for studies for which effect size estimates cannot be calculated. However, the fact that it is impossible to report effect sizes is also the most important weakness of this method (Bushman, 1994).

The second limitation is related to the selection of the studies. By exclusively using the keywords advertising, marketing, and website(s), we

might not have selected all the available studies. However, we do not expect that including the studies that we probably missed would have resulted in different conclusions. A related issue is the definition of a brand website that we used for selecting the studies for our analysis. Because no definition existed in the literature we developed a definition ourselves. We carefully read all the studies to determine whether a study was about brand websites or other types of websites, but it was not always easy to use the definition unambiguously. Discussion between the authors resolved all difficulties.

A last issue to be taken into account is the fact that we combined slightly different variables by aggregating them under the same concept. Although this was necessary to get an overview of the literature, it may have done no justice to small differences.

### **Managerial Implications**

The present study investigates an increasingly popular approach to promote brands at the internet: the use of brand websites. The study gives insight into factors influencing the effectiveness of these websites. Now we point to the most important managerial implications of these factors. Important person-related factors were: involvement, perceived interactivity, and flow. Despite practitioners' incapacity to exercise direct influence on individual differences influencing consumers' responses (Constantinides, 2004), marketers can try to act in response to such person-related factors. For example, when visitors are highly involved, marketers could adjust the information on the website to serve visitors' needs. Therefore, we recommend that managers closely monitor the characteristics, wants, and needs of their website visitors.

On the other hand marketers can easily control website-related factors. Website-related factors both influence website responses, such as likeability of a website, and brand responses, like attitude toward the brand. To improve responses to the website, like attitude toward the website, managers should build websites with a high level of interactivity, more than one modality and a high level of usability. Responses to the website strongly influence responses to the brand, which is important because the ultimate goal of a brand website is probably not to improve responses to the website itself, but to improve brand image, create brand loyalty and to change responses to the brand (Müller et al., 2008; Holland & Baker, 2004). Our study also uncovered factors that influenced these kinds of responses directly. To improve responses to the brand, managers should build interactive websites. They should also trigger website users to make use of a large number of functions on the website. Nevertheless, it also seems that some types of products (functional products) are better suited for

promotion via a brand website than other types of products (auto-expressive products) because in one study the change in brand image and attitude toward the brand after exposure to a website was larger for functional products (e.g., mobile phones and household electrical appliances) than for auto-expressive products. Managers should keep this in mind when deciding to give the brands' website a more central position in the marketing communication campaign. Finally, because our review showed that even a single exposure to a website was able to change attitudes toward the brand or brand images, we encourage managers to use brand websites as a central medium in the marketing mix.

Our last advice is related to the current state of research on brand websites. Our study showed that a large majority of the current studies used forced exposure and a homogeneous student sample. However, many managers also investigate consumers' responses to their websites, often in cooperation with market research companies. Such studies often make use of surveys that are placed on the brands' website. In this way, participants are voluntary exposed to the website and a more heterogeneous sample is reached. Thus, these studies overcome important weaknesses found in academic research. Therefore, such practitioner research provides unique opportunities for cooperation between academic researchers and practitioners. Collaboration can improve the quality of studies in the field.

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## Appendixes

Table 1. *Influence of general user characteristics on responses to the website*

Independent variable	Dependent variable	All	Significant							References	
			P	N	*	M	Me	NS			
Demographics	cognition	-	-	-	-	-	-	-	-	-	
	affect	31	10	14	0	0	0	0	0	7	Heldal, Sjøvold, & Heldal, 2004; Steenkamp & Geyskens, 2006; Sears, Jacko, & Dubach, 2000
	behavior	7	3	4	0	0	0	0	0	0	Sears et al., 2000; Ha & Chan-Olmsted, 2004
	cognition	2	0	0	0	0	0	0	0	2	Sicilia & Ruiz, 2007
Familiarity	affect	33	3	0	0	0	0	0	0	30	Nysveen & Pedersen, 2004; Sicilia & Ruiz, 2007; Newman et al., 2004; O'Keefe et al., 2000
	behavior	4	2	0	0	0	0	0	0	2	Ha & Chan-Olmsted, 2004; Thorbjorson & Supphellen, 2004;
Other	cognition	-	-	-	-	-	-	-	-	-	
	affect	10	7	0	0	0	0	0	0	3	Ha & Chan-Olmsted, 2004; Newman et al., 2004
	behavior	24	4	0	0	0	0	0	0	20	Ha & Chan-Olmsted, 2004

*Note.* All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

Table 2. *Influence of psychological user characteristics on responses to the website*

Independent variable	Dependent variable	All	Significant							References	
			P	N	*	M	Me	NS			
Motives	cognition	-	-	-	-	-	-	-	-	-	
	affect	21	4	1	0	0	0	0	16	0	O'Keefe et al., 2000
	behavior	21	7	3	0	0	0	0	11	0	Ko et al., 2005; Thorbjornson & Supphellen, 2004
Involvement	cognition	1	1	0	0	0	0	0	0	0	Chung & Zhao, 2004
	affect	6	4	0	0	0	0	0	2	0	Karson & Kargaonkar, 2001; McMillan et al., 2003; Sohn et al., 2007; Fortin & Dholakia, 2005
Perceived interactivity	behavior	13	4	0	0	4	4	4	1	1	Dahlén et al., 2003; Chung & Zhao, 2004; Wu, 2007
	cognition	1	0	0	0	0	0	0	1	0	Chung and Zhao, 2004
	affect	13	11	0	0	1	0	0	1	1	McMillan et al., 2003; Jee & Lee, 2002; Chung & Zhao, 2004; Sohn et al., 2007; Wu, 2005
Flow/ arousal	behavior	-	-	-	-	-	-	-	-	-	
	cognition	1	1	0	0	0	0	0	0	0	Sicilia & Ruiz, 2007
NFC	affect	8	6	1	0	1	0	0	0	0	Raney et al., 2003; Tung et al., 2006; Sicilia et al., 2005; Steenkamp & Geyskens, 2006; Fortin & Dholakia, 2005
	behavior	5	5	0	0	0	0	0	0	0	Nel et al., 1999
	cognition	1	0	0	0	0	0	0	1	0	Sicilia et al., 2005
Other	affect	7	1	0	0	2	0	0	4	0	Amichai-Hamburger et al., 2006; Amichai-Hamburger et al., 2004; Martin et al., 2005;
	behavior	10	0	0	0	3	0	0	7	0	Amichai-Hamburger et al., 2006; Amichai-Hamburger et al., 2004
Other	cognition	-	-	-	-	-	-	-	-	-	
	affect	6	1	0	0	2	0	0	3	0	Tung et al., 2006; Steenkamp & Geyskens, 2006; Chung & Eujiin, 2007; Supphellen & Nysveen, 2001
	behavior	-	-	-	-	-	-	-	-	-	

Note. All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.



Table 3 (continued). *Influence of website characteristics on responses to the website*

Independent variable	Dependent variable	All	Significant						References	
			P	N	*	M	Me	NS		
Useability	cognition	-	-	-	-	-	-	-		
	affect	12	12	0	0	0	0	0	Steenkamp & Geyskens, 2006; Singh et al., 2006; Supphellen & Nysveen, 2001	
Used functions	behavior	-	-	-	-	-	-	-		
	cognition	-	-	-	-	-	-	-		
	affect	3	0	0	0	0	0	3	Ha & Chan-Olmsted, 2004	
Other	behavior	-	-	-	-	-	-	-		
	cognition	-	-	-	-	-	-	-		
	affect	12	7	1	0	2	0	2	Steenkamp & Geyskens, 2006; Singh et al., 2006; Weinberg, Berger, & Hanna, 2003; Sears et al., 2000; O'Keefe et al., 2000	
	behavior	1	0	0	0	0	0	0	1	Weinberg et al., 2003

Note. All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

Table 4. *Influence of message characteristics on responses to the website*

Independent variable	Dependent variable	All	Significant					References
			P	N	*	M	Me	
Type	cognition	-	-	-	-	-	-	
	affect	5	1	0	0	2	0	Singh & Dalal, 1999; Yates & Noyes, 2007
	behavior	3	1	0	0	1	0	Singh & Dalal, 1999; Yates & Noyes, 2007
	cognition	1	1	0	0	0	0	Geissler, Zinkhan, & Watson, 2006
Complexity	affect	7	1	0	0	4	0	Martin et al., 2005; Geissler et al., 2006
	behavior	-	-	-	-	-	-	
Argument strength	cognition	-	-	-	-	-	-	
	affect	2	2	0	0	0	0	Karson & Kargaonkar, 2001
	behavior	-	-	-	-	-	-	
Product type	cognition	-	-	-	-	-	-	
	affect	-	-	-	-	-	-	
	behavior	6	3	0	1	2	0	Dahlén et al., 2003; Wu, 2007

Note. All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; NS = non-significant relation; - = not tested.

Table 5. *Influence of exposure characteristics on responses to the website*

Independent variable	Dependent variable	All	Significant						References	
			P	N	*	M	Me	NS		
Exposure	cognition	-	-	-	-	-	-	-	-	
	affect	2	0	1	1	0	0	0	0	Goldsmith & Lafferty, 2002; Chung & Euijin, 2007
	behavior	-	-	-	-	-	-	-	-	
Time	cognition	-	-	-	-	-	-	-	-	
	affect	8	0	0	0	1	0	0	7	Ko et al., 2005; Coyle & Thorson, 2001; Sears et al., 2000; Amichai-Hamburger et al., 2004
	behavior	6	0	1	0	0	0	0	5	Ko et al., 2005; Amichai-Hamburger et al., 2006; Amichai-Hamburger et al., 2004

*Note.* All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

Table 6. *Influence of general user characteristics on responses to the brand*

Independent variable	Dependent variable	All	Significant					References
			P	N	*	M	Me	
Demographics	cognition	-	-	-	-	-	-	
	affect	1	0	0	0	0	0	1 Goldsmith & Lafferty, 2002
Familiarity	behavior	-	-	-	-	-	-	
	cognition	7	0	0	0	0	0	7 Sicilia & Ruiz, 2007; O'Keefe et al., 2000
	affect	7	0	0	0	0	0	7 Sicilia & Ruiz, 2007; O'Keefe et al., 2000
	behavior	3	0	0	0	0	0	3 Sicilia & Ruiz, 2007; Lee et al., 2004
Other	cognition	-	-	-	-	-	-	
	affect	-	-	-	-	-	-	
	behavior	-	-	-	-	-	-	

*Note.* All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

Table 7. Influence of psychological user characteristics on responses to the brand

Independent variable	Dependent variable	All	Significant							References
			P	N	*	M	Me	NS		
Motives	cognition	7	2	0	0	0	0	0	5	O'Keefe et al., 2000
	affect	7	2	0	0	0	0	0	5	O'Keefe et al., 2000
	behavior	-	-	-	-	-	-	-	-	
	cognition	-	-	-	-	-	-	-	-	
Involvement	affect	7	5	1	0	0	0	0	1	Müller & Chandon, 2003; Dahlén et al., 2003; Karson & Kargaonkar, 2001; Fortin & Dholakia, 2005
	behavior	4	2	0	0	1	0	0	1	Karson & Kargaonkar, 2001; Fortin & Dholakia, 2005
Perceived interactivity	cognition	-	-	-	-	-	-	-	-	
	affect	-	-	-	-	-	-	-	-	
Flow/ arousal	behavior	3	0	0	0	0	0	0	3	Jee & Lee, 2002
	cognition	1	0	0	0	0	0	0	1	Sicilia et al., 2005
	affect	1	0	0	0	0	0	0	1	Sicilia et al., 2005
	behavior	1	0	0	0	0	0	0	1	Fortin & Dholakia, 2005
NFC	cognition	-	-	-	-	-	-	-	-	
	affect	1	0	0	0	0	0	0	1	Martin et al., 2005
Other	behavior	1	0	0	0	0	0	0	1	Martin et al., 2005
	cognition	1	0	0	0	0	0	0	1	Chung & Euijin, 2007
	affect	-	-	-	-	-	-	-	-	
	behavior	-	-	-	-	-	-	-	-	

Note. All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

Table 8. *Influence of website characteristics on responses to the brand*

Independent variable	Dependent variable	All	Significant					References	
			P	N	*	M	Me		
Interactivity	cognition	7	1	0	2	4	0	Chung & Euijin, 2007; Keng & Lin, 2006; Sicilia et al., 2005	
Features	affect	12	2	0	0	2	0	8	Jo & Kim, 2003; Sicilia et al., 2005
	behavior	2	0	0	0	1	0	1	Coyle & Thorson, 2001
	cognition	-	-	-	-	-	-	-	
	affect	28	3	1	0	13	0	11	Thorbjornson et al., 2002; Griffith & Chen, 2004
Design	behavior	2	1	0	0	1	0	0	Griffith & Chen, 2004
	cognition	-	-	-	-	-	-	-	
	affect	2	0	0	0	0	0	2	Karson & Kargaonkar, 2001
Modality	behavior	2	0	0	0	0	0	2	Karson & Kargaonkar, 2001
	cognition	-	-	-	-	-	-	-	
	affect	10	0	0	2	0	0	8	Raney et al., 2003; Jo & Kim, 2003
Fit	behavior	1	0	0	0	0	0	1	Coyle & Thorson, 2001
	cognition	-	-	-	-	-	-	-	
Useability	affect	1	0	0	0	0	0	1	Müller & Chandon, 2004
	behavior	-	-	-	-	-	-	-	
	cognition	-	-	-	-	-	-	-	
	affect	-	-	-	-	-	-	-	
Used functions	behavior	3	3	0	0	0	0	0	Singh et al., 2006
	cognition	-	-	-	-	-	-	-	
	affect	14	9	0	0	0	0	5	Ha & Chan-Olmsted, 2004
Other	behavior	11	10	0	0	0	0	1	Ha & Chan-Olmsted, 2004
	cognition	1	0	0	1	0	0	0	O'Keefe et al., 2000
	affect	1	0	0	0	0	0	1	O'Keefe et al., 2000
	behavior	-	-	-	-	-	-	-	

. Note. All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested

Table 9. *Influence of message characteristics on responses to the brand*

Independent variable	Dependent variable	All	Significant						References
			P	N	*	M	Me	NS	
Type	cognition	-	-	-	-	-	-	-	
	affect	5	1	0	3	1	0	0	Singh & Dalal, 1999; Chiou & Cheng, 2003
	behavior	-	-	-	-	-	-	-	
	cognition	-	-	-	-	-	-	-	
Complexity	affect	14	4	0	0	8	0	2	Geissler et al., 2006; Martin et al., 2005; Chiou & Cheng, 2003
	behavior	6	1	0	0	3	0	2	Geissler et al., 2006; Martin et al., 2005
Argument strength	cognition	-	-	-	-	-	-	-	
	affect	3	2	0	0	1	0	0	Karson & Kargaonkar, 2001
Product type	behavior	2	1	0	0	0	0	1	Karson & Kargaonkar, 2001
	cognition	-	-	-	-	-	-	-	
	affect	7	3	0	0	1	0	3	Müller & Chandon, 2003; Chiou & Cheng, 2003; Griffith & Chen, 2004
behavior	1	1	0	0	0	0	0	0	Griffith & Chen, 2004

*Note.* All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

Table 10. *Influence of exposure characteristics on responses to the brand*

Independent variable	Dependent variable	All	Significant					References		
			P	N	*	M	Me			
Exposure <sup>2</sup>	cognition	-	-	-	-	-	-	-		
	affect	111	18	4	0	0	49	0	40	Müller & Chandon, 2004; Müller & Chandon, 2003; Raney et al., 2003
Time	behavior	4	1	0	0	0	0	0	3	Raney et al., 2003
	cognition	-	-	-	-	-	-	-	-	-
	affect	-	-	-	-	-	-	-	-	-
	behavior	-	-	-	-	-	-	-	-	-

*Note.* All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

<sup>2</sup> The large number of relationships is caused by Müller and Chandon (2003 & 2004) who tested all items of the dependent variable measures separately.

Table 11. *Influence of responses to the website on responses to the brand*

Independent variable	Dependent variable	All	Significant					References	
			P	N	*	M	Me		
Cognitive processing	cognition	-	-	-	-	-	-		
	affect	5	4	0	0	0	0	1	Sicilia et al., 2006; Karson & Fisher, 2006
	behavior	-	-	-	-	-	-	-	
Affective processing	cognition	7	5	0	0	1	0	1	Goldsmith & Lafferty, 2002; Sicilia et al., 2006; Karson & Fisher, 2006
	affect	23	19	0	0	0	0	4	Ko et al., 2005; Müller & Chandon, 2004; Müller & Chandon, 2003; Raney et al., 2003; Sicilia et al., 2006; Karson & Fisher, 2006; Jo & Kim, 2003; Singh et al., 2006; Fortin & Dholakia, 2005
Conative processing	behavior	16	12	0	0	2	0	2	Ko et al., 2005; Raney et al., 2003; Sicilia et al., 2006; Jee & Lee, 2002; Singh et al., 2006; Fortin & Dholakia, 2005
	cognition	3	2	0	0	0	0	1	Chung & Zhao, 2004
	affect	-	-	-	-	-	-	0	-
	behavior	-	-	-	-	-	-	0	-

*Note.* All numbers are frequencies. P = positive relation; N = negative relation; \* = non linear relation; M = moderated relation; Me = mediated relation; NS = non-significant relation; - = not tested.

## Measuring Interactivity of the Websites of Brands<sup>3</sup>

### Abstract

This study aims to develop a new coding instrument to examine the interactivity of the websites of global brands. The new instrument contains 47 interactive functions and is directly linked to theory on interactivity. To test the applicability of the instrument, the interactivity of 66 American and 66 Dutch websites was investigated by means of a content analysis. Results showed that the instrument can be used in different contexts. In addition, the content analysis discloses interesting differences between American and Dutch websites, and between the websites of different types of products. Practitioners can use the instrument to assess the interactivity of their own websites.

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## Introduction

Interactivity is often perceived as the defining difference between traditional and new media (Chung & Zhao, 2004), and as a key element of successful online advertising (Thorbjornson, Supphellen, Nysveen, & Pedersen, 2002). Consequently, interactivity is a central issue in the current advertising literature (e.g., Bezjian-Avery, Calder, & Iacobucci, 1998; McMillan, Hwang, & Lee, 2003; McMillan, Hoy, Kim, & McMahan, 2008; Liu, 2003; Macias, 2003). The websites of brands can provide many interactive features; therefore, several studies have investigated the interactivity of such websites. The first effort to map interactivity of the websites of brands was made more than a decade ago by Ghose and Dou (1998), who listed 23 interactive website functions and content analyzed 101 websites. In later studies, research methods were improved by coding in a more systematic way than was carried out by Ghose and Dou (Cho & Cheon, 2005) and assessing intercoder reliability (Tse & Chan, 2004; Cho & Cheon, 2005). However, while websites have changed substantially, the original list of 23 interactive functions was never renewed or extended (Rappaport, 2007). Another problem with earlier content analyses on interactivity at websites is that interactive functions were never linked to three dimensions of interactivity which were proposed in several reviews of the interactivity concept in the marketing and advertising literature: two-way communication, synchronicity, and active control (Liu & Shrum, 2002; McMillan & Hwang, 2002; Song & Zinkhan, 2008).

Whereas there are already some coding instruments to map interactivity in other fields (e.g., Bucy, 2004; McMillan et al., 2008; Paul, 2001), and some instrument that measure how consumers perceive interactivity (e.g., Liu, 2003; Wu, 2006; McMillan & Hwang, 2002), it is the aim of the present study to fill the gap in the marketing and advertising literature by developing a new coding instrument to investigate the interactivity of the websites of brands. By doing so, the study builds upon the current knowledge and conceptualization of interactivity. Furthermore, to test the applicability of the new coding instrument, a content analysis of the interactivity on the websites of the top global brands will be conducted. This content analysis will show whether coders are able to work with the instrument and whether reliability levels acquired with the instrument are sufficient. In addition, we would like to test the applicability of the instrument to different contexts. Therefore, websites from two countries (the United States and the Netherlands) and several types of products were coded. Application of the instrument by means of a content analysis also provides practical insight into the extent to which brands use different forms of interactivity. The developed instrument will be an invaluable

tool for future research as developing a better understanding of how consumers interact with websites is increasingly important today, and will continue to be so in the future.

In this article, we will first discuss the interactivity construct, and then we will summarize the content analyses on the interactivity of the websites of brands which has been carried out prior to our work. In the methodology section, the new coding instrument is presented. We also describe a test which has been developed among experts in the field of interactivity to validate the instrument. Finally, we present the results of the content analysis which reveal the interactivity of the websites of brands.

## **Background**

### **Definition and Conceptualization of Interactivity**

Although there is a large amount of research on interactivity, there is still no consensus about its definition and dimensions (e.g., Liu & Shrum, 2002, Raney, Arpan, Pashupati, & Brill, 2003; Thorbjornson et al., 2002; McMillan & Hwang, 2002; Song & Zinkhan, 2008). As the aim of this study is not to further discuss the definitions and dimensions of interactivity (for reviews we refer to Hwang & McMillan, 2002; Liu & Shrum, 2002; Johnson, Bruner II, & Kumar, 2006), we decided to follow one study that had an important impact on the interactivity literature. In the marketing and advertising field, Liu and Shrum (2002) were the first who meaningfully synthesized the literature. Their definition and conceptualization is very concrete and based on an extensive discussion of interactivity in the advertising, marketing, and communication literature.

Following Liu and Shrum (2002, p. 54), in this study we define interactivity as: "The degree to which two or more communicating parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized". Many scholars recognize the multidimensional nature of the interactivity construct (e.g., Liu & Shrum, 2002; McMillan & Hwang, 2002; Song & Zinkhan, 2008). Liu and Shrum (2002) specify three dimensions. These three dimensions serve as umbrellas for many aspects of interactivity that one finds mentioned by other authors in the literature.

The first dimension is two-way communication. "Two-way communication refers to the ability for reciprocal communication between companies and users, and users and users" (Liu & Shrum, 2002, p. 55). On closer examination, other scholars also describe this dimension, but refer to it using terms such as: communication (Song & Zinkhan, 2008), bi-directional

flow of information (Liu, 2003), and direction of communication (McMillan & Hwang, 2002). Functions that could facilitate two-way communication are, for instance, chat rooms, bulletin boards, e-mail links, online order facilitations, and feedback mechanisms (e.g., McMillan & Hwang, 2002; Liu & Shrum, 2002; Song & Zinkhan, 2008).

The second dimension, synchronicity, refers to “the degree to which users' input into a communication and the response they receive from the communication are simultaneous” or without delay (Liu & Shrum, 2002, p. 55). Other scholars refer to this dimension using terms such as: responsiveness (Song & Zinkhan, 2008), time (McMillan & Hwang, 2002), and speed of response (Johnson et al., 2006). Website functions that could enhance synchronicity are functions that enhance the perception that a website responds immediately, for example an option to choose a type of internet connection, or animations that display the time it takes for the website to load.

The third dimension is active control. “Active control is characterized by voluntary and instrumental action that directly influences the controller's experience” (Liu & Shrum, 2002, p. 54). Other authors also refer to this dimension as: control (Song & Zinkhan, 2008), user control (McMillan & Hwang, 2002), and a user's ability to voluntarily participate in and instrumentally influence a communication (Liu, 2003). Active control is facilitated by the presence of navigational tools, search options, sitemaps, and links (e.g., McMillan & Hwang, 2002; Song & Zinkhan, 2008).

### **Previous Content Analyses**

Five earlier studies investigated the interactivity of the websites of brands. The first three content analyses mainly focused on listing and detecting these functions on websites (Ghose & Dou, 1998; Ha & James, 1998; Tse & Chan, 2004). The fourth and fifth content analysis compared interactivity of websites across cultures (Cho & Cheon, 2005; Okazaki, 2005). These comparisons were driven by the ongoing debate on whether or not to globalise (also called standardise) or localise (also called regional adaptation) international marketing (Okazaki, 2005).

The first content analysis of interactivity on the websites of brands was conducted by Ghose and Dou, back in 1998. They listed 23 interactive website functions and coded 101 websites. Results show that websites with many interactive functions were more likely to be included in the Lycos Top 5% list (a list of high quality websites) than websites with less interactive functions. The second content analysis by Tse and Chan (2004) replicated these findings by using an improved research methodology, for instance, by assessing inter-coder

reliability. Third, Ha and James (1998) also performed a content analysis of interactivity on the websites of brands. Although the interactive functions were not explicitly based on the list made by Ghose and Dou (1998), they largely overlapped. The main conclusion of this content analysis was that websites for products, services, and retail outlets differed in terms of interactivity.

The fourth study, which compared interactivity between countries, was conducted by Okazaki (2005) who content analyzed the presence of some interactive functions on home pages of American and European websites of brands. He found that American brands mainly adopted a localization strategy, so home pages from the U.S. and Europe were somewhat different with regards to their interactivity.

