**EZGI AKPINAR**

Consumer Information Sharing

Understanding Psychological Drivers of Social Transmission

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Understanding psychological drivers of social transmission

Het delen van informatie door consumenten

Inzicht in psychologische drivers van sociale transmissie

Thesis

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Chapter 1. Introduction

1.1 Consumer Information Sharing

Consumers enjoy sharing product-related experiences and opinions with others. They discuss the movies they have watched, mention books they have read, and suggest the restaurants they enjoy. Consumers share not only their own experiences but also other product-related content. For instance, they share hearsay information about a product's side effects, share the viral advertisements they have watched or pass along the catch phrase from a marketing campaign. Such information sharing among consumers about "the ownership, usage and characteristics of particular goods and services or their sellers" (Westbrook 1987) is known as word of mouth. Word of mouth can differ based on the nature of the content. It can either be generated naturally by consumers (organic) or stimulated by companies (fertilized, Trusov, Bucklin and Pauwels 2009). Organic word of mouth includes consumers' experiences with products (e.g., the Tefal Actifry cooks food well), mentions of products or vendors (e.g., I went to Primark last week); recommendations (e.g., You should try this new hairdresser) or rumors passed along about a product (e.g., Mattel toys contain carcinogens), all of which are generated by consumers naturally. Fertilized word of mouth includes communications among consumers regarding product-related content that are stimulated and initiated by

companies (e.g., advertisements such as the "Panda Cheese ad" that generate virality and further word of mouth among consumers).

Word of mouth's impact is of crucial importance. It is one of the oldest methods for consumers to exchange information about products or services (Katz and Lazarsfeld 1955). Yet, with the rise of social media, it has received tremendous interest from both scholars and marketers. New mobile devices and technology have made consumers even more connected and responsive to interpersonal communication. Each day, there are approximately 2.5 billion likes on Facebook, 4 billion Tweets sent, and 33 million minutes spent watching online video (Hayes, 2013). Some of these interpersonal communications include mentions of brands, generating over 3.3 billion brand impressions each day (Keller and Libai 2009).

Word of mouth has a profound impact on consumer behavior and substantial consequences for companies. It is the "primary factor behind 20 to 50 percent of all purchasing decisions," and "word of mouth generates more than twice the sales of paid advertising in categories as diverse as skincare and mobile phones" according to a McKinsey report (2010, p 8). There is voluminous quantitative academic research demonstrating the impact of word of mouth, including increases in the revenues from books (Chevalier and Mayzlin 2006), restaurants (Godes and Mayzlin 2009), video games (Zhu and Zhang 2009), movies (Chintagunta, Gopinath, and Venkataraman 2010), subscriptions to online communities (Trusov, Bucklin, and Pauwels 2009) or acquisition of new

bank customers (Schmitt, Skiera and van den Bulte 2011). Word of mouth is not always positive; it occasionally has negative consequences such as increasing the negative impact of product harm crises (Lei, Dawar and Gürhan-Canli 2012), warnings (Skurnik, Yoon, Park and Schwarz 2005) or rumors about products (Dubois, Rucker and Tormala 2011). Compared to positive word of mouth, negative word of mouth may have a greater impact (Basuroy, Chatterjee, and Ravid 2003; Smith and Schwarz 2012) and eventually harm companies.

It is clear that word of mouth is a common and important phenomenon. However, less is known about why certain information is shared more frequently and what drives such social transmission. This dissertation provides two key contributions for understanding why consumers share information and the drivers of social transmission more broadly. First, this dissertation adopts a micro approach and focuses on individual-level outcomes to understand the drivers of organic and fertilized word of mouth in important areas that have been underexplored in previous research. Second, this dissertation adopts a macro approach and focuses on collective outcomes such as explaining trends in language, virality and cultural success more broadly.

While the majority of existing studies on organic word of mouth have focused on consumers' personal experiences with products (e.g., De Angelis et al. 2012; Moldovan, Goldenberg and Chattopadhyay 2011; Moore 2012), this research fills a gap in the literature by exploring why consumers share negative hearsay. Hearsay is not directly related to

consumers' own experiences but is encountered in other sources such as media reports and rumors circulating among consumers. More specifically, this dissertation addresses the underlying reasons behind why consumers share negative information about products (e.g., products that have health-related side effects).

Moreover, while previous research on fertilized word of mouth has primarily focused on the causes of word of mouth, this dissertation contributes to the literature by exploring the consequences of viral content. Combining the causes and consequences of viral content, this dissertation demonstrates when the virality generated by a company most benefits its brand. More specifically, this dissertation explores why some advertisements become viral (e.g., Evian's Roller Skating Babies Ad) while others fail and how virality affects the brands these advertisements are promoting (e.g., improve brand evaluations, purchase intentions and brand recall). This study of virality is important, as it bridges the gap between the word of mouth and advertising literatures and identifies important conditions in which prior findings in the advertising literature may be reversed. It demonstrates that soft sell appeals in advertising can harm brand-related outcomes if the brand is not integral to the plot. In addition, making brands integral to the plot reduces negative inferences regarding persuasion attempts in advertising, while the previous literature has found the opposite for product placements in television programs.

A vast amount of research on word of mouth has adopted a macro approach and demonstrated the consequences of word of mouth and social

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transmission at a collective level (Chevalier and Mayzlin 2006; Chintagunta, Gopinath, and Venkataraman 2010; Godes and Mayzlin 2009; Trusov, Bucklin, and Pauwels 2009; Muchnik, Aral and Taylor 2013; Sharad, Watts and Goldstein 2012). In contrast, little work has employed a micro approach to explore the underlying mechanisms that explain collective outcomes (Berger and Le Mens 2009; McShane, Bradlow and Berger 2012). This dissertation contributes a broader perspective and explores how processes at the individual level can explain cultural success in the domain of language at a macro level. More specifically, it explores why linguistic variants related to the senses (e.g., a warm person) are used more often over time, while other variants that are similar in meaning (e.g., a kind person) languish. This research is important, as it contributes to the literature on embodied cognition and demonstrates that using language to relate to sensory experiences can have long-term cultural effects over time. Moreover, this research on the propagation of sensory linguistic variants combines the psychological foundations of culture (e.g., Kashima 2008; Schaller and Crandall 2004) with the role of the brain in shaping linguistic evolution (e.g., Chater, Reali and Christiansen 2009; Christiansen and Chater 2008). Finally, these findings have important implications for advertising that can be used to create contagious slogans.

In sum, my dissertation explores the behavioral drivers of social transmission among consumers. I examine the impact of certain content characteristics (i.e., the relevance of information, advertising appeals, and

linguistic units that relate to the senses) to understand what is shared more frequently and becomes more successful over time. I adopt a psychological approach and explore the underlying processes (i.e., defensive processes, a desire to help others and oneself, persuasive inferences, senses and memory) that drive consumer information sharing with respect to both individual and collective level outcomes. Further, I demonstrate that my research findings are pervasive in the real world; I conduct both behavioral laboratory experiments and field studies (e.g., using viral charts and a book corpus). Finally, I report the outcomes of social transmission at both a collective (e.g., the virality of ads; success of phrases over time) and an individual level (e.g., knowledge gained about brands and persuasive inferences driven by ads, the recall of phrases) to unravel the processes underlying these outcomes.

1.2 Outline of the Dissertation

This dissertation explores the behavioral drivers of consumer information sharing (see Figure 1 for an overview). The first two empirical essays (Chapter 2 and Chapter 3) in this dissertation explore the psychological drivers of sharing behavior with respect to individual-level outcomes. The last empirical chapter (Chapter 4) of this dissertation explores how psychological processes at the individual level can lead to collective outcomes. Each chapter focuses on information sharing across

various domains (i.e., product harm information (Chapter 2), viral content (Chapter 3), linguistic phrases (Chapter 4)).

Chapter 2 focuses on the behavioral drivers of information sharing regarding product harm, which is a type of organic word of mouth. Many consumers encounter product harm information in different forms such as media reports, warnings or rumors from other consumers shared through an email chain or a conversation at the water-cooler. Although such content is often hearsay that is not confirmed by companies, it can spread rapidly and extensively among consumers. Research has demonstrated that the spread of product harm information can have important negative consequences for marketers, such as reducing brand evaluations (Ahluwalia, Burnkrant and Unnava 2000), stock prices (Luo 2009) and sales (van Heerde et al. 2007). Although it is clear that the spread of product harm information is important, no research has been conducted to understanding its drivers. Chapter 2 explores how a content characteristic (i.e., the self-relevance of information) and interpersonal mechanisms (i.e., self-construal) jointly influence the processing and sharing of product harm information. In a series of experiments, the chapter explores how the self-relevance of information influences the transmission of product harm information under different levels of self-construal (independent versus interdependent). Further, the underlying processes explaining why product harm information is shared are studied. Chapter 2 demonstrates how two opposing mechanisms, (a) defensive processes and (b) a desire to reduce one's own concerns, simultaneously explain information sharing at

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different levels of self-relevance under independent and interdependent self-construal. We also exclude important alternative explanations for the results.

Chapter 2 and previous works on word of mouth focused on content that is stimulated by consumers such as product harm information, product reviews (Chevalier and Mayzlin 2006; Moore 2012) or brand mentions (Godes and Mayzlin 2009). However, what about instances in which individuals share fertilized content, i.e., content stimulated by companies (e.g., advertisements or videos)? Consumers can easily share ads without even remembering the brand and may not ever mention the product or brand the campaign actually serves.

Chapter 3 focuses on the behavioral drivers of fertilized word of mouth (i.e., viral ads) and how its content benefits the company. Given the recent interest in social media, many brands now create content that they hope consumers will view and share with their friends. While some campaigns indeed "go viral," their value to the brand is limited if they do not improve brand-related outcomes, such as brand attitudes and purchase likelihood. Consequently, a key question is how valuable virality, or content that is not only shared but also benefits the brand, can be created. Here, we focus on the distinction between hard sell and soft sell ads. Consumers often demonstrate resistance to direct persuasive attempts (Friestad and Wright 1994). They may avoid sharing ads that explicitly emphasize product features (hard sell ads) because sharing such content could make consumers seem like they are "shilling" for companies (Darke

and Ritchie 2007; Rumbo 2002). Consumers may therefore prefer to share soft sell appeals, which are surprising, creative, and emotion-laden, characteristics that all increase social transmission (Berger and Milkman 2012; Berger and Schwartz 2011; Heath, Bell and Strenberg 2001; Rimé 2009). However, compared to hard sell ads, soft sell ads often fail to provide information about the product or the brand, and might seem less persuasive. Chapter 3 solves this conundrum. Using a combination of field and laboratory investigations, it demonstrates that creating soft sell appeals in which the brand is integral to the plot (i.e., BlendTec's Will it Blend campaign) is the best approach, as such appeals increase sharing while also bolstering brand-related outcomes such as improved brand evaluations, purchase intentions and brand recall. The results shed light on how companies can generate valuable virality and the mechanisms underlying these effects.

Chapter 4 focuses on individual psychological processes, which shape collective outcomes, by exploring linguistic success over time. Language is a fundamental aspect of transmission and an integral part of everyday life. There are multiple ways to convey the same idea, and linguistic variants with similar meanings often act as substitutes, competing for usage. A not so friendly person, for example, can be described as 'an unfriendly person' or 'a cold person'. Why do some linguistic phrases catch on and become more culturally pervasive than others? By using data from 5 million books over 200 years, Chapter 4 demonstrates that linguistic variants that relate to the senses in metaphoric

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ways (e.g., a cold person) become more frequently used over time than their semantic equivalents (e.g., an unfriendly person). Given the cross-disciplinary interest in language and sensory information, Chapter 4 has a broad appeal. While researchers in various disciplines are interested in why things catch on and become popular, little research has examined the individual psychological level factors that drive linguistic persistence and cultural success. Building on research regarding the role of the brain in language and the psychological foundations of culture more broadly, this research sheds light on how the senses shape language. Further, these findings have important implications for advertising by demonstrating that more memorable slogans can be crafted by using sensory metaphors.

In sum, this dissertation provides novel insights into the psychological drivers that shape word of mouth, as well as the consequences of these processes at both the individual and collective level. It integrates various research perspectives, combining experimental and field data, to illustrate what causes individuals to discuss product harm information, share company-generated content (i.e., viral ads) or adopt certain linguistic units more frequently than others.

Figure 1: Consumer Information Sharing: Dissertation Overview

Consumer Information Sharing

Individual Level Outcomes

Collective Level Outcomes

Organic WOM

Self-Construal

Self-relevance

Product Harm Information Sharing

Chapter 2

Fertilized WOM

Ad Appeals:
Soft Sell Integral
Soft Sell Not Integral
Hard Sell

Virality of the Ad

Brand Evaluation
Purchase Intent

Chapter 3

Sensory Nature

Associative Cues

Memorability

Usage over Time

Sensory Metaphors

Semantic Analogues

Time

Chapter 4

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Chapter 2. What Makes Consumers Share Product Harm Information?[1]

Consumers often encounter product harm information in different forms such as media reports regarding product harm crises (Lei, Dawar and Gürhan-Canli 2012), warnings about product side effects (Skurnik, Yoon, Park and Schwarz 2005) or rumors among consumers (Dubois, Rucker and Tormala 2011). Product harm information may range from minor inconveniences such as product failures to serious health problems. Notable examples include cancer-causing dyes and materials used by fashion companies such as Levi's, Zara and Calvin Klein, hazardous toys made by Mattel, medicines recalled by Tylenol and Vioxx, and brake problems in Toyota automobiles.

Product harm information often spreads like a wildfire. The consequences of negative product information can be even more significant than positive information in many cases (Basuroy, Chatterjee and Ravid 2003; Chevalier and Mayzlin 2006). Research has shown that the diffusion of product harm information might have detrimental effects such as damaging brand evaluations (Ahluwalia, Burnkrant and Unnava 2000) or lowering stock prices (Luo 2009) and sales (van Heerde et al.

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[1] Working paper based on this chapter under review (Akpinar, Verlegh and Smidts, 2013)

2007). Although it is clear that the spreading of product harm information is important, there has been limited research with regard to understanding the transmission of negative information about products (Berger 2012). Understanding what makes consumers share product harm information with others not only has important implications for marketers but also has implications for public policy and consumer welfare. Whereas the spreading of product harm information might be harmful for companies, this information might be beneficial for consumers who could then protect themselves from the harmful effects of products.

In this research, we explore what makes consumers share product harm information with others and why. We examine the role of two important factors. First, we study the way in which information content characteristics influence sharing. We propose that the self-relevance of information is an important factor that influences product harm information transmission, and we show that the severity of the product harm acts as a boundary on the effect of self-relevance. Second, we explore the way in which social factors influence sharing. We propose that the way individuals see themselves in relation to others (i.e., self-construal) influences sharing. This effect of self-construal varies with the level of self-relevance of the information.

This research makes several important theoretical contributions. First, we combine research in the previous word of mouth and information processing literature. We show that the self-relevance of information can also play an important role in sharing product harm information,

particularly when this information has already been shown to influence how negative information is processed. Second, we contribute to the previous word of mouth literature in which relatively little is known about the role of context in transmission (De Angelis et al. 2012). We show that the sharing behavior of information can be influenced by the way individuals see themselves in relation to others, which can be temporarily influenced by environmental cues. Finally, we address the need for research on the role of social factors in how individuals approach information, as suggested earlier by Ahluwalia et al. (2000) and Cross et al. (2009). Our study suggests that by influencing social factors such as self-construal, one can affect the way in which individuals process information. In sum, this work integrates research perspectives on word of mouth, information processing and self-construal to understand what makes consumers more likely to share product harm information with others.

In the next sections, we develop our hypotheses with regard to how self-relevance, the severity of product harm and the self-construal of individuals influence the sharing of product harm information. Subsequently, we will present five studies in which we test our hypotheses to examine the effects of product harm information in a number of product categories. In these studies, we apply several methods of measuring or manipulating our independent variables. We also operationalize our dependent variable (information sharing) through different means, including behavioral measures, to enhance the robustness of our findings.

Finally, we present evidence regarding the underlying processes behind sharing product harm information.

2.1 Theory

2.1.1 Word of Mouth And Product Harm Information

Consumers might complain about poor restaurant service, write a negative review about a new movie or provide unfavorable feedback about a recently bought item.

Beginning with the pioneering work of Dichter (1966), it has been shown that consumers are more likely to share information about products if the consumers have a high level of interest in a product category. In general, personal interest in a product is an important determinant in sharing positive word of mouth (Dawar, Parker and Price 1996; Sundaram, Mitra and Webster 1998). However, research on the positive effect of self-relevance on sharing has been limited to positive word of mouth, whereas the relationship between sharing and self-relevance has not been explored with regard to negative information.

The majority of the previous studies on negative word of mouth (WOM) have examined consumers who share their negative experiences with products or services with other consumers (Berger, Sorensen and Rasmussen 2010; Moore 2012). However, there is only limited research that investigates why consumers share negative information that is not

directly related to their own experiences but rather is encountered in other sources such as media reports and rumors among consumers. Interestingly, recent evidence suggests that negative WOM is more often about other brands than one's primary brand (East, Hammond and Wright 2007). Similarly, negative WOM often shares "secondhand" experiences from other consumers (De Angelis et al. 2012). Altogether, these findings suggest that negative product information is more likely to be shared with others when the information pertains to products or brands that are used or consumed less. In other words, consumers for whom the product or brand is less self-relevant (i.e., consumers who do not use a product at all or only infrequently) are the ones who are most likely to share product harm information. We therefore propose the following hypothesis:

H_1: Higher self-relevance of the product harm information will reduce sharing.

The above argument initially appears to be counterintuitive. In the next section, we will explain in greater detail why and when we believe that self-relevance should actually decrease the likelihood of sharing product harm information.

2.1.2 Why and When Does Self-Relevance Decrease Sharing?

We propose that the negative relationship between self-relevance and sharing is rooted in the way in which consumers approach threatening information. One robust finding in the information processing literature is that individuals engage in biased defensive processing strategies such as message avoidance, denial or downplaying when they encounter threatening information that has high self-relevance (Brown and Smith 2007; Carvalho et al. 2008; Sherman, Nelson and Steele 2000). For example, women perceive themselves to be less vulnerable to breast cancer when they are confronted with advertising or other cues that make their gender-identity more relevant (salient) to them (Puntoni, Sweldens and Tavassoli 2011). Similarly, Carvalho and colleagues (2008) showed that consumers who receive information about a health threat that is more personally relevant are more likely to engage in message denial and less inclined to engage in preventive behaviors. In a related vein, the previous research has found that consumers who are highly committed to a brand exhibit less attitude change and are more likely to counter-argue negative information about the products that the consumers favor (Agrawal and Duhacheck 2010; Ahluwalia, Burnkrant and Unnava 2000).

In this research, we therefore suggest that the influence of self-relevance on the (defensive) processing of product harm information reduces sharing behavior.

However, would all types of product harm information receive defensive responses and consequently become shared less? Existing research on defensive processing focuses primarily on threatening

information that is relatively severe (e.g., cardiovascular disease in Block and Williams 2002; breast cancer in Sherman, Nelson and Steele 2000 and Puntoni, Sweldens and Tavassoli 2011; mad cow disease in Carvalho et al. 2008). Thus, we expect that defensive responses to product harm information are particularly prevalent when product harm conveys relatively high severity risks (e.g., cancer-causing chemicals used in fashion garments). Conversely, when consumers face information with relatively less severe product harm (e.g., a product leading to sleepiness for a temporary period), defensive processes should no longer be triggered. Without these defensive processes in place, sharing information about low-severity product harm should increase rather than decrease with self-relevance. We expect that the severity of the risk will moderate the effect of self-relevance on sharing product harm information as follows:

H$_{2a}$: Higher self-relevance of the product harm information will reduce sharing when the severity of the risk is high.

H$_{2b}$: Higher self-relevance of the product harm information will increase sharing when the severity of the risk is low.

So far, we have argued that product harm information with high self-relevance and high severity should increase defensive responses, which in turn decrease sharing. Paradoxically, if our predictions are true, then consumers who are more at risk of product harm (with high severity) are actually less likely to talk about such risks. From a consumer welfare

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perspective, it is crucial to understand how to reverse this pattern and to increase the consumer sharing of product harm information.

Sharing is an interpersonal process that is not only influenced by the characteristics of the information but also by social factors such as the relation between sender and recipient (Berger 2012). The majority of the existing research regarding word of mouth has explored the relationship between sender and recipient in terms of tie strength (i.e., friends vs. acquaintances or strong vs. weak ties) or similarity. On a more general level, however, word of mouth behavior may also be influenced by the way individuals see themselves in relation to others (self-construal). Self-construal is determined by chronic disposition and cultural contexts but also can be shaped by environmental cues (Aaker and Lee 2001; Gardner, Gabriel and Lee 1999; Trafimow, Triandis and Goto 1991). Research in this area has shown that individuals possess different types of self-construal (independent and interdependent) that coexist. Cues in the environment may make one type of self-construal more accessible than the other, which can temporarily make this type the dominant mode of self-construal. In the next section, we discuss how self-construal might influence the sharing of product harm information.

2.1.3 Self-Construal Moderates Sharing

Self-construal influences the way in which individuals cognitively process information and behave in their social interactions (Markus and

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Kitayama 1991; Kitayama et al. 2009). Independent self-construal is often associated with Western cultures such as North America and Western Europe, whereas interdependent self-construal is associated with East Asian and Latin American cultures. For instance, under independent self-construal individuals often put more emphasis on the self and preserving consistency with one's own beliefs and preferences (Heine et al. 2001; Sedikides, Gaertner and Toguchi 2003; Torelli 2006), whereas under interdependent self-construal individuals focus more on relations with others rather than putting themselves at the core (Heine and Lehman 1997; Kitayama et al. 2004). We suggest that independent and interdependent self-construal influence sharing behavior differently depending on the self-relevance of the product harm information, such that:

H$_3$: Self-construal will moderate the influence of self-relevance of the product harm on information sharing.

We underpin and further specify the moderating effect of self-construal through two opposing processes: a) *defensive responses* and b) *desire to reduce one's own concerns,* which explain sharing product harm information together.

Defensive Responses

As stated earlier, people are generally motivated to show defensive responses to preserve self-consistency (Lieberman and Chaiken 1992;

Sherman and Cohen 2002). Under independent self-construal, because individuals place relatively higher importance on self, preserving one's existing beliefs and behaviors is relatively more important.

Accordingly, we expect that under independent self-construal, consumers show more defensive responses regarding product harm information that has higher self-relevance and threatens their self-consistency. In other words, under independent self-construal, product harm information that threatens one's beliefs or consumption behavior (e.g., information that is linked to the self-concept as in Swaminathan, Page and Gürhan-Canli 2007) should trigger defensive responses. These responses can take many forms, such as minimizing the threat, building introspective difficulty in understanding or denying the information (Puntoni, Sweldens and Tavassoli 2011). Such defensive responses will consequently reduce the likelihood of sharing product harm information. Conversely, under interdependent self-construal there is less emphasis on the self and preserving self-consistency. Therefore, such defensive responses should not be salient for highly self-relevant information.

Desire to Reduce One's Own Concerns

People often seek help or advice from others to reduce their worries and uncertainties (Dichter 1966; Sundaram et al. 1998). Particularly under interdependent self-construal, individuals tend to reduce their concerns through their interpersonal relationships rather than relying on their own resources (Mandel 2003; Torelli 2006). In addition, whereas

individuals under interdependent self-construal tend to focus more on their negative aspects and attempt to improve themselves, those under independent self-construal tend to focus on self-enhancement and put a positive perspective on the self (Kitayama et al. 2004). Altogether, when consumers encounter highly self-relevant product harm information under interdependent self-construal, consumers should be more willing to seek the advice of others to reduce their concerns. By sharing information with others, individuals seek to protect themselves from possible harm.

In sum, we propose that defensive responses and desire to reduce one's own concerns act as two opposing mechanisms that simultaneously explain sharing, depending on self-relevance of the information and self-construal of the consumers. More formally stated:

H3a: Heightened self-relevance should trigger defensive responses under independent self-construal, whereas defensive responses should not be salient under interdependent self-construal.
H3b: Heightened self-relevance should trigger desire to reduce to reduce one's own concerns under interdependent self-construal, whereas this desire should not be salient under interdependent self-construal.

2.1.4 Summary of Studies

We conducted five studies to test these predictions. In Study 1 we examine the way in which the self-relevance of information influences

sharing under chronic independent self-construal. Study 2 underscores the notion that the negative effect of self-relevance on sharing is limited to situations in which the severity of the product harm is relatively high. Study 3a tests the moderating role of self-construal, where self-relevance is manipulated. Study 3b extends the previous experiments by using a continuous self-relevance measure, a different scenario and a priming technique to manipulate self-construal. Finally, Study 4 tests the processes underlying the effects of self-relevance and self-construal on sharing. The study demonstrates the role of (a) defensive responses and (b) desire to reduce one's own concerns. Study 4 also rules out alternative explanations, demonstrating that prior knowledge and attitudes towards a newspaper article are not driving the observed effects. Altogether, these studies show how content characteristics (self-relevance and severity) and social factors (self-construal) affect product harm information sharing.

2.2 Empirical Studies

Study 1: Higher Self-Relevance Decreases Sharing

This study provides a preliminary test of how self-relevance shapes sharing under independent self-construal through a controlled laboratory experiment. We manipulated the self-relevance of the product harm information that participants received. We then unobtrusively recorded

participants' actual conversations during a short break in the experiment to test how self-relevance affected the information that was shared during those conversations. Under independent self-construal, product harm information that has higher self-relevance should be less likely to be discussed.

Method

Forty-eight undergraduates completed this study. The study was conducted within a sample of participants in a Western European country in which individuals are generally assumed to have a chronically dominant independent self-construal (Bagozzi, Verbeke and Gavino 2003; Fischer, Manstead and Rodriguez Mosquera 1999). To examine this assumption, we administered the Singelis (1994) self-construal scale to a sample of respondents from the same pool of undergraduates. This pretest revealed that scores on the independent self-construal dimension were indeed higher than those on the interdependent self-construal dimension (M = 5.23 vs. M = 4.45; F (l, 200) = 4.99, p < .001). These results affirm that the sample had a chronically dominant independent self-construal (Agrawal and Maheswaran 2005).

Main Study

Participants were informed that the researchers were "interested in how people evaluate advertisements and editorials in newspapers". Participants were asked to evaluate an excerpt of a (mock-up) newspaper containing several articles and advertisements. The focal article addressed the debate over the negative health effects of BPA plastic on human health (Grady 2010). We manipulated whether the information presented in the article was high or low self-relevant using a manipulation validated in previous work (Puntoni, Sweldens and Tavassoli 2011). Specifically, one version of the article linked BPA plastics to health risks for female consumers (i.e., to breast cancer; see Figure 2, Panel a), whereas the other version linked BPA to health risks for male consumers (i.e., to prostate cancer; see Figure 2, Panel b). If the gender in the article matched the gender of respondents, then the information was of high self-relevance; however, when there was a mismatch in gender, the information was of low self-relevance. The location of the focal article within the newspaper was counterbalanced to rule out any order effect.

Each participant was invited to the study room alone each time and was seated at a table with study materials available on the desk. After the participant had evaluated the articles and advertisements, the experimenter asked the participant to wait in the room before moving to another study room. After participants had waited several minutes by themselves, another research assistant (blind to the condition and hypotheses), entered and engaged in a conversation with the participant. The research assistants were given a cover story to disguise the true purpose of the study. This

conversation was unobtrusively recorded by a video camera in the corner of the room.

Figure 2: Stimuli Used in Study 1 (Chapter 2)*

Panel a. High (Low) Self-Relevant Information for Females (Males)

Panel b. High (Low) Self-Relevant Information for Males (Females)

*Please see the following link for visual enhancement and the original stimuli used in the study: https://www.dropbox.com/s/4h1hen2e5q30ntf/EAkpinar_dissertation_Figure2.pdf

Dependent Variables

Our key dependent measure was whether participants were willing to talk about the side effects of BPA plastic discussed in the focal article. Existing research suggests that cued topics should be more likely to be discussed because they are top of mind (Berger and Schwartz 2011). Thus, one would expect that when participants are cued about the focal article in a related conversation, the participants should be more likely to discuss the side effects of BPA plastic. We expect, however, that the high self-relevance of the information would prevent participants from talking about the information. To initiate a conversation related to the content of the first portion of the study, the research assistant followed a script. The script was based on the funneled debriefing technique (Bargh and Chartrand 1999) and consisted of six progressively revealing questions that probed the study content. The script began with a general question ("What do you think about the experiment so far?") and ended with a very specific question about the product harm information ("What do you think about the article on BPA plastic? Any thoughts?"). If the participant discussed the side effects of BPA plastic during the first probe question, the participant's response was coded as " very willing to share ". Conversely, if the participant did not mention the side effects of BPA plastic until the last and most specific probing question, the response was coded as "not willing to share at all". Two independent coders coded the conversations (93% agreement) and disagreement was resolved through discussion. Finally, before participants were debriefed and thanked, they were probed

for suspicion and asked to indicate what they thought was the purpose of the study. None suspected the actual purpose of the study or articulated the hypotheses that were being tested.

Results

The results indicate that participants who were at risk of BPA plastic side effects (as established by our manipulation of gender match) were less likely to talk about the product harm information compared to those who were not at risk (M = 2.27 vs. M = 3.19, t (46) = 2.26, $p < .05$). There was no effect of participants' gender on sharing, neither a significant interaction between gender and self-relevance ($p > .10$).

Discussion

This result provides initial support for our hypothesis that higher self-relevance leads to less sharing of product harm information (H1). Notably, the product harm information presented in this study conveyed risk with rather high severity (breast or prostate cancer). We predict that the negative effects of self-relevance on sharing should be present only when the product harm is highly severe, because consumers are not expected to show defensive biases regarding information that is not particularly threatening. In Study 2, we test the role of the severity of product harm as a boundary condition for the effects of self-relevance on

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sharing. Having established this boundary condition, we will examine the interplay between self-relevance and self-construal in Study 3 and 4.

Study 2: The Boundary Condition of Self-Relevance on Sharing

In this study we manipulated the severity of the product harm in the information participants received during the experiment. We also measured the extent to which the information was relevant for the participants using a continuous scale based on their usage level of the product category. Finally, we measured participants' likelihood of sharing the product harm information. For product harm information with high severity, higher self-relevance should lead to less sharing, whereas this effect should be reversed for product harm information with low severity.

Method

One hundred fifteen participants (mean age = 24.2; 74 males) were recruited through an online study conducted in MTurk with a pool of North American participants. The participants were randomly assigned to one of the two conditions (severity: low vs. high).

First, we asked participants to indicate their usage level of several products, including hair styling products (the focal product) (1= never, 7= daily). In line with research on defensive processing (Block and Williams

2002; Lieberman and Chaiken 1992), this measure was used as a proxy for higher self-relevance of the product harm information.

After a series of unrelated filler tasks, participants were asked to read a newspaper article discussing the health risks of hair styling products. To manipulate the severity of the product harm, we created two versions of the newspaper article. In the high-severity condition, heart problems were described as a side effect of using hair styling products. In the low-severity condition, sleepiness was mentioned as a side effect of using hair styling products (see Figure 3 for the stimuli). A pretest confirmed that product side effects related to heart problems were perceived as more severe than those related to sleepiness (M= 6.53 vs. M= 3.28, t(39) = 10.16, $p < .01$).

After reading the article, participants were asked to indicate their likelihood of sharing the information with others (e.g., friends, acquaintances, neighbors, etc.) during a related conversation on a 7-point scale (1= not likely to share, 7= very likely to share).

Figure 3: Stimuli Used in Study 2 (Chapter 2)

***Panel a**. High Severity Article*

DEBATE ON THE HEALTH EFFECTS OF HAIR CONDITIONERS AND STYLING PRODUCTS CONTINUES....
Usage of these products might lead to heart attacks and strokes

Consumers use hair conditioners and styling products often these days. The question is: are there any side effects of these products consumers should know?

Controversies are spinning around health risks due to hair conditioners and styling products.

Recent investigations suggest that products like hair conditioners and styling products contain toxic substances, which might pose risks for consumers' health. The toxins can lead to heart attacks and strokes due to usage of such products. But research on the side effects of hair conditioners and styling products are still relatively limited, so the heated debate is likely to continue.