The last study also made a cross-cultural comparison of interactivity. Cho and Cheon (2005) assigned the 23 interactive functions of Ghose and Dou (1998) to three types of interactivity: consumer-marketer interactivity, consumer-message interactivity, and consumer-consumer interactivity. Then they compared interactivity on websites from Western and East Asian countries and found several differences. They showed, for example, that Western websites used forms of consumer-message interactivity and consumer-marketer interactivity, while Eastern websites emphasized consumer-consumer interactivity.

## **The Present Study**

The present study builds on previous research in three ways. First, earlier content analyses of the websites of brands used the list of 23 interactive functions developed by Ghose and Dou in 1998, although they acknowledge that this list has probably become outdated (Cho & Cheon, 2005). Therefore, we develop a new list of interactive functions.

Second, we categorize all interactive functions into the three interactivity dimensions: two-way communication, synchronicity, and active control. By doing so, we state that interactive functions are kinds of manifest variables for the underlying latent interactivity dimensions. We code the manifest content (i.e., interactive website functions) to determine which interactive functions and underlying dimensions are present on the websites of top global brands. In this way, we directly link the interactive website functions included in the instrument to theory on interactivity. Earlier content analyses lacked such a strong theoretical foundation.

Third, we test the applicability of the coding instrument by performing a content analysis on the websites of top global brands. To see whether the instrument is applicable to different contexts, we code websites from two

countries: the Netherlands and the U.S., and we code the websites of several product categories.

## Method

### Development of the Coding Instrument

The coding instrument has 50 interactive functions (see Table 2). These functions were acquired from earlier content analyses of interactivity on websites (e.g., Ghose & Dou, 1998; Ha & James, 1998; Cho & Cheon, 2005; Dou & Krishnamurthy, 2007). Additional interactive functions were obtained from the literature about interactivity (e.g., Song & Zinkhan, 2008, Johnson et al., 2006; McMillan & Hwang, 2002) and by browsing websites that were not included in the sample.

The 50 interactive functions were categorized into three previously described interactivity dimensions (see Table 2). To validate whether these 50 interactive functions were assigned appropriately to the three dimensions, we conducted an expert test to assess the face validity and content validity of our classification. This expert test is based on the work of Cho and Cheon, (2005) who claimed that: "Because both face and content validity are judgmental, we surveyed experts in the field of interactivity research" (Cho & Cheon, 2005, p. 104). Thirteen experts in the field of interactivity research were recruited by placing a request to participate on a virtual community for marketing academics (ELMAR) and by e-mailing researchers who have published about interactivity. We gave a description of each interactive function and interactivity dimension. To measure face validity, 50 questions were posed. We measured the extent to which an interactive function belonged to the pre-assigned interactivity dimension. The experts were asked to what extent an interactive function represented the pre-assigned dimension of interactivity. The scales ranged from 1 (fails to represent) to 7 (represents well). To assess content validity, one question was posed for each interactivity dimension. We asked whether the representative website functions were thorough enough to measure the interactivity dimension. Thus, in order to make this assessment, the scales ranged from 1 (not at all thorough) to 7 (very thorough). Concerning content validity, the results showed that the means for the three interactivity dimensions were not significantly lower than the scale midpoint. Thus, the content validity of our classification was confirmed.

With regards to face validity, the results showed that only three interactive functions had a mean face validity score significantly lower than the scale midpoint: FAQ's, sweepstakes/ prizes and electronic coupons. These three functions were clearly considered as interactive in the literature (Ghose & Dou,

1998; Ha & James, 1998; Cho & Cheon, 2005; Song & Zinkhan, 2008), but our experts did not agree on the dimension they belonged to. Therefore, we decided to exclude these three interactive functions from further analyses. The final instrument included 47 interactive functions.

## Sample

A ranking of the top 100 global brands was used for selecting the websites in our content analysis. The list was compiled by BusinessWeek (2007) and includes brands that meet three criteria: (1) The brands derived at least a third of its earnings outside its home country, (2) the brand name is familiar beyond its base of customers and (3) marketing and financial data are publicly available. To make a comparison between countries, only brands that had both an operating American and a Dutch website were selected for this study. Moreover, search engine websites, online auction sites (e.g., Ebay) and websites from brands that only existed on the internet (e.g., Amazon) were removed from the sample. This selection process resulted in 66 websites for each country. Thus, in total 132 websites were coded. Table 1 lists the brands whose websites were analysed in this study. Some examples are: Coca Cola, Siemens, Mercedes-Benz, BMW, McDonalds, and Shell. The brands were categorized into three different product types: non-durable goods, durable goods, and services. The categorization of the brands was based on the work of Okazaki (2005, 2006).

Table 1. *Brands investigated in this study*

Product-type	Brands	Percent
Non-durable goods	Coca Cola, Colgate, Danone, Gillette, Hermès, Johnson & Johnson, Kelloggs, Kleenex, Kodak, Kraft, L'Oréal, Nescafe, Nestle, Nivea, Pepsi, Ralph Lauren, Smirnoff, Wrigley	28%
Durable goods	Apple, Audi, BMW, Canon, Caterpillar, Dell, Duracell, Ford, General Electric, Harley-Davidson, Honda, HP, Hyundai, IBM, Lexus, LG, Mercedes Benz, Microsoft, Motorola, Nintendo, Nissan, Nokia, Panasonic, Philips, Porsche, Samsung, Siemens, Sony, Toyota, Volkswagen, Xerox	47%
Services	Accenture, Allianz, American Express, BP, Cisco, Disney, Hertz, IKEA, ING, JP Morgan, KFC, McDonalds, MTV, Pizza Hut, SAP, Shell, UPS	25%

## Procedure

Two bilingual coders, not including one of the authors, were made familiar with the definitions of each interactive function and were trained to

code the websites. They coded whether each of the interactive functions was present (1) or absent (0). Both coders coded all 132 (66 Dutch and 66 American) websites, since to test the degree of consistency among coders, at least two coders must make judgments on the same material (Potter & Levine-Donnerstein, 1999).

One complicating factor for the content analysis of websites is that websites are always changing and being updated. "To avoid this pitfall, the time and date at which web pages are coded must be carefully controlled" (Weare & Lin, 2000, p. 287). Another possibility is to save all websites. However, saving websites has an important disadvantage: some interactive functions become inoperative. Because these interactive functions are very important to our content analysis, we decided to control for possible changes by having the coders code at the same time and on the same day (McMillan, 2000).

The unit of analysis for this study consisted of two parts: (1) the home pages of each website (i.e., the first-level pages) and (2) all the pages hyperlinked from the home page (i.e., the second-level pages) (Cho & Cheon, 2005). Many earlier content-analyses of websites only coded home pages (for an overview see: Weare & Lin, 2000; McMillan, 2000), but focusing solely on home pages does not appropriately represent communication via websites (Weare & Lin, 2000). On the other hand, coding an entire website could be time-consuming as well as confusing (Ha & James, 1998; Okazaki, 2005), because the sizes of websites nowadays are enormous (McMillan, 2000). It is also hard to determine where one website ends and another website begins (Weare & Lin, 2000). Limiting our analysis to the first two levels of the websites improved the accuracy of our analysis, while giving us a more in-depth view than if we had only coded home pages. In addition, recent research suggests that for investigating website interactivity coding two levels is "the best trade-off between finding interactivity and the time it takes to find it" (McMillan et al., 2008, p. 799).

As coders were required to examine a substantial part of the website, the researchers developed clear instructions for them on how to explore the site (Weare & Lin, 2000). The coders coded the website as if they were reading a text. Thus, the coders first coded the home page. Then, on the home page, they clicked on the most upper-left link. After this page was coded, the coders returned to the home page to save them from being lost and taken off the website. Then they worked their way through the home page from left-to-right and top-to-bottom. Because coding many websites on one day is a threat to reliability (Potter & Levine-Donnerstein, 1999), the coders coded a maximum of eight websites a day. Coding took place from April 16 to May 20, 2008.

## Results

### Intercoder Reliability

Intercoder reliability was calculated using the reliability index suggested by Perreault and Leigh (1989). This index is considered to be superior by many researchers (e.g., Kolbe & Burnett, 1991; Okazaki & Rivas, 2002). The advantage of Perreault and Leigh's index is that it corrects for agreement by chance, because it accounts for differences in reliabilities due to the number of categories (Perreault & Leigh, 1989; Kolbe & Burnett, 1991). The reliability scores ranged from .74 to 1 (see Table 2), with a mean value of .90. We decided not to remove any interactive functions from our analysis for three reasons. First, a large majority of the reliability indexes exceeded the recommended minimum value of .80. Second, the interactive functions that did not exceed the recommended value of .80, only scored slightly below this value, with a minimum of .74. Finally, the mean reliability score of .90 showed us that the instrument as a whole can be used in a reliable way. As the content of websites is in constant flux, it was not possible to resolve disagreements among the coders after the coding period was finished. As a consequence we only used the data on which both coders agreed, which resulted in some missing data (9.87%).

### Application of the Instrument

After having developed the coding instrument, we were able to test the applicability of the instrument and explore which interactive functions and underlying dimensions are present on the websites. We first examined the presence of the individual interactive functions. Then we calculated an index score for each interactivity dimension by adding the number of interactive functions used on each website and dividing this number by the total interactive functions within a dimension ( $\times 100$ ) (Cho & Cheon, 2005).

### Two-way Communication

The most commonly used interactive function representing the two-way communication dimension was the presence of multiple modes of contact, which was present on 92.3% of the websites (see Table 2). The majority of the websites also included an online job placement (53.3%), in which visitors had the opportunity to search for a job online. On somewhat more than 40% of the websites, there was an option to order products online. On about 15% of the websites, visitors could recommend the website or product to a friend, visitors could type in their feedback, and/or there was an online problem diagnostics function.

Table 2. Operationalization, reliability, and coding results of interactivity functions

Dimension	Function	<i>I<sub>r</sub></i>	N	Presence			$\chi^2$	Presence			$\chi^2$
				Total	U.S.	NL		Non-durable	Durable	Service	
Two-way communication	Multiple modes of contact: for example, telephone, e-mail or online form	0.88	117	92.3	95.0	89.5	1.26	81.3	100.0	89.7	10.46**
		0.80	107	53.3	65.3	43.1	5.26*	32.3	58.3	67.9	8.39*
	Online job placement: online resume submission, personal career goal check etc.#	0.84	113	40.7	57.4	25.4	11.95**	26.5	52.8	34.6	6.48**
		0.83	112	17.0	23.1	11.7	2.58	26.5	12.0	14.3	3.20
	The possibility to recommend the website or product to a friend	0.90	120	16.7	24.1	9.7	4.51*	8.1	17.0	26.7	4.12
		0.90	120	15.0	15.3	14.8	0.01	5.7	25.9	6.5	9.20**
	A feedback form: customers can type their feedback in e-forms #	0.90	120	15.0	15.3	14.8	0.01	5.7	25.9	6.5	9.20**
		0.90	120	15.0	15.3	14.8	0.01	5.7	25.9	6.5	9.20**
	Online problem diagnostics: customers report their problem spots and this function helps them to locate the problem exactly #	0.92	122	11.5	21.7	1.6	12.07**	5.6	10.5	20.7	3.72
		0.92	122	11.5	21.7	1.6	12.07**	5.6	10.5	20.7	3.72
Podcasts: a program made available in digital format for automatic download	0.92	122	11.5	21.7	1.6	12.07**	5.6	10.5	20.7	3.72	
	0.92	122	11.5	21.7	1.6	12.07**	5.6	10.5	20.7	3.72	

Table 2 (continued). Operationalization, reliability, and coding results of interactivity functions

Dimension	Function	<i>I<sub>r</sub></i>	N	Presence			$\chi^2$	Presence			$\chi^2$
				Total	U.S.	NL		Non-durable	Durable	Service	
	Product registration: possibility to register a product online, to obtain updates, information or incentives #	0.95	125	10.4	12.7	8.1	0.72	0.0	23.2	0.0	17.88**
	Blogs: an online personal journal	0.95	125	8.8	12.9	4.8	2.58	8.1	7.1	12.5	0.76
	An online game against a computer #	0.92	122	8.2	8.5	7.9	0.01	15.2	3.4	10.0	4.06
	User groups: online community for users #	0.77	105	7.6	5.9	9.3	0.43	0.0	11.1	12.0	4.35
	Surfer postings: a section where surfers can write stories, opinions or convey messages #	0.93	123	4.9	6.6	3.2	0.74	0.0	8.9	3.3	4.03
	Survey of the company: survey for visitors that solicits their comments on the content and design of the site or the firms offering and service #	0.94	124	3.2	5.1	1.5	1.25	2.8	3.6	3.1	0.05
	An online fan club: a community of people who share a strong interest in the brand or product	0.86	115	2.6	3.6	1.7	0.40	0.0	4.1	3.2	1.40





Table 2 (continued). Operationalization, reliability, and coding results of interactivity functions

Dimension	Function	I <sub>r</sub>	N	Presence			X <sup>2</sup>	Presence			X <sup>2</sup>
				Total	U.S.	NL		Non-durable	Durable	Service	
Active control	Internal hyperlinks: links used to navigate within the website	1	132	99.2	98.5	100	1.01	97.3	100.0	100.0	2.59
	Hot links: links used to navigate back to the home page of the website	0.96	126	97.6	98.4	96.8	.38	94.1	100.0	96.9	3.33
	External links: links used to navigate to other websites	0.77	106	92.5	100	84.3	9.33**	91.4	93.0	92.9	.08
	Keyword search: a function that allows visitors to pinpoint particular information #	0.98	129	67.4	78.1	56.9	6.60**	35.1	83.1	75.8	25.17**
	Dealer locator: a function that allows visitors to pinpoint a dealer #	0.83	111	65.8	70.4	61.4	.99	38.2	82.4	69.2	17.82**
	Software downloading: surfers can download software of files from the website, usually for free #	0.74	101	65.3	68.6	62.0	.49	41.4	78.0	68.2	10.97**
	Sitemap: a webpage that displays the structure of a website	0.96	127	63.8	71.4	56.3	3.17	52.8	66.1	71.9	2.93
	Possibility to receive a newsletter	0.86	115	51.3	65.5	38.3	8.45**	38.2	60.0	51.6	3.84

Table 2 (continued). Operationalization, reliability, and coding results of interactivity functions

Dimension	Function	<i>I<sub>r</sub></i>	N	Presence			$\chi^2$	Presence			$\chi^2$
				Total	U.S.	NL		Non-durable	Durable	Service	
	Dropdown menu's: an interface element which allows visitors to choose a value from a list	0.75	103	45.6	54.7	36.0	3.63	34.4	57.4	37.5	4.92
	Choice of language: an option to choose the language of the website	0.84	113	32.7	43.6	22.4	5.77*	18.2	40.4	35.7	4.67
	Registration requirement to get access to certain parts of the website or certain information	0.75	103	30.1	40.0	20.8	4.53*	17.2	25.5	51.9	8.82**
	Customize product: an option to compose products by yourself	0.89	118	17.8	25.4	10.2	4.69*	8.8	33.3	0.0	17.28**
	Connection with a mobile phone, for example to download games	0.95	125	12.0	17.7	6.3	3.84*	0.0	17.2	16.1	6.92*
	Order status tracking: customers can track the status or whereabouts of their orders online in real time #	0.90	120	9.2	12.1	6.5	1.14	2.8	13.5	9.4	2.92
	Choice to see the text view of the website,	0.84	113	8.8	11.3	6.7	0.76	5.7	4.3	18.8	5.47

Table 2 (continued). Operationalization, reliability, and coding results of interactivity functions

Dimension	Function	<i>I<sub>r</sub></i>	N	Presence			<i>X</i> <sup>2</sup>	Presence			<i>X</i> <sup>2</sup>
				Total	U.S.	NL		Non-durable	Durable	Service	
	Explicit presence of cookies, for example a button "remember me"	0.88	117	8.5	10.5	6.7	0.56	0.0	7.8	19.4	7.94**
	Personal preference option: possibility to customize information on the website	0.77	105	5.7	8.2	3.6	1.02	0.0	4.8	13.3	5.30
	Possibility to make a wish list, especially in online shops	0.98	130	2.3	4.6	0.0	3.07	0.0	3.3	3.0	1.18
	Choice to see the website with or without flash	0.95	126	2.4	3.3	1.5	0.41	2.9	3.3	0.0	1.02
	Requirement to report your age before entering a website	1	132	0.8	0.0	1.5	1.01	2.7	0.0	0.0	2.59
	Option to change the background colour of the website	0.97	128	0.0	0.0	0.0	n.a.	0.0	0.0	0.0	n.a.
	Possibility to change settings to use the website as your home page	0.98	129	0.0	0.0	0.0	n.a.	0.0	0.0	0.0	n.a.

Note. Presence = percent of the websites that displayed this function; *I<sub>r</sub>* = Perreault and Leigh reliability index; *N* = Valid number of observations; n.a. = not available; \* = *p* < .05, \*\* = *p* < .01; <sup>a</sup> = removed from the code sheet after the expert test by interactivity experts; # = also present in the coding instrument of Ghose and Dou.

To investigate the underlying interactivity dimensions, we calculated an index score for each interactivity dimension. Table 3 shows that the mean relative index score for the two-way communication dimension was 13.6. This means that only 13.6% of the interactive functions within the two-way communication dimension (= 2.58 functions) were used on the websites of top global brands.

*Differences between countries.* Table 2 also shows some differences between the Dutch and American websites. From the 19 functions that represented the two-way communication dimension, four functions (21.05%) were significantly more prevalent on websites from the U.S. than on websites from the Netherlands. The functions that were more common on websites from the U.S. were: online job placement, online order, pod casts, and a feedback form.

To see whether the presence of the two-way communication dimension is different in the Netherlands and in the U.S., a t-test was conducted. As shown in Table 3, the mean two-way communication index score for websites from the U.S. (16.27%) was significantly higher than the mean for websites from the Netherlands (10.93%).

Table 3. *Index scores interactivity dimensions for both countries*

Dimension		Total	U.S.	NL	<i>t</i>
Two-way communication	Percent	13.60 (9.69)	16.27 (10.68)	10.93 (7.80)	-3.28**
Synchronicity	Percent	6.82 (11.55)	9.09 (13.21)	4.55 (9.15)	-2.30*
Active control	Percent	31.44 (11.62)	35.40 (11.76)	27.48 (10.10)	-4.15**
Total	Percent	20.94 (8.55)	24.11 (8.96)	17.76 (6.84)	-4.58**

*Note.* Cell values indicate percent of interactive functions present on the websites of top global brands, standard deviations in parentheses. U.S. = United States, NL = the Netherlands. \*  $p < .05$ , \*\*  $p < .001$ .

*Differences between types of products.* For six out of 19 functions (31.58%) significant differences existed between the three product types (these were online job placement, online problem diagnostics, product registration, online order facilitations, multiple modes of contact, and a possibility to send e-cards). Most of these functions were significantly more prevalent on the websites of durables goods and services than on the websites of non-durable goods.

To see whether the presence of the two-way communication dimension is different for the three different types of products, a GLM (General Linear Model) analysis was conducted with the types of product as the independent variables and the index scores for each interactivity dimensions as dependent variables. As shown in Table 4, the mean two-way communication index score for the websites of durable goods (15.37%) was significantly higher than the mean for the websites of non durable goods (10.10%).

Table 4. *Index scores interactivity dimensions for all product types*

Dimension		Non-durables	Durables	Services	F
Two-way communication	Percent	10.10 <sup>b</sup> (8.54)	15.37 <sup>a</sup> (10.10)	14.19 <sup>ab</sup> (9.35)	3.65*
Synchronicity	Percent	9.19 (12.11)	7.10 (11.51)	3.64 (10.55)	2.09
Active control	Percent	24.50 <sup>b</sup> (10.63)	34.31 <sup>a</sup> (10.24)	33.75 <sup>a</sup> (12.24)	10.29**
Total	Percent	16.56 <sup>b</sup> (7.71)	23.03 <sup>a</sup> (8.21)	21.92 <sup>a</sup> (8.52)	7.61**

Note. Cell values indicate percent of interactive functions present on the websites of top global brands, standard deviations in parentheses. U.S. = United States, NL = the Netherlands. \*  $p < .05$ , \*\*  $p < .001$ .

## Synchronicity

Table 2 shows that the most common interactive function which represents the synchronicity dimension of interactivity is an animation that displays the time it takes for the website to load. This was present on 28.6% of the top brands websites. A virtual reality display, a function that permits consumers to virtually "feel or experience" the product, was present on only 7.9% of the websites. A live customer service was present on only 3.2% of the websites. The presence of the other interactive functions that represent the synchronicity dimension can be found in Table 2. Regarding the underlying interactivity dimension, Table 3 shows that the mean relative index score for the synchronicity dimension was 6.82 (= 0.34 functions).

*Differences between countries.* From the six functions that represented the synchronicity communication dimension, only one function (16.67%) was significantly more common on websites from the U.S. than on websites from the Netherlands: an animation that displays the time it takes for the website to load. The mean synchronicity index score for websites from the U.S. (9.09%) was significantly higher than the mean for Dutch websites (4.55%) (see Table 3).

*Differences between types of products.* Only one small, but significant difference was found between brands on this dimension. An animation that displays the time it takes for the website to load was more prevalent on the websites of durable and non-durable goods than on the websites of services. Furthermore, there were no significant differences found for the index scores for this dimension (see Table 4).

## Active Control

The most commonly interactive functions representing the active control dimension of interactivity were the presence of internal links (99.2%), hotlinks (97.6%) and external links (92.5%) (see Table 2). The majority of the websites also offered a keyword search (67.4%), a dealer locator (65.8%), software downloading (65.3%), a sitemap (63.8%), and the possibility to subscribe to a newsletter (51.3%) (see Table 2). Although they were not present on the majority of websites, other popular functions were: dropdown menu's (45.6%), language choice (32.7%), registration requirement (30.1%), an option to customize products (17.8%), and a possibility for connection with a mobile phone (12.0%). The mean relative index score for the active control dimension was 31.44 (= 6.92 functions).

*Differences between countries.* Seven out of 22 functions (31.8%) were significantly more common on websites from the U.S. than on websites from the Netherlands. The functions that were more prevalent on websites from the U.S. were: external links, keyword search, a possibility to receive a newsletter, choice of language, registration requirement, connection with a mobile phone, and an option to customize a product. As shown in Table 3, the mean active control index score for websites from the U.S. (35.40%) was significantly higher than the mean for websites from the Netherlands (27.48%).

*Differences between types of products.* For seven out of 22 functions (31.8%) significant differences existed between the three product types (these were a dealer locator, search option, registration requirement, connection with a mobile phone, software downloading, presence of cookies, and an option to customize product). Five of these functions were significantly more prevalent on the websites of durable goods and services than on the websites of non-durable goods.

To see whether the presence of this dimension is different for the three different types of products, a GLM analysis was conducted. As shown in Table 4, the mean active control index score for the websites of durable goods (34.31%) and services (33.75%) was significantly higher than the mean for the websites of non durable goods (24.5%).

## Overall Interactivity

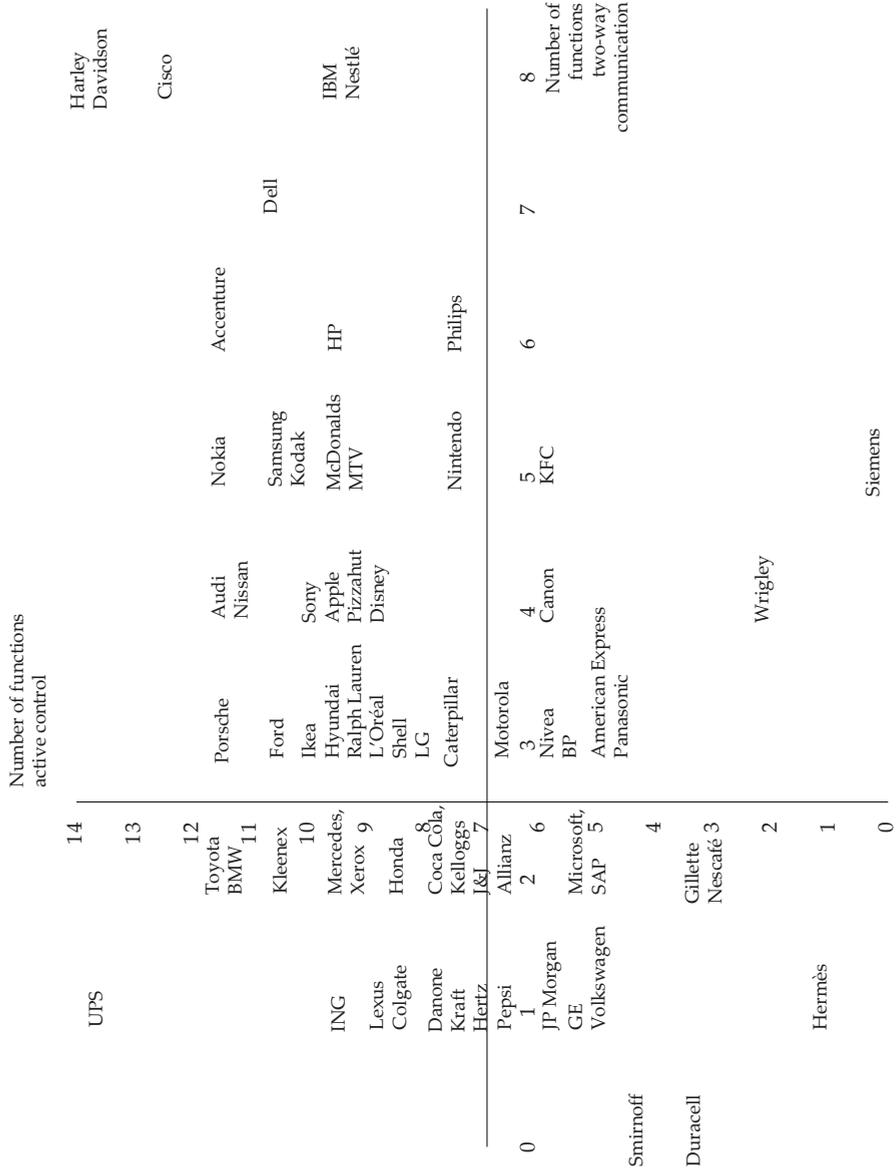
To draw conclusions on the total amount of interactivity on the websites of top global brands, index scores for the total interactivity were calculated by adding the total number of interactive functions used on each website (see Table 3 and 4). These scores show that a mean of 20.94% of the total interactive functions (= 9.84 functions) was used on a website. The mean index score was significantly higher for websites from the United States (24.11%) than from the Netherlands (17.76%). The scores were also significantly higher for the websites of durable goods (23.03%) and services (21.92%) than for the websites of non-durable goods (16.56%).