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***Panel b**. Low Severity Article*

DEBATE ON THE HEALTH EFFECTS OF HAIR CONDITIONERS AND STYLING PRODUCTS CONTINUES....
Usage of these products might lead to sleepiness

Consumers use hair conditioners and styling products often these days. The question is: are there any side effects of these products consumers should know?

Controversies are spinning around health risks due to hair conditioners and styling products.

Recent investigations suggest that products like hair conditioners and styling products contain toxic substances, which might pose risks for consumers' health. The toxins can lead to sleepiness due to usage of such products. But research on the side effects of hair conditioners and styling products are still relatively limited, so the heated debate is likely to continue.

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Science
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More news

*Please see the following link for visual enhancement and the original stimuli used in the study: https://www.dropbox.com/s/9c64up8eap81ynp/EAkpinar_dissertation_Figure3.pdf

Results

We conducted a regression analysis of sharing, with self-relevance and severity as independent variables. Consistent with our expectations, a main effect of severity indicated that product harm information with high severity (e.g., heart problems) is more likely to be shared than information with low severity (e.g., sleepiness), (β = .52 t(111) = 2.0, p = .04). More importantly, however, we also found the predicted severity X self-relevance interaction (β = -.38, t (111) = -.99, p < .01). When product harm information with low severity was presented, the self-relevance of the information increased the likelihood of sharing (β = .24, t (63) = 1.97, p = .05). When product harm information with high severity was presented, the self-relevance of the information decreased the likelihood of sharing, although the effect was marginal (β = -.24, t (48) = -1.78, p = .08). These results confirm H2 that the low severity of the product harm reversed the role of self-relevance on sharing.

Discussion

Study 2 underscored the notion that high levels of perceived severity are a prerequisite for the proposed biased, defensive processes that led to less sharing of highly self-relevant product harm information. When consumers are exposed to relatively less-severe risks (e.g., sleepiness rather than heart attack), we hypothesized that this factor should

weaken their defensive reactions and lead to more sharing of the information with others. Consistent with our prediction in Hypothesis 2, as the relevance of the information increased, consumers were less likely to share information about highly severe product harm but were more likely to share information about low-severe product harm.

Having established that higher self-relevance of product harm information reduces sharing when the severity of the risk is high[2]; the next studies investigate whether manipulating their self-construal can influence consumers' sharing behavior. Specifically, we tested whether the effect of self-relevance on sharing could be influenced by self-construal in such a way that particularly consumers for whom the information is highly self-relevant (i.e., who are at greater risk) become more likely to discuss the product harm information.

Study 3: The Influence of Self-Construal and Self-Relevance on Sharing

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[2] In a pretest, we confirmed that the stimuli used in studies (Study 1, 3a, 3b and 4) conveyed high severity risks, and they were rated as more severe compared to low severity stimuli used in Study 2. Participants (n=47) rated the severity of the risks on a 7-point scale (1= not severe at all; 7= very severe). The side effects of BPA plastics on breast /prostate cancer (Study 1 and 3a), the side effect of caffeinated drinks on losing hair (Study 3b), and the side effects of food additive called Stevia on internal organs (Study 4) were evaluated as more severe (M = 5.31, SD=1.25; M = 5.20, SD=1.26; M = 5.26, SD=1.48) compared to the side effect of hairstyling products on sleepiness (M=3.93, SD= 1.73), $ps < .05$.

The two experiments in Study 3 examine the way in which the self-construal of individuals affects the sharing of product information that has different levels of self-relevance. As argued in Hypotheses 3, we predict that the self-construal of consumers moderates the effect of self-relevance on sharing. Under independent self-construal, consumers should be less likely to share highly self-relevant information that contradicts their preferences and consumption behavior. Under interdependent self-construal, consumers should show less-defensive responses and therefore be more likely to share information. To examine the robustness of our findings, we operationalize self-relevance in two different ways. In Study 3a, we experimentally manipulate the self-relevance of the product harm information (as in Study 1), whereas in Study 3b we measure self-relevance (as in Study 2). This method allows us to show that it is indeed self-relevance that drives our results, not the specific content of the information.

Study 3a: Actual Sharing Study

This study examines the way in which the self-construal of individuals can affect the sharing of product harm information with different levels of self-relevance. Extending Study 1, we manipulated self-construal rather than measuring individuals' chronic self-construal. Accordingly, we demonstrated that the sharing behavior of consumers with chronically independent self-construal can be changed by priming the

consumers with interdependent self-construal. As a dependent measure, we recorded the actual sharing behavior of participants.

Method

Ninety-nine undergraduates (mean age =23; 52 males) completed a short survey as part of a larger group of questionnaires. Participants were randomly assigned to one of the four conditions in a 2 (the self-relevance of the information: low vs. high) vs. 2 (self-construal: independent vs. interdependent) between-subjects design.

First, we manipulated the self-construal of the participants through a story-writing task. Participants wrote a short story in which they either used the pronouns "*I, me, myself, mine*" to prime independent self-construal or "*we, our, ourselves, ours*" to prime interdependent self-construal (Utz 2004; Zhang and Shrum 2009).

Second, participants received a *New York Times* article that was allegedly shared by another participant simultaneously doing the same study. We manipulated the self-relevance of the product harm information using the same procedure as in Study 1. Participants were randomly assigned to one of the two versions of the same article about BPA plastic used in Study 1, and gender match was again used to manipulate self-relevance. Next, participants were provided with the option to share the article with people outside the lab by clicking on the share buttons via email, Twitter, or social network sites (see Figure 4 for screen shots of the

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behavioral sharing set-up). Alternatively, participants could click on a "not sharing" button. If participants clicked on any of the "sharing" buttons, they saw a screen informing them that the Internet connection was not available. Using this method, we could record actual shares and also prevent participants from sharing fictitious information outside the lab. Participants received an apology for the inconvenience and were asked to continue with the remainder of the tasks. Before leaving the lab, participants were debriefed and probed for suspicion. None suspected the actual purpose of the study.

Results

We examined sharing as a binary dependent variable and self-construal and self-relevance as the independent variables using factorial logistic regression.

Supporting our predictions in H3, self-construal moderated the effect of self-relevance on sharing as depicted in Figure 5. There was a significant interaction effect between self-construal and self-relevance ($\chi2$ (1) = 4.20, p < .05). Follow-up tests revealed that under independent self-construal, product harm information with high self-relevance was shared less than information with low self-relevance (10.30% vs. 33%; $\chi2$ (1) = 15.64, p < .001). Under interdependent self-construal there was no significant difference in sharing between the different levels of self-relevance (66.70% vs. 54.50%; $\chi2$ (1) = 2.13, p > .15).

Furthermore, participants under interdependent self-construal shared highly self-relevant information more frequently than those participants under independent self-construal ($\chi2$ (1) = 4.12, p < .05). The main and interaction effects of gender were not significant ($\chi2$ (1) < 1, n.s.). Finally, participants were asked to indicate whether they had heard about the BPA information before being presented with the information in the article. Only 11% of the participants indicated that they had heard about the information beforehand, although this fact did not have any effect on sharing ($\chi2$ (1) < 1, n.s.).

Figure 4: Stimuli Used in Study 3a (Chapter 2)*
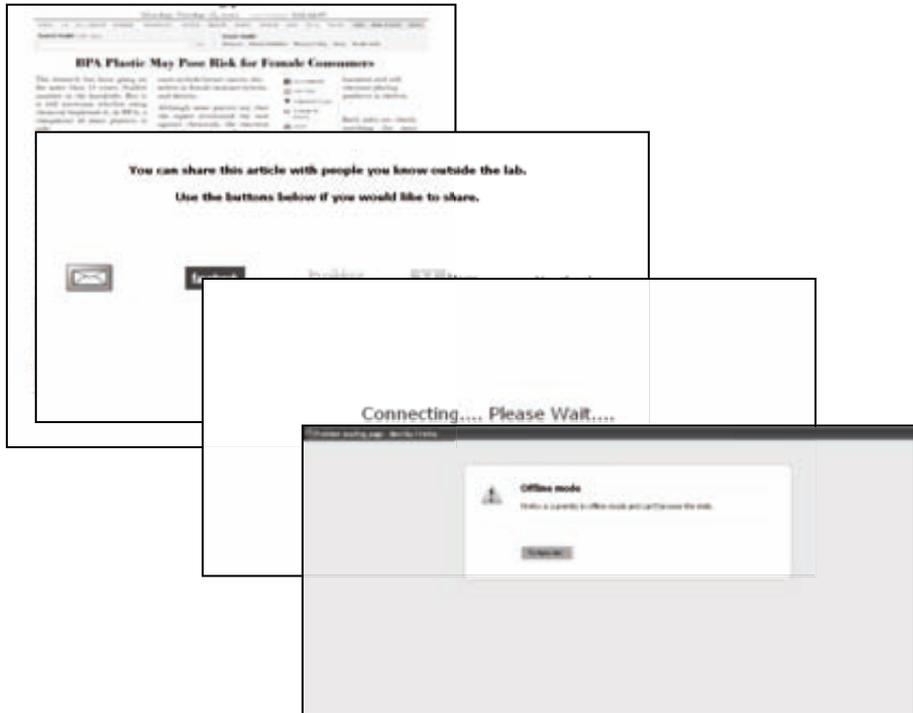
*Please see the following link for visual enhancement and the original stimuli used in the study:
https://www.dropbox.com/s/v5vvctq5fwne0ur/EAkpinar_dissertation_Figure4.pdf

Figure 5: Sharing As a Function of Self-Relevance and Self-Construl (Study 3a)
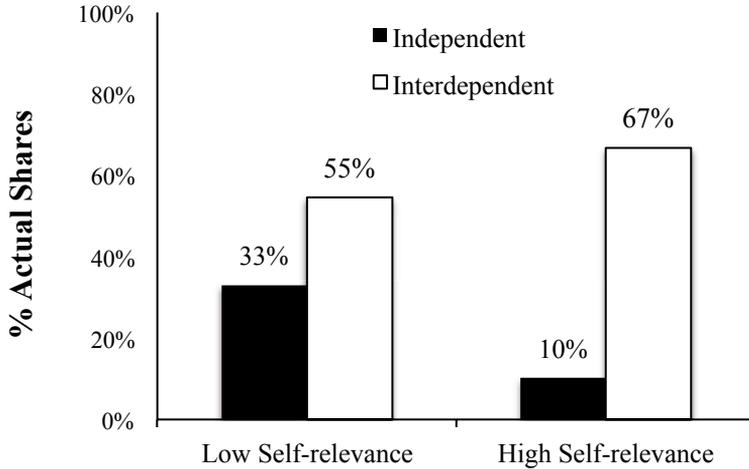
Discussion

These results show that people can be influenced to transmit highly self-relevant information by priming them with interdependent self-construl. We designed a follow-up experiment to replicate and generalize these findings using another product harm information scenario, measuring self-relevance rather than manipulating this factor, and using another self-construl priming method.

Study 3b: Measuring the Effect of Self-Relevance

Study 3b extended the prior experiment in two important ways. First, the experiment uses a different type of stimulus that links the

product harm information to one's consumption choices or preferences (e.g., caffeine consumption) rather than to demographics such as gender. Second, rather than manipulating and operationalizing self-relevance in a binary manner (e.g., low vs. high), we used a continuous self-relevance variable that directly measured individual differences. Consistent with our earlier results, we expected that higher relevance of the product harm information would decrease sharing under independent self-construal and that this effect would be particularly attenuated under interdependent self-construal.

Method

Two hundred and two undergraduates (mean age = 22.4; 132 males) completed this study as part of a series of unrelated tasks. Self-relevance was measured based on participants' product consumption. Self-construal was manipulated between-participants.

First, participants were asked to indicate their consumption of several products on 5-point scales (1= not at all, 5= high amounts). This list included caffeinated drinks (such as coffee, tea and soft drinks), which was our focal category. Product category use serves as a proxy for measuring the self-relevance of the product harm information, as used in Study 2.

One could argue that people who consume high levels of caffeinated drinks would be more knowledgeable about the effects of caffeinated drinks on hair loss and therefore would be less likely to share such information. In a pretest, we first asked participants (n=40) to indicate their consumption levels of caffeinated drinks together with some filler items on a 7-point scale (1= not at all, 7= high amounts). After some unrelated tasks, participants indicated whether they thought there was a strong association between hair loss and caffeinated drinks, together with some filler items (1= strongly disagree, 7= strongly agree). These pretest results indicated that there was no relationship between the consumption level of caffeinated drinks and beliefs concerning the relationship between hair loss and caffeinated drinks (β = .061, t (38) = .44, p = .66).

Second, participants were randomly assigned to one of the two conditions of self-construal (independent vs. interdependent). The participants read a short story about "a trip to the city" and were asked to circle all the pronouns used within the text. The same text was presented with either self-oriented (I, me, myself) or other-oriented (we, us, our) pronouns (Sharon 2010; Yang, Mao and Peracchio 2012). A 6-item self-construal scale used as a manipulation check (Aaker and Lee 2001) confirmed that the self-construal priming successfully influenced participants' mindset. Whereas participants under the independent condition thought more about themselves compared to those under the interdependent condition (M = 4.69 vs. M = 3.75, F(1,200)= 41.48, p

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<.001), those in the interdependent condition thought more about others compared to independents (M = 5.01 vs. 4.49, F(1,200)= 12.55, *p* <.001).

After self-construal priming, participants were given the following scenario: "Imagine that a couple of weeks ago, during a conversation, you heard that caffeinated drinks (i.e., coffee, tea, and soft drinks such as cola and energy drinks) increase the risk of losing hair" and then asked to indicate their likelihood of sharing this information with others during a related conversation on a 7-point scale (1= unlikely to pass this along, 7= likely to pass this along; cf., Heath 1996).

At the end of the experiment, a manipulation check item asked participants to rate the personal relevance of the information regarding caffeinated drinks' effect on hair loss (1= not at all, 7 = extremely). Participants who consumed caffeinated drinks more frequently found the information to be more relevant (β = .29, *t* (200) = 2.44, *p* = .02).

Results

We used OLS regression to examine the effect of self-relevance (measured based on consumption level) and self-construal on information sharing. Confirming our theories and earlier results, the results revealed a significant interaction effect between self-relevance and self-construal (β = .15, t (198) = 2.01, *p* = .04). As depicted in Figure 6, the results showed that under independent self-construal, higher self-relevance of the product harm information decreased the sharing of information (β = -.32, t (98) = -

3.37, $p = .001$). As in Study 3a, there was no effect of self-relevance on sharing under interdependent self-construal ($\beta = -.018$, t $(100) = -.15$, $p = .87$).

Figure 6: Sharing As a Function of Self-Relevance and Self-Construal (Study 3b)
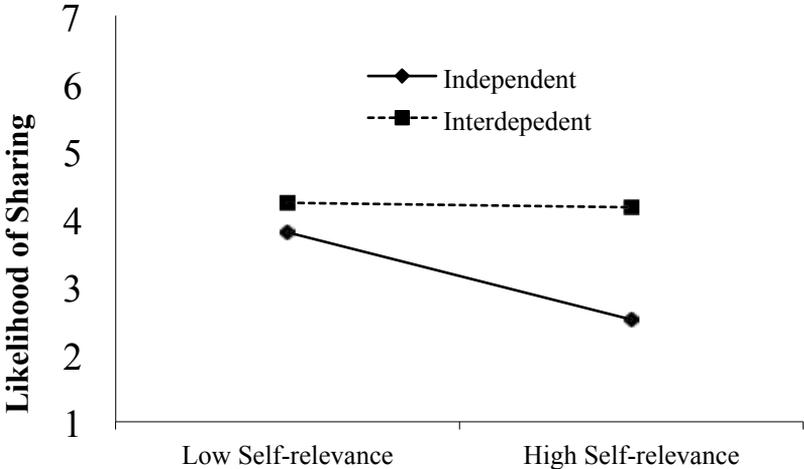
Furthermore, a spotlight analysis was conducted to compare the effects of self-construal on sharing information with high and low self-relevance. Among participants for whom the information had high self-relevance (1SD above the mean), sharing was higher under interdependent than independent self-construal (M = 3.79 vs. 2.57, $F(1,45) = 8.21$, $p < .01$). Among participants for whom the information had low self-relevance (1SD below the mean) however, there was no difference in sharing between independent and interdependent self-construal (M = 3.66 vs. 3.91, $F(1,60) = 0.46$, $p = .49$).