Figure 1 gives insight into the relative position of the investigated brands on the two most important dimensions of interactivity: two-way communication and active control. For the sake of simplicity and because functions representing the synchronicity dimension were hardly present, we decided to omit this dimension from our graphical presentation. Figure 1 provides additional support for our conclusions regarding the differences between product types. Durable goods, and to a lesser extent, services, are overrepresented in the upper-right quadrant of the figure, while non-durable goods are overrepresented in the bottom-left quadrant of the figure.

## Conclusion and Discussion

The main aim of this study was to develop a new instrument to measure interactivity of the websites of top global brands. The study responded to the call for an up-to-date coding instrument to substitute the well-known but outdated coding instrument which was developed by Ghose and Dou (1998). A list of 50 interactive functions was composed from the interactivity literature. By assigning these interactive functions to three interactivity dimensions (i.e., two-way communication, synchronicity and active control), the study builds upon the conceptualization of interactivity in the literature. Moreover, an expert test validated the categorization of the interactive functions to the three dimensions. As a result, the coding instrument is directly linked to the multidimensional nature of the interactivity construct.

Figure 1. Graphical presentation of the investigated brands



Another aim of the study was to test the applicability of the instrument by investigating which interactive functions and underlying interactivity dimensions were present on the websites of top global brands. Application of the instrument showed that coders were able to use the instrument without any difficulties, and that reliability levels were considered as good. Furthermore, the coding instrument was applicable to different contexts. The instrument was internationally applicable and was able to differentiate between websites from the U.S. and the Netherlands. The instrument was also applicable to websites from different product categories and it could differentiate between brands.

The results of our content analysis also gave insight into the interactivity of the websites of top global brands. In sum, the results showed that interactive functions representing the active control dimension of interactivity were most prevalent. Common functions within this dimension were the presence of all kind of hyperlinks, search functions, software downloading, sitemaps, and an option to subscribe to a newsletter. Functions representing the two-way communication dimension were somewhat less common. Frequently used functions within the two-way communication dimension were the presence of multiple modes of contact, online job placement, and online shopping facilities. Interactive functions which facilitate synchronicity were relatively scarce. The only function that was present on a fairly large number of websites was an animation that displays the time it takes for the website to load.

Our conclusion regarding the differences between websites from the U.S. and the Netherlands is not univocal. When looking at the individual interactive functions we conclude that websites from the U.S. and the Netherlands are quite similar. Only 12 out of 47 functions were significantly more prevalent on websites from the U.S. than on websites from the Netherlands. In contrast, when investigating the index scores we should conclude that websites from the U.S. are more interactive than their Dutch counterparts. Regarding the differences between types of brands, we can conclude that the websites of durable goods and services are somewhat more interactive than the websites of non-durable goods.

In conclusion, our study has provided an important step towards developing a new coding instrument to measure website interactivity. Tentative conclusions can be drawn concerning the reliability and validity of the instrument. An initial effort was made to assess face and content validity of the instrument by conducting an expert test among the experts in the field of interactivity research. The new instrument showed high levels of inter-coder

reliability. Furthermore, the instrument was applicable to different contexts and was sensitive enough to differentiate between countries and brands.

### **Limitations and Future Research**

Although the study improved our knowledge of interactivity, there are some limitations. The most important limitation was that the coders coded 'only' two website levels (i.e., all home pages and all the pages hyperlinked from the home page). Coding two levels is an improvement on some earlier content analyses that coded only home pages. However, it still gives a snapshot of a website and not a complete picture. To code entire websites, automatic content analysis procedures could offer interesting opportunities. Therefore, future research could map the interactivity of entire websites by using such techniques.

Now that we know which interactive functions are present on the websites of top global brands, future research might also investigate the relationship between objectively assessed interactivity and interactivity perceptions. Although it is suggested that increasing the quantity of interactive functions on a website results in a higher perceived interactivity (Macias, 2003; Sicilia, Ruiz, & Munuera, 2005), there is also some evidence that this may not be the case (McMillan, 2002; Liu & Shrum, 2002; Song & Zinkhan, 2008). Strikingly, there has been little research in examining which interactive functions determine the perceived interactivity of a website. Only when this question is answered, marketers know which interactive functions enhance the perceived interactivity of a website. The coding instrument that was developed in the current study might be valuable for such an effort. Future research could, for example, combine a content analysis of interactive website functions with a survey in which the perceived interactivity of the same websites is measured.

### **Managerial Implications**

The study has some important managerial implications. Practitioners can benefit both from the developed instrument, as well as from the findings of the content analysis. The instrument can be used by practitioners to assess the interactivity of their own websites. Thereby, it shows which forms of interactivity are already used and what theoretical dimensions of interactivity are covered the most. Practitioners can also use the instrument to compare the level of interactivity on their own website with the websites of their competitors. The findings of the content analysis can serve as a benchmark; practitioners can compare the interactivity of their own websites to the websites of the top global brands. Finally, future research that will utilize the developed instrument will

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also help practitioners in developing a better understanding on the uses and effects of interactivity.

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## What Makes the Websites of Global Brands Truly Interactive? <sup>4</sup>

### Abstract

To investigate the relationship between actual and perceived interactivity, this study combines a content analysis of interactive functions on the websites of the top 100 global brands with a survey ( $N = 715$ ) in which the perceived interactivity of the same websites is measured. The main findings are: (1) there is great incongruence between the level of actual and perceived interactivity, (2) adding interactive functions to a website does not guarantee a strong perception of interactivity, (3) six unique website characteristics contribute positively to interactivity perceptions. In conclusion, its unique characteristics make the websites of top global brands truly interactive.

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## Introduction

Interactivity is commonly seen as the crucial distinction between traditional and new media (Chung & Zhao, 2004) and as the vital element of successful online advertising (Thorbjornson, Supphellen, Nysveen, & Pedersen, 2002; Kim & McMillan, 2008). Two constructs are central to the theoretical discussion about interactivity: actual interactivity and perceived interactivity. Actual interactivity is objectively assessed interactivity, also called feature-based interactivity (Song & Zinkhan, 2008). This type of interactivity can be measured by observing the number and type of interactive features on a website. Perceived interactivity is subjectively experienced by users and therefore often referred to as experiential interactivity (Liu & Shrum, 2002; Wu, 2005). This form of interactivity can be measured by asking consumers about their feelings or experiences during their website visit.

In the past years interactivity research has changed from a focus on actual interactivity to a focus on perceived interactivity (Song & Zinkhan, 2008). When the focus was on actual interactivity, studies typically identified potential interactive website features. Later, a central theme in the studies was the question how interactivity features influence the effectiveness of websites. Currently, many authors are arguing that not actual, but perceived interactivity of a website determines consumers' responses (Song & Zinkhan, 2008). Some researchers even argue that a clear distinction between actual and perceived interactivity will help explain seemingly inconsistent findings concerning consumers' responses to website interactivity (for an overview see Liu & Shrum, 2002; Wu, 2005). Thus, it is vital to learn more about the relationship between these two key constructs.

Therefore, the aim of this study is to investigate the relationship between actual and perceived interactivity on the websites of brands. By doing so, our study responds to the call of many authors that stressed the importance of investigating this relationship (Liu & Shrum, 2002; Song & Zinkhan, 2008; Lee, Lee, Kim, & Stout, 2004; McMillan, 2002). Strikingly, little research has examined this issue (Song & Zinkhan, 2008; Bucy & Tao, 2007). Concerning the relationship, many traditional interactivity studies suggest a positive linear relationship between actual and perceived interactivity. These studies suggest that increasing the quantity of interactive features (i.e. actual interactivity) results in stronger interactivity perceptions (Coyle & Thorson, 2001; Macias, 2003; Sicilia, Ruiz, & Munuera, 2005). However, there is also some evidence that the relationship between interactive functions and perceived interactivity is more complicated, specifically that "simply adding features does not guarantee a high level of [perceived] interactivity" (Song & Zinkhan, 2008, p. 109).

The current research is necessary for at least three reasons. Firstly, for the sake of theory development on interactivity effects. Liu and Shrum (2002) stated, for example, that the lack of consistent findings on interactivity effects could have been caused by the lack of our knowledge about the relationship between objectively assessed interactivity and subjectively measured interactivity. Secondly, it is important to learn more about the relationship in order to improve the validity of future research. "Without an understanding of how participants perceive the actual interactive features, researchers run the risk of creating an invalid operationalization of interactivity" (Liu & Shrum, 2002, p. 58). The final reason why it is vital to study the relationship between interactivity functions and perceptions is related to advertising practice. In order for marketers to know which interactive features to incorporate on their websites they must know which interactive website functions contribute to interactivity perceptions.

In the remainder of this article we first shortly review the theoretical background and operationalization of the interactivity construct. Secondly we discuss the small amount of existing literature on the relationship between actual and perceived interactivity. Next we describe the design of our study. Finally, after reviewing the findings, we draw conclusions about what makes a website of a top global brand truly interactive.

## **Background**

### **Definition and Conceptualization of Interactivity**

Although there is a significant amount of research into interactivity, there is still no consensus about its definition and dimensions (e.g., Liu & Shrum, 2002, Raney et al., 2003; Thorbjornson et al., 2002; McMillan and Hwang, 2002; Song & Zinkhan, 2008). Liu and Shrum (2002) made an invaluable contribution to the advertising literature by meaningfully synthesizing numerous interactivity definitions and conceptualizations in the advertising, marketing, and communication literature.

Following Liu and Shrum (2002, p. 54), we define interactivity as: "The degree to which two or more communicating parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized." Several scholars recognize the multidimensional nature of the interactivity construct (e.g., Liu & Shrum 2002; Johnson, Bruner II, & Kumar, 2006; Song & Zinkhan, 2008). Liu and Shrum (2002) specified three central dimensions, overarching many elements of interactivity that are found in the literature.

The first dimension is two-way communication which refers to “the ability for reciprocal communication between companies and users, and users and users” (Liu & Shrum, 2002, p. 55). On closer examination, several other authors also describe this dimension, but use different terminology, such as communication (Song & Zinkhan, 2008), bi-directional flow of information (Liu, 2003), and direction of communication (McMillan & Hwang, 2002). Website features or functions that could facilitate two-way communication are, for instance, feedback forms, web logs, chat rooms, surfer postings, e-mail links, and online order facilitations (e.g., McMillan & Hwang, 2002; Liu & Shrum, 2002; Song & Zinkhan, 2008).

The second dimension, synchronicity, refers to “the degree to which users' input into a communication and the response they receive from the communication are simultaneous” or without delay (Liu & Shrum, 2002, p. 55). Other scholars call this dimension responsiveness (Song & Zinkhan, 2008), time (McMillan & Hwang, 2002) and speed of response (Johnson et al., 2006). Website functions that could improve synchronicity are features that enhance the feeling that a website responds immediately, for example an animation that display the time it takes for the website to load or an option to choose a type of internet connection.

The third dimension is active control. “Active control is characterized by voluntary and instrumental action that directly influences the controller's experience” (Liu & Shrum, 2002, p. 54). Other authors refer to this dimension as: control (Song & Zinkhan, 2008), user control (McMillan & Hwang, 2002), and a user's ability to voluntarily participate in and instrumentally influence a communication (Liu, 2003). Active control is facilitated by the presence of navigational tools, such as hyperlinks, site maps, and search options, or possibilities to customize products or information on the website (e.g., McMillan & Hwang, 2002; Song & Zinkhan, 2008).

### **Relationship between Actual and Perceived Interactivity**

Several studies discussed the likelihood of an unclear relationship between actual and perceived interactivity, and acknowledged the need for research on this issue (e.g., McMillan et al., 2008, Song & Zinkhan, 2008; Liu & Shrum, 2002; McMillan, 2002; Lee et al., 2004). Surprisingly, only four studies empirically tested the relationship. McMillan (2002) was the first who found some preliminary indications that the relationship between objectively and subjectively assessed interactivity was unclear. Results of her exploratory content analysis of 108 health websites showed no correlation between objectively assessed interactivity and the perceptions of the coders.

The second preliminary study was conducted by Lee et al. (2004). The authors performed a content analysis of three websites and performed in-depth interviews with 39 students about their experiences on these websites. Results showed that the websites had objectively the same levels of interactivity (i.e. the same number of interactive features), however, participants reported differences in the level of perceived interactivity.

The third study (Yun 2007) tested the influence of response time, hyperlinks, multimodality (the presence or absence of sounds on a website), and active involvement (the presence of a personalized advice based on consumers input) on interactivity perceptions in an experimental study. Results showed that only response time was able to affect interactivity perceptions. When the website responded faster, interactivity perceptions became higher. However, the author acknowledged that the measurement of the perceived interactivity concept was probably not reliable because it was measured with a single indicator. Consequently, the study calls for further examination with reliable measurements.

The fourth, most recent study in the field, specifically aimed to disentangle the relationship between actual and perceived interactivity. Song and Zinkhan (2008) experimentally tested how three interactive website features on a website were able to predict the level of perceived interactivity. Results showed that the most important predictor of perceived interactivity was the degree to which a message was personalized. Additionally, response time and number of clicks also significantly predicted the perceived interactivity of the website. Although the study made a large contribution to the field, Song and Zinkhan (2008) recommended testing the influence of more interactive functions to give a more comprehensive insight. Our study is a direct response to this call.

## **Explanations for Incongruence between Actual and Perceived Interactivity**

Why is the relationship between actual and perceived interactivity so complicated? In the literature two possible explanations are given (Lee et al., 2004; Song & Zinkhan, 2008). First, some interactive functions might be perceived as more interactive than other functions (Liu & Shrum, 2002). For example, a personal choice helper; a function that can make relatively sophisticated recommendations on consumers' choices based on their input on preferences and decision criteria, might be perceived as more interactive than the availability of an e-mail link that can be used to contact a sales representative.

Second, some interactive website functions, for example hyperlinks, might have become so common that they do not contribute to interactivity perceptions anymore (Yun, 2007). Thus, it is possible that only relatively unique interactive functions affect interactivity perceptions.

### Research Questions

To further investigate the relationship between actual and perceived interactivity we formulated three research questions:

**RQ1:** Is there incongruence between the level of actual and perceived interactivity on the websites of brands?

**RQ2:** What is the relationship between the number of interactive functions on a website and the level of perceived interactivity?

**RQ3:** Which interactive functions contribute to the perceived interactivity of the websites of brands?

### Method

To examine the relationship between actual and perceived interactivity, we combined two research methods: a content analysis and a survey. First, we investigated the actual interactivity by exploring which interactive functions were present on the websites of brands. Once we identified the presence of interactive functions, we conducted a survey in which we measured interactivity perceptions. Finally, we linked the two datasets together to discover the relationship between actual and perceived interactivity and to see which key website functions enhance interactivity perceptions.

### Content Analysis

*Sample.* A list of the top 100 global brands (Business Week, 2007) was used for selecting the websites in our analysis. Search engine websites, online auction sites (e.g., Ebay) and the websites of brands that only exist on the internet (e.g., Amazon) were removed from the sample, because these websites do not fit our definition of the websites of brands which are defined as business to consumer websites that have persuasion as the most important goal (Voorveld, Neijens, & Smit, 2009). Another reason for removing these websites from our sample is because websites like e-bay and Amazon could provide other forms of interactivity that can not be measured with the coding scheme that was used in this paper. In addition, only brands that also had an operating Dutch language website were selected, as the study was conducted in the Netherlands. Earlier research has shown that websites from the Netherlands do

not substantially differ from their American counterparts with regard to interactive website functions (Voorveld, Neijens, & Smit, in press). Therefore we believe the results of our study will be relevant to the western world. The selection consisted of 65 websites. Figure 2 mentions the websites that were analysed in this study.

**Coding instrument.** The coding instrument (see Table 1, 2, and 3) was developed and validated by Voorveld et al., (in press). The coding instrument included 47 interactivity functions which were obtained from earlier studies on interactivity (e.g., Ghose & Dou, 1998; McMillan & Hwang, 2002; Dou & Krishnamurthy, 2007). The 47 functions were categorized into the three interactivity dimensions (two-way communication, synchronicity, and active control). The content and face validity of this categorization was assured by experts in the field of interactivity research. The experts were asked to what extent an interactive function represented the pre-assigned dimension of interactivity and whether the representative website functions were thorough enough to measure the interactivity dimension (Cho & Cheon, 2005). Earlier application of the instrument showed high levels of inter-coder reliability (Perreault and Leigh's index = .90). Furthermore, the instrument was applicable to different contexts and the instrument was sensitive enough to differentiate between countries and brands (Voorveld et al., in press).

Variables in the content analysis were the 47 individual interactive functions and an index score for each dimension. We calculated an index score for each interactivity dimension by adding the number of corresponding interactive functions used on each website and dividing this number by the total interactive functions within the dimension (\* 100). To calculate the index score we followed the procedure of Cho and Cheon (2005).

**Procedure.** Two coders were made familiar with the definitions of each interactive function and were trained to code the websites. They coded whether an interactive function was present (1) or absent (0). To assess inter-coder reliability, 20% of the websites were coded by both coders. Because websites are continuously changing, we decided to control for possible changes by having both coders code at the same time. Coding and the conduction of the survey took place in the same time period (December 2008).

The unit of analysis for this study consisted of two parts: (1) the home pages of each website (i.e., the first-level pages) and (2) all hyperlinked pages from the home page (i.e., the second-level web pages) (Cho & Cheon, 2005). We chose to code two levels because trying to code an entire website would be extremely time-consuming and confusing (Ha & James, 1998; Okazaki, 2005). Limiting our analysis to the first two levels of the websites improved the

accuracy of our analysis while giving a more in-depth view than coding only home pages, as is done by many others in the field (for an overview see Weare & Lin, 2000; McMillan, 2000). Furthermore, recent research suggests that coding two levels is appropriate for investigating the interactivity of websites (McMillan et al 2008).

*Inter-coder reliability.* Inter-coder reliability was calculated using the reliability index suggested by Perreault and Leigh (1989). This index is considered the best by many researchers because it corrects for agreement by chance due to the number of categories (e.g., Kolbe & Burnett, 1991). The reliability scores had a mean value of .92. Because a large majority (90%) of the reliability indexes exceeded the recommended minimum value of .80, we decided not to remove any variable from our analysis. The coders resolved all disagreements by consulting screenshots that were saved of every coded webpage, 100% agreement was achieved.

### Survey

*Materials, participants, and procedure.* The 65 websites from the content analysis were used as stimulus material in the survey. Three hundred and thirty one respondents (72.2% women), mainly students from the University of Amsterdam, participated in the survey. Participants were asked to browse a website for about five minutes in order to learn more about the brand and its products. After browsing a website, participants had to fill in the questionnaire. Participants browsed three websites, however due to technical problems some participants only browsed one or two websites. Websites were randomly selected from the list of 65 websites. Completing the survey took 20 to 25 minutes. In total, 715 evaluations were completed, which resulted in about 11 evaluations per website.

### Measures

*Perceived interactivity.* To measure the three dimensions of perceived interactivity, eleven items of the scale of Liu (2003), and Song and Zinkhan (2008) were used. When combining our scale, we followed a recent article on interactivity by Song & Zinkhan, 2008, although the chosen items closely resemble the original wordings of Liu (2003). At the time the study was conducted no other, more recent scale was available to measure perceived interactivity.

*Two-way communication dimension.* Two way communication was measured with four items of Liu (2003) and Song and Zinkhan (2008). Items included: (1) "The website enables conversation" and (2) "The website facilitates two-way communications between the visitors and the site", (3) "It is

not difficult to offer feedback to the site”, and (4) “The website makes me feel it wants to listen to its visitors”. Response categories ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

**Synchronicity dimension.** Synchronicity was measured with three items of Liu (2003) and Song and Zinkhan (2008). Items included: (5) “The website processes my input very quickly”, (6) “I was able to obtain the information I want without any delay” and (7) “The website was very fast in responding to my feedback”. Response categories ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

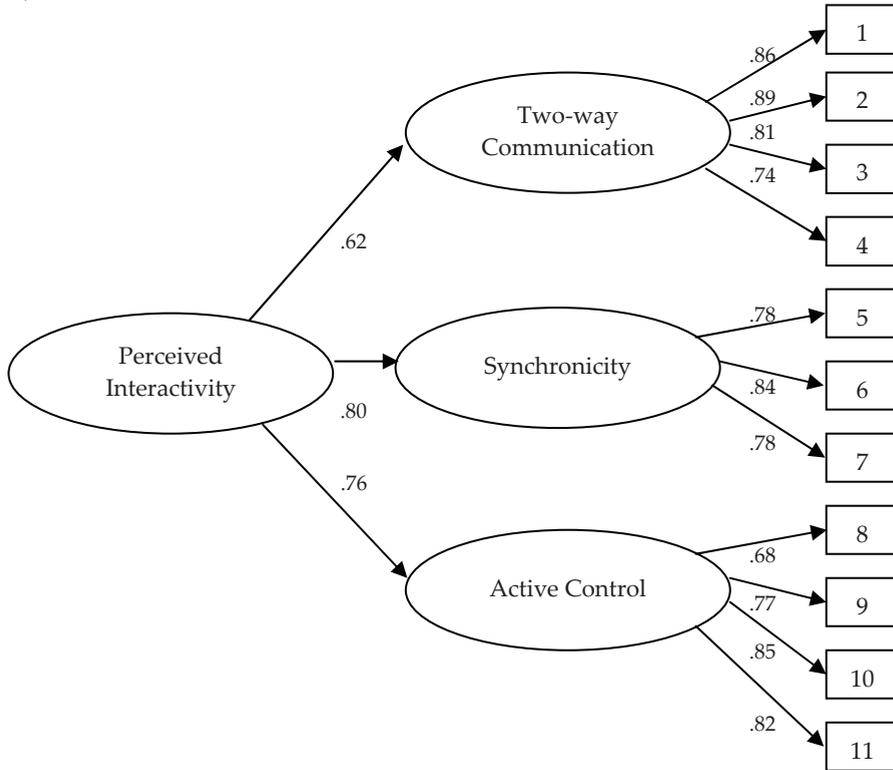
**Active control dimension.** Active control was measured with four items of Liu (2003) and Song and Zinkhan (2008). Items included: (8) “While I was on the site, I could choose freely what I wanted to see”, (9) “While I was on the site, I was always aware where I was”, (10) “While I was on the site, I always knew where I was going”, and (11) “I feel that I have a great deal of control over my visiting experience at this site”. Response categories ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

The underlying structure of the perceived interactivity scale was verified in a confirmatory factor analysis using Structural Equation Modelling in Amos. The model revealed a good fit of the data ( $X^2(41, N = 715) = 212.23, p < .001, CFI = .962, NFI = .953, RMSEA = .076$ ) (Byrne, 2001). In this way perceived interactivity is modelled as a second-order latent construct (see Figure 1).

Our results resemble the structure of the 15-item instrument for measuring interactivity by Liu (2003). One score for each dimension was obtained by calculating the mean of the items representing the dimension (Two-way communication:  $M = 3.68, SD = 1.26, Cronbach's\ alpha = .89$ ; Synchronicity:  $M = 4.76, SD = 1.27, Cronbach's\ alpha = .84$ ; Active control:  $M = 4.88, SD = 1.29, Cronbach's\ alpha = .86$ ). One score for overall perceived interactivity was obtained by calculating the mean of the scores on the three dimensions ( $M = 4.41, SD = 1.02$ ).