Discussion

The results of Study 3b supported our theories regarding the effect of self-construal on sharing product harm information with the different levels of self-relevance. The results showed that higher self-relevance of the information makes consumers less likely to share product harm information, whereas putting consumers into an interdependent self-construal mindset attenuates this resistance to sharing. In addition to the fact that the stimuli were fictitiously created for the purposes of the study, ancillary data casts confirmed that higher consumption of caffeinated drinks was unrelated to a belief that caffeine consumption is connected to risk of hair loss.

Study 4: Product Harm Information Sharing: Underlying Processes

Study 4 has two main goals. First, we use a richer design to rule out potential alternative explanations. We used fictitious stimuli created for this study such that the participants cannot have any prior knowledge about the product harm effect. This approach allows us to more cleanly investigate the impact of self-relevance on sharing. Moreover, we used an alternative procedure for manipulating the self-relevance of the

information in such a way that the relevance of the information was completely independent of any participant characteristics, such as gender (Studies 1 and 3a) or consumption behavior (Studies 2 and 3b). Although we conducted several tests and analyses to control for potential confounds in our earlier studies, the design of Study 4 allows us to rule out such explanations with even greater certainty.

Second, we tested our proposed mechanisms (H3a and H3b). We suggested that defensive processes that reduce the sharing of highly self-relevant product harm information are particularly prevalent under independent self-construal. Conversely, the motivation for reducing self-concerns about the risks, which is prevalent under interdependent self-construal, should increase the sharing of highly self-relevant product harm information. In Study 4, we tested the mediating role of (a) defensive processes and (b) desire for reducing one's own concerns as two opposing mechanisms that simultaneously explain sharing.

Method

Participants and Design

Eighty-four undergraduates completed a short survey as part of a larger group of questionnaires. Participants were randomly assigned to a condition in a 2 (self-relevance: low vs. high) x 2 (self-construal: independent vs. interdependent) between-subjects design.

First, participants were asked whether they were willing to provide a saliva sample and informed that a basic report of the analysis would be provided to them while they were completing the remainder of the questionnaires. To collect saliva samples, participants were provided with dental cotton rolls and asked to rub the cotton rolls between their cheeks and lower gums for 45 seconds; the cotton rolls were then sealed in plastic bags provided (Gal 2012). Second, participants were randomly assigned to one of the self-construal priming conditions. Self-construal was primed using the same method as in Study 3b.

Subsequently, participants received their saliva sample reports, which were purposely prepared in advance and included several hormone levels (e.g., cortisol), and levels of duclin, a fictitious substance. Participants were randomly assigned to either have a high or low level of duclin in their reports. Participants were told that the results in the saliva report would become more meaningful once they had read the newspaper article that was provided on their computer screen. Next, participants were asked to read a newspaper article discussing the health risks of a (fictitious) food additive called Stevia used in breakfast cereals, soft drinks and snack foods. The article reported that the consumption of this substance could result in damage to organs such as the liver, stomach and kidney.

To manipulate the self-relevance of the product harm information, we created two versions of the newspaper article by changing the type of people who are at risk of Stevia's effects. In one version of the article, the

side effects of Stevia were said to pose risks for people with high levels of duclin, whereas in the other version the side effects of Stevia posed risks for people with low levels of duclin (see Figure 7 for stimuli: Half of the participants received the article stating that people who have high levels of duclin (5-10 pH) are under risk, and the other half received the article stating that people who have low levels of duclin (2-3 pH) are under risk.). To confirm that the manipulations were effective, we asked participants to indicate to what extent they believed that the risks associated with Stevia were relevant for them (1= strongly disagree, 7 = strongly agree). The results showed that participants in the high self-relevance condition evaluated the product harm information as more self-relevant (M = 5.02) compared to those under the low self-relevance condition (M = 3.14), F (1, 82) = 48.46, $p < .001$.

Underlying Process Measures

After reading their assigned newspaper article, the participants completed several process measures. First, we measured defensive reactions by gauging the extent to which the participants indicated that the information was difficult to process (Puntoni, Sweldens and Tavassolli 2011), or (less) credible (Sherman, Nelson and Steele 2000). Participants indicated the difficulty and credibility of the article on a 7-point scale (1= easy, 7= difficult; 1= extremely credible, 7= not credible at all). The average of these two items were used as a defensive response measure

(alpha = .64). Second, participants indicated their desire to reduce their concerns by answering two items ("I would like to reduce my concerns about the product harm; I would like to reduce my uncertainty about the product harm", 1= strongly disagree, 7 = strongly agree). These two items were averaged into one score (alpha = .67). To control for the possible influences of the attractiveness of the text, participants also evaluated the article by rating on a 7-point scale (1= bad, 7 = good). Finally, participants indicated their likelihood of sharing the information in the article with others (e.g., friends, acquaintances), imagining that a related conversation comes up on a 7-point Likert scale (1= not likely to share, 7= very likely to share) (Heath 1996).

Figure 7: Stimuli Used in Study 4 (Chapter 2)*

*Please see the following link for visual enhancement and the original stimuli used in the study: https://www.dropbox.com/s/lrt0qaws3gyymc0/EAkpinar_dissertation_Figure7.pdf

Results

A 2 (self-relevance) X 2 (self-construal) ANOVA was conducted on sharing. Consistent with the results of Study 3, the results revealed a different impact of self-relevance on sharing under the different levels of self-construal. There was a significant interaction effect between self-relevance and self-construal on product harm information sharing, F (1, 80) = 7.83, p = .006. When primed with independent self-construal, as predicted, participants were less willing to share highly self-relevant product harm information than low self-relevant information (M = 4.30 vs. 5.39, F(1,80) = 5.78, p = .02). As in Study 3, however, the effects were different for participants under interdependent self-construal. As predicted, under interdependent self-construal there was no significant difference in the sharing of information with high self-relevance (M=5.24) and low self-relevance (M = 4. 56), F(1,80) = 2.38, p = .13.

We also conducted mediation analyses to test whether the proposed mechanisms (defensive processes, desire to reduce one's own concerns) were driving the effects of self-relevance on sharing differently under the different levels of self-construal, as stipulated in Hypotheses 3a and 3b. We used a bias-corrected bootstrapping procedure (n = 5000) to generate 95% confidence intervals around these indirect effects, in which successful mediation occurs if the confidence interval does not include zero (Preacher, Rucker, and Hayes 2007).

The mediation results supported our predictions. Defensive processes and a desire for reducing one's own concerns simultaneously mediate the relationship between the levels of self-relevance and sharing under the different levels of self-construal (see Figure 8 for path coefficients). Importantly, the pattern of results confirms our predictions. First, as predicted in H3a, under independent self-construal, defensive responses mediate the effect of self-relevance on sharing (effect: -.47, 95% CIs: -1.06 to -.07), whereas this effect was not significant under interdependent self-construal (effect: -.06, 95% CIs: -.46 to .17). Second, as predicted in H3b, under interdependent self-construal, higher self-relevance of the product harm information increases the desire for reducing one's own concerns, which has a positive effect on sharing (effect: .34, 95% CIs: .04 to .82), whereas this effect was not significant under independent self-construal (effect: -.18, 95% CIs: -.76 to .16).

Figure 8: Mediating Role of Defensive Processes and Desire For Reducing One's Own Concerns (Study 4)

<u>Under independent self-construal:</u>

Self-relevance → Defensive responses: .77**
Defensive responses → Sharing: -.6**
Self-relevance → Reducing one's own concerns: -.17
Reducing one's own concerns → Sharing: .37*

<u>Under interdependent self-construal:</u>

Self-relevance → Defensive responses: .25
Defensive responses → Sharing: -.6**
Self-relevance → Reducing one's own concerns: .89**
Reducing one's own concerns → Sharing: .38*
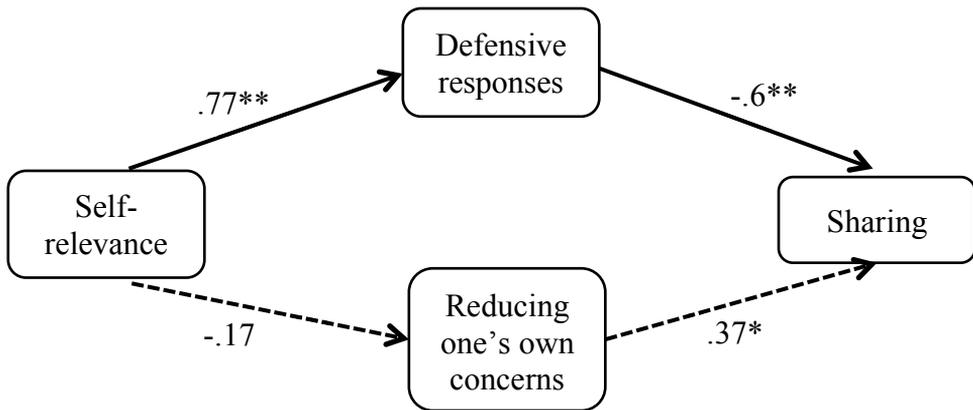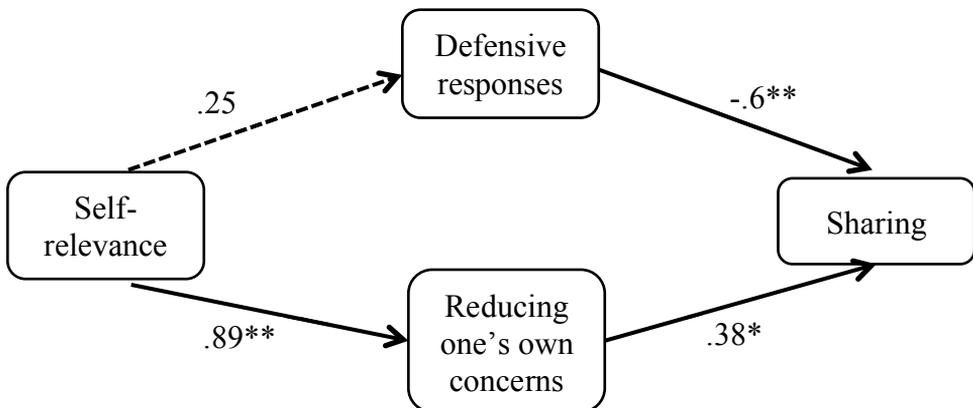
Discussion

Study 4 shows the generalizability of our findings and provides deeper insights into the processes behind these effects. First, confirming the findings of our previous studies, Study 4 demonstrates that when the self-relevance of the product harm information is higher, the information is shared less in certain circumstances but not in others. By priming participants with an interdependent self-construal, the decline in sharing highly self-relevant information can be attenuated. By manipulating both self-relevance and self-construal while controlling for information content and prior knowledge, we confirm that the effects were not related to the fictitious stimuli used and consumers' prior information about the products, but rather to the level of self-relevance of the information and the construal of the self.

Second, we demonstrate that (1) defensive processes and (2) desire for reducing one's own concerns simultaneously mediate the effects of self-relevance on sharing but differently under the two types of self-construal. Higher self-relevance of the information can trigger defensive responses (rating the article as more difficult to process and finding it not credible) under independent self-construal. We did not observe this effect under interdependent self-construal. Interestingly, we even observed a significant reversal of the effect under interdependent self-construal, so that higher self-relevance of the information boosted sharing when consumers try to reduce their own worries.

In addition to testing our hypotheses, we examined how consumers feel after sharing[2]. Because consumers under interdependent self-construal are more motivated to reduce their own worries and help others by sharing, it may be expected that those consumers would also feel more relieved after sharing and feel conflicted if they did not share. To capture this scenario, we measured participants' anticipated post-sharing feelings through the use of two items ("I would feel relieved after sharing this information", and "If I did not share this information, I would feel in conflict".). Consistent with our reasoning, we found that consumers under interdependent self-construal anticipated more relief and less conflict after sharing the information when self-relevance increased (M = 3.35 vs. M = 4.14; $F (1, 80) = 5.5$, $p = .02$), whereas there was no difference in post-sharing feelings under independent self-construal (M = 3.41 vs. M = 4.23; $F (1, 80) = .64$, $p = .64$).

Ruling out Alternative Explanations and Further Tests

We conducted further tests to examine a number of alternative explanations. First, one could wonder whether self-construal could influence attitudes toward the information itself. Our results validated that the article's evaluation did not differ between low and high self-relevance conditions (M = 4.94 vs. M = 4.63; $F (1, 80) = 1.51$, $p = .22$). Additionally, the interaction between self-relevance and self-construal on evaluation was not significant ($F (1, 80) = .024$, $p = .87$). These results confirm that our

effects are not based on participants' attitudes towards the article but are indeed related to the effects of self-relevance.

Second, one could argue that higher self-relevance of the threatening information could lead to heightened worry, which could prompt consumers to devote more cognitive resources toward worrying about the negative consequences of products and therefore be less likely to share information with others[3]. Our results demonstrate that under independent self-construal, higher self-relevance leads to higher ratings in finding the article difficult to understand (M = 2.78 vs. M = 2.00; $F (1, 79) = 4.56$, $p = .036$), whereas higher self-relevance does not lead to higher ratings for concerns about the information (M = 4.77 vs. M = 4.56; $F (1, 79) = .34$, $p = .55$). These findings together provide supporting evidence that self-relevant threats can indeed interfere with information processing. However, when explicitly asked, individuals are reluctant to report their worries, which might be in fact considered as another defensive response to threatening information.

Next, we have provided evidence regarding perceptual defensive responses that are relatively passive, such as evaluating the article as difficult to process or not credible. One could also argue, however, that defensive responses could take active forms such as explicitly counter-arguing the claims. To test these two concepts separately, we have also examined participants' likelihood to express a critical opinion about the article (1= strongly disagree, 7= strongly agree). Our results show that independents did tend to be more likely to express critical opinions when

the information had higher self-relevance, although this effect was not significant (M = 3.61 vs. M = 4.3; F (1, 79) = 2.52, p = .11).

Finally, one could wonder whether sharing could be explained by individuals desire for helping others and to demonstrate altruism (Hennig-Thurau et al. 2004; Price, Feick and Guskey-Federouch 1995). In order to test this, we asked participants' desire for helping others regarding the health effects of Stevia ("I would like to help and inform others", 1= strongly disagree, 7= strongly agree). We conducted mediation analyses to test whether the proposed mechanisms (defensive processes, desire to reduce one's own concerns) were driving the effects of self-relevance on sharing, when desire for helping others is added as a covariate in the model. We used again a bias-corrected bootstrapping procedure (n = 5000). The mediation analyses show that when helping others is included as a covariate, our results still hold. Confirming our earlier results (providing support for H3a) under independent self-construal, defensive responses mediates the effect of self-relevance on sharing (effect: -.35, 95% CIs: -.97 to -.12), whereas this effect was not significant under interdependent self-construal (effect: -.13, 95% CIs: -.57 to .14). Second, as predicted in H3b, under interdependent self-construal, higher self-relevance of the product harm information increases the desire for reducing one's own concerns, which has a positive effect on sharing (effect: .28, 95% CIs: .03 to .67), whereas this effect was not significant under independent self-construal (effect: -.04, 95% CIs: -.47 to .10)

2.3 General Discussion

Consumers often share negative experiences regarding products. Recent evidence has demonstrated that the majority of negative word of mouth is not about one's own major brands of consumption but rather about other brands (De Angelis et al. 2012). In addition, previous studies have recognized that higher self-relevance of information increases defensive biases against information that poses a threat to one's own health (Puntoni, Sweldens and Tavassoli 2011). Although some previous research has recognized that attributes related to the information content influence the information that is shared, consumers might also share content depending on how they view themselves in relation to others (i.e., self-construal). Because self-construal is a malleable construct that can be influenced by cues in the environment, we examined how changing one's self-construal can influence the type of product harm information that consumers share with others.

Contrary to what we might expect based on previous research regarding defensive biases, we demonstrate that high self-relevance might not always reduce the sharing of negative information in the same way. Changing environmental cues (e.g., self-construal) can have systematic effects on information processing and the motivations under which individuals share information with others.

In support of this account, we found that the high self-relevance of information decreased the sharing of product harm information under both

chronic (Study 1) and primed (Studies 3 and 4) independent self-construal. The negative effect of self-relevance was attenuated by priming individuals with interdependent self-construal (Study 3 and Study 4). Furthermore, in support of our assumptions, the negative effect of self-relevance on sharing was particularly pronounced for product harm of high severity (Study 2), which sets an important boundary condition for our effects. Consistent with our hypothesized processes, our effects were driven by (a) defensive processes, particularly under independent self-construal; (b) desire for reducing one's own worries, particularly under interdependent self-construal (Study 4). This research has important theoretical and practical implications for consumer welfare advocates, public policy makers and marketers.

2.3.1 Managerial Implications

This research has important implications for policy makers who would like to design campaigns that encourage communication about certain health concerns. First, our findings imply that it is possible to increase the spread of information by priming interdependent self-construal through cues in the environment. Further research should investigate whether sharing could be influenced by manipulating cues in health claim messages, for example by using singular pronouns (e.g., "I" should be aware of "my" food habits), versus plural pronouns (e.g., "We" should be aware of "our" food habits), as in Study 3b and Study 4.

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Depending on the characteristics of the product harm, further research also could explore how ads that refer to the self could affect the target audience (e.g., how consuming food high in cholesterol affects one's health and leads to obesity) versus ads that relate the issue to others such as family and friends (e.g., showing how people worry about the consumption behaviors of a relative or a friend).

Second, an awareness of the role of self-construal in sharing may also help consumers. Particularly when consumers consume certain products over a long period or engage in habitual consumption (e.g., smoking cigarettes, binge eating), they might engage in defensive biases about the side effects of products and become reluctant to discuss the risks with others. If consumers intend to protect themselves from those side effects and cope with the situation, encouraging consumers to think about others or to identify themselves in relation to others (interdependent self-construal) could make them more likely discuss such risks and protect themselves with the help of their social environment.

Finally, this research provides product managers with some malleable constructs that might help them to take control of product harm information spreading. For instance, the majority of companies apply a "mass approach" when dealing with product harm crises (see, e.g., Pearson and Mitroff 1993). However, research has shown that demographic similarity had a negative influence on each stage of the decision making process (i.e., awareness, interest and final decision) through viral marketing campaigns (De Bruyn and Lilien 2008). Because the self-

relevance of the product harm information might differ, for example, between heavy and light user segments or different age, gender or geographic segments, it is advisable to pursue different response strategies targeted to different segments based on the relevance of the information because this approach may influence the extent to which this information is shared among consumers.

2.3.2 Theoretical Contributions

There is a growing body of research on WOM that investigates when and why consumers share information about products and content (e.g., Berger and Schwarz 2011; Berger and Milkman 2012; De Angelis et al. 2012; Moldovan, Goldenberg and Chattopadhyay 2011). The majority of the previous research has focused on positive word of mouth (e.g., referrals, recommendations) concerning one's own experiences. First, this paper is unique in two ways because the research focuses on word of mouth that is (1) negative, and (2) based on information from external resources (and not based on consumers' own experiences).

In addition, our research combines insights from the word of mouth literature with insights from the domain of health psychology, where studies have shown that individuals who encounter highly self-relevant health risks tend to engage in defensive processing (e.g., Liberman and Chaiken 1992; Sherman, Nelson and Steele 2000). Integrating the research on word of mouth and defensive biases, this paper demonstrates that

consumers are less likely to share product harm information, particularly when the threat has high self-relevance. Moreover, we demonstrate how the different types of self-construal may foster opposing constructs that stimulate or attenuate the sharing of information.

Finally, this paper adds to the existing research by highlighting a new set of conditions that can change the ways in which individuals process and in turn transmit self-relevant negative information regarding products. This research responds to calls for research on processing biases for negative events or information under different contextual differences, such as interdependent versus independent self-construal, and further extends the scope of defensive processing research by examining the effects of such processes on information sharing.

2.3.3 Directions for Further Research

Certain limitations in the reported research suggest opportunities for future study. First, the specific content of the product harm information might influence what information is shared more frequently and under which circumstances. Our research focused on product harm information about various product categories (such as plastic bottles, caffeinated drinks, and artificial sweeteners). However, product harm crises could also relate to specific brands (e.g., Zara, Mattel, and Shell). The existing research showed that consumers' prior expectations regarding a brand might influence the way in which consumers react to product harm crises

(Dawar and Pilluta 2000; Lei, Dawar and Gürhan-Canli 2012). Future research may examine the interactive impact of prior brand expectations (e.g., brand attachment) and self-construal on product harm information sharing. Second, product harm information might not always be related to one's own health directly but could be related to other things such as the environment, animals, etc. The extent to which one could relate those external factors to oneself (e.g., the importance that a consumer attaches to animal welfare) might also influence sharing. Furthermore, our research focused on the effect of self-relevance based on consumption, whereas products could also be self-relevant based on the value that consumers attach to those products (e.g., products or brands that signal status). Future research could test the role of identity signaling (e.g., signaling to be environmental friendly) in sharing product harm information.

Second, the characteristics of the audience such as size, type and context of the conversation might affect when and how product harm information is shared. In this study, the audience has not been specified. Although such an approach is not uncommon in research on WOM and other forms of sharing such as rumor transmission, it might be interesting to focus on particular groups. There is evidence that the in-group versus out-group distinction is more important to individuals with interdependent self-construal than to those with independent self-construal (Triandis 1989). Interdependent self-construal might foster sharing with "in-group" members or those with strong social ties but not with out-group members or those with weaker ties. The context and size of the audience in which

the conversation takes place might also affect what information is shared. Recent research suggests that people tend to share self-presentational content when broadcasting to a big audience, whereas people tend to present useful content when narrowcasting to a small audience (Barasch and Berger 2012). Consumers might be reluctant to share product harm information when sharing publicly with a large audience or unknown others, whereas consumers might be more open to sharing such information privately or narrowcasting to a small audience.

Finally, a worthwhile direction for further research stems from the idea that individuals share both positive and negative WOM. We have focused on cases in which the negative information about the product has been encountered from other resources (e.g., media reports, rumors among consumers). However, in addition to such cases, there are cases in which consumers generate their own negative experiences about products or transmit other people's experiences about products. Our framework is consistent with the notion that consumers would be more likely to transmit other people's negative experiences (low self-relevant) compared to their own negative experiences (high self-relevant). Existing research also provided evidence that consumers generate and share positive WOM about positive experiences that are highly relevant for them because this action enables consumers to maintain a positive self-view by linking the self with positive outcomes (De Angelis et al. 2012). Given that the nature of positive and negative information is different, one could expect that the processes that explain transmission could be different based on the valence

of the information (Heath 1996). For instance, whereas defensive responses (that we have shown reduce the sharing of negative information) might not be prevalent for positive information, motivations such as a high need for uniqueness and fear of being imitated explain why some consumers are reluctant to share positive information about products (Cheema and Kaikati 2010; Moldovan, Steinhart and Ofen 2012). Investigating the way in which other motives (i.e., self-enhancement, seeking status) influence positive WOM under the different levels of self-construal awaits further research.

In Chapter 2, we have focused on product harm information that is organically shared by consumers. The hearsay spreading about the products often harms companies. Therefore, it is important for companies to understand what makes consumers share product harm information, and how to influence such social transmission process. On the other hand, there is also information fertilized by companies that they hope to get shared among consumers. Content such as viral advertisements that are stimulated by companies might reach to millions of consumers, and might eventually make consumers evaluate the products being advertised more favorably, encourage them to purchase the product or engage in behaviors that benefit the company. In Chapter 3, it is explored how companies can craft content gets both viral and benefit the brand.

Chapter 3. Valuable Virality[3]

Some advertisements go "viral." In July 2009, Evian posted an ad called "Roller Babies'" online as part of its "Live Young" campaign. The video shows what looks like babies performing a series of amazing roller-skate aerobatics, set to the tune of "Rapper's Delight." It soon became a viral hit and over 55 million people viewed the clip. In July 2011, the Guinness Book of World Records recognized Roller Babies as the most viewed online video ad ever (World Record Academy 2011).

But when Evian looked at how the viral ad impacted sales, the results were disappointing. While millions of consumers had shared the video, their forwards hadn't increased sales. On the contrary, Evian had lost market share and sales dropped almost 25 percent in the year since the ad was released (O'Leary 2010). Why hadn't shares boosted sales?

This example highlights an important marketing issue. Companies want to create content that people will share, but not all of this content ultimately helps the company's bottom line. Word of mouth can increase product adoption and sales (Godes and Mayzlin 2004, 2009; Goldenberg et al. 2009), and is often much cheaper than traditional advertising. But its effectiveness as a marketing strategy depends on two key factors. First, people must actually spread the word or share a piece of content that relates to the brand. Second, that diffusion must encourage more people to purchase, or engage in some other behavior that benefits the company or

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[3] Working paper based on this chapter under review (Akpinar and Berger, 2013a)

organization. As the 'Roller Babies' example shows, however, this is not always the case.

How can companies create valuable virality, or content that is both viral and benefits the brand?

This paper examines drivers of valuable virality. To do so, we distinguish between two types of outcomes. Advertising appeals can impact whether consumers like and share the ad (i.e., ad related outcomes), but also how they evaluate the brand and whether they purchase it (i.e., brand related outcomes). We examine whether certain types of advertising appeals can increase both outcomes simultaneously.

This chapter has two key contributions. First, we integrate research on word of mouth and advertising to shed light on what makes ads both viral and valuable. Some research has examined the consequences of word of mouth (e.g., for product adoption and sales, Godes and Mayzlin 2004; 2009; Goldenberg et al. 2009), but there has been less attention to why consumers share ads (or other company-generated-content) in the first place. Further, no work has combined these two aspects. This paper sheds light on both the drivers of word of mouth and when such social transmission actually benefits the brand.

Second, we deepen understanding around effective advertising. Research suggests that ad creativity improves brand related outcomes (Ang, Lee, Leong 2007; Pieters, Warlop and Wedel 2002), but we show that it is not always the case. While soft sell appeals (creative narratives that focus less on directly selling) are more likely to be shared than hard

sell appeals (direct sells that emphasize product features), they hurt brand-related outcomes when the brand is not integral to the plot. Further, while research has studied brand-to-consumer relevance (e.g., how showing brands in familiar circumstances make it more personally relevant, Ang and Low 2000; Smith et al. 2007), there has been less attention to brand-plot relevance. In fact, the little work that has examined brand-plot relevance finds that making brands more integral to TV show plots reduces persuasion (Russell 2002). In contrast, we show that integralness is actually beneficial for advertisements. Soft sell integral ads increase brand knowledge and generate less negative inferences about ad persuasion attempts, which combine to bolster brand attitudes and purchase intentions.

Overall, our work deepens understanding about why people share content and sheds light on how managers can make their campaigns both viral and valuable to the brand.

3.1 Theory

3.1.1 Word of Mouth

Consumers often share their views, preferences, and experiences about products with others (Godes et al. 2005; Moore 2012; Schellekens, Verlegh and Smidts 2010). Such word of mouth diffuses information and influence, and can boost product awareness, reduce uncertainty, and

generate normative pressure (Van den Bulte and Wuyts 2009). Consequently, word of mouth can boost product adoption and sales (Chevalier and Mayzlin 2006; Godes and Mayzlin 2009; Iyengar, Van den Bulte, Valente 2011). Given these positive consequences, many companies have embraced word of mouth marketing because it is often cheaper and more effective than traditional advertising (Trusov, Bucklin and Pauwels 2009).

But for word of mouth campaigns to be effective, two things must happen. First, consumers have to actually talk about the brand or share brand-related content. Not all content is passed on, and recent work has begun to examine why people share some things rather than others (Berger 2013; Berger and Schwartz 2011; Berger and Milkman 2012; Cheema and Kaikati 2010). One of the main drivers of sharing is self-enhancement (De Angelis et al. 2012; Wojnicki and Godes 2011). People tend to share surprising, novel, or interesting content (Berger and Schwartz 2011; Berger and Milkman 2011; Moldovan, Goldenberg and Chattopadhyay 2011; Moldovan, Steinhart and Ofen 2012) in part because it makes them look good. People may avoid sharing ads, however, to avoid looking like they are shilling for the company (Campbell and Kirmani 2000; Darke and Ritchie 2007; Verlegh, Verkerk, Tuk and Smidts 2004).

Second, the sharing must have a positive impact on brand evaluation or purchase. Prior work on word of mouth effects has focused on things like product reviews (Chevalier and Mayzlin 2006; Moore 2012) or brand mentions (Godes and Mayzlin 2009). But what about cases

where people share content (e.g., advertisements or videos) that may be less directly focused on the product or brand? Consumers can easily share ads without even remembering the brand and may not ever mention what product or brand the campaign is actually for.

So what leads content to both (1) be shared and (2) benefit the company that created it?

3.1.2 Drivers of Valuable Virality

To address this question, we distinguish between *ad related* and *brand related* outcomes. While consumers might like and share certain ads more (i.e., ad related outcomes), this might not always increase brand evaluations and purchase intentions (i.e., brand related outcomes).

We propose that different types of advertising appeals may influence ad related and brand related outcomes differently. One major distinction is between *hard sell* and *soft sell* appeals (Okazaki, Mueller and Taylor 2010)[4]. Hard sell appeals focus on the product or brand. They take a direct sell approach, explicitly mentioning product features and emphasizing factual information. Soft sell appeals, in contrast, rarely include explicit product information. Instead, they often convey a story or

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[4] Previous advertising literature also uses the distinction between *informational advertising*, which emphasizes directly on the features or benefits of the product and *transformational advertising*, which emphasizes the experiences that consumption of a good or service will provide to the consumer. As mentioned in Okazaki, Mueller and Taylor (2010), while there is some overlap with the soft sell/hard sell distinction, soft sell ads do not necessarily convey transformation that occurs when descriptors in the ad are related by consumers to the experience of owning or consuming the advertised brand.

narrative that is communicated though indirect creative mechanisms (i.e. showing beautiful scenes or evoking emotional reactions such as humor and surprise).

Ad Related Outcomes

We suggest that compared to hard sell appeals, soft sell appeals should improve ad related outcomes. First, soft sell appeals should lead to higher ad evaluations. Consumers enjoy watching creative ads and tend to find feature-focused ads boring (Pieters and Wedel 2012; Steinhart 2012).

Second, soft sell appeals should be more likely to be shared. Most consumers do not want to seem like they are "shilling" for companies (Darke and Ritchie 2007; Rumbo 2002), so may avoid sharing ads that explicitly promote products or brands (as hard sell appeals often do). Further, soft sell appeals are often surprising, creative, and emotion-laden, all characteristics that boost social transmission (Berger and Milkman 2012; Berger and Schwartz 2011; Heath, Bell and Strenberg 2001; Rimé 2009).

Brand Related Outcomes

When considering brand related outcomes, however, hard sell appeals may be more effective. First, hard sell appeals provide more information about the product or brand. As long as consumers are positively disposed to the information presented, increased knowledge should increase brand evaluation and purchase intent because people feel

like they have a better sense of the products' relevant features.

Second, hard sell appeals should reduce negative inferences about ad persuasion attempts. Consumers have some awareness of manipulative persuasion tactics of advertisers (Campbell and Kirmani 2000). In soft sell appeals, the ad content is not always related to the brand, which might lead consumers to feel that the advertiser is trying to trick them. Hard sell appeals are obviously designed to persuade, but because the persuasion attempt is more direct (e.g., explicit presentation of product features), consumers may evaluate them as fairer and more appropriate. Taken together, these two mechanisms suggest hard sell appeals should generate more favorable brand evaluations and purchase intentions.

Overall then, we suggest that different appeal types generate different benefits. Soft sell appeals should boost ad related outcomes (e.g., ad evaluation and sharing) while hard sell appeals should boost brand related outcomes (e.g., brand evaluation and purchase intentions).

But is there any way to generate both benefits simultaneously? Can certain advertising appeal types bolster both ad and brand related outcomes?

3.1.3 Summary of Studies

We suggest that one solution may be soft sell appeals in which the brand is an integral part of the narrative. Part of the reason that hard sell appeals boost brand outcomes is that the brand is, by default, an integral

part of the plot. Hard sell appeals explicitly discuss product benefits and the brand is directly relevant to the main ad theme.

Consequently, soft sell appeals that make the brand integral to the narrative (i.e., soft sell integral appeals) may be able to blend the benefits of soft and hard sell appeals. Soft sell integral appeals should increase sharing (because they are more entertaining) while also boosting brand related outcomes (because they increase brand knowledge and reduce negative inferences about persuasion attempts).