**Control variables.** The following variables were measured to assess their influence on the perceived interactivity scales: time spent on the website, internet experience, online shopping experience, and frequency of earlier visits to the website

Figure 1. *Second-order factor structure of the perceived interactivity construct (N = 751)*



*Note.* Factor loadings are standardized scores

## Results

### Construction of the Dataset

No correlation was found between the control variables and the perceived interactivity scales. Due to this fact we decided not to control for these variables in our analyses. Data from the content analysis were used as independent variables in the subsequent analyses. Data from the survey were used as dependent variables. Perceived interactivity scores for each dimension were calculated for all 65 websites. As a result our dataset contained one case for each website (i.e. aggregated data based on mean scores per website, N = 65, 11 evaluations per website).

**RQ1: Incongruence between Actual and Perceived Interactivity**

Our first research question investigated if there was incongruence between actual and perceived interactivity on the websites of brands. For every website we calculated two rank scores, which we inserted in a plot (see Figure 2). The horizontal axis displays the rank scores based on the actual interactivity of the websites (the total number of interactive functions on that website). The vertical axis displays the rank scores of the websites based on its perceived interactivity score. This rank is based on the overall perceived interactivity score that is composed of all three interactivity dimensions. A rank of 1 was assigned to website with the highest value, while a rank of 65 was assigned to the site with the lowest value.

Figure 2. *Incongruence between actual and perceived interactivity*

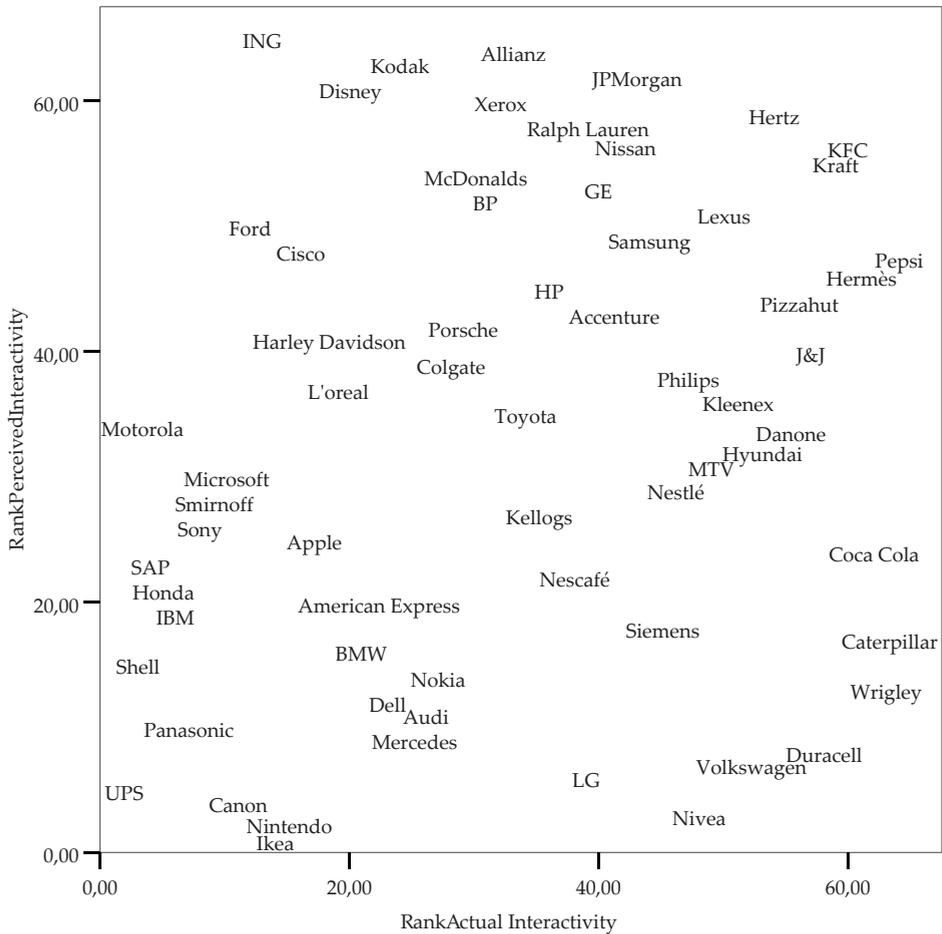


Figure 2 points out incongruence between websites that were objectively seen as highly interactive and websites that were subjectively perceived as interactive. For example, the website that was objectively viewed as the most interactive was the website of Motorola. However, people did not perceive this website as very interactive. Based on the perceived interactivity score the website is ranked as 34<sup>th</sup>. In line with this observation, the Spearman's rank correlation coefficient between the scores for actual interactivity and perceived interactivity revealed a non significant relation ( $r_s .18, p = .15$  two-tailed). So, we can conclude that there is indeed great incongruence between the level of actual and perceived interactivity on the websites of brands.

### **RQ2: The Relation between the Number of Interactive Functions and Perceived Interactivity**

Our second research question investigated the relationship between the number of interactive functions on a website and the level of perceived interactivity. To test whether the number of interactive functions on a website affected its perceived interactivity, the total number of interactive functions within each dimension (from the content analysis) was regressed on the perceived interactivity score for that dimension (from the survey). One-tailed significance tests were used because we had strong expectations about the direction of the relation; we expected that adding functions would result in stronger interactivity perceptions

For the two-way communication dimension, there was a marginally significant relationship between the index score and the perceived interactivity score ( $\beta = .18, p = .08$ , one-tailed). Thus, the actual interactivity score marginally affected interactivity perceptions. Next, the number of interactive functions within the synchronicity dimension was regressed on the perceived interactivity score for that dimension. The number of interactive functions was not significantly related to the perceived interactivity score ( $\beta = -.01, p = .48$ , one-tailed). There was neither a significant relationship for the active control dimension ( $\beta = .05, p = .34$  one-tailed), nor between the total number of interactive functions and the overall perceived interactivity score ( $\beta = .13, p = .14$ , one-tailed).

In summary, for two out of three dimensions there was no relationship between the number of interactive functions and the perceived interactivity scores. Moreover, there was no significant relationship between the total number of interactive functions and the overall interactivity score. Thus, a high number of interactive functions on a website do not guarantee a high level of perceived interactivity.

### **RQ3: Interactive Features Contributing to Interactivity Perceptions**

We describe the results of the third research question separately for each interactivity dimension. First, we will shortly describe the results of the content analysis, and then we will describe which functions contributed to interactivity perceptions.

#### ***Two-way Communication***

***Actual interactivity.*** The content analysis revealed that the most commonly used interactive function representing the two-way communication dimension was the presence of multiple modes of contact, which was present on 87.7% of the websites (see Table 1). The majority of the websites also included an option to order products online (55.4%). Nearly 45% of the websites contained an online job placement (44.6%), in which visitors to the websites had the opportunity to search for a job online. On about 20% of the websites visitors could recommend the website or product to a friend, visitors could type in their feedback in an e-form, and/or there was a personal choice helper; a function that can make relatively sophisticated recommendations on consumers' choices based on their input on preferences and decision criteria. In general, 3.55 interactive functions (18.70% of the total 19 functions) were present on the websites.

***Relationship with perceived interactivity.*** To investigate the link between actual and perceived interactivity, independent sample t-tests were conducted. The presence or absence of an interactive function was the independent variable, the score on the two-way communication dimension of perceived interactivity was the dependent variable.

Table 1 shows that there are significant differences in perceived interactivity scores regarding four interactive functions. Functions that resulted in a significantly higher perceived interactivity score are: the possibility to recommend the website to a friend, a feedback form and the possibility to register a product online. In other words, these functions significantly affected the two-way communication dimension of perceived interactivity. Remarkably, there was also one interactive function that was negatively related to the score for the two-way communication dimension of perceived interactivity: the possibility to send electronic cards. We will come back to this in our discussion.

## Chapter 4

Table 1. *Two way communication dimension*

Actual interactivity Function	Perceived interactivity			
	% present <sup>a</sup>	If not present	If present	<i>t</i>
Presence of multiple modes of contact: for example, telephone, e-mail or online form	87.7	3.61	3.71	.57
Online order: an option to order products	55.4	3.69	3.70	.11
Online job placement: online resume submission, personal career goal check etc.	44.6	3.69	3.70	.03
The possibility to recommend the website or product to a friend	24.6	3.65	3.84	1.61
Personal choice helper: a function that can make relatively sophisticated recommendations on consumers' choices based on their input on preferences and decision criteria	23.1	3.68	3.74	.50
A feedback form: customers can type in their feedback in e-forms	18.5	3.65	3.87	1.59*
User groups: online community for product users	16.9	3.67	3.79	0.84
Survey: survey for visitors that solicits their comments on the content and design of the site or the firms offering and service	12.3	3.67	3.84	1.01
Product registration: possibility to register your product online, often to obtain updates, extra information or incentives	10.8	3.65	4.04	2.37***
Surfer postings: a section where surfers can write their stories, opinions, or convey messages to the other	9.2	3.68	3.81	0.73
An online fan club: a community of people who share a strong, common interest in the brand or product	9.2	3.67	3.89	1.20
E-cards: a possibility to send electronic cards	7.7	3.73	3.30	-2.26***
An online game against a computer	7.7	3.69	3.78	0.49
An online game against other players	7.7	3.69	3.78	0.49
Podcasts: a program (as of music or talk) made available in digital format for automatic download over the Internet	6.2	3.70	3.64	-0.25
Online chatting	4.6	3.68	3.95	1.08
Online problem diagnostics: customers report their problem spots and this function helps them to locate the problem exactly.	3.1	3.70	3.51	-0.63
Product suggestions of other customers	1.5	3.69	4.19	1.18

Note. <sup>a</sup> percentage of websites that displayed this function. Total number of websites is 65. <sup>b</sup> on a seven-point scale. \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , all one-tailed

### *Synchronicity*

**Actual interactivity.** Table 2 shows that the most common interactive function that represents the synchronicity dimension of interactivity is an animation that displays the time it takes for the website to load, which was present on 61.5 of the websites of top global brands. An option that allows visitors to skip the introductory page of a website was present on 16.9% of the websites. A virtual reality display, a function that permits consumers to virtually “feel or experience” the product, was present on only 9.2% of the websites and a live customer service was present on only 7.7%. Regarding the underlying interactivity dimension, 1.09 interactive functions were used on the global websites (18.21% of the possible six interactive functions).

**Relationship with perceived interactivity.** Table 2 shows that there are no significant differences in perceived interactivity scores for the six interactive functions representing the synchronicity dimension. No interactive function was able to affect the perceived interactivity score for the synchronicity dimension.

Table 2. *Synchronicity dimension*

Function	Perceived interactivity			
	% present <sup>a</sup>	If not present	If present	<i>t</i>
Animation that displays the time it takes for the website to load	61.5	4.66	4.65	-0.12
Skip intro option: an option that allows visitors to skip the introductory page of a website	16.9	4.67	4.57	-0.61
Virtual reality display: a function that permits consumers to virtually "feel or experience" the product	9.2	4.68	4.36	-0.85
Live customer service, for example online discussion with a sales representative using instant messaging or chatting programs	7.7	4.64	4.80	0.70
Speed choice: option to choose a type of internet connection, for example broadband or cable	7.7	4.65	4.74	0.42
Error message given by the website when there is something wrong with the website	n.a.			

Note. <sup>a</sup> percentage of websites that displayed this function. Total number of websites is 65. <sup>b</sup> on a seven-point scale. \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , all one-tailed. n.a. not applicable because there was no error.

### *Active control*

*Actual interactivity.* As seen in Table 3 the most common interactive functions that represent the active control dimension of interactivity were the presence of internal links (98.5%), hotlinks (92.3%) and external links (90.8%). The majority of the websites also offered software downloading (67.7%), a sitemap (63.1%), a keyword search (63.1%), and a dealer locator (55.4%). Although not present on the majority of websites, other popular functions were: dropdown menus (49.2%), the possibility to receive a newsletter (44.6%), and a registration requirement (30.1%). In general, 7.52 interactive functions (34.2 % of the total 22 functions) were used on the websites.

*Relationship with perceived interactivity.* Table 3 shows significant differences in perceived interactivity scores regarding three interactive functions. In other words, three interactive functions positively affected the score for the active control dimension of perceived interactivity. Functions that were positively related to the perceived interactivity score are: dropdown menus, an option to customize products, and a possibility to customize information on the website. Surprisingly, the results also showed three interactive functions that negatively contributed to the active control dimension of perceived interactivity: a registration requirement to get access to certain parts of the website or certain information; the choice to see the text-view of the website, i.e. the website without pictures, and links used to navigate back to the home page of the website. We will come back to these unexpected results in our discussion.

In summary, six interactive functions significantly affected interactivity perceptions: the possibility to recommend the website to a friend, a feedback form, the possibility to register a product online, dropdown menus, the option to customize products, and the possibility to customize information on the website. To verify the significance of these findings we repeated an earlier analysis. Previously, the Spearman's rank correlation coefficient between the rank scores for actual interactivity and perceived interactivity revealed a non-significant relation. This time we calculated the correlation between the rank scores based on the six interactive functions and the perceived interactivity score. This analysis revealed a significant relationship ( $r_s = .31, p < .01$ , two-tailed), confirming the importance of the six functions.

Table 3. *Active control dimension*

Function	Actual interactivity		Perceived interactivity		<i>t</i>
	% present <sup>a</sup>	If not present	If present		
Internal hyperlinks: links used to navigate within the website	98.5	5.04	4.86		-.37
Hot links: links used to navigate back to the home page of the website	92.3	5.13	4.84		-1.34*
External links: links used to navigate to other websites	90.8	5.04	4.84		-.97
Software downloading: surfers can download software of files from the website, usually for free	67.7	4.76	4.91		1.18
Sitemap: a webpage that displays the structure of a website	63.1	4.83	4.88		0.39
Keyword search: a function that allows a visitor to pinpoint the particular information he or she is looking for	63.1	4.84	4.87		0.22
Dealer locator: a function that allows visitors to pinpoint a dealer	55.4	4.83	4.88		0.41
Dropdown menu's: an interface element which allows visitors to choose a value from a list	49.2	4.77	4.95		1.51*
Possibility to receive a newsletter	44.6	4.82	4.91		0.75
Registration requirement to get access to certain parts of the website or certain information	43.1	4.94	4.75		-1.50*
Choice of language: an option to choose the language of the website	21.5	4.88	4.81		-0.45
Customize product: an option to compose products by yourself	12.3	4.83	5.13		2.85**
Personal preference option: possibility to customize information on the website	10.8	4.83	5.14		1.66**
Order status tracking: customers can track the status or whereabouts of their orders online in real time	9.2	4.87	4.80		-0.35
Connection with a mobile phone, for example to download games	7.7	4.88	4.69		-0.86
Choice to see the website with or without flash	6.2	4.85	4.98		0.51
Choice to see the text view of the website, i.e. the website without pictures	4.6	4.88	4.49		-1.41*
Possibility to make a wish list, especially in online shops	4.6	4.85	5.02		0.60

Table 3 (continued). *Active control dimension*

Function	Actual interactivity		Perceived interactivity		
	% present <sup>a</sup>	If not present	If present	<i>t</i>	
Explicit presence of cookies, for example a button "remember me"	3.1	4.85	5.12	0.78	
Requirement to report your age before entering a website	1.5	4.87	4.56	-0.63	
Option to change the background colour of the website	1.5	4.86	4.98	0.25	
Possibility to change settings to use the website as your home page	1.5	4.87	4.40	-0.99	

*Note.* <sup>a</sup> percentage of websites that displayed this function. Total number of websites is 65. <sup>b</sup> on a seven-point scale. \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , all one-tailed

## Conclusion and Discussion

The aim of our study was to investigate the relationship between actual and perceived interactivity on the websites of brands. The study combined a content analysis of interactive website functions with a survey in which the perceived interactivity of the same websites was measured. Using this approach, which was previously never used in interactivity research, the study detected a great incongruence between the level of actual and perceived interactivity. Remarkably, the study showed that simply adding interactive functions to a website does not guarantee high perceptions of interactivity. Furthermore, we were able to detect six interactive functions that determined the perceived interactivity of a website. These functions were: feedback forms, the possibility to register a product online, the possibility to recommend the website to a friend, dropdown menus, the option to customize products, and the possibility to customize information on the website. It is notable that these functions (except for dropdown menus) are not very common functions. Most functions appeared on only 10 to 25 % of the websites. More common functions that were present on the majority of the websites did not contribute to perceived interactivity. Whereas these functions are clearly considered interactive in the literature (e.g., Ghose & Dou, 1998; Ha & James, 1998; Liu & Shrum, 2002), it can be concluded that basic interactive functions are no longer able to affect interactivity perceptions because they have become common on the majority of websites. Thus, the answer to the question: What makes a website of a top global brand truly interactive is: unique website characteristics.

Our study empirically confirmed that "simply adding features does not guarantee a high level of interactivity" (Song & Zinkhan, 2008, p. 109). Results

showed that the number of interactive functions on a website did not significantly affect the perceived interactivity scores for two out of three interactivity dimensions. Previous research already proposed that it is probably not the number of interactive functions on a website that determines its perceived interactivity, but the quality of the interactive features (McMillan, 2002; Liu & Shrum, 2002; Song & Zinkhan, 2008). Our study was the first that empirically confirmed this claim.

Unexpectedly, our study also pointed to some functions that negatively affected interactivity perceptions: the possibility to send electronic cards, a registration requirement to get access to certain parts of the website or attain certain information, the choice to see the text-view of the website, and hot links. It could be that hot links and a choice to see the text-view of the website had a negative impact because there would have been no need for the functions when the website structure was clear and the usability was satisfactory. Furthermore, the negative impact of a registration requirement and the possibility to send e-cards is probably caused by privacy concerns. Research has shown that consumers are only willing to share personal information when they feel strongly connected to the brand or have a favourable attitude toward the brand (Smit, Bronner, & Tolboom, 2007). The participants in our survey probably are not strongly connected to the brands and therefore restrain from sharing personal information, by sending e-cards or registering as a user. Finally, the negative impact of the functions could also have been caused by the fact that people just do not like the functions. Future research could identify the underlying factors that have caused the negative impact of these interactive functions.

Unfortunately, we were not able to identify interactive functions that contributed to the synchronicity dimension of perceived interactivity. Central to this dimension is the extent to which a website responds without delay or is perceived to respond immediately. It could be that this perception is not facilitated by interactive features but that it can only be affected by measuring the temporal delay between action and reaction (Johnson et al., 2006). Future research should therefore measure response time to see whether this variable is able to affect the synchronicity dimension of perceived interactivity.

## **Limitations and Future Research**

Although the study improved our knowledge of interactivity, some limitations need to be noted. The first limitation is the relatively small sample size (content analysis:  $N = 65$ , survey:  $N = 715$ ). This small sample size is caused by aggregating the data per website for the largest part of our analyses. The

small sample size reduced the chance to detect interactive functions that significantly affected perceived interactivity. Consequently we chose to use a probability value of  $p < .10$ . Future research could replicate and improve the current study by investigating more websites.

A second limitation of the study is related to the methodological approach of our study. Participants were asked to browse the websites in order to learn more about the brand and its products. Because they could freely browse the website, we do not know which interactive functions were seen or actually used by the participants. It might be, however, that an interactive function actually has to be used in order to contribute to interactivity perceptions (Liu & Shrum, 2002; Song & Zinkhan, 2008). Although we believe that the likelihood for a function to affect interactivity perceptions is higher when people actually make use of that function, we do not believe that interactive functions cannot affect interactivity perceptions when people do not use the functions (Liu & Shrum, 2009). As a result, we believed it was important not to force participants in our study to use the interactive functions. A main advantage of this approach is that it more closely resembles natural website browsing. Thus, the external validity of our approach is relatively high. An additional benefit of using voluntary exposure was that it provided us the opportunity to include many (i.e. 47) interactive functions in one study. When using forced exposure we should have designed numerous experimental studies. In the future, experimental research could verify the influence of the six functions that were found in the current study.

Another interesting avenue for future research would be the use of more precise measures of exposure to interactive functions. First, software that can track participants' browsing behaviour on a website can be used to acquire a more precise measure of exposure to interactive functions. Second, eye-tracking research would provide large opportunities to measure the visual attention that is paid to interactive functions. In these ways more precise measures of exposure can be acquired which can be related to survey data.

Given the weak relation between actual and perceived interactivity, future research should also try to determine other variables that affect interactivity perceptions. A study of Song and Zinkhan (2008) already showed that customers' tasks and situations affect interactivity perceptions. It would also be interesting to investigate the influence of brand image on interactivity perceptions. Given the fact that only top global brands were used in our study, it could be that all brands have somewhat superior brand images. These superior brand images could have influenced interactivity perceptions and thereby could have caused the weak relation between interactive functions and

interactivity perceptions. Future research could therefore replicate this study using a random sample of brands.

Now that we know which interactive functions contribute to interactivity perceptions, future research could also go one step further by determining whether the interactive functions also contribute to advertising effectiveness. It would not only be interesting to study the positive effects of interactivity, as is done already (e.g., Sicilia et al., 2005; Sohn, Ci, & Lee, 2007; Coyle & Thorson, 2001; Liu & Shrum, 2009), it would also be valuable to examine potential detrimental effects of interactivity. Although some researchers already argued that interactivity is not always “a good thing” (Liu & Shrum, 2002), to our knowledge only some studies examined negative effects of interactivity (Bezjian-Avery, et al., 1998; Liu & Shrum, 2009). No studies have investigated negative effects of website interactivity on the amount confusion or irritation experienced by users.

In conclusion, our research has improved our scientific knowledge about the relationship between actual and perceived interactivity. The study contributes to the literature on measuring and manipulating interactivity. Furthermore, marketers could use our results to choose website features which would enhance perceived website interactivity.

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## Chapter 4

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## Opening the Black Box: Understanding Cross-Media Effects<sup>5</sup>

### Abstract

Despite their popularity, the reasons why cross-media campaigns are more successful than single medium campaigns are still unknown. Therefore, the aim of this study is (a) to investigate which psychological processes are present when people are exposed to cross-media campaigns, and (b) to examine to what extent these processes contribute to campaign results. Three psychological processes are investigated to gain insight into the effectiveness of cross-media campaigns: forward encoding (i.e., the ad in the first medium primes interest in the ad in the second medium); image transfer (i.e., mentally replaying the ad previously viewed during exposure to the ad in the second medium); and multiple source perception (i.e., believing the brand is good and popular because of the amount of advertising). To identify the role of these processes, 219 participants were exposed to one of four media conditions (two cross-media conditions and two repeated media conditions). The results showed that two processes were present when participants were exposed to the cross-media combinations: forward encoding and multiple source perception. We also found support for the hypothesis that these two processes contributed to campaign results. However, the third process, image transfer was present in all conditions and did not add to the explanation of cross-media effects.

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## Introduction

Synergy is considered an important concept in the marketing and advertising literature. It may even be said that it is the ultimate goal of most marketing communication campaigns. Synergy occurs when the combined effect of multiple marketing communication activities exceeds the sum of their individual effects (Naik & Raman, 2003). Synergy can be created by Integrated Marketing Communication (IMC) (Moriarty, 1996; Schultz, 2005). Without involving in the ongoing debate concerning the conceptual foundation and formal definition of IMC (Kitchen Brignell, Li, & Jones, 2004; Schultz & Kitchen, 2000; Lee & Park, 2007; Cornelissen & Lock, 2000), we will simply describe it as: "having all marketing communication efforts speak with one voice" (Wang and Nelson, 2006, p 110; Schultz, 1993; Prensky, McCarty, & Lucas, 1996).

One of the many aspects connected to the concept of IMC is the use and coordination of multiple media in one campaign (Thorson & Moore, 1996; McGrath, 2005). In so called multimedia campaigns or cross-media campaigns, marketers seek to maximize the effectiveness of their budgets by exploiting the unique strengths of each medium. Important issues for advertisers using multiple media are how media interact and how each medium contributes to the effects of the campaign.

Several studies have investigated these cross-media issues in the past. Most of these studies focused on the effectiveness of cross-media campaigns compared to single medium campaigns. Generally, among researchers there is some consensus that cross-media campaigns reveal more positive audience reactions than campaigns using only one medium (e.g., Edell & Keller, 1989, 1999; Dijkstra, 2002; Naik & Raman, 2003; Dijkstra, Buijtel, & Van Raaij, 2005; Chang & Thorson, 2004; Bronner, 2006). Still unanswered is the question why cross-media campaigns are more effective than single medium campaigns. Although some cross-media studies implicitly assume that certain mechanisms or psychological processes can explain the more positive effects of cross-media campaigns (Edell & Keller, 1989; Keller, 1996), the influence of the mechanisms has almost never been tested. Only one unpublished study of Dijkstra (2002) sheds some first light on this topic.

The aim of our study is to fill this gap in earlier research by investigating the validity of three potential processes that may occur when people see cross-media campaigns and that may account for the effects of these campaigns. On the basis of these processes, we formulate three hypotheses. Each of these hypotheses attributes the effect of cross-media campaigns to a different underlying process. By empirically testing the validity of the underlying mechanisms, we contribute to a more profound understanding of

the phenomenon. The central research question is: which psychological processes are present when people are exposed to cross-media campaigns, and to what extent do these processes contribute to cross-media effects?

After developing our hypotheses, an experiment will be presented in which a combination of websites and TV commercials is used to investigate the role of three underlying processes (forward encoding, image transfer, and multiple source perception). The combination of TV commercials and websites is chosen for two reasons. First, this combination is mostly used within media planning, as shown by its expenditures (ZenithOptimedia, 2009). Second, only two studies have systematically investigated the effectiveness of cross-media campaigns that use a combination of TV commercials and websites (Dijkstra, 2002; Chang & Thorson, 2004).

## **The Development of Hypotheses**

Based on some of the theoretical assumptions of earlier cross-media studies, we identify three psychological processes that can potentially be stimulated by exposure to cross-media campaigns. These three processes are the processes that are mentioned in academic work on this topic and may explain why cross-media campaigns result in more positive campaign results, such as attitude toward the ad, attitude toward the brand, and purchase intention (Vakratsas & Ambler, 1999). These well-known advertising effect measures are further described in the method section.

### **Forward Encoding**

The first psychological process that we study is forward encoding. Forward encoding takes place when an ad in the first medium 'primes' the consumer's interest for and attention to an ad in the second medium. This interest may stimulate deeper processing and easier encoding of the second ad (Dijkstra, 2002). In other words, the ad in the first medium may serve as a 'teaser' to attract attention to, arouse interest in, and increase curiosity for the ad in the second medium (Bronner, Neijens, & Van Raaij, 2003; Edell & Keller, 1989, 1999; Dijkstra, 2002). In terms of priming, the ad in the first medium acts as a prime for the ad in the second medium. The ad in the first medium, 'the prime' affects or facilitates subsequent responding to the ad in the second medium, 'the target' (e.g., Bargh & Chartrand, 1999; Logan, 1989; Abad, Noguera, & Ortells, 2003).

The explanation of the forward encoding process is as follows. When people see an ad for the first time, an ad memory trace is stored (Keller, 1987). When people are exposed to the same or a related ad in another medium, the ad

memory trace will influence information processing of the subsequent ad. Forward encoding probably stimulates encoding processes during exposure to the second ad. Especially when the second ad is presented in another medium, the first ad may have evoked curiosity and expectations about the second ad and this may motivate deeper processing of the second ad. When the second ad is an exact copy of the first ad, people will be less motivated to process the second ad (Dijkstra, 2002), which is in line with the differential attention explanation (Unnava & Burnkrant, 1991). The differential attention hypothesis assumes that the level of attention to repeated information declines, because people recognize that they are exposed to the same information, which results in low levels of motivation and a lack of interest in the ad. Thus, we believe that forward encoding may be more prevalent when people are exposed to cross-media campaigns than when they are exposed to single medium campaigns.

In her unpublished study, Dijkstra (2002) showed some preliminary evidence that forward encoding was higher in cross-media campaigns than in single medium campaigns. She examined the presence of forward encoding in the processing of cross-media campaigns by asking participants whether they became more or less interested in the second ad after seeing the first ad. The levels of forward encoding in her study were higher in some cross-media conditions than in conditions where participants were exposed to the same medium twice.

Edell and Keller (1989, 1999) did not explicitly measure the presence and role of forward encoding. However, they inferred afterwards from thought listing results that forward encoding could have been present in some cross-media conditions. In some cross-media conditions, participants reported more often that they were curious about the second ad, compared to participants who saw the same ad twice. The first ad acted as a teaser and increased the participants' motivation to view the second ad (Keller, 1996).

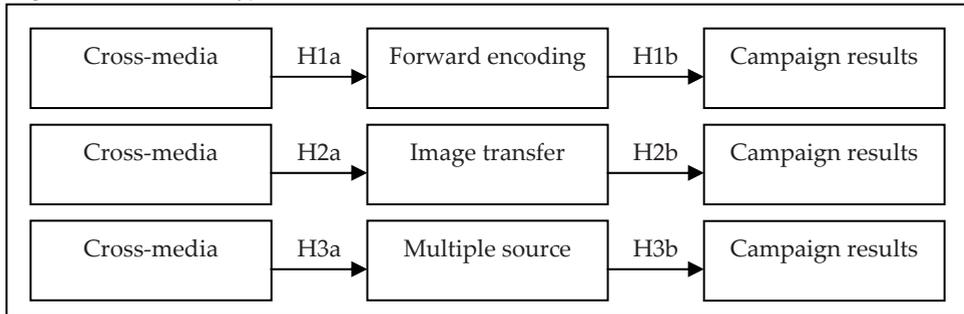
Our first hypothesis attributes the positive effect of cross-media campaigns on campaign results to enhanced forward encoding. We believe that a higher level of forward encoding results in more attention to the second ad and more motivation to process the second ad. Although deeper processing of the second ad could also lead to more counter-arguing, we believe deeper processing leads to more positive effects (Dijkstra, 2002; Edell & Keller, 1989; Keller, 1996). This expectation is based on the encoding variability principle (Melton, 1967). The encoding variability principle states that information presented in varied contexts, like media, is encoded in a slightly different way, which results in improved memory performance (Young & Bellezza, 1982; Unnava & Burnkrant, 1991). Improved memory performance may result in

positive effects, because not only the brand name is stored in memory, but also brand benefit beliefs, influenced by positive information about the brand in the ads. Thus, in our case forward encoding would result in deeper processing and easier encoding of the cross-media campaign than of the single medium campaign. The resulting multiple retrieval cues could indirectly influence the evaluation of the ads and the brand.

**H1:** (a) Exposure to a campaign which uses two different media results in more forward encoding than a campaign that utilizes repeated exposure to the same medium, which (b) enhances campaign results.

This first hypothesis is visualized in Figure 1.

Figure 1. *The three hypotheses visualized.*



It should be noted that our expectation that cross-media campaigns would result in more positive campaigns results than single medium campaigns is in contrast with the mere exposure hypothesis (Zajonc, 1968). The mere exposure hypothesis postulates that individuals develop positive evaluations due to mere exposure when they are repeatedly exposed to the same stimulus. However, we believe that in our case the wear-out phase would be achieved very fast in the single medium campaigns due to the fact that our respondents see the ads almost immediately after each other.<sup>6</sup>

### Image Transfer

Image transfer is the second psychological process we study. Image transfer is present when consumers imagine or mentally replay the previously viewed ad during exposure to the second ad. The process is based on the encoding specificity principle (Tulving & Thomson, 1973) from cognitive psychology. Basically, this principle states that memory is improved when cues

<sup>6</sup> We would like to thank one of the reviewers for this interesting explanation

available at encoding are also present at retrieval. For cross-media campaigns, this means that during image transfer “the elements in the second ad may function as retrieval cues to the ad memory trace from the first exposure” because of overlap between the ad executions (Dijkstra, 2002, p. 66). Other authors described the same process as a retrieval process (Edell & Keller, 1989, 1999; Bronner et al., 2003). When the second ad is presented in a different medium, the second ad may serve as a retrieval cue to the stored memory trace (Edell & Keller, 1989) and people remember the previous ad during exposure to the second ad. When people are exposed to the same medium twice, there is no need to retrieve information from the first ad memory trace because it is easier to process the same ad again (Dijkstra, 2002). Thus, we believe that image transfer may be more prevalent when people are exposed to a combination of media than when they are repeatedly exposed to the same medium.

The difference between forward encoding and image transfer is related to one of the most principal issues in theory of memory: the storage or retrieval of memory traces (Melton, 1963 in Tulving & Thomson, 1973). While forward encoding primes the interest in the ad the second medium and thus is related to encoding and storage, image transfer affects the retrieval of information from the ad in the first medium, during exposure to the second medium. So, while forward encoding is a forward, storage process, images transfer is a backward, retrieval process.

In her study, Dijkstra (2002) showed preliminary evidence for the presence of the image transfer process by asking participants which words or images of the first ad came to their minds when watching the second ad. Higher levels of image transfer were observed in some cross-media conditions when compared to repeated media conditions.

Edell and Keller (1989) did not explicitly test the presence and role of the image transfer process. In their study, however, they inferred that image transfer must have been highest in cross-media conditions. Their interpretation was based on thought listing results. In some cross-media conditions participants reported having more thoughts concerning certain parts of the first ads than in single medium conditions.

Our second hypothesis attributes the positive effect of cross-media campaigns on campaign results to enhanced image transfer. Mentally replaying the first ad while exposed to the second ad may lead people to more actively process the information which may result in more positive campaign results (Dijkstra, 2002; Edell & Keller, 1989; Young & Bellezza, 1982). This hypothesis is also visualized in Figure 1.

**H2:** (a) Exposure to a campaign which uses two different media results in more image transfer than a campaign that utilizes repeated exposure to the same medium, which (b) enhances campaign results.

### **Multiple Source Perception**

The third psychological process that we study is multiple source perception. An advertising message with multiple sources may make it more convincing and more credible, since acquiring information from different sources can enhance the persuasive power of the message because the different media are seen as independent sources (Harkins & Petty, 1981, 1987; Bronner et al., 2003; Gotlieb & Sarel, 1991).

Moreover, the economic signaling theory (Nelson, 1974) provides further support for the position that cross-media campaigns lead to more positive results than single medium campaigns. The economic signaling theory holds that consumers infer the brand quality of unfamiliar brands from advertising repetition. Consumers see repetition as costly and assume high expenditures to be an indication of the firm's confidence in the product quality (Kirmani, 1997). Extending the line of thinking of this theory a little further, we hold that consumers perceive cross-media campaigns as more expensive than repetitive campaigns. However, the existence of people's multiple source perceptions from cross-media combinations has never been examined, nor has its influence on campaign results been proven.

Our third hypothesis attributes the positive effect of cross-media campaigns on campaign results to an enhanced multiple source perception. We assume that the belief that a brand has to be good and popular because of the level of advertising in multiple media also results in other more positive campaign results (Dijkstra, 2002). The third hypothesis, visualized in Figure 1, states:

**H3:** (a) Exposure to a campaign which uses two different media results in more multiple source perceptions than a campaign that utilizes repeated exposure to the same medium, which (b) enhances campaign results.

## **Method**

### **Design and Participants**

A four (TV commercial-website, website-TV commercial, website-website, TV commercial-TV commercial) factorial between-subject design was used to investigate the processes. Two cross-media conditions (Web-TV and

TV-Web) were compared with two repeated medium conditions (Web-Web and TV-TV). Participants were 219 students of a large Dutch university who were recruited in one of the buildings of the Faculty of Social and Behavioral Sciences. Participation was voluntary and the participants each received €8. The mean age was 22.16 ( $SD = 3.36$ ) and 71.2% of the participants were female.

## Experimental Stimuli

Each participant evaluated one brand. Two different product categories were used in this experiment to make the results more generalizable: dairy and clothing. Half of the participants evaluated an ad for a dairy brand and half evaluated an ad for a fashion brand. In order to avoid any pre-experimental bias that might influence the level of information processing (Blair & Innis, 1996), Belgium brands and commercials were used in this experiment. The brands were not advertised in the Netherlands and none of the participants had seen the ads before. All TV commercials were in Dutch and all commercials were about 30 seconds. The TV commercials mainly focused on giving product information and showed people using and enjoying the products.

Two websites –one for each brand– were professionally created with the same structure and lay-out, and a variation in the content only. The specific text, photos and logos of each website were copied from the real website of the brands. The websites contained corporate, brand, product, and background information, photos, and the possibility to request more information. Both websites contained 22 sub-pages and had the same amount of information.<sup>7</sup>

TV commercials were shown in blocks of five commercials (one target ad and four filler ads) to create a natural viewing environment. The target commercial was counterbalanced and shown at the second or third position in the commercial block to eliminate the influence of possible primacy and recency effects (Pieters & Bijmolt, 1997). The websites were not offered in blocks of five because on the internet it is more common to go directly to the desired website. Participants were asked to browse the website in their usual manner. Participants had an unlimited amount of time to view the website.

## Procedure

Participants were randomly assigned to one of the four media exposure conditions. Two conditions contained both the website and the TV commercial; one condition had an initial TV exposure, followed by a website exposure and the other condition had an initial exposure to the website followed by the TV

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<sup>7</sup> Copies of the experimental stimuli are available upon request

commercial. One condition had two exposures to the website and one condition had two exposures to the TV commercial.

Participants sat in isolated cubicles to avoid them from viewing and hearing the ads in the other conditions of the experiment. The experiment was conducted on a computer. First, participants were asked some general questions. Then participants were exposed to the ads (TV commercial or website, depending on the media condition) for the first time. After this, participants were exposed to a five-minute fragment of a Dutch TV soap. Then participants were exposed for a second time to the TV commercial or website. Finally, participants were asked to complete the questionnaire. It took about 30 minutes to complete the experiment. When participants were finished they were thanked and debriefed.

## Measures

### *Processes*

To measure the psychological processes, we used a thought recognition task which is similar to the tasks described by Huang and Hutchinson (2008) and Cacioppo, Von Hippel, and Ernst (1997). The most important advantage of thought recognition over the more traditional thought listing is that thought recognition is generally a more sensitive measure than recall (Huang & Hutchinson, 2008; Gardiner, 1988; Johnston, Dark, & Jacoby, 1985). The reason why is because “by providing a more specific memory cue that is related to the hypothesized cognitive response, it should benefit from (...) a close fit between processing at encoding and retrieval” (Huang & Hutchinson, 2008, p. 99). The measures of the three processes are described below.

**Forward encoding.** Forward encoding was measured with three items, partly based on Dijkstra (2002): “I became more interested in the second ad after seeing the first ad.”; “I wanted to know more about the brand after seeing the first ad.”; and “I wanted more information about the brand after seeing the first ad.” Response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). These items all loaded on one factor that proved to be reliable ( $EV = 2.21$ ;  $R^2 = 74$ ; Cronbach’s alpha = .81;  $M = 2.94$ ,  $SD = 0.94$ ).

**Image transfer.** Image transfer was measured by asking participants to indicate which image or words from the first exposure came to mind during the second exposure. They could do this by choosing from a list of pre-selected words and/ or images. For every word or image participants had to indicate whether it came to their minds or not. Response categories were 1 (*yes*), and 0 (*no*). One score was acquired by calculating the percentage of images or words

that were checked compared to the total words and images that were listed ( $M = 44.76$ ,  $SD = 20.87$ ).

**Multiple source perception.** Multiple source perception was measured with three items (Dijkstra, 2002). Items included: "I thought it must be a popular brand."; "I thought this brand is very believable."; and "I thought it must be a good brand because it spends a lot of money on advertising." Response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The items all loaded on one factor that proved to be reliable ( $EV = 1.86$ ;  $R^2 = .62$ ; Cronbach's alpha = .69;  $M = 2.89$ ,  $SD = 0.80$ ).

### **Effects**

**Attitude toward the website and the TV commercial.** Attitude toward the website and the TV commercial was measured with a four-item five-point semantic differential scale used in Chang and Thorson (2004). The bipolar ends included "likeable/not likable," "interesting/not interesting," "good/bad," and "appealing/not appealing." The items all loaded on one factor that proved to be reliable (Attitude toward the website:  $EV = 2.91$ ;  $R^2 = .73$ ; Cronbach's alpha = .87;  $M = 3.02$ ,  $SD = 0.86$ ; Attitude toward the TV commercial:  $EV = 3.36$ ;  $R^2 = .94$ ; Cronbach's alpha = .93;  $M = 3.62$ ,  $SD = 0.99$ ).

**Attitude toward the brand.** The same items that were used to measure the attitudes toward the website and the TV commercial were used, but now they were applied to the brand. These items all loaded on one factor that proved to be reliable ( $EV = 2.96$ ;  $R^2 = .74$ ; Cronbach's alpha = .88;  $M = 3.41$ ,  $SD = 0.84$ ).

**Purchase intention.** Purchase intention was measured with a two-item 5-point Likert scale. The response categories ranged from 1 (*very improbable*) to 5 (*very probable*). Subjects were asked how likely they were to buy the product and how likely they were to recommend it to a friend (Boulding, Kalra, Stealin, & Zeithaml, 1993). All items loaded on one factor that proved to be reliable ( $EV = 1.61$ ;  $R^2 = .81$ ; Cronbach's alpha = .76;  $M = 2.78$ ,  $SD = 1.04$ ).

### **Other measures**

**General attitude toward advertising.** Five items of the scale of Smit and Neijens (2000) were used to measure the participants' general attitude toward advertising. Items included: "For me, advertising is amusing." and "Advertising has no credibility" (reversed). Response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The items loaded on one factor that proved to be reliable ( $EV = 2.51$ ;  $R^2 = .50$ ; Cronbach's alpha = .75;  $M = 3.22$ ,  $SD = 0.65$ ).

**Product category experience.** Product category experience was measured according to three items established by Beaty and Talpade (1994).

One example is: "I have a lot of experience with this product." Response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). These items loaded on one factor that proved to be reliable ( $EV = 2.56$ ;  $R^2 = .85$ ; Cronbach's alpha = .91;  $M = 3.38$ ,  $SD = 0.97$ ).

*Ad familiarity.* Respondents were asked whether they saw the TV commercial and/or the website before. Response categories were: 1 (*no*), 2 (*yes, maybe*), 3 (*yes*), with an extra 'do not know' option.

## Results

### Design Checks

Two respondents reported awareness of one of the TV commercials or websites used in the experiment; these respondents were excluded from the data set. The missing data was replaced by group mean values (Tabachnick & Fidell, 1996). Statistics showed that participants' gender was similar across conditions ( $\chi^2(3, N = 219) = 2.46, p = .48$ ). The four conditions did not differ with respect to age,  $F(3, 215) = 0.86, p = .47$ , general attitude toward advertising,  $F(3, 215) = 1.92, p = .13$ , and product category experience,  $F(3, 215) = 0.17, p = .92$ . This implies that differences in the groups regarding the dependent variables cannot be caused by differences in these background variables.

To give a more comprehensive overview of the results, we checked whether the two cross-media conditions (TV-Web and Web-TV) differed significantly from each other with regard to the three processes and the effect measures. No differences were found. These two conditions were therefore combined into one cross-media condition. In contrast, some differences existed between the two repeated medium conditions and therefore we analyzed these conditions separately.

### Mediation Analyses

In order to test whether the three processes contributed to campaign results, we followed the three-step procedure described by Baron and Kenny (1986). In the first step, we investigated whether the cross-media condition was related to the three processes identified in our hypotheses (H1a, H2a, H3a). This required a regression of the independent variable (media conditions) on the three processes (i.e., forward encoding, image transfer, and multiple source perception). The three media conditions were included as two dummy variables with the cross-media condition as a reference category (Hardy, 1993).

In the second step, our independent variable (media conditions) was regressed on the campaign results measures (attitude toward the TV

commercial, attitude toward the website, attitude toward the brand, and purchase intention). This was done to test whether there was a direct effect of the media conditions on these dependent variables. Although we did not formulate hypotheses about these direct relationships, this step is required to investigate the contribution of the three processes to the campaign results.

In the third step, we investigated the actual contribution of the processes to the campaign results (H1b, H2b, H3b). We regressed both the process and the independent variables on the dependent variables. Two conditions must be met to conclude that a process contributes to the campaign results (Baron & Kenny, 1986). First, there should be a significant influence of the process variable on the dependent variable. Second, the direct effect of the independent variable on the dependent variable should no longer be significant, or should still be insignificant. To provide a statistical test for the size and strength of these indirect effects, we tested the significance with the formula developed by Sobel (1982). An online version of this test developed by Preacher and Leonardelli (2005) was used.

### Role of Forward Encoding

Hypothesis 1a stated that exposure to the cross-media combination would result in more forward encoding than exposure to repeated media conditions. Table 1 shows that this hypothesis was only supported when we compared the TV-TV condition with the cross-media condition ( $\beta = -.14, p < .05$ ). Exposure to the cross-media condition resulted in more forward encoding ( $M = 2.96, SD = 0.94$ ) than the repeated exposure to the TV commercial ( $M = 2.65, SD = 0.96$ ). Hypothesis 1a is therefore partially supported.

Table 1. Results of three regression analyses with processes as dependent variable

X	Y	B	SE	$\beta$
TV-TV vs. Cross-media (d)	Forward encoding	-.30	.16	-.14*
Web-Web vs. Cross-media (d)		.23	.15	.11
TV-TV vs. Cross-media (d)	Image transfer	17.72	3.33	.36***
Web-Web vs. Cross-media (d)		9.38	3.24	.19**
TV-TV vs. Cross-media (d)	Multiple source	-.21	.13	-.11
Web-Web vs. Cross-media (d)		-.50	.13	-.27***

Note. X = independent variable; Y = dependent variable; d= Dummy coded, with the cross-media condition as reference category. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , all one-tailed.

Because the forward encoding hypothesis was only valid when the cross-media condition was compared to the TV-TV condition, we used this comparison to examine whether forward encoding also contributed to campaign results. Table 2 shows that there was only a direct effect on the participant's attitude toward the TV commercial ( $\beta = -.14, p < .05$ ). People in the cross-media condition had a more positive attitude toward the TV commercial ( $M = 3.71, SD = 0.94$ ) than people who saw the TV commercial twice ( $M = 3.42, SD = 1.07$ ). For the other campaign results there were no differences between people who saw the TV commercial twice and those who saw both a website and a TV commercial.

Table 2 also shows that forward encoding had a positive influence on all three campaign results (attitude toward the TV spot:  $\beta = .43, p < .001$ ; attitude toward the brand:  $\beta = .36, p < .001$ ; purchase intention:  $\beta = .36, p < .001$ ). The Sobel test statistics yielded significant indirect effects on all three effect measures (brand attitude:  $z = -1.83, p = .03$ , one-tailed; purchase intention:  $z = -1.83, p = .03$ , one-tailed; attitude toward the TV commercial  $z = -1.83, p = .03$ , one-tailed). Hypothesis 1b is therefore supported.

Table 2. Summary of regression analyses for influence of media condition and forward encoding on campaign results

	X	Y	B	SE	$\beta$
(1)	TV-TV vs. Cross-media (d)	Attitude TV spot	-.30	.17	-.14*
(2)	TV-TV vs. Cross-media (d)	Attitude TV spot	-.17	.15	-.08
	Forward encoding		.45	.07	.43***
(1)	TV-TV vs. Cross-media (d)	Attitude brand	-.21	.14	-.11
(2)	TV-TV vs. Cross-media (d)	Attitude brand	-.12	.13	-.06
	Forward encoding		.32	.06	.36***
(1)	TV-TV vs. Cross-media (d)	Purchase intention	-.19	.17	-.08
(2)	TV-TV vs. Cross-media (d)	Purchase intention	-.07	.16	-.03
	Forward encoding		.40	.07	.36***

Note. X = independent variable; Y = dependent variable; d= Dummy coded, with the cross-media condition as the reference category (0) \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , all one tailed. The first row displays the direct effect of the dummy variable on the campaign result (first regression analysis). The second and third rows display the combined effect of the dummy variable and the process variable on the campaign results (second regression analysis).

### Role of Image Transfer

Hypothesis 2a predicted that exposure to the cross-media condition would result in more image transfer than exposure to repeated media conditions. Table 1 shows that the differences found were contrary to our expectations. The levels of image transfer in the TV-TV condition ( $\beta = .36, p < .001, M = 56.13, SD = 20.50$ ) and the Web-Web condition ( $\beta = .19, p < .01, M = 47.48, SD = 18.80$ ) were higher than in the cross-media condition ( $M = 38.40, SD = 19.65$ ). Hypothesis 2a is therefore rejected.

Against our expectations, the level of image transfer was lowest in the cross-media condition. This excluded this process as a valid explanation for the effectiveness of cross-media campaigns. Consequently, this process will not be used in further analyses.

### Role of Multiple Source Perception

Hypothesis 3a proposed that exposure to the cross-media condition would result in more multiple source perceptions than exposure to the repeated media conditions. Table 1 shows that this hypothesis was only supported when we compared the cross-media condition with the Web-Web condition ( $\beta = -.27, p < .05$ ). Exposure to the cross-media condition resulted in an increase in multiple source perceptions ( $M = 3.07, SD = 0.81$ ) as compared to a repeated exposure to the website ( $M = 2.56, SD = 0.62$ ). Hypothesis 3a is therefore partially supported.

The multiple source hypothesis was only valid when the cross-media condition was compared to the Web-Web condition. Therefore we used this comparison to examine whether multiple source perceptions also contributed to campaign results (see Table 3).