Unfortunately, however, most soft sell appeals do not make the brand an integral part of the plot. Evian's "Roller Babies" campaign, for example, could have just as easily been for diapers or roller skates. Bottled water was not an integral detail. This is also true more generally. An analysis of Mashable's Global Ads Chart (a list of the frequently shared ads) shows that brands are only highly integral in 35% of ads[5]. Advertisers may avoid making the brand a prominent part of the ad because they are worried it will reduce sharing.

But there is some evidence that soft sell integral appeals can generate valuable virality. Blendtec's "Will it Blend?" campaign, for example, is a soft sell appeal showing whether things like an iPhone will blend in a blender. Over 150 million people have shared the campaign and most videos have over 10 million views. But while the videos almost never directly mention the product features, these features are key to the

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[5] Two coders rated ads (N =181), selected from most shared 200 ads in the period of September 2012, on brand integralness (1= *not integral at all*, 7= *extremely integral*, α = .94), and excluded non-commercial ads (e.g., political ads, trailers). Only 35% of ads were rated as greater than or equal to 6 on brand integralness.

narrative (a blender must be really tough to shred an iPhone). And in the year the campaign was released, sales increased 43% (Lorber 2007). While this is just one example, it suggests the potential benefits of soft sell integral appeals.

To investigate these benefits more broadly, we compare how three appeal types (1) soft sell integral, (2) soft sell not integral and (3) hard sell influence both ad and brand related outcomes. We test our predictions using a mix of field and laboratory investigations. Study 1 uses data from an online viral video chart to examine whether certain appeal types generate greater virality in the field. Lab experiments then test the impact of appeal type on ad and brand related outcomes (Study 2) and examine the hypothesized mechanisms (i.e., brand knowledge and inferences about persuasive attempts, Study 3). Study 4 examines whether the impact of ad appeals extend to downstream brand related outcomes (i.e., brand recall).

3.2 Empirical Studies

Study 1: Impact of Appeal Type on Virality in the Field

Our first study examines the relationship between appeal type and actual shares in the field. We analyze over 150 ads from the most prominent online viral chart (viralvideochart.unrulymedia.com). The data includes how many times each video has been viewed and shared over

different channels including YouTube, Facebook, Twitter, and social media more generally.

We predict two things. First, that there will be no difference between the two types of soft sell appeals: More integral soft sell appeals will not reduce the share rate. Second, we predict that soft sell appeals will have higher share rates than hard sell appeals.

Method

Data and Coding

We examined a set of ads launched between July and December 2012. Data were provided by Unruly, a media company that tracks the views and shares of online videos. We used this dataset for a number of reasons. First, Unruly provides the world's largest, most comprehensive database of online social videos, having tracked 329 billion videos since 2006. Second, by providing data on both views and shares (for 30 days following each video's launch date), this dataset allows us to avoid potential confounds. The number of times content is shared depends on two factors: the number of times it is viewed and the share rate (i.e., probability of sharing given viewing). Consequently, certain ads may be highly shared not because their share rate is high, but because the company paid to feature them on various websites to increase the number of views (and the share rate is in fact low). By focusing on share rate (i.e.,

share/view ratio) we avoid potential confounds due to marketing budget and can more cleanly measure likelihood of sharing.

Given the length of time required to code each ad (M = 3.43 minutes), we sampled a selection of 153 ads. Most ads had a low share rate, so to ensure that the set included ads from all ranges of the distribution, we divided ads into quartiles based on share/view ratio (i.e., top 25%, next 25%, etc.) and randomly selected 25 ads from each quartile. Two independent raters (r = .92) then dummy-coded whether each ad was a soft sell appeal or hard sell appeal using the following instructions:

> "Soft-sell" refers to advertisements that are indirect and subtle. These ads induce an affective (feeling) reaction from the viewer. An image or an atmosphere can be conveyed through a beautiful scene or the development of an emotional story, or via some other indirect mechanism. "Hard-sell" refers to advertisements that are direct, emphasizing a sales orientation, and often specifying the brand name and product recommendations. There is often explicit mention of factual information, such as specific distinguishing features of the product that give it an advantage in performance or some other dimension relevant to consumers.

This resulted in 79 soft sell and 21 hard sell appeals. To ensure there were enough hard sell appeals in the dataset to compare with soft sell appeal, a

different set of coders identified any additional hard sell appeals from the 1000 most shared ads of 2012 (N = 53).[6]

Finally, three independent coders rated all soft sell appeals on brand integralness (1= *not integral at all*; 7 = *very integral*, α = .89).

Results

We examined the relationship between appeal type and share rate (i.e., share/view ratio). The distribution of share rate was highly skewed (skewness = 2.28, kurtosis = 11.67), so we took the log for our analyses.

First, we examined soft sell appeals. As predicted, there was no relationship between brand integralness and share rate ($\beta_{integralness}$ = .01, SE = .007, $t < 1$, $p > .8$). More integral soft sell appeals were not less likely to be shared.[7] Given both types of soft sell appeals were shared equivalently, we combined them for further analysis.

Second, we compared soft and hard sell appeals. As predicted, soft sell appeals (M = .09) were more likely to be shared than hard sell appeals (M = .05, $F(1, 151) = 4.79$, $p = .03$).

Discussion

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[6] We selected additional hard sell appeals from this set because that is all that was offered by Unruly. However, if anything this should make it harder to find our effect as we are expecting that soft sell appeals will have a higher share rate.

[7] A mean split on integralness (M = 4.46) shows the same result. Soft sell integral and not integral appeals had equivalent share rates (M = .10 vs. .08, $F(1, 77) < .2$, $p > .7$).

Analyzing the share rate of real ads in the field supports our perspective and provides preliminary insight into what drives valuable virality. As expected, soft sell appeals are more likely to be shared than hard sell appeals. Further, within soft sell appeals, having the brand as a more integral part of the narrative did not hurt likelihood of being shared.

Ancillary analyses cast doubt on the notion that these effects are simply driven by soft sell appeals that have higher evaluation ratings. Four coders evaluated each ad (1= *do not like it all*, 7= *like it a lot*, α = .69). Even controlling for ad evaluation, however, soft sell appeals were still more likely to be shared than hard sell appeals (M = .09 vs. .05, F(1, 147) = 6.34, *p* = .01). Further, more integral soft sell appeals were still no less likely to be shared than less integral ones ($\beta_{integralness}$ = .12, SE = .009, *t* < 1.5, *p* > .14).

Results of Study 1 are supportive, but to test the causal impact of appeal type on both ad and brand related outcomes, and to rule out potential confounds, we turn to laboratory experiments.

Study 2: Impact of Appeal Type on Valuable Virality in the Laboratory

Study 2 tests how appeal type influences both ad and brand related outcomes. Soft sell appeals should improve ad related outcomes; people should evaluate them more favorably, and be more willing to share them.

Hard sell appeals, in contrast, should improve brand related outcomes; they should generate higher brand evaluations and purchase intent.

Soft sell integral appeals, however, should combine the advantages of both soft and hard sell appeals. They should increase ad evaluations and willingness to share, while also boosting brand evaluations and purchase intent.

Method

One hundred forty-nine participants completed a short survey as part of a larger group of questionnaires.

Materials

First, we created video ads for a fictitious brand of hand soap Nillen[8]. We used existing ads, removed any frames that showed the brand name, and then inserted the slogan "Nillen Hand Soap, Feel Clean and Fresh!" at the end of all the clips.

In the hard sell condition, a woman and child are depicted using the soap and product benefits are explicitly stated. The ad noted that the

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[8] Please see the following link for screenshots of the stimuli:
https://www.dropbox.com/s/5gydbudwn23xdyf/EAkpinar_dissertation_Stimuli_Study2_Ch3.pdf
The following clips were edited to create the hard sell (http://youtu.be/QAD5ZLt0M4o), soft sell not integral (http://youtu.be/ShFAeNdiEiA), and soft sell integral ads (http://youtu.be/7fQZ0UX6VvE)..

soap is gentle on the skin, moisturizes and refreshes, and is environmentally friendly.

We also created two types of soft sell appeals. In the soft sell integral condition, the product (soap) was more relevant and integral to the plot. Called "Foam City," the ad showed how a downtown area turns into a giant bubble bath with whole streets filled with foam. In the soft sell not integral condition, the content was interesting but had little to do with hand soap. Called "Human Slingshot," the ad showed people riding a raft down an enormous slide next to a lake. The raft is hooked to a bungee cord and catapults them through the air into the water. Pretest were used to test whether creative executions were evaluated equivalently in the absence of brand presence but differed in how integral the product was to the content.

Pretest participants (n = 95) were shown just the ad content, without any brand mention, and evaluated the ads using five 7-point scales (*bad-good, not appealing-appealing, not attractive-attractive, not interesting-interesting, not entertaining-entertaining*; ad evaluation index, α = .90). The selected appeals were evaluated equivalently in the absence of any brand mention (M = 5.69 vs. 5.69, F = 0, *p* > .9). This casts doubt on the possibility that any differences between the soft sell appeals that emerge after branding can be attributed to the particular videos used.

Another sample of pretest participants (n = 95) were asked to evaluate the relevance of the ads to hand soap on a 7-point scale (1= *not relevant at all*, 7= *very relevant*). As predicted, the soft sell integral appeal ("Foam City") was seen as more related to hand soap (M = 5.58) than the

soft sell not integral appeal ("Human Slingshot", M = 2.21, $F(1,93)$ = 107.43, $p < .001$).

Main Study

Participants were shown one of the three appeal types and completed a variety of dependent measures. First, they responded to ad-related measures. They were asked how willing they would be to share the video with others (1 = *not at all*, 7 = *extremely*). They also evaluated the ad using the scales from the pretest (e.g., *bad-good* and *not appealing-appealing*).

Second, they responded to brand-related measures. They evaluated the brand using four 7-point scales (*bad-good, negative-positive, unfavorable-favorable, undesirable-desirable*; brand evaluation index, α = .92). They also indicated their likelihood of purchase (1= *not likely*; 7 = *extremely likely*).

Results

A 3 (Appeal type: Hard Sell vs. Soft Sell Integral vs. Soft Sell Not Integral) x 2 (Outcome Type: Ad Related vs. Brand Related) mixed ANOVA revealed the predicted interaction ($F(2, 146) = 37.77, p < .001$). This indicates that the effect of appeal type differed for ad related and

brand related outcomes, so we examined each outcome separately (Figure 9).

First, we examined ad related outcomes (Figure 9a). As predicted, appeal type influenced both willingness to share the ad ($F(2, 146) = 13.35$, $p < .001$) and ad evaluations ($F(2, 146) = 17.62$, $p < .001$). Consistent with our theorizing, planned contrasts show that there was no difference between the two types of soft sell appeals on either willingness to share ($F = 1$, $p > .3$, consistent with Study 1) or ad evaluations ($F < .1$, $p > .7$). However, as expected, compared to hard sell appeals, soft sell appeals increased willingness to share ($M_{soft\ sell} = 3.84$ vs. $M_{hard\ sell} = 2.35$, $F(1, 147) = 25.65$, $p < .001$) and ad evaluations ($M_{soft\ sell} = 4.99$ vs. $M_{hard\ sell} = 3.67$, $F(1, 147) = 35.41$, $p < .001$).

Figure 9: How Appeal Type Impacts Ad and Brand Related Outcomes
(Study 2)

□ Soft Sell Integral   ▨ Soft Sell Not Integral   ■ Hard Sell

A) Ad Related Outcomes   **B) Brand Related Outcomes**
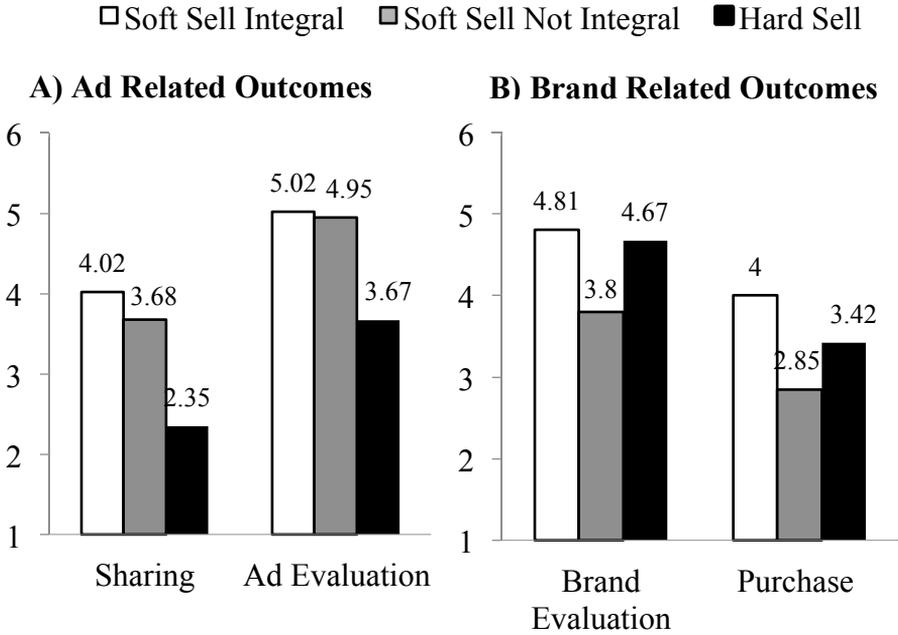
Second, we examined brand related outcomes (Figure 9b). As predicted, appeal type influenced both brand evaluations ($F(2, 146) = 11.33$, $p < .001$) and purchase intentions ($F(2, 146) = 6.99$, $p < .002$). Consistent with our theorizing, planned contrasts show that there was no difference in brand evaluations between soft sell integral and hard sell appeals ($F < .5$, $p > .5$), though the soft sell integral appeal did slightly boost purchase intent ($M_{soft\ sell\ integral} = 4.00$ vs. $M_{hard\ sell} = 3.42$, $F(1, 94) = 3.59$, $p < .06$). Further, as expected, compared to the soft sell not integral

appeals, hard sell appeals boosted brand evaluation ($M_{hard\ sell}$ = 4.67 vs. $M_{soft\ sell\ not\ integral}$ = 3.80, $F(1, 99)$ = 12.87, $p < .005$) and purchase intent ($M_{hard\ sell}$ = 3.42 vs. $M_{soft\ sell\ not\ integral}$ = 2.85, $F(1, 99)$ = 3.13, $p < .05$).

Looked at a different way, while hard and soft sell appeals had positive effects on different dependent measures, soft sell integral appeals combined both benefits, boosting both ad and brand related outcomes. For ad related outcomes, compared to the hard sell appeal, the soft sell integral appeal boosted ad evaluation ($M_{soft\ sell\ integral}$ = 5.02 vs. M_{hard} = 3.67, $F(1, 94)$ = 30.95, $p < .001$) and willing to share ($M_{soft\ sell\ integral}$ = 4.02 vs. M_{hard}= 2.35, $F(1, 94)$ = 26.78, $p < .001$). For brand related outcomes, compared to soft sell not integral appeals, the soft sell integral appeal boosted brand evaluation ($M_{soft\ sell\ integral}$ = 4.81 vs. $M_{soft\ sell\ not\ integral}$ = 3.80, $F(1, 99)$ = 18.32, $p < .001$) and purchase intent ($M_{soft\ sell\ integral}$ = 4.00 vs. $M_{soft\ sell\ not\ integral}$ = 2.85, $F(1, 99)$ = 14.56, $p < .001$).

Discussion

Study 2 extends the findings of Study 1 and supports our underlying conceptualization. First, soft sell appeals boosted ad related outcomes. Compared to hard sell appeals, they were evaluated more favorably and more likely to be shared. Second, in contrast, hard sell appeals boosted brand related outcomes. Compared to soft sell not integral appeals, they increased brand evaluation and purchase. Third, soft sell integral appeals combine the upsides of both types of appeals. They

increased willingness to share but also boost brand evaluations and purchase intent.