Table 3 shows that there were three direct effects of the experimental conditions on the campaign results. People in the cross-media condition had a more positive attitude toward the brand ( $\beta = -.24, p < .001, M = 3.58, SD = 0.80$ ) and a higher purchase intention ( $\beta = -.20, p < .001, M = 2.94, SD = 0.99$ ) than people who saw the website twice (respectively  $M = 3.12, SD = 0.80$  and  $M = 2.46, SD = 1.08$ ). In contrast, people who saw the website twice had a more positive attitude toward that website ( $\beta = .22, p < .01, M = 3.29, SD = 0.79$ ) than people who saw the website and the TV commercial ( $M = 2.89, SD = 0.87$ ).

Table 3 also shows that multiple source perception contributes to a more positive attitude toward the brand and purchase intention. The Sobel test statistics also yielded significant values (brand attitude:  $z = -3.67, p = .00$ , one-tailed; purchase intention:  $z = -3.69, p = .00$ , one-tailed). Hypothesis 3b is therefore supported.

Table 3. Summary of regression analyses for influence of media condition and multiple source perception on campaign results

	X	Y	B	SE	$\beta$
(1)	Web-Web vs. Cross-media (d)	Attitude website	.40	.14	.22**
(2)	Web-Web vs. Cross-media (d)	Attitude website	.56	.14	.30***
	Multiple source		.32	.08	.29***
(1)	Web-Web vs. Cross-media (d)	Attitude brand	-.46	.16	-.24***
(2)	Web-Web vs. Cross-media (d)	Attitude brand	-.16	.12	-.08
	Multiple source		.60	.08	.58***
(1)	Web-Web vs. Cross-media (d)	Purchase intention	-.48	.17	-.20***
(2)	Web-Web vs. Cross-media (d)	Purchase intention	-.16	.16	-.07
	Multiple source		.63	.06	.49***

Note. X = independent variable; Y = dependent variable; d= Dummy coded, with the cross-media condition as the reference category (0) \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , all one tailed. The first row displays the direct effect of the dummy variable on the campaign result (first regression analysis). The second and third rows display the combined effect of the dummy variable and the process variable on the campaign results (second regression analysis).

In summary, the processes of forward encoding and multiple source perception contributed to the results of the cross-media campaigns. Forward encoding explained differences between the TV-TV and the cross-media condition. Multiple source perception explained different campaign results between the Web-Web and the cross-media condition.

## Conclusion and Discussion

The aim of this study is to have a better understanding of the processes underlying cross-media effects. The study shows that two processes were more prevalent when people were exposed to cross-media combinations than when people were exposed to repeated media conditions. The first process is forward encoding. Exposure to the cross-media condition resulted in more forward encoding than a repeated exposure to the TV commercial. Subsequently, the higher level of forward encoding affected the participant's attitude toward the brand, attitude toward the TV commercial, and purchase intention. In other words, there was an indirect effect of medium type on the campaign results

through forward encoding when comparing the conditions with or without exposure to the website.

The second process that was more prevalent when people were exposed to the cross-media combination than when they were exposed to the repeated media conditions is multiple source perception. Exposure to the cross-media condition resulted in more multiple source perceptions than repeated exposure to the website. Subsequently, the level of multiple source perceptions resulted in a more positive attitude toward the brand and an increase in the purchase intention in the cross-media condition than in the Web-Web condition. In other words, multiple source perception provided an explanation for the different campaign results of the conditions with or without exposure to the TV commercial. There was a full mediation, when multiple source perception was added to the equation, the direct effect of the medium type on attitude toward the brand and purchase intention disappeared.

The last process, image transfer was not more prevalent when people were exposed to the cross-media condition when compared to the repeated media conditions. Both repeated media conditions evoked more image transfer than the cross-media condition.

Our study provides evidence of the necessity of incorporating the two cross-media processes – forward encoding and multiple source perception– in cross-media theories. Although Edell and Keller (1989) and Dijkstra (2002) already speculated about the presence of these processes, our study is the first that explicitly and convincingly shows that the positive effects of cross-media campaigns on campaign results can be attributed to forward encoding and multiple source perception.

Next to these conclusions our study also reveals some unexpected results. First, we expected that forward encoding would only be present in the cross-media condition. Although exposure to the cross-media condition did result in more forward encoding than repeated exposure to the TV commercial, surprisingly, forward encoding was also present in the Web-Web condition. Thus, at least one exposure to the website was necessary for forward encoding. A possible explanation could be that a website is more complex than a TV commercial and too complex to fully process with only one exposure. Related to this complexity is the fact that the second exposure to the website could have been different than the first exposure. The reason is that an exposure to the website is internally paced; consumers are in control, they decide which parts of the website they want to view (Florès, 2004). Our study suggests that we need to include the complexity of the medium in theories on media effects. It was shown that forward encoding processes were not only important for cross-

media campaigns, but also for repeated single medium campaigns if the medium is a complex medium.

The second unexpected finding concerns the fact that although multiple source perception was highest in the cross-media condition it was also present in the TV-TV condition. Thus, at least one exposure to the TV commercial was needed to increase multiple source perception, which is in line with the findings of Dijkstra (2002). We can therefore conclude that TV commercials have a higher status or prestige than websites, maybe because people think that it is very expensive to produce and broadcast a TV commercial, while websites are seen as a rather cheap marketing communication instrument.

A third unexpected finding concerns the direct effects of media conditions on campaign results. We supposed that a combination of a website and a TV commercial performed better than the repeated exposure to a TV commercial or the repeated exposure to a website. However, the study showed that in some cases the TV-TV condition performed as good as the cross-media condition. In these cases there was only an indirect effect via multiple source perception on campaign results. Thus, the status or prestige of a medium should be incorporated in campaign theories. The study showed that TV commercials are predominant in determining campaign results and that multiple source perception provided a good explanation for this dominance.

A last unexpected finding concerns the presence of image transfer. Image transfer was not higher when people were exposed to the cross-media condition as compared to the repeated media conditions. On the contrary, both repeated media conditions evoked more image transfer than the cross-media condition. There are two competing explanations for the absence of this process in the cross-media condition. First, the measurement of this process could have been problematic because we asked participants afterwards what they experienced during exposure to the ads. It might have been difficult for participants to answer these questions. The second explanation might be that, in contrast to our theoretical assumption (based on Edell & Keller, 1989; Dijkstra, 2002; Bronner, 2006), there is still a need to think of earlier exposures when people are repeatedly exposed to the same ad.

## **Limitations and Future Research**

This study has made important contributions, but its findings need to be viewed with their limitations in mind. First, the results are dependent on the two specific websites and TV commercials that were used for this study. Further evidence for the processes found in this study should be acquired by new studies using other websites and TV commercials. In addition, it would

also be interesting to investigate differences between product categories, for example between high and low involvement products.

Second, the participants in the study are not necessarily representative of all consumers. The young, highly educated student sample could have been more familiar with the use of the internet and navigating websites than a representative sample of the Dutch population. Nevertheless, although convenience samples are problematic for the estimation of univariate statistics, they are still valid to establish initial relationships between variables (Bogaert, 1996).

A third limitation is the usage of the four effect measures: attitude toward the TV commercial, the website, and the brand, and purchase intention. According to the hierarchy of effects theory (Lavidge & Steiner, 1961) consumers pass through multiple steps from their initial exposure to the ad to their purchase decision. In our study we did not recognize the sequence of these steps and treated all four effect measures the same. The reason is that our study did not focus on the effectiveness of cross-media campaigns but on processes that could explain the effects.

The fourth issue concerns the measurement of the three processes: forward encoding, image transfer, and multiple source perception. Although the use of thought recognition tasks to measure cognitive responses to advertisements is celebrated in a recent article in by Huang and Hutchinson (2008), the measurement could have been somewhat problematic. We asked participants afterwards what they experienced during their exposure to the ads, which might have been difficult for some participants to answer.

A last issue concerns two possible confounding effects. The first concerns using TV commercials in a block of five, while exposing our participants to only one website. In our experiment we have deliberately chosen to use commercials in a block of five to create a natural viewing situation. Although we do not expect that this issue has strongly influenced our results, future research could replicate this study by using only one TV commercial. A second confounding effect concerns the fact that in our study we have not only changed the media exposure but also the variation in type of information. In the cross-media condition participants saw slightly different information in the TV commercial and on the website, while participants in the single-medium conditions saw exactly the same information twice. Future research might therefore replicate the current study, by using two slightly different TV ads and two slightly different websites instead of two identical TV commercials or websites in the single medium conditions.

Another important avenue for further studies is expanding the application of the processes to other cross-media combinations and IMC in general. It would be interesting to know whether the same processes play a role when people are exposed to different marketing communication forms, for example publicity and advertising. It would also be interesting to study cross-media campaigns using longitudinal designs, because advertising campaigns usually run for longer periods and because cross-media effects and cross-media processes might be different with increased levels of exposure. Finally, future research might study the influence of the degree of fit between the TV commercial and the website. Bronner (2006) argues that this last factor could be a key factor in explaining the success of cross-media campaigns.

### **Managerial Implications**

Our study provides advertisers with some valuable insights. Now we know that forward encoding and multiple source perception play a crucial role in the superior effects of cross-media campaigns in comparison to single medium campaigns, advertisers can try to stimulate the occurrence of these processes. Advertisers could, for example, stimulate overlap between ad executions or increase curiosity to stimulate forward encoding. They could also encourage the use of TV commercials to provoke multiple source perceptions.

Our study also provides advertisers knowledge on the effectiveness of cross-media campaigns. The study showed that the cross-media condition performed better than the repeated media conditions for three out of four dependent variables but two exposures to a TV commercial did not result in a less positive attitude toward the brand and purchase intention than the cross-media condition. Thus, from a marketing perspective, the use of cross-media campaigns can bring a substantial financial gain because the costs of building and hosting a website are lower than the costs of frequently transmitting a TV commercial.

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## The Interacting Role of Media Sequence and Product Involvement in Cross-Media Campaigns<sup>8</sup>

### Abstract

The aim of the study is (1) to investigate consumers' responses to different media sequences, and (2) to provide insight into the role of product involvement in the relationship between media sequences and cross-media effects. To do so, we conducted an experiment in which participants were exposed to a combination of TV commercials and websites (TV commercial-website vs. website-TV commercial). The results indicated a consistent interaction effect of media sequence and product involvement on three possible campaign targets: attitudes toward the ads, interest in the ads, and message evaluation. These interaction effects showed that while a TV commercial-website sequence was effective for informing consumers about both high and low involvement products, the website-TV commercial sequence was only suitable for informing consumers about high involvement products. The main conclusion of the study is that sequence of exposure is vital in cross-media campaigns. The study also demonstrates under which conditions this is particularly important.

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## Introduction

Cross-media campaigns are very popular, as almost all advertising campaigns make use of more than one medium. In contrast, research has focused on single medium campaigns. The scarce empirical research has indicated that campaigns that use multiple media have stronger persuasive power than campaigns that use only one medium (Edell & Keller, 1989, 1999; Dijkstra, 2002; Chang & Thorson, 2004; Havlena, Cardarelli, & De Montigny, 2007; Voorveld, Neijens, & Smit, in press). Cross-media campaigns are supposed to induce synergy, whereby the combined effect of multiple media activities exceeds the sum of the individual effects (Naik & Raman, 2003). To detect synergy effects, earlier studies typically have compared experimental cross-media conditions with single medium conditions. What remained unstudied however, was the effect of different media sequences within cross-media campaigns. To date, no study has systematically focused on comparing the effectiveness of different media sequences in cross-media campaigns. It is essential to gain insight into sequence effects in cross-media campaigns because it is known from other fields that the order in which consumers are exposed to information can affect their evaluations (Haugtvedt & Wegener, 1994; Loda & Coleman, 2005). As the sequence of exposure can affect consumers' evaluations of ads and brands, studying sequence effects in cross-media campaigns is of critical concern for advertisers (Ephron, 2000; Wang & Nelson, 2006; Bronner, 2006; Havlena, Kalluf, & Cardarelli, 2008). Thus, the first aim of this study is to extend the literature on cross-media effects by investigating consumers' responses to different media sequences.

Another gap in research on cross-media effects is that it has not examined under what conditions cross-media effects are likely to occur. An important factor that may moderate cross-media effects is product involvement. Since consumers' information search may be affected by the importance of the product (Okazaki & Hirose, 2009), and because product involvement is an important moderator of the amount and type of information processing elicited by a persuasive communication message (Petty, Cacioppo, & Schumann, 1983), we investigate the role of this variable. Thus, the second aim of this study is to provide insight into the role of product involvement in the relationship between media sequences and cross-media effects.

To test media sequence effects and the role of product involvement we conducted an experiment in which we studied a combination of TV commercials and websites, two forms of media which are often included together in advertising campaigns (Chang & Thorson, 2004). Consumers'

responses to cross-media sequences were assessed on three campaign targets: attitude toward the ads, interest in the ads, and message evaluation.

In the next sections we will expand on theoretical reflections and previous research on sequence effects and discuss the concept of product involvement and its role in cross-media sequence effects.

## Theoretical Background

### Theoretical Considerations on Sequence Effects

In the cross-media literature there is only speculation about the most effective media sequence in cross-media campaigns. Havlena (2005) and Bronner (2006) speculated that the most effective media sequence should be linked to the consumer decision-making process. For example, if TV commercials are used for getting attention, while websites are used for supporting the message by giving detailed information, a TV commercial-website sequence would be most effective.

A key theoretical framework for discussing sequence, or order effects, is the primacy and recency paradigm (Lana, 1963). This paradigm states that the order in which a consumer is exposed to (advertising) messages affect preferences for the content of these messages (Loginova, 2009; Brunel & Nelson, 2003). In the case of a primacy effect, the initial message has the largest persuasive effect, so people form judgements more consistent with the initial message. In the case of a recency effect, the last message has greater persuasive power (Brunel & Nelson, 2003) and people form judgements more consistent with the last message (Haugtvedt & Wegener, 1994). Initially, the primacy-recency paradigm seems appropriate to gain insight into sequence effects in cross-media campaigns. It is important to note, however, that while the primacy-recency paradigm is traditionally tailored to order effects on opinion formation and change in the case of two disagreeing messages, pro and con a certain issue (Lana, 1963), in cross-media campaigns messages are not contradictory. Normally messages will be in the same valence (i.e., favourable to the product and brand), and are only shown in different media. Therefore, it is hard to apply the primacy-recency paradigm to sequence effects in cross-media campaigns.

A second theoretical framework is related to the psychological processes that occur when consumers are exposed to combinations of media. Knowledge about such processes could provide insight into the relative effectiveness of different media sequences. There are three specific processes that could be relevant. First, when consumers are exposed to a combination of media, the first medium may stimulate forward encoding, which takes place

when an ad in the first medium 'primes' the consumer's interest for and attention to an ad in the second medium. In other words, the ad in the first medium may serve as a 'teaser' to attract attention to, arouse interest in, and increase curiosity for the ad in the second medium (Voorveld et al., in press; Bronner, Neijens, & Van Raaij, 2003; Edell & Keller, 1989, 1999; Dijkstra, 2002). Second, during exposure to the second medium in the cross-media sequence a retrieval process may be prevalent (Edell & Keller, 1989). Consumers may mentally replay the ad in the first medium during exposure to the second medium. During this process of image transfer "the elements in the second ad may function as retrieval cues to the ad memory trace from the first exposure" (Dijkstra, 2002, p. 66; Chang & Thorson, 2004; Voorveld et al., in press). Third, when consumers see a combination of media they may perceive these media as independent sources of information. Such multiple source perceptions can enhance the persuasive power of a message, as messages from independent sources are more convincing and credible (Voorveld et al., in press; Dijkstra, 2002; Harkins & Petty, 1987). While these processes could play a role in the persuasiveness of different media sequences, there is no indication that these processes are more prevalent in TV commercial-website sequences or in website-TV commercial sequences.

In conclusion, there is no theory available to provide insight into the effectiveness of different media sequences in cross-media campaigns. Therefore, it is interesting to know what we have learned from earlier cross-media research.

### **Sequence Effects in Earlier Cross-Media Research**

Earlier cross-media research, which also included other combinations of media, for example TV commercials with print ads or radio spots, has focused on comparing cross-media conditions with single medium conditions to investigate whether cross-media campaigns are more persuasive than single medium campaigns (Edell & Keller, 1989, 1999; Dijkstra, 2002; Chang & Thorson, 2004). Although most of these studies used two different media sequences in their experiments (e.g., a first exposure to a TV commercial, followed by an exposure to a website, and a first exposure to a website and a second exposure to a TV commercial), to our knowledge, no study focused on the effects of media sequences in cross-media campaigns. Moreover, in some experiments the two cross-media conditions were combined into one cross-media condition on the supposition that differences between the cross-media sequences did not exist (Chang & Thorson, 2004; Voorveld et al., in press). In the classical experiment of Edell and Keller (1989) media sequences were

analyzed separately, but they still focused on comparing single medium conditions with cross-media conditions. In this experiment, only some differences were found between the cross-media sequences with regard to processing measures (like the total number of thoughts), but not concerning memory measures (like recall) or evaluation measures (like attitude toward the ad). Finally, Dijkstra, Buijtsels, and Van Raaij (2005) found only some small differences between the seven sequence conditions in their experiment, but did not elaborate on these results and possible explanations in their article.

While sequence effects on evaluations were not earlier identified in cross-media research, research from related fields does demonstrate sequence effects. Research on using multiple communication tools or instruments in one campaign showed, for example, that the sequencing of publicity and advertising affected the message acceptance and response. A sequence of publicity followed by advertising was more successful than an advertising-publicity sequence (Loda & Coleman, 2005). The explanation given by Loda and Coleman (2005) was related to message credibility. The credibility of publicity was higher than the credibility of advertising. However, the credibility of publicity was diminished if advertising was presented first. The results from this study indicate that there might be sequence effects in cross-media campaigns as well.

In conclusion, there is a lack of empirical research into sequence effects in cross-media campaigns. Neither theoretical considerations nor previous cross-media studies give any convincing reasoning for the possible superiority of one of the media sequences. Due to the lack of knowledge on this subject we could not formulate a hypothesis. Therefore, the following research question was formulated:

**RQ1:** To what extent are there differences between different media sequences (TV commercial-website vs. website-TV commercial) regarding attitude towards the ads, interest in the ads, and message evaluation?

## Product Involvement

Involvement is an important moderator of the amount and type of information processing elicited by a persuasive communication message (Petty et al., 1983). There are many types of involvement (e.g., message, consumer, and product involvement). In this study we use the concept of product involvement which is defined as: “respondents’ overall evaluation of how important the product is to their life” (Macias, 2003, p. 35; Zaichkowsky, 1994). Product involvement represents one of the main motivations to process a message. If

people feel that a product is important to them, they will be more likely to put more effort into processing the message (Petty et al., 1983) and “they will seek out information via the best medium available” (Okazaki & Hirose, 2009, p. 84). To gain insight into the role of product involvement in sequence effects, we need to know more about the relationship between TV commercials, websites, and product involvement.

## **TV Commercials and Product Involvement**

TV commercials are most effective in informing consumers about low involvement products (Buchholz & Smith, 1991). The external pacing of TV commercials, the spoken information, and moving images can influence consumers that do not put a lot of effort into processing a message (De Pelsmacker, Geuens, & Anckaert, 2002; Buchholz & Smith, 1991; Dijkstra et al., 2005; Bronner & Neijens, 2006). Another line of reasoning is related to the information typically communicated in TV commercials. To market low involvement products, emotional appeal advertising is most effective (Wills, Samli, & Jacobs, 1991). Because TV commercials are most appropriate for communicating emotional content (Leong, Huang, & Stanners, 1998), TV commercials are expected to be most effective in informing consumers about low involvement products.

However, consumers who are highly motivated to process information because they are evaluating a high involvement product can also be persuaded by TV commercials. Consumers who are searching for information on high involvement products generally put a lot of effort into their search for information (Beatty & Smith, 1987). They search for as much information as possible to inform them. Therefore, TV commercials are valued because they provide an additional source of information. In conclusion, TV commercials are most influential in the case of low product involvement, but they are also able to influence consumers about high involvement products (Buchholz & Smith, 1991; Dijkstra et al., 2005).

## **Websites and Product Involvement**

It can be argued that websites are most effective in informing consumers about high involvement products (Dijkstra et al., 2005). In the literature, two main reasons can be found for this assertion. The first reason is grounded in theories on information processing. Earlier work on the processing of print media can be extended to websites to gain insight into the role of product involvement in website communication. In line with the low-involvement learning hypothesis (Krugman, 1965) that was originally posed for

TV and print, websites require active consumers because reading and interacting with a website requires a lot of cognitive effort. However, Holbrook (1978) suggests that consumers want to minimize their cognitive effort and, therefore, consumers would probably only be willing to interact with a website if the information is of interest to them. Therefore, only when consumers are motivated to process information, for example because of high product involvement, they are willing to interact with a website (Yoo & Stout, 2001; Levy & Nebenzahl, 2007; Liu & Shrum, 2009), which will subsequently enhance the likelihood of influencing its visitors (Liu & Shrum, 2009). Thus, the interactive nature of websites is particularly advantageous to advertisers when consumers are willing to interact, and therefore product involvement should be high (Yang, 2004).

The second reason why websites are most effective at influencing consumers about high involvement products is related to external information search. The level of involvement with a product influences how consumers search for information (Yang, 2004; Beatty & Smith, 1987). When consumers are highly involved with a product they engage in a more extensive external information search (Beatty & Smith, 1987; Buchholz & Smith, 1991; Volk & Kraft, 2005). The internet is an appropriate medium for consumers that are searching for information on a high involvement product (Yoon & Kim, 2001; Okazaki & Hirose, 2009). An explanation is that websites typically display a plenitude of information and rational appeals (Bronner et al., 2003). These rational appeals are especially effective in influencing consumers about high involvement products (Leong et al., 1998). In conclusion, websites are most influential in the case of high product involvement.

### **Sequence Effects and Product Involvement**

By relating the above medium characteristics and the role of product involvement to sequence effects, we can speculate about the most effective media sequence for high and low involvement products, and we might expect that the ideal media sequence is different for high and low involvement products. Firstly, we focus on the TV commercial-website sequence. As stated before, a TV commercial is best suited to persuade consumers about low involvement products (Buchholz & Smith, 1991; Krugman, 1965; Dijkstra et al., 2005). When consumers evaluating a low involvement product are exposed to a TV commercial-website sequence, the TV commercial might trigger consumers to visit a website. In other words, the TV commercial might trigger interest in the website as well as motivation to process the website. This makes consumers more willing to interact with a website (Yoo & Stout, 2001; Levy & Nebenzahl,

2007; Liu & Shrum, 2009). As a result, they might get more interested in the website and also positively evaluate the website and the message (Liu & Shrum, 2009).

On the other hand, highly involved consumers exposed to a TV commercial-website sequence might want to visit a website anyway because they want to obtain as much information as possible (Beatty & Smith, 1987; Buchholz & Smith, 1991; Volk & Kraft, 2005). Although the website might serve their needs best, they also value the TV commercial as an additional source of information. Therefore, the TV commercial-website sequence might be appreciated by consumers evaluating both low and high involvement products, resulting in a high level of interest in the ads, a positive attitude toward the ads, and a positive message evaluation. Because the role of product involvement in sequence effects in cross-media campaigns has not been studied before, we formulated the following research proposition.

**RP1:** In the case of a TV commercial-website sequence, there is no effect of product involvement on attitude toward the ads, interest in the ads, and message evaluation.

For the website- TV commercial sequence, we might expect differences between consumers evaluating low and high involvement products. When consumers evaluating a high involvement product are exposed to a website-TV commercial sequence, they are willing to interact with the website (Levy & Nebenzahl, 2007; Liu & Shrum, 2009; Okazaki & Hirose, 2009). As a result, they might evaluate the website positively (Liu & Shrum, 2009). These consumers also appreciate the TV commercial, because they value TV commercials as an additional source of information and because the preceding positive experience with the brand spills over to the experience of the TV commercial (e.g., Ruth & Simonin, 1998; Ahluwalia, Unnava, & Burnkrant, 2001).

In contrast, when consumers evaluating a low involvement product are first exposed to a website, they do not feel the level of interest and motivation needed to interact with that website and therefore, they might not appreciate it. The TV commercial that follows could then also be evaluated less positively, caused by a spill-over effect of the preceding negative experience with the brand. Therefore, the website-TV commercial sequence might only be suitable for and appreciated by consumers who are evaluating high involvement products, resulting in a high level of interest in the ads, a positive attitude towards the ads, and a positive message evaluation. As a result, we formulated the following research proposition.

**RP2:** In case of a website-TV commercial sequence, there is an effect of product involvement on attitude toward the ads, interest in the ads, and

message evaluation, in a way that this sequence is more effective for high involvement products than low involvement products.

## Method

### Design and Participants

The study involved a two (media sequences: TV commercial-website vs. website-TV commercial) by two (product involvement: low vs. high) factorial between-subject design. The participants were 115 students from a Dutch university. Their mean age was 22.04 ( $SD = 3.42$ ) and 75.7% of the participants were female. Participation was voluntary and the participants received €8 each.