The results also cast some doubt on alternative explanations for the effects. One might wonder, for example, whether it was something about the ads themselves, rather than the type of appeal that drove the effects. But it is difficult for such explanations to explain the full pattern of results, or why particular appeals did well on some dimensions and badly on others (rather than just poorly overall). While participants were less willing to share the hard sell appeal, and evaluated it less favorably, for example, hard sell appeals increased brand evaluations to the same degree as the soft sell integral appeal. Similarly, while the soft sell not integral appeal reduced brand evaluation and purchase likelihood, its effects on sharing and ad evaluation were as high as the soft sell integral appeal. Further, the fact that the soft sell integral and not integral appeals were evaluated equivalently in the absence of branding (pretest data) suggests that it is something about the interaction between the product and the appeal (i.e., being integral) that is driving the results.

Study 3: Mediating Role of Brand Knowledge and Inferences about Persuasive Intents

Study 3 builds on Study 2 in two key ways. First, we use a richer design to rule out potential alternative explanations. Rather than using two soft sell appeals with different content, we use the same content but

change the product the ad is supposedly for, making it more or less integral to the content. This allows us to more cleanly investigate the effect of appeal type. We examine whether the same soft sell appeals have different effects on brand related outcomes depending on whether the product is integral to the ad's plot.

Second, we examine the processes behind the observed effects. As discussed in the introduction, consumers can learn more about the product when it is integral to the ad content. Further, soft sell integral appeals should lead to less negative inferences about ad persuasion attempts. When the product seems disconnected from the soft sell plot, consumers may be more likely to infer that the brand is employing manipulative persuasion tactics through the creative content. When brand is integral part of the soft sell content, however, consumers should find the persuasion tactics more acceptable and appropriate.

Both of these factors (increased knowledge and more positive inferences about ad persuasion attempts) should boost brand related outcomes. Consequently, we measure each and examine whether they mediate the positive effect of soft sell integral (compared to soft sell not integral) appeals on brand related outcomes.

Note that hard sell appeals should have similar effects as soft sell integral appeals. Product features are often explicitly presented and the persuasion attempt is direct by nature. Consequently, we expect that increased knowledge and more positive inferences about ad persuasion

attempts should also mediate the effect of hard sell appeals on brand related outcomes.

Method

One hundred forty-eight participants completed a short survey as part of a larger group of questionnaires. Participants were randomly assigned to condition in a 3 (Appeal Type: Soft Sell Integral vs. Soft Sell Not integral vs. Hard sell) x 2 (Product Category: Hand Soap vs. Swimwear) between-subjects design. Note that we do not expect (or find) any effects due to product category, but including this factor in the design allows us to rule out alternatives based on ad content.

For each of the soft sell appeals ("Foam City" and "Human Slingshot") from Study 2, we created a soft sell integral and a soft sell not integral version by changing the type of product the ad was supposedly for (swimwear or hand soap)[9].

Pretest data confirmed the effectiveness of appeal type manipulation. Participants (N = 190) were randomly assigned to evaluate either the Foam City or Human Slide video. They were asked to indicate to what extent the content was relevant for hand soap, swimwear, and some filler product categories. As expected, "Human Slingshot" seemed highly relevant to swimwear (M = 5.74), but not relevant to hand soap (M = 2.21,

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[9] Please see the following link for the stimuli used to manipulate appeal types:
https://www.dropbox.com/s/290m8gbz46u0p9j/EAkpinar_dissertation_Stimuli_Study3_Ch3.pdf

F(1, 92) = 129.16, *p* < .01). Similarly, "Foam City" seemed highly relevant to hand soap (M = 5.58), but not relevant to swimwear (M = 1.85, F(1, 94) = 162.01, *p* < .01).

For the hard sell appeals we used the same hand soap ad from Study 2. For swimwear, the hard sell appeal showed a pool, displayed the brand's product line, and noted the different styles and sizes that were available.

After watching their assigned ad, participants completed the same ad related (i.e., likelihood of sharing and ad evaluation) and brand related (i.e., brand evaluation and purchase likelihood) dependent variables as Study 2.

Finally, they completed our process measures. They indicated how much knowledge they had gained about the brand through watching the ad ("How much do you know about the brand and what it is like after watching this ad?" 1= *not at all*, 7 = *extremely*). They also completed a four-item scale measuring their inferences of persuasive attempts (e.g. "The advertiser tried to manipulate the audience in ways that I don't like"; "The ad was trying to trick me by its content," α = .80, adapted from Campbell 1995).

Results

A 3 (Appeal type: Hard Sell vs. Soft Sell Integral vs. Soft Sell Not Integral) X 2 (Product Category: Hand Soap vs. Swimwear) ANOVA was

conducted on the various dependent measures. As expected, there were no main effect (Fs < 2.67 ps > .10) or interactions (Fs < 1.1, ps > .2) due to product category so we collapsed across this factor for all further analyses.

Ad and Brand Related Outcomes. A 3 (Appeal type: Hard Sell vs. Soft Sell Integral vs. Soft Sell Not Integral) x 2 (Outcome Type: Ad Related vs. Brand Related) mixed ANOVA revealed the predicted interaction ($F(2, 145) = 21.3$, $p < .001$). Appeal type again had a different effect on ad versus brand related outcomes, so we examined each outcome separately.

First, we examined ad related outcomes (Figure 10a). As predicted, appeal type influenced both willingness to share the ad ($F(2, 145) = 18.48$, $p < .001$) and ad evaluations ($F(2, 145) = 2.39$, $p = .09$). Supporting our theorizing, and consistent with Study 1 and 2, planned contrasts show that there was no difference between the two types of soft sell appeals on either willingness to share ($F = .29$, $p = .59$) or ad evaluations ($F = .51$, $p = .47$). However, as expected, compared to hard sell appeals, soft sell appeals increased willingness to share ($M_{soft\ sell} = 4.19$ vs. $M_{hard\ sell} = 2.85$, $F(1,146) = 16.73$, $p < .001$) and ad evaluations ($M_{soft\ sell} = 4.95$ vs. $M_{hard\ sell} = 4.41$, $F(1,146) = 4.31$, $p < .05$).

Figure 10: How Appeal Type Impacts Ad and Brand Related Outcomes
(Study 3)

□ Soft Sell Integral   ■ Soft Sell Not Integral   ■ Hard Sell

A) Ad Related Outcomes   **B) Brand Related Outcomes**
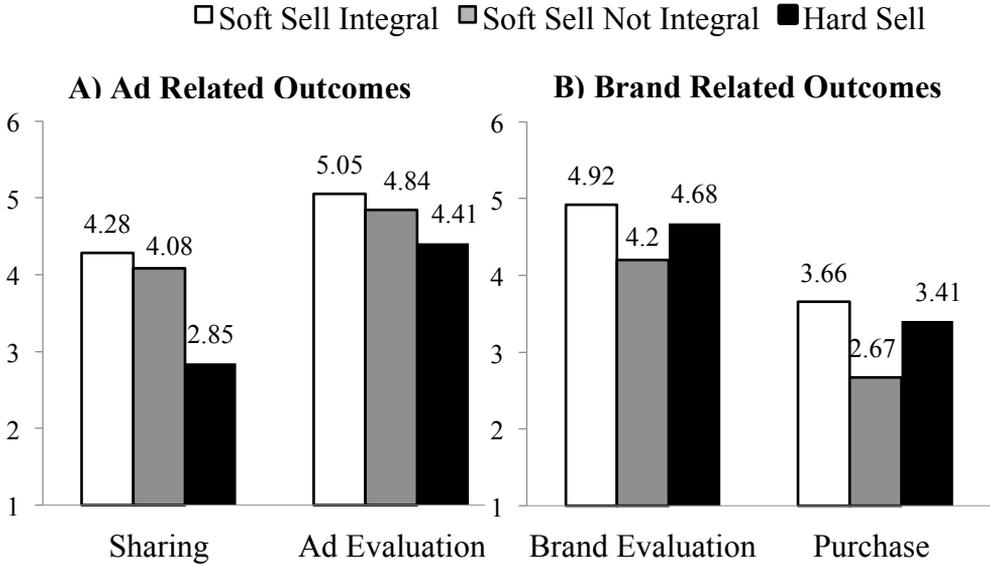
Second, we examined brand related outcomes (Figure 10b). As expected, appeal type influenced both brand evaluations ($F(2, 145) = 4.53$, $p = .012$) and purchase intentions ($F(2, 145) = 5.84$, $p = .004$). Consistent with our theorizing, planned contrasts show that there was no difference in brand evaluations ($F = .87$, $p = .35$) or purchase intentions ($F = .67$, $p = .40$) between soft sell integral and hard sell appeals. Further, as expected, compared to the soft sell not integral appeals, hard sell appeals boosted brand evaluation ($M_{hard\ sell} = 4.68$ vs. $M_{soft\ sell\ not\ integral} = 4.20$, $F(1, 93) = 4.29$, $p = .04$) and purchase intent ($M_{hard\ sell} = 3.41$ vs. $M_{soft\ sell\ not\ integral} = 2.67$, $F(1, 93) = 5.64$, $p = .02$).

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Looked at a different way, while hard and soft sell appeals had positive effects on different dependent measures, soft sell integral appeals combined both benefits, boosting both ad and brand related outcomes. For ad related outcomes, compared to the hard sell appeal, the soft sell integral appeal boosted ad evaluation ($M_{\text{soft sell integral}}$ = 5.05 vs. M_{hard} = 4.41, $F(1, 97) = 4.69$, $p = .03$) and willingness to share ($M_{\text{soft sell integral}}$ = 4.28 vs. M_{hard} = 2.85, $F(1, 97) = 16.25$, $p < .001$). For brand related outcomes, compared to soft sell not integral, the soft sell integral appeal boosted brand evaluation ($M_{\text{soft sell integral}}$ = 4.92 vs. $M_{\text{soft sell not integral}}$ = 4.20, $F(1, 100) = 8.48$, $p = .004$) and purchase intent ($M_{\text{soft sell integral}}$ = 3.66 vs. $M_{\text{soft sell not integral}}$ = 2.67, $F(1, 100) = 11.03$, $p < .01$).

Testing the underlying mechanisms. We also tested whether the effect of appeal type on brand related outcomes is driven by brand knowledge and inferences about persuasion attempts. We used a biased-corrected bootstrapping procedure (n = 1000) to generate 95% confidence intervals around these indirect effects (brand knowledge and inferences about persuasive attempts), where successful mediation occurs if the confidence interval doesn't include zero (Preacher, Rucker, and Hayes 2007).

Mediation results support our theorizing. First, comparing soft sell integral and not integral appeals, brand knowledge (95% CIs: .15 to .66) and inferences about persuasive attempts (95% CIs: .16 to .78) simultaneously mediate the relationship between the appeal type and brand

evaluation, see Figure 11a for path coefficients. As predicted, soft sell integral appeals increase brand knowledge ($\beta = .94$) and reduce negative inferences about persuasion attempts ($\beta = -.73$), which both increase brand evaluations.

Figure 11: Mediating Role of Persuasive Intent and Brand Knowledge on Brand Evaluation
(Study 3)
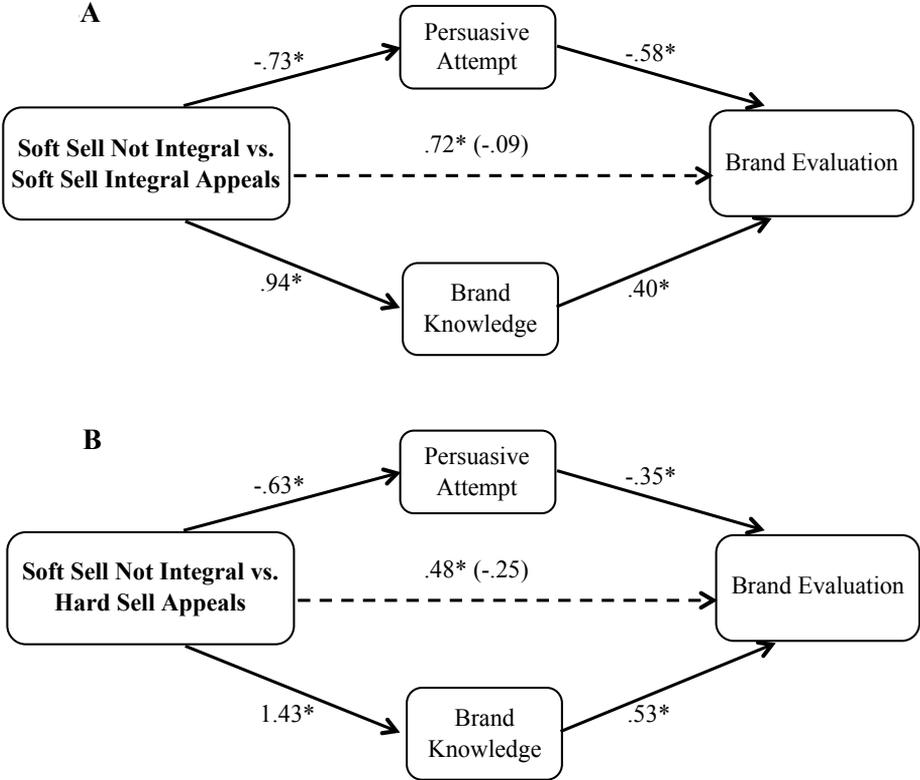
*indicates significance at 5%

Second, we find the same effects when comparing soft sell not integral and hard sell appeals (brand knowledge, 95% CIs: .27 to .86 and inferences about persuasive attempts, 95% CIs: .06 to .53), Figure 11b. Hard sell appeals increase brand knowledge ($\beta = 1.43$) and reduce negative inferences about persuasive attempts ($\beta = -.63$), which both increase brand evaluations. The effects are similar for purchase intentions (see Figure 12).

Figure 12: Mediating Role of Persuasive Intent and Brand Knowledge on Purchase Intentions
(Study 3)
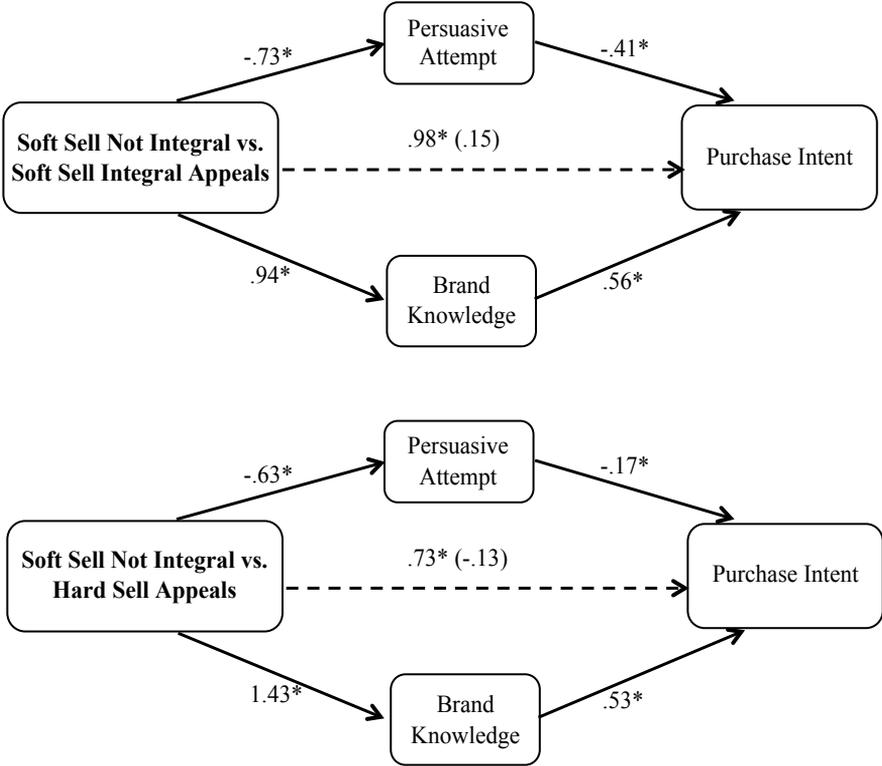
*indicates significance at 5%

Discussion

Study 3 supports our theorizing and provides deeper insights into the processes behind the observed effects. First, extending the findings of the first two studies, Study 3 demonstrates that soft sell appeals boost sharing but do not always benefit the brands that create them. By making the brand more integral to the narrative, however, soft sell appeals can, like hard sell appeals, boost brand evaluation and purchase intent. By controlling for ad content, we confirm that the effects were not due to the specific ads we created, but to appeal type.