### Experimental Stimuli

Two product categories were selected to manipulate product involvement. Cell phone services were considered high involvement products and services of energy suppliers were considered low involvement products. To test whether these product categories correctly represented low and high involvement products, a pre-test was conducted among 21 students (76.2% female) with a mean age of 23.38 ( $SD = 1.83$ ). The participants were asked to fill in the ten items from the revised personal involvement inventory (Zaichkowsky, 1994) on a five-point scale for both product categories. Results showed that, as expected, the cell phone services were perceived as high involvement products ( $M = 3.45$ ,  $SD = 0.59$ ), while the services of the energy supplier were perceived as low involvement ( $M = 2.72$ ,  $SD = 0.55$ ), ( $t(20) = 5.12$ ,  $p < .001$ ). In the experiment, a manipulation check was performed to see whether the manipulation was successful.

To remove influence due to previous brand evaluation and knowledge (Yang, 2004), Belgian commercials and brands were used in the experiment. The brands were not advertised in the Netherlands and a manipulation check revealed that none of the participants had seen the ads before. The TV commercials were in Dutch and both commercials were about 30 seconds.

Two websites –one for each involvement category – were professionally created with the same structure and layout, and the only variation was in the content. The text, photos and logos of each website were copied from the original websites of the brands. The websites contained brand, product, corporate, and background information, photos, and the possibility to request more information. Both websites contained 22 pages and had a similar amount of information.

TV commercials were shown in blocks of five commercials (one target ad and four filler ads) to create a natural viewing situation. The target commercial was shown in the second or third position of the commercial block. The websites were not offered in blocks of five because on the internet it is common to go directly to the desired website. Participants were asked to browse the website in their usual manner. Participants had an unlimited amount of time to view the website.

## Procedure

Participants were randomly assigned to one of the four experimental conditions. Participants sat in isolated cubicles to prohibit them from viewing and hearing the ads in the other conditions of the experiment. The experiment was conducted on a computer. First, participants were asked some general questions. Then participants were exposed to the ads in the first medium (TV commercial or website, depending on the media sequence). After this, participants watched a five-minute clip from a soap opera. Then participants were exposed to the ads in the second medium (TV commercial or website, depending on the media sequence). All participants saw both the TV commercial and the website, only the order of exposure varied. Finally, participants completed the questionnaire and were thanked and debriefed.

## Measures

*Attitude toward the TV commercial.* Attitude toward the TV commercial was measured with a three-item five-point semantic differential scale based on Chang and Thorson (2004). The bipolar ends included "likeable/not likable," "good/bad," and "appealing/not appealing." The items all loaded on one factor that proved to be reliable ( $EV = 2.51$ ;  $R^2 = .84$ ; Cronbach's alpha = .90;  $M = 3.58$ ,  $SD = 1.07$ ).

*Attitude toward the website.* Attitude toward the website was measured with the same three items as attitude toward the TV commercial. The items all loaded on one factor that proved to be reliable ( $EV = 2.30$ ;  $R^2 = .76$ ; Cronbach's alpha = .84;  $M = 2.54$ ,  $SD = 0.81$ ).

*Interest in the TV commercial.* According to Rossiter (2002) a single item indicator is sufficient to measure interest in a concrete, singular object. Therefore, interest in the TV commercial was measured with one item on a five-point semantic differential scale: "The TV commercial was interesting" ( $M = 3.38$ ,  $SD = 1.15$ ).

**Interest in the website.** The item used to measure interest in the TV commercial was also used to measure interest in the website ( $M = 2.51$ ,  $SD = 1.06$ ).

**Message evaluation.** Evaluation of the message was assessed with a two-item five-point semantic differential scale. The items included “not trustworthy/ trustworthy”, and “bad/ good”. The items loaded on one factor that proved to be reliable ( $EV = 1.47$ ;  $R^2 = .74$ ;  $r = .47$ ;  $M = 3.49$ ,  $SD = 0.78$ ).

**Product involvement.** To check whether the product involvement was successfully manipulated, product involvement was measured with a two-item five-point semantic differential scale (Dijkstra et al., 2005). The items included: “very unimportant/ very important” and “very uninteresting/very interesting” ( $r = .70$ ;  $M = 3.87$ ,  $SD = 1.54$ ).

**Background variables.** The age, sex, and product category experience of the participants were measured to assess their influence on the dependent variables.

## Results

Statistics showed that the gender of the participants was similar across the media conditions ( $\chi^2(1, N = 115) = 0.03$ ,  $p = .87$ ). In addition, the media conditions did not differ with respect to the age of the participants ( $F(1,113) = 1.24$ ,  $p = .27$ ). An outlier analysis revealed that four participants had standardized residuals higher than 2.5 on the dependent variables. These participants were excluded from further analyses.

### Manipulation Check

Analysis of variance showed that, as expected, the high involvement product was perceived as more involving than the low involvement product ( $F(1, 109) = 23.82$ ,  $p < .001$ ,  $M_{\text{high}} = 4.49$ ,  $SD = 1.27$  vs.  $M_{\text{low}} = 3.21$ ,  $SD = 1.47$ ). Hence, product involvement was successfully manipulated. No correlations were found between the dependent measures and the background variables age, sex, and product category experience.

### Hypotheses Tests

To test whether media sequences and involvement affected attitudes toward the ads, interest in the ads, and message evaluation, a media sequence (TV commercial-website vs. website-TV commercial) by product involvement (low vs. high) MANOVA was performed with the mean scores on attitude toward the TV commercial and toward the website, interest in the TV

commercial and in the website, and message evaluation as the dependent variables. This analysis showed no main effects of media sequence (Wilk's Lambda = 0.99,  $F(5, 103) = 0.18, p = .97$ ) or product involvement (Wilk's Lambda = 0.97,  $F(5, 103) = 0.69, p = .63$ ), but only a significant interaction effect of media sequence by involvement (Wilk's Lambda = 0.91,  $F(5, 103) = 2.86, p < .05$ ). Univariate analyses of variance were used to assess the distinct effects for each dependent variable.

**Attitude toward the TV commercial**

The ANOVA revealed no significant main effects of media sequence ( $F(1, 107) = 0.36, p = .85$ ) and product involvement ( $F(1, 107) = 1.96, p = .16$ ) on attitude toward the TV commercial. Furthermore, the analysis showed a significant interaction effect of media sequences and involvement ( $F(1, 107) = 4.29, p < .05$ ). The interaction effect was further analyzed using a simple main effects analysis. This analysis revealed that the impact of product involvement was significant for participants in the website-TV commercial condition ( $F(1, 107) = 6.30, p < .01$ ), but not for participants in the TV commercial-website condition ( $F(1, 107) = 0.22, p = .64$ ). Means and standard deviations can be found in Table 1.

Table 1. Mean scores and standard deviations on dependent variables as function of media sequence and product involvement

Media sequence	Product involvement	Attitude TV spot	Attitude website	Interest TV spot	Interest website	Message evaluation
TV-Web	High	3.59 (0.88)	2.49 (0.60)	3.30 (1.07)	2.42 (0.79)	3.35 (0.65)
	Low	3.72 (1.25)	2.63 (0.93)	3.54 (1.36)	2.73 (1.22)	3.77 (0.79)
	Overall	3.65 (1.07)	2.56 (0.78)	3.42 (1.22)	2.57 (1.03)	3.56 (0.74)
Web-TV	High	4.02 (0.75)	2.79 (0.85)	3.89 (0.75)	2.78 (1.09)	3.69 (0.50)
	Low	3.37 (1.00)	2.34 (0.77)	3.13 (1.09)	2.19 (1.01)	3.29 (0.95)
	Overall	3.67 (0.94)	2.55 (0.83)	3.48 (1.01)	2.47 (1.08)	3.47 (0.79)

**Attitude toward the Website**

Again, the results yielded no main effects (media sequence  $F(1, 107) = 0.01, p = .98$ ; product involvement  $F(1, 107) = 1.09, p = .30$ ). However, the interaction effect of media sequence x product involvement on attitude toward the website was significant ( $F(1, 107) = 3.79, p < .05$ , see Table 1). The simple effects analysis showed that the effect of product involvement was significant in the website-TV commercial condition ( $F(1, 107) = 4.68, p < .05$ ), but not in the TV commercial-website condition ( $F(1, 107) = 0.39, p = .53$ ).

### Interest in the TV commercial

Also for interest in the TV commercial the ANOVA showed no main effects of media sequence ( $F(1, 107) = 0.20, p = .66$ ) or product involvement ( $F(1, 107) = 1.57, p = .21$ ), but showed a significant interaction effect ( $F(1, 107) = 5.88, p < .05$ , see Table 1). Again, the simple effects analysis revealed that the impact of product involvement was significant for participants in the website-TV commercial condition ( $F(1, 107) = 7.06, p < .01$ ), but not for participants in the TV commercial-website condition ( $F(1, 107) = 0.66, p = .42$ ).

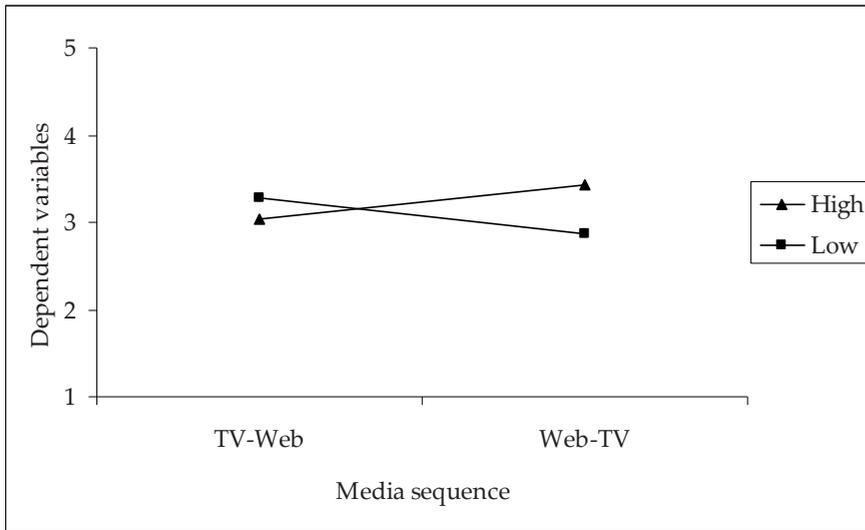
### Interest in the Website

Again, the ANOVA yielded no main effects (media sequence  $F(1, 107) = 0.21, p = .65$ ; product involvement  $F(1, 107) = 0.48, p = .49$ ). However, the interaction effect of media sequence  $\times$  product involvement on attitude toward the website was significant ( $F(1, 107) = 5.15, p < .05$ , see Table 1). The simple effects analysis showed that the effect of product involvement was significant in the website-TV commercial condition ( $F(1, 107) = 4.58, p < .05$ ), but not in the TV commercial-website condition ( $F(1, 107) = 1.19, p = .28$ ).

### Message Evaluation

Also for message evaluation the ANOVA showed no main effects of media sequence ( $F(1, 107) = 0.26, p = .61$ ) or product involvement ( $F(1, 107) = 0.06, p = .94$ ), but showed a significant interaction effect ( $F(1, 107) = 8.13, p < .01$ , see Table 1). A subtle different pattern was found in the simple effects analysis which revealed that the impact of product involvement was significant for participants in the website-TV commercial condition ( $F(1, 107) = 4.01, p < .05$ ), and also for participants in the TV commercial-website condition ( $F(1, 107) = 4.12, p < .05$ ).

To summarize, no significant main effects of media sequence or product involvement were found on the dependent variables. In agreement with our research propositions, the analyses revealed significant interaction effects of media sequence and involvement on all dependent variables. Figure 1 illustrates the two-way interaction effects for the dependent variables. All interaction effects showed the same pattern. In the TV commercial-website sequence there were no differences between the high and low involvement product (except for message evaluation). However, in the website-TV commercial sequence participants that evaluated a high involvement product were clearly more interested in the ads, were more positive about the ads, and evaluated the messages more positively than participants that evaluated the low involvement product.

Figure 1. *Illustration of interaction effects*

Note. Values represent a mean score of the dependent variables

## Conclusion and Discussion

The aim of our study was to gain insight into sequence effects in cross-media campaigns and the moderating role of product involvement. Our results indicated that overall, both sequences were appreciated equally. In other words, both sequences were equally effective in eliciting a positive attitude toward the ads, a high level of interest in the ads, and a positive message evaluation. More importantly, a consistent interaction effect of product involvement and media sequence was found on all dependent variables. These interaction effects showed that while a TV commercial-website sequence was effective for persuading consumers about both high and low involvement products, the website-TV commercial sequence was only suitable for persuading consumers about high involvement products.

The study successfully extends our knowledge on sequence effects in cross-media campaigns and the moderating role of product involvement. The results of the experiment have some important theoretical implications. First, the study provides evidence to incorporate exposure sequence in cross-media theories. The study shows that exposure sequence is vital and also shows under which conditions it is particularly important. The study shows that, when taking product involvement into account, differences exist between the two media sequences. While Edell and Keller (1989) already showed that sequence of exposure affected processing of ads and information, this study was the first

to demonstrate that, under certain conditions, order of exposure affects three possible campaign targets; evaluations of ads and messages and interest in ads. By doing so, our study offers empirical evidence for the expectations of Ephron (2000), Wang and Nelson (2006), Bronner (2006), and Havlena et al. (2008), who argued that sequence of exposure to media could be of crucial importance and warrant future research.

Another theoretical implication of the study is the need to take moderating variables into account when studying cross-media effects. Next to product involvement, there might be other product, brand or individual factors that influence cross-media effects. Future research should therefore focus on such moderating variables. Studying conditions under which cross-media effects occur pushes cross-media research to a higher level.

Although some caution must be taken in generalizing the findings of this study to other media, we suppose the findings could be generalized to other combinations of ads in passive, or externally paced media (e.g., TV, radio, pop-ups or banners on the internet) and ads in active, or internally paced media (e.g., the internet, newspapers, magazines). A sequence of an initial ad in an active medium followed by an ad in a passive medium might only be persuasive for high involvement products. The sequence of an initial ad in a passive medium, followed by an ad in an active medium might be effective for both low and high involvement products.

### **Limitations and Future Research**

The findings of the study are subject to some limitations. A weakness of the method employed is the way people were exposed to the cross-media combinations. Participants were forcefully exposed to both media. In real life, consumers evaluating a low involvement product would possibly not visit a website without something triggering their interest, for example in the form of a TV commercial. In the future, a field experiment or survey could provide a more realistic test.

A second limitation is that the study involved only two product categories and corresponding ads. While a pre-test and a manipulation check revealed that these categories represented high and low involvement products, the extent to which the findings can be generalized to other ads or products is unknown. Future research might therefore replicate the current study using different ads and products.

## **Managerial Implications**

The current study is a pioneering exploration in cross-media effect research. While media planners and marketers have no complete control over the order in which consumers are exposed to their marketing communication efforts, the study provides some important implications for media planning practice. A first implication concerns the overall most optimal sequence. In general, no differences are present between the TV commercial-website sequence and the website-TV commercial sequence. So without looking at the type of products advertised, both sequences are equally effective.

A second implication is that media planners should take product category involvement into account when determining the sequence in which media are employed. A sequence of TV commercials followed by websites is proven to be effective for both high and low involvement products. Consequently, when generalizing the results of this experimental study to a real-life situation, it could be a safe option to put the emphasis on TV commercials early in a campaign, while adding websites at a later stage. Concerning high involvement products, websites could also be used earlier in the campaigns, because the website-TV commercial sequence is only effective for high involvement products. Putting more emphasis on one medium over another medium could be accomplished by allocating a larger part of the media budget to one medium than to another medium.

The findings of our study could also be used in media planning of other medium types. When generalizing the findings of our study, it could be advised to use passive, internally paced media in the beginning of a campaign, while using active, externally paced media at a later stage. Only when consumers are highly involved with a product, active, externally paced media could also be used in the beginning of a campaign.

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## Chapter 6

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# Nederlandse Samenvatting

## Introductie

Tussen 2000 en 2009 is het percentage van de wereldbevolking dat gebruik maakt van het internet toegenomen met 380% (Internet World Stats, 2009). Op dit moment maakt in de Verenigde Staten 74% van de bevolking gebruik van het internet, in Nederland is dit zelfs 86% (Internet World Stats, 2009). Bovendien was het internet het enige medium waarvan de gebruiksduur in 2008 is toegenomen ten opzichte van 2007, terwijl de tijd die besteed werd aan TV, radio en magazines afnam (STIR, 2009). Adverteerders en marketeers proberen te profiteren van dit toenemende en intensieve internetgebruik door het medium te integreren in hun marketingcommunicatie activiteiten. Als resultaat hiervan namen de online advertentiebestedingen drastisch toe tijdens het laatste decennium (IAB, 2009) en zijn tegenwoordig bijna alle merken actief op het internet.

Online worden consumenten op verschillende manieren met merken geconfronteerd. Merken zijn aanwezig wanneer informatie wordt gezocht via zoekmachines, bij het spelen van online spelletjes, tijdens het online bekijken van een televisieserie en bij het onderhouden van contacten met vrienden via sociale netwerksites. Merken bereiken consumenten ook via e-mail, bijvoorbeeld in de vorm van nieuwsbrieven en elektronische magazines. Ook zoeken consumenten actief naar informatie over merken en voelen zich betrokken bij merken, bijvoorbeeld door het lezen en schrijven van online reviews of het bezoeken van websites.

Dit proefschrift concentreert zich op websites van merken. De focus op websites is gebaseerd op hun populariteit (CRM Metrix, 2009) en het grote potentieel dat ze hebben om consumenten te beïnvloeden. Het potentieel van websites ligt in haar interactieve mogelijkheden (Liu & Shrum, 2009), een lange en vrijwillige blootstelling, een hoge mate van vertrouwen van consumenten in websites van merken (Nielsen, 2009) en de mogelijkheid om op websites de gehele aankoopcyclus te doorlopen. Websites zijn mede door deze voordelen een belangrijk instrument geworden voor marketeers en adverteerders. Zij zetten websites vaak in als aanvulling op reclame in traditionele media (Greenspan, 2004; Song & Zinkhan, 2008). Gezien de populariteit van deze vorm van marketingcommunicatie, zowel voor adverteerders als consumenten, is het belangrijk te weten hoe consumenten reageren op websites en op campagnes waarin deze websites worden ingezet. In dit proefschrift komen

twee kenmerkende aspecten van websites aan bod. Ze worden geïntroduceerd in de volgende paragraaf.

## **Probleemstelling**

In dit proefschrift worden twee aspecten behandeld die essentieel zijn om ons begrip van de werking van websites te vergroten. Het eerste aspect representeert het belangrijkste onderscheidende kenmerk van websites: interactiviteit. Het tweede aspect is gerelateerd aan de rol van websites in marketingcommunicatiecampagnes: crossmedia-effecten. Allereerst wordt in hoofdstuk 2 een literatuurreview gepresenteerd waarin een algemeen overzicht wordt gegeven van de factoren die de reacties van consumenten op van websites van merken beïnvloeden.

## **Interactiviteit**

In dit proefschrift wordt interactiviteit gedefinieerd als: “the degree to which two or more communicating parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized” (Liu & Shrum, 2002, p. 54). Het concept bestaat uit drie dimensies: tweezijdige communicatie, actieve controle en gelijktijdigheid (Liu & Shrum, 2002). Interactiviteit staat centraal in dit proefschrift vanwege twee redenen. Enerzijds wordt interactiviteit gezien als het belangrijkste verschil tussen traditionele en nieuwe media (Chung & Zhao, 2004) en dus tussen reclame in traditionele media zoals TV commercials en websites. Anderzijds is interactiviteit erkend als een essentieel aspect van succesvolle online reclame. Het is algemeen aanvaard dat de aanwezigheid van interactiviteit een positieve invloed heeft op de overtuigingskracht van een boodschap (Liu & Shrum, 2002; Macias, 2003; Sicilia, Ruiz, & Munuera, 2005). Het bestuderen van interactiviteit zal daarom bijdragen aan ons begrip van een cruciale factor van effectieve online merkcommunicatie.

Hoewel er veel onderzoek is naar de effecten van interactiviteit, is onderzoek naar de determinanten van interactiviteit schaars. Tot nu toe is er geen goede kennis van welke websitefuncties bijdragen aan interactiviteit en is niet bekend wat er voor zorgt dat een website werkelijk als interactief wordt beschouwd door bezoekers. Dit proefschrift heeft tot daarom tot doel meer inzicht te geven in de determinanten van interactiviteit. Om dit te doen bouwt het proefschrift voort op twee theoretische benaderingen die centraal staan in de literatuur over interactiviteit: objectieve interactiviteit en gepercipieerde interactiviteit. Objectieve interactiviteit kan aan de ene kant worden gemeten door het aantal en type interactieve functies op een website te analyseren (Song

& Zinkhan, 2008). Aan de andere kant wordt gepercipieerde interactiviteit subjectief waargenomen door gebruikers en kan daarom worden gemeten door te vragen naar hun ervaringen en gevoelens tijdens een websitebezoek (Liu & Shrum, 2002).

De studie die wordt beschreven in hoofdstuk 3 gaat in op objectieve interactiviteit. In de studie wordt een nieuw codeerinstrument ontwikkeld en getest dat gebruikt kan worden om deze vorm van interactiviteit te meten. Ook geeft hoofdstuk 3 inzicht in de mate van interactiviteit op websites van internationale topmerken. Hoofdstuk 4 richt zich op de determinanten van gepercipieerde interactiviteit door de aanwezigheid van interactieve websitefuncties (objectieve interactiviteit) te relateren aan percepties van interactiviteit.

### **Crossmedia-Effecten**

Het tweede aspect dat essentieel is om ons begrip van websites uit te breiden, is gerelateerd aan de rol van websites in marketingcommunicatiecampagnes. Omdat websites vaak in combinatie met traditionele media gebruikt worden in campagnes, is het belangrijk om inzicht te krijgen in crossmediale effectiviteit. In zogenoemde multimedia- of crossmediacampagnes proberen marketeers de effectiviteit van hun budget te maximaliseren door van de unieke voordelen van elk medium te profiteren. Het uiteindelijke doel van zulke crossmediacampagnes is om synergie te bewerkstelligen waarbij de gecombineerde effecten van meerdere medium activiteiten groter is dan de som van de individuele effecten (Naik & Raman, 2003). Hoewel er enig empirisch bewijs is dat het combineren van meerdere media in een campagne effectiever is dan het gebruik van slechts één medium (bijvoorbeeld Dijkstra, 2002; Chang & Thorson, 2004; Havlena, Cardarelli, & De Montigny, 2007), zijn er verschillende kwesties die tot nu toe niet onderzocht zijn of nader onderzocht dienen te worden.

Een eerste vraag die deels onbeantwoord bleef in eerdere studies is *waarom* crossmediale campagnes effectiever zijn dan campagnes die slechts één medium inzetten. Hoewel enkele eerdere studies aannamen dat bepaalde psychologische processen de superieure effecten van crossmediale campagnes kunnen verklaren (Edell & Keller, 1989; Keller, 1996), is de invloed van deze processen nauwelijks empirisch onderzocht (met uitzondering van Dijkstra, 2002). Hoofdstuk 5 richt zich daarom op psychologische processen die kunnen verklaren waarom campagnes die meerdere media inzetten overtuigender zijn dan campagnes die gebruik maken van één medium.

Een tweede kwestie die tot nu toe onbelicht bleef, is het effect van de volgorde waarin media worden ingezet in crossmediacampagnes. Geen enkele studie heeft dit systematisch onderzocht, terwijl uit andere onderzoeksvelden bekend is dat de volgorde waarin mensen persuasieve boodschappen zien van invloed is op hun reactie op deze boodschap (Haugtvedt & Wegener, 1994; Loda & Coleman, 2005). Een derde kwestie die onderbelicht is in de crossmedia literatuur is onder welke omstandigheden crossmediale effecten sterker zijn of meer waarschijnlijk plaatsvinden. Een belangrijke variabele die crossmedia-effecten zou kunnen beïnvloeden is de betrokkenheid bij een product, omdat de manier waarop consumenten informatie zoeken beïnvloed wordt door het belang dat zij aan een product hechten (Okazaki & Hirose, 2009). Ook is de betrokkenheid bij een product een belangrijke moderator van de hoeveelheid en het type van informatieverwerking dat wordt uitgelokt door een persuasieve boodschap (Petty, Cacioppo, & Schumann, 1983). Hoofdstuk 6 rapporteert daarom over een experimentele studie naar de rol van volgorde van blootstelling aan media en betrokkenheid bij een product in crossmediacampagnes die gebruik maken van websites in combinatie met reclame in een traditioneel medium.

## **Samenvatting van de Hoofdstukken**

De vijf studies in dit proefschrift worden gepresenteerd in vijf opeenvolgende hoofdstukken. De hoofdstukken zijn gepubliceerd als individuele artikelen of zijn ter publicatie ingediend bij wetenschappelijke tijdschriften. Ieder hoofdstuk bevat daarom een eigen samenvatting, introductie en referentielijst. Deze sectie biedt een samenvatting van elk van de vijf hoofdstukken.

### **Hoofdstuk 2: Literatuur Overzicht**

Dit hoofdstuk geeft een uitgebreid en systematisch overzicht van de bestaande empirische literatuur over websites van merken (Voorveld, Neijens, & Smit, 2009a, 2009b). Het doel van deze studie is drieledig. De studie heeft tot doel (a) een overzicht te geven van de factoren die reacties van consumenten op websites beïnvloeden, (b) inzicht te geven in de staat van het onderzoek in de afgelopen tien jaar en (c) inzicht te geven in de gebruikte theorieën. Door gebruik te maken van een vote-counting procedure werden meer dan 700 bevindingen uit 50 empirische studies samengevat en geanalyseerd.

De analyse liet zien dat reacties ten aanzien van de website (bijvoorbeeld de attitude ten aanzien van de website) werden beïnvloed door zowel persoonlijke als websitegerelateerde factoren. Persoonlijke factoren die

belangrijk bleken waren de mate van betrokkenheid bij de website of het merk, de gepercipieerde interactiviteit en de mate van flow die werd ervaren. Belangrijke websitegerelateerde factoren waren de objectieve interactiviteit, de gebruiksvriendelijkheid van een website, en de mate van congruentie tussen de website en het merk. Reacties ten aanzien van het merk (bijvoorbeeld de attitude ten opzichte van het merk) werden voornamelijk beïnvloed door websitegerelateerde factoren. Persoonlijke factoren bleken hier geen directe invloed te hebben. Belangrijke website-gerelateerde factoren waren de mate van interactiviteit en het aantal functies op een website (bijvoorbeeld de mogelijkheid deel te nemen aan acties). Daarnaast bleek dat de reacties ten aanzien van de website (bijvoorbeeld de attitude ten aanzien van de website) een medierende rol speelden bij de vorming van de reacties ten aanzien van het merk.

Om reacties van consumenten te verklaren hebben eerdere studies op een succesvolle wijze nieuwe theoretische concepten (bijvoorbeeld interactiviteit) geïntegreerd in bestaande theorieën. Drie kenmerken van eerdere studies verhinderen echter een volledig inzicht en zouden de resultaten van de review kunnen hebben beïnvloed. De review laat namelijk zien dat 80% van de originele studies gebruik maakt van gedwongen blootstelling. Daarnaast gebruikt 67% een studentensample. De review laat ook zien dat het meten van cognitieve reacties op websites wordt onderbelicht; het overgrote deel van de studies meet affectieve reacties.

### **Hoofdstuk 3: Interactiviteit van Websites van Wereldwijde Topmerken**

De studie die wordt beschreven in hoofdstuk 3 brengt de objectieve interactiviteit van websites van internationale topmerken in kaart (Voorveld, Neijens, & Smit, in press-a; in press- d). Deze merken zijn afkomstig van een lijst die jaarlijks door het magazine Businessweek wordt opgesteld. De studie heeft tot doel een nieuw codeerinstrument te ontwikkelen waarmee de objectieve interactiviteit van websites kan worden gemeten. Dit was nodig omdat tot nu toe geen theoretisch gefundeerd instrument beschikbaar was. Het nieuwe instrument bevat 47 interactieve websitefuncties en is direct gerelateerd aan de huidige theoretische inzichten rond interactiviteit. Functies die in het instrument werden opgenomen waren bijvoorbeeld zoekfuncties, chatrooms, mogelijkheden om websites of producten aan persoonlijke voorkeuren aan te passen en online spelletjes. Om de bruikbaarheid van het nieuwe instrument te testen werd een inhoudsanalyse van 66 Amerikaanse en 66 Nederlandse websites uitgevoerd. Deze inhoudsanalyse gaf ook inzicht in de mate van

interactiviteit van websites van wereldwijde topmerken. De resultaten lieten zien dat het instrument op een betrouwbare wijze gebruikt kan worden in verschillende contexten. Daarnaast liet de inhoudsanalyse interessante verschillen zien tussen Nederlandse en Amerikaanse websites en tussen websites van verschillende producttypen. Het bleek dat Amerikaanse websites enigszins interactiever waren dan de Nederlandse websites. Daarnaast bleek dat websites van duurzame goederen en diensten interactiever waren dan websites van niet-duurzame goederen. Het instrument kan in de toekomst gebruikt worden om de effecten van interactiviteit te onderzoeken. Marketeers kunnen het instrument gebruiken om de interactiviteit van hun eigen website te meten.

#### **Hoofdstuk 4: De Relatie tussen Objectieve en Gepercipieerde Interactiviteit**

In hoofdstuk 4 wordt een studie beschreven waarin de relatie tussen objectieve interactiviteit en gepercipieerde interactiviteit wordt onderzocht (Voorveld, Neijens, & Smit, 2010). Om dit te doen wordt gebruik gemaakt van het instrument dat in hoofdstuk 3 beschreven wordt. Hoewel in de literatuur wordt gesuggereerd dat een toename van het aantal interactieve functies op een website leidt tot verhoogde percepties van interactiviteit (Macias, 2003; Sicilia, Ruiz, & Munuera, 2005), is er ook enig bewijs dat dit niet het geval is (McMillan, 2002; Song & Zinkhan, 2008). Het valt op dat er zeer weinig onderzoek is gedaan naar welke interactieve websitefuncties bijdragen aan gepercipieerde interactiviteit. Om de relatie tussen objectieve en gepercipieerde interactiviteit te onderzoeken en zo te leren wat websites echt interactief maakt, wordt in hoofdstuk 4 een inhoudsanalyse van de websites van de top 100 wereldwijde merken gecombineerd met een survey (N = 715) waarin de gepercipieerde interactiviteit van diezelfde websites wordt gemeten. De belangrijkste bevindingen zijn: (1) er is een duidelijke incongruentie tussen de mate van objectieve en gepercipieerde interactiviteit; (2) het toevoegen van interactieve functies aan een website garandeert niet dat een website ook als interactief wordt gepercipieerd; (3) zes unieke website karakteristieken dragen op een positieve manier bij aan percepties van interactiviteit. Er kan daarom worden geconcludeerd dat unieke interactieve functies die niet op de meerderheid van de websites aanwezig zijn bijdragen aan de ervaren interactiviteit. Voorbeelden van deze functies zijn de mogelijkheid om een product online te registreren en de mogelijkheid de website aan de persoonlijke voorkeuren aan te passen.

## Hoofdstuk 5: Psychologische Processen in Crossmediacampagnes

Omdat websites vaak gebruikt worden in combinatie met traditionele media, is het essentieel de effectiviteit te onderzoeken van crossmediacampagnes waarin websites een onderdeel vormen. Onder onderzoekers bestaat consensus dat crossmediacampagnes leiden tot meer positieve publieksreacties dan campagnes waarin slechts één medium wordt ingezet (bijvoorbeeld Edell & Keller, 1989; Naik & Raman, 2003; Chang & Thorson, 2004; Dijkstra, Buijtsels, & Van Raaij, 2005). Een vraag die echter nog onbeantwoord is, is *waarom* crossmediacampagnes effectiever zijn dan campagnes met slechts één medium. Het doel van de studie die wordt beschreven in hoofdstuk 5 is daarom (a) te onderzoeken welke psychologische processen aanwezig zijn wanneer consumenten worden blootgesteld aan crossmediacampagnes, en (b) te onderzoeken in hoeverre deze processen bijdragen aan campagneresultaten (Voorveld, Neijens, & Smit, in press-b). Drie processen zijn onderzocht: “forward encoding” (de advertentie in het eerste medium wekt interesse in de advertentie in het tweede medium), “Image transfer” (een consument ziet de advertentie in het eerste medium weer voor zich wanneer hij/zij wordt blootgesteld aan de advertentie in het tweede medium), en “multiple source perception” (de consument gelooft dat een merk goed en populair is vanwege de hoeveelheid reclame in ogenschijnlijk onafhankelijke bronnen). Om de rol van deze processen te onderzoeken werden 219 respondenten blootgesteld aan één van de vier mediacondities die websites en/of TV commercials bevatten. De resultaten lieten zien dat twee processen aanwezig waren wanneer respondenten werden blootgesteld aan de crossmediacondities: “forward encoding” en “multiple source perception”. Deze processen droegen ook bij aan de campagneresultaten. Het derde proces “image transfer” was echter aanwezig in alle media condities en droeg dus niet bij aan de verklaring van crossmedia-effecten.

## Hoofdstuk 6: Volgorde Effecten en de Rol van Betrokkenheid bij het Product in Crossmediacampagnes

De studie die wordt beschreven in hoofdstuk 6 richt zich op twee kwesties die tot nu toe niet worden bestudeerd in de literatuur over crossmedia. Het doel van deze studie is (1) het onderzoeken van de reacties van consumenten op de volgorde waarin media worden ingezet in crossmediacampagnes, en (2) inzicht te geven in de modererende rol van betrokkenheid bij een product in de relatie tussen de volgorde van media en

crossmedia-effecten (Voorveld, Neijens, & Smit, in press-e). Om dit te onderzoeken werd een experiment uitgevoerd waarin een tweetal combinaties van websites en TV commercials werd bestudeerd (TV commercial-website vs. website-TV commercial). De resultaten lieten een consistent interactie-effect zien van de volgorde waarin media werden ingezet en productbetrokkenheid op twee mogelijk campagnedoelen: attitude ten opzichte van de advertenties, interesse in de advertenties en evaluatie van de boodschap. Deze interactie-effecten lieten zien dat een TV commercial gevolgd door een website effectief was om consumenten te informeren over producenten met zowel een hoge als een lage betrokkenheid. Een website gevolgd door een TV commercial was echter alleen effectief voor producten met een hoge betrokkenheid. Een verklaring zou kunnen zijn dat consumenten een bepaalde mate van interesse en motivatie moeten ervaren om actief te interacteren met een merk. De belangrijkste conclusie van de studie is dat de volgorde waarin mensen worden blootgesteld aan media van belang is in crossmediacampagnes. De studie laat ook zien onder welke omstandigheden dit voornamelijk van belang is.

## **Belangrijkste Conclusies**

De vijf studies die in dit proefschrift gepresenteerd worden, voegen de volgende zeven conclusies toe aan de bestaande literatuur.

Ten eerste laat het proefschrift zien dat de manier waarop consumenten reageren op websites van merken wordt beïnvloed door twee typen factoren: persoonlijke en websitegerelateerde factoren. Het valt op dat vooral websitegerelateerde factoren een directe invloed hebben op de merkreacties van consumenten (bijvoorbeeld de attitude ten opzichte van het merk). Daarnaast bevestigt dit proefschrift de medierende rol van de attitude ten aanzien van de website in de wijze waarop websites invloed hebben op de attitude ten aanzien van het merk dat gepresenteerd wordt op de website.

Ten tweede geeft het proefschrift inzicht in de vraag welke websitefuncties bijdragen aan website interactiviteit. Dit inzicht werd verkregen door de interactiviteit van de websites van de top 100 wereldwijde merken in kaart te brengen met een nieuw, theoretisch onderbouwd codeerinstrument. Wanneer interactiviteit wordt verdeeld in drie theoretische dimensies, valt op dat interactieve functies die bijdragen aan controle over de boodschap het meest aanwezig zijn, gevolgd door functies die tweezijdige communicatie faciliteren en functies die bijdragen aan een gelijktijdige respons.

Ten derde kan worden geconcludeerd dat Amerikaanse websites van wereldwijde topmerken enigszins interactiever zijn dan de Nederlandse

websites. Ook laat het proefschrift zien dat websites van duurzame goederen en diensten interactiever zijn dan websites van niet-duurzame goederen.

Ten vierde toont het proefschrift aan dat er een grote incongruentie bestaat tussen objectieve en gepercipieerde interactiviteit. Bovendien laat het zien dat niet het aantal interactieve functies, maar het aantal *unieke* interactieve functies het doorslaggevende criterium is waarop consumenten hun percepties van interactiviteit baseren.

Ten vijfde beantwoordt dit proefschrift de vraag *waarom* crossmediacampagnes effectiever zijn dan single medium campagnes. Het proefschrift laat zien dat twee processen verantwoordelijk zijn voor de superieure effectiviteit van crossmediacampagnes: (1) in crossmediacampagnes triggert de advertentie in het eerste medium de aandacht, interesse en nieuwsgierigheid voor de advertentie in het tweede medium; (2) adverteren in meerdere media, die als onafhankelijke bronnen worden gezien, wordt gezien als duurder dan adverteren in één medium en wordt daarom als geloofwaardiger waargenomen.

Ten zesde kan worden geconcludeerd in campagnes waarin websites worden ingezet in combinatie met andere media, het belangrijk is in welke volgorde deze media door consumenten worden gezien.

Tot slot toont het proefschrift aan dat het cruciaal is de betrokkenheid bij een product in ogenschouw te nemen wanneer wordt bepaald in welke volgorde media worden ingezet in een campagne. Een TV commercial gevolgd door een website is zowel effectief voor producten met een hoge betrokkenheid als met een lage betrokkenheid. Een website gevolgd door een TV commercial is echter alleen geschikt voor producten waarbij mensen zich erg betrokken voelen. Dus de volgorde waarin media worden ingezet is vooral van belang wanneer het type product in ogenschouw wordt genomen.

Naast deze conclusies draagt het proefschrift bij aan de literatuur over interactiviteit door de ontwikkeling van een nieuw en theoretisch gefundeerd codeerinstrument dat op een betrouwbare manier gebruikt kan worden om de interactiviteit van websites in kaart te brengen.

## Implicaties

### Theoretische Implicaties

Het proefschrift draagt bij aan theorievorming over interactiviteit. Eerder werd al vastgesteld dat interactiviteit een essentieel aspect is van succesvolle online merkcommunicatie, omdat over het algemeen wordt aanvaard dat interactiviteit een positieve invloed heeft op de overtuigingskracht van een boodschap (voor een overzicht zie: Liu & Shrum,

2002). Daarentegen was theoretische kennis over de determinanten van interactiviteit schaars. Dit proefschrift draagt bij aan dit veld door het onderzoeken van de relatie tussen website karakteristieken en percepties van interactiviteit. Het proefschrift heeft vastgesteld dat objectieve en gepercipieerde interactiviteit niet noodzakelijkerwijs direct aan elkaar gerelateerd zijn. Hoewel enkele andere onderzoekers al suggereerden dat dit het geval zou kunnen zijn (bijvoorbeeld McMillan, 2002; Song & Zinkhan, 2008), heeft de studie in dit proefschrift deze kwestie onderzocht voor een groot aantal websites en interactieve functies. Het proefschrift suggereert dat de uniekheid van de interactieve functies een onderliggende verklarende variabele zou kunnen zijn in de relatie tussen interactieve websitefuncties en percepties van interactiviteit. Dit betekent ook dat wat op dit moment door consumenten wordt gepercipieerd als interactief, in de toekomst niet meer automatisch als interactief gezien hoeft te worden. Toekomstig onderzoek zou zich moeten richten op het verder valideren van deze mogelijke verklaring.

Dit proefschrift draagt ook bij aan de ontwikkeling van theorieën over crossmedia-effectiviteit. In bestaande crossmedia theorieën werd al vastgesteld dat campagnes waarin meerdere media worden ingezet over het algemeen effectiever zijn dan campagnes waarin slechts één medium wordt gebruikt. De resultaten van dit proefschrift pleiten voor het opnemen van de variabelen mediavolgorde en betrokkenheid bij het product in crossmedia theorieën. Hoewel in andere velden al bekend was dat de volgorde waarin consumenten worden blootgesteld aan informatie invloed heeft op hun evaluaties (Haugtvedt & Wegener, 1994; Loda & Coleman, 2005), bevestigt dit proefschrift het belang van volgorde bij het bepalen van crossmedia-effectiviteit. Het proefschrift laat zien dat bij het bepalen van de meest effectieve mediavolgorde rekening dient te worden gehouden met de betrokkenheid bij een product. Het proefschrift beantwoordt hiermee de oproep tot onderzoek naar deze kwestie door Ephron (2000), Bronner (2006), en Havlena, Kalluff en Cardarelli (2008).

Dit proefschrift draagt daarnaast bij aan de ontwikkeling van onze kennis over *waarom* crossmediacampagnes effectiever zijn dan campagnes waarin slechts één medium wordt ingezet. Het onderzoek gaat verder dan onderzoek van Edell en Keller (1989, 1999) en Bronner (2006) die discussieerden over psychologische processen zonder de rol van deze processen daadwerkelijk empirisch te toetsen. In dit proefschrift wordt de rol van twee psychologische processen, “forward encoding” en “multiple source perception”, bevestigd. Het proefschrift toont aan dat deze processen theoretische verklaringen bieden voor de effectiviteit van crossmediacampagnes en dus moeten worden opgenomen in crossmedia theorieën.

## **Praktische Implicaties**

De belangrijkste conclusies van dit proefschrift bieden ook bruikbare implicaties voor marketeers die websites willen gebruiken in hun merkcommunicatie of die de effecten van hun website willen vergroten. Deze implicaties zijn vierledig. Twee implicaties zijn gerelateerd aan de interactiviteit van websites en twee zijn gerelateerd aan de rol van websites in crossmediacampagnes.

Gezien de cruciale rol die interactiviteit speelt in het bepalen van de effectiviteit van websites, zouden marketeers het codeerinstrument dat is ontwikkeld in hoofdstuk 3 kunnen gebruiken om de interactiviteit van hun eigen websites in kaart te brengen. Vervolgens zouden ze deze kunnen vergelijken met de interactiviteit van websites van hun concurrenten of van wereldwijde topmerken. Door het in kaart brengen van de interactiviteit en de vergelijking met concurrenten kunnen bedrijven de unieke interactieve kenmerken van hun website ontdekken.

Een tweede implicatie richt zich op de manieren om de gepercipieerde interactiviteit van websites te verhogen (Voorveld, Neijens, & Smit, in press-c). Het proefschrift laat zien dat het simpelweg toevoegen van interactieve functies aan een website niet garandeert dat consumenten een website ook als interactief waarnemen. Het blijkt dat alleen unieke interactieve functies bijdragen aan deze percepties. Daarom moeten marketeers zorgvuldig monitoren wat consumenten verwachten op het gebied van interactiviteit en zullen zij technologische ontwikkelingen op de voet moeten volgen. De interactieve functies op een website zullen vervolgens moeten worden aangepast aan deze verwachtingen en ontwikkelingen.

De derde implicatie gaat over het opnemen van websites in campagnes. Het proefschrift laat zien dat het gelijktijdig inzetten van websites en TV commercials kan leiden tot effectievere campagnes dan wanneer slechts één medium wordt ingezet. Twee psychologische processen blijken verantwoordelijk te zijn voor deze effecten: "forward encoding" (de advertentie in het eerste medium wekt interesse in de advertentie in het tweede medium) en "multiple source perception" (de consument gelooft dat een merk goed en populair is vanwege de hoeveelheid reclame in ogenschijnlijk onafhankelijke bronnen). Het optreden van deze processen zou door adverteerders kunnen worden gestimuleerd door bijvoorbeeld overlap tussen verschillende uitingen aan te brengen of door de nieuwsgierigheid van consumenten te prikkelen om zo "forward encoding" op te wekken. Ook kunnen adverteerders gebruik blijven maken van advertenties in traditionele media, zoals TV commercials,

naast advertenties in nieuwe media om zo multiple source perception uit te lokken.

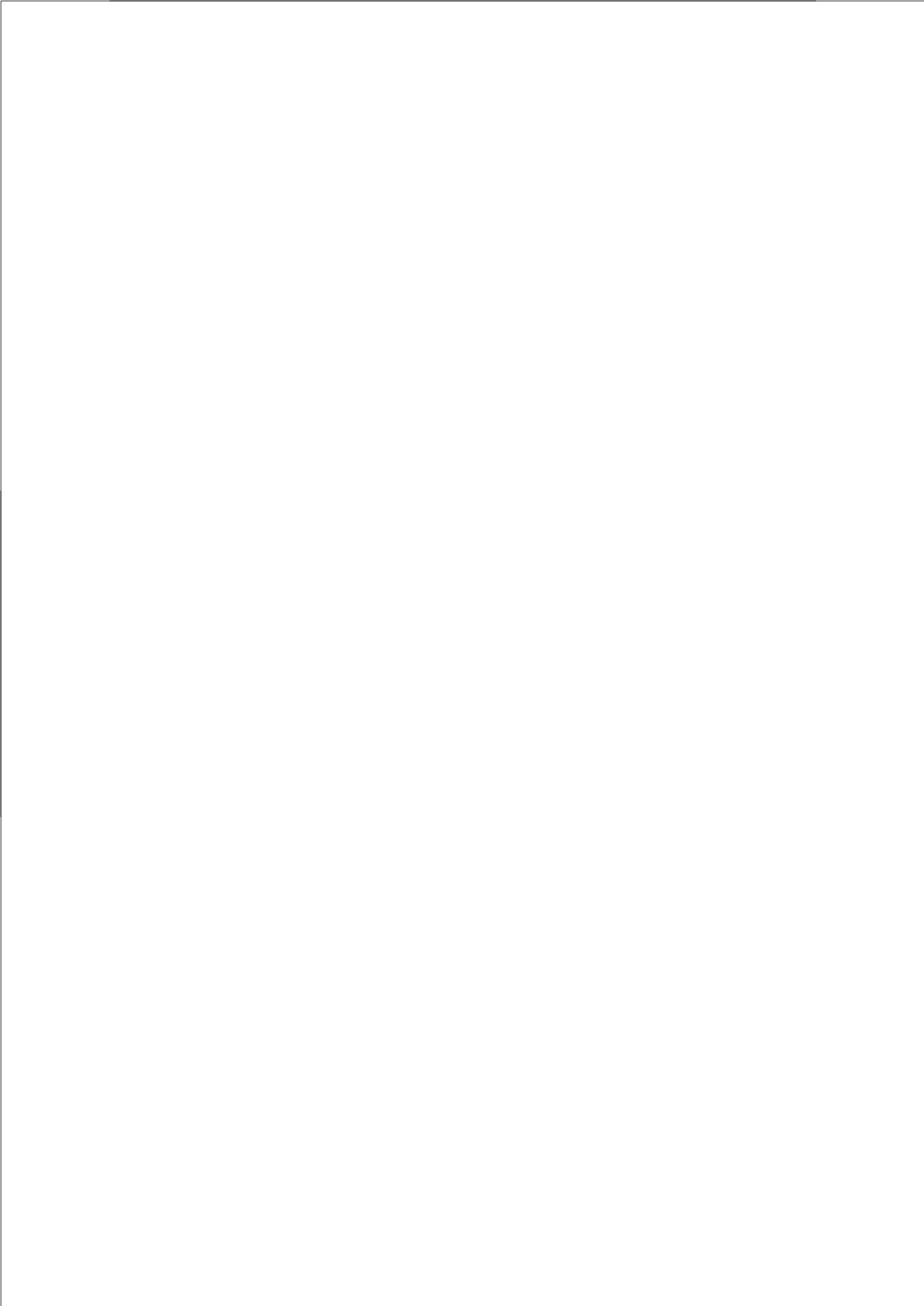
Ten vierde moeten mediaplanners ook rekening houden met de volgorde waarin zij media inzetten in campagnes. Een TV commercial gevolgd door een website blijkt effectief te zijn voor producten met zowel een hoge als een lage betrokkenheid. Wanneer de resultaten van dit proefschrift gegeneraliseerd zouden worden naar de praktijk zou het daarom een veilige optie kunnen zijn om TV commercials vooral in te zetten aan het begin van een campagne en de nadruk op websites te leggen in een later stadium van de campagne. Wanneer het gaat om producten met een hoge betrokkenheid zouden websites ook in een eerdere fase van de campagne kunnen worden ingezet, omdat websites gevolgd door TV commercials alleen effectief blijken te zijn in het geval van producten met een hoge betrokkenheid.

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# Curriculum Vitae and Publications

Hilde Voorveld was born on March 18th 1984 in Almelo, The Netherlands. She studied Communication Science at the University of Twente. After she graduated Cum Laude, she started her Ph.D. project in The Amsterdam School of Communication Research, ASCoR, at the University of Amsterdam. Between January 2007 and January 2010 she worked on the project resulting in five articles presented in this dissertation. Her work has been recognized with an award from the European Advertising Academy EAA. At present she is an Assistant Professor in the Amsterdam School of Communication Research, ASCoR, in the department of Communication at the University of Amsterdam.

## List of Publications

- Voorveld, H. A. M., Neijens, P. C., & Smit, E. G. (2009a). Consumers' responses to brand websites: An interdisciplinary review. *Internet Research*, 19(5), 335-365.
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