Second, we demonstrate that (1) brand knowledge and (2) inferences about ad persuasive attempts simultaneously mediate the effects of appeal type on brand related outcomes. Because the brand is an integral part of the plot, soft sell integral and hard sell appeals increase brand knowledge. This increased knowledge, in turn, boosts brand evaluations and purchase intent. Compared to soft sell not integral appeals, soft sell integral and hard sell appeals also improve brand related outcomes because they reduce negative inferences about persuasion attempts.

Study 4: Downstream Consequences of Valuable Virality

Our studies so far have focused on immediate ad and brand related outcomes, but ad appeals may also have important downstream effects (e.g., on brand recall). Brand recall is a key measure of advertising

effectiveness (Puntoni and Tavassoli 2007) and has important implications for ongoing word of mouth and actual purchase. Consumers often talk about brands that are more accessible (Berger and Schwartz 2011), so brands that are better recalled from ad content should generate future mentions during offline conversations. Further, given that purchase often happens long after consumers have actually seen an ad, brand with higher recall will be more likely to be purchased.

Consequently, Study 4 examines whether the beneficial impact of soft sell integral appeals extend to brand recall. When the brand is integral to the ad content, there should be more associative cues between the brand and other aspects of the ad (Hastie 1981; Heckler and Childers 1992). These cues should help consumers retrieve brand related information from memory. More cues means that a greater likelihood of activating the brand if any part of the ad is remembered. Consequently, ads where the brand is integral to ad content should lead to higher recall. We expect that compared to soft sell not integral appeals, soft sell integral and hard sell appeals should have higher brand recall rates.

Method

One hundred thirty-one undergraduates completed this study. We used a similar design to Study 2, where participants were randomly

assigned to one of the three appeals for hand soap. In addition we added the brand name (Crown) at the end of each clip[10].

After completing the main dependent measures from Study 2 and 3 (i.e., ad evaluation, willingness to share, brand evaluation and purchase likelihood) participants completed a long filler task (adapted from Sela and Shiv, 2009).

Then we measured unaided brand recall by asking participants to write down the name of the brand from the ad. Perfect responses (Crown) and one-letter typos (e.g., Cro*v*n, Crow*m*, *K*rown) were treated as correct.

Results

Results replicated ad and brand related outcomes found in Study 2 and 3. A 3 (Appeal type: Hard Sell vs. Soft Sell Integral vs. Soft Sell Not Integral) x 2 (Outcome Type: Ad Related vs. Brand Related) mixed ANOVA revealed the predicted interaction $(F(2, 128) = 21.41, p < .001)$. This indicates that the effect of appeal type differed for ad related and brand related outcomes, so we examined each outcome separately.

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[10] We selected this brand name in particular because it was moderately associated with hand soap. Participants (n = 97) were asked to rate a list of brand names (e.g., Crown, Horizon, and Lanford, from Keller, Heckler and Houston 1998) in terms of their association with hand soap (1= *not associated at all*, 7= *extremely associated*). Crown was moderately associated with hand soap (M = 3.84, SD = 2.19).

Ad and Brand Related Outcomes. First, we examined ad related outcomes. As predicted, appeal type influenced both willingness to share the ad ($F(2, 128) = 7.49$, $p < .001$) and ad evaluations ($F(2, 128) = 3.76$, $p = .026$). Consistent with our theorizing, planned contrasts show that there was no difference between the two types of soft sell appeals on either willingness to share ($F = 1.34$, $p = .25$) or ad evaluations ($F = 1.25$, $p = .26$). However, as expected, compared to hard sell appeals, soft sell appeals increased wiliness to share ($M_{soft\ sell} = 3.89$ vs. $M_{hard\ sell} = 2.74$, $F(1, 129) = 13.55$, $p < .005$) and ad evaluations ($M_{soft\ sell} = 4.89$ vs. $M_{hard\ sell} = 4.30$, $F(1, 129) = 6.20$, $p < .05$).

Second, we examined brand related outcomes. As predicted, appeal type influenced both brand evaluations ($F(2, 128) = 4.97$, $p < .01$) and purchase intentions ($F(2, 128) = 5.32$, $p < .01$). Consistent with our theorizing, planned contrasts show that there was no difference in brand evaluations ($F = 1.43$, $p = .23$) and purchase intent ($F = .26$, $p = .60$) between soft sell integral and hard sell appeals. Further, as expected, compared to the soft sell not integral appeals, hard sell appeals boosted brand evaluation ($M_{hard\ sell} = 4.85$ vs. $M_{soft\ sell\ not\ integral} = 4.09$, $F(1, 80) = 9.99$, $p < .005$) and purchase intent ($M_{hard\ sell} = 3.36$ vs. $M_{soft\ sell\ not\ integral} = 2.52$, $F(1, 80) = 6.30$, $p = .02$).

Looked at a different way, while hard and soft sell appeals had positive effects on different dependent measures, soft sell integral appeals combined both benefits, boosting both ad and brand related outcomes. For ad related outcomes, compared to the hard sell appeal, the soft sell integral

appeal boosted ad evaluation ($M_{soft\ sell\ integral}$ = 5.03 vs. M_{hard} = 4.30, F(1, 93) = 8.20, p < .001) and willing to share ($M_{soft\ sell\ integral}$ = 4.08 vs. M_{hard}= 2.73, F(1, 93) = 15.50, p < .005). For brand related outcomes, compared to soft sell not integral appeals, the soft sell integral appeal boosted brand evaluation ($M_{soft\ sell\ integral}$ = 4.57 vs. $M_{soft\ sell\ not\ integral}$ = 4.09, F(1, 83) = 4.36, p < .05) and purchase intent ($M_{soft\ sell\ integral}$ = 3.53 vs. $M_{soft\ sell\ not\ integral}$ = 2.52, F(1, 83) = 13.30, p < .005). Thus soft sell integral ads combined the benefits of hard and soft sell appeals, increasing sharing and generating positive consequences for the brand.

Brand Recall. We also examined brand recall. We conducted a binomial logistic regression with appeal type (Hard Sell vs. Soft Sell Integral vs. Soft Sell Not Integral) as the independent variable and brand recall (coded as 0/1) as the dichotomous dependent variable. As predicted, appeal type impacted brand recall ($\chi2$ (1) = 5.36, p = .06). Compared to the soft sell not integral appeal (M = 22%), both the hard sell (M = 44%) and soft sell integral appeal (M = 45%) increased brand recall ($\chi2$ (1) = 4.05, p < .04 and $\chi2$ (1) = 4.67, p < .04, respectively).

Discussion

Study 4 supports our theorizing by demonstrating that the beneficial impact of soft sell integral appeals extend to downstream consequences such as brand recall. Further, while research suggests that ad

appeals (i.e. creative) improves brand recall (Pieters, Warlop and Wedel 2002), we demonstrate that it is not only ad appeals but brand integralness that also matters for brand recall. Soft sell appeals encouraged brand recall, but hard sell ads where the brand was integral had similar effects.

3.3 General Discussion

Both academics and marketing practitioners have become interested in virality. While it is clear that viral content can boost product adoption and sales, less is known about why certain content gets more shared than others. Further, marketers not only want to design content that gets shared, but also benefits their brands or organization. So, what encourages online content that is both shared and valuable to the brand?

A combination of field data and laboratory experiments demonstrate how different advertising appeal types (soft sell integral vs. soft sell not integral vs. hard sell) shape valuable virality. In particular, we show that different appeal types affect ad and brand related outcomes differently.

Compared to hard sells, soft sell appeals boost ad related outcomes. They increase share rate (Study 1) and willingness to share (Study 2 and 3) as well as ad evaluations (Study 2 and 3).

Hard sells, in contrast, tend to boost brand related outcomes. They increase brand evaluation (Study 2 and 3), purchase likelihood (Study 2 and 3) and brand recall (Study 4).

Soft sell integral appeals combine the benefits of both approaches. They boost ad related outcomes (i.e., share rate (Study 1), willingness to share (Study 2 and 3) and ad evaluation (Study 2 and 3),) while also facilitating both immediate and downstream favorable outcomes for the brand (i.e., brand evaluation, purchase likelihood and brand recall (Study 2, 3 and 4)).

The results also illustrate the mechanisms underlying these effects. Consistent with our theorizing, soft sell integral appeals increase brand knowledge and reduce negative inferences about persuasion attempts, which together boost brand evaluations and purchase intent (Study 3).

Taken together, the results demonstrate that soft sell integral appeals generate valuable virality. They increase sharing, while also providing downstream benefits to the brand.

3.3.1 Managerial Implications

These findings have important marketing implications. Understanding how to create content that is both shared and beneficial to the brand will help companies devise more effective word of mouth marketing campaigns.

Our results provide an important reminder about how to design effective ads. The interactive nature of the web has changed the way many marketers advertise. Rather than focusing on hard sell appeals, marketers have gravitated towards funny and more engaging appeals. But in the rush

to make the brand a less prominent part of the plot, marketers may have gone too far. Indeed, the brand was an integral part of the message in less than 35% of the ads we surveyed.

Instead, our results shows that soft sell appeals that maintain the brand as an integral part of the message may be the best way to go. In the Blendtec's "Will it Blend" campaign, for example, it is impossible to tell the story of the ad where the blender shreds an iPhone without talking about the blender. Making the product integral to the plot not only encourages people to remember the ad is for a blender, but also increases the chances that people talking about the ad will mention that as a key detail. If the ad could just as easily be for an entirely different brand or product category, it is less likely to be effective.

These same ideas can be applied to other kinds of company-generated content (e.g., online games, interactive ads or mobile apps). The branded app "Charmin SitorSquad" by P&G, for example not only helps people find and record clean bathrooms anywhere in the world but also makes their product and the brand logo an essential part of the app. So people use the app and share it with others, and this also benefits the brand.

Overall, our work deepens understanding about why people share content and sheds light on how managers can make their own campaigns both viral and valuable.

3.3.2 Theoretical Contributions

By integrating work on advertising with research on the causes and consequences of word of mouth, these findings make several contributions.

First, our findings contribute to research on the drivers of word of mouth. While some work has examined why consumers talk more about some brands (Berger and Schwartz 2011), or share certain news articles more (Berger and Milkman 2012), little work has looked at why consumers share company-generated content such as ads. Indeed, some work suggest that consumers should be particularly loathe to share such content for fear of seeming like they are shilling for the brand (Darke and Ritchie 2007; Verlegh, Verkerk, Tuk and Smidts 2004). Our work shows that consumers are willing to share such content, particularly when the ads do not seem like a direct sell attempt.

Second, these findings contribute to the advertising literature by showing important conditions under which prior findings may actually reverse. Existing work suggests that soft sell appeals should improve brand related outcomes (Ang, Lee, Leong 2007; Pieters, Warlop and Wedel 2002), but we show that this only holds when the brand is integral to the plot. If the brand is not integral part of the plot, soft sell appeals can actually hurt brand evaluations and brand recall compared to hard sell appeals. Further, it should be noted that our results are specific to advertising. While existing research suggests that making brands integral

to TV shows might reduce persuasion (Russell 2002), we show that the opposite occurs in ads. Making brands integral to ads increases brand evaluation and purchase by increasing brand knowledge and reducing negative inferences about persuasion attempts. Taken together, we show that making the brand an integral part of soft sell appeals is vital.

Third, we integrate work on both the causes and consequences of word of mouth. As noted previously, most prior work has focused on *either* one or the other: Examining why people talk (Berger and Schwartz, 2011; Berger and Milkman 2012) or how such interpersonal communication influences consumer choice and sales (Godes and Mayzlin 2009; Goldenberg et al. 2009). By combining these two aspects, this work deepens understanding around why people share word of mouth and when such communications actually benefit the brand.

3.3.3 Directions for Further Research

Future research might examine different aspects that can be integral and when one versus another type is more important. We have focused on cases where the product category itself is a good fit with the plot. In Studies 2 and 3, for example, the soft sell integral ad used content ("Foam City") that fit well with the product category being advertised (soap). In other instances, however, it may be more important for the product features to be integral. In the "Will It Blend?" campaign, it is impossible to forget that the brand makes a really tough blender. In other

instances, brand image may be the important aspects to be integral to the narrative. Thus which aspects need to be integral, may depend on requirements of the situation.

Research might also examine how brand placement affects ad and brand related outcomes. Some ads show the brand only at the end, while others show the brand throughout the clip. One might imagine that the link between the brand and creative content becomes weaker when the brand is only shown at one part of the ad. That said, showing branding throughout may reduce consumer willingness to share. Similarly, while only showing the brand at the end may seem beneficial in some ways (reducing overt branding), it may lead consumers to see advertisers as even more manipulative when the brand is not relevant to the ad content. Consequently, as our mediational evidence indicates, the inferences about persuasion is a key component to consider.

Future research could examine the different ways to create soft sell appeals and when one type versus another is more effective. For instance, some advertisers use polysemy or controversial appeals in order to generate shares. Yet, such content might sometimes be not compatible with the brand image or lead to different interpretations by consumers than that are not intended by the brand (Puntoni, Schroeder and Ritson 2010). In some other instances, advertisers use experts or celebrity endorsers to craft soft sell appeals (Klucharev, Smidts and Fernandez, 2008). As shown in Rossiter and Smidts (2012), while some endorsers (e.g., David Beckham) might have a high fit with some of the product categories (e.g.,

athletic apparel), not so much for some others (e.g., hamburgers). Future research could examine how different types of content can be used to generate soft sell appeals that lead to both ad shares and value for the brand.

Next, it would also be interesting to consider how word of mouth drivers may vary based on whether content is consumer generated (e.g., product reviews, mentions) or company generated (e.g. viral ads, games or mobile apps). One reason word of mouth is more effective than advertising is that consumers see their social ties as less self-interested. If one's friend says the product is good, it must actually be good (rather than them saying it is good just to make money, Tuk et al. 2009). Thus word of mouth generated by consumers should be more credible and lead to less negative persuasion inferences. However, companies are starting to encourage consumers to generate advertisements (e.g., Doritos invites consumers to submit ads in their "Crash The Super Bowl contest"), which blurs the line between consumer and company-generated content. While they are consumer created, they are solicited and curated by the brand, which should make consumers more likely to have negative persuasive inferences. That said, they might still be more effective than purely company-generated content. Further research could examine whether co-creation by consumers leads to less negative inferences and more valuable virality.

Finally, our research has focused on commercial advertisements, but creating viral content is also important for non-profit organizations. As

demonstrated in Chapter 2, in the context of health risks, public policy makers would like to create campaigns that go both viral and seek society's welfare. Recent research has shown that scare tactics (e.g., presenting negative emotions about bite eating, drinking) can be ineffective and can lead to even unhealthy behaviors (Duhachek, Agrawal and Han 2012). Thus, further research could examine how messages could be integral but still promote persuasive health messages, such as drinking responsibly or healthy food consumption.

In conclusion, this research illustrates how content characteristics shape valuable virality. One reason marketers are excited about social media is the possibility that consumers will widely share company-related content. But rather than just generating shares, the current research demonstrates the importance of also considering whether those shares will benefit the brand in the long run. By demonstrating drivers of valuable virality, this paper illustrates aspects of content that both drive people to share and help the brand.

Taken together, Chapter 2 and Chapter 3 have focused on drivers of social transmission, which is either organically generated by consumers or fertilized by companies. In these two chapters, the scope has been at a micro level, understanding what makes consumers share product harm information and viral content. Social transmission can also lead to collective outcomes, which explains what gets more popular over time and more broadly cultural success. Chapter 4 takes a macro approach and

explores how psychological mechanisms can influence social transmission and cultural success in the domain of language.

Chapter 4. How Senses Shape Cultural Success[11]

Language varies over time (Christiansen and Kirby 2003; Evans and Levinson 2009; Hauser, Chomsky and Fitch 2002; Schaller, Conway and Tanchuk 2002). Some proverbs become more popular than others, some phrases catch on, and some sayings become widely adopted. There are multiple ways to convey the same thing and linguistic variants with similar meanings often act as substitutes, competing for usage. In 1800s, for example, people used the phrase "sudden increase" to refer to a quick rise in something. But the phrase "sharp increase" was introduced around 1900 and is now much more en vogue (Figure 13, based on Google Books corpus, Michel et al. 2011).

Similarly, while "promising future" and "bright future" received similar usage in the 1800s, bright future is used 2.4 times as frequently today. Why do certain linguistic variants become more successful than others?

Most factors proposed to affect population-level language change such as status, population size, or levels of outside contact are interpersonal or sociological in nature (Labov 2001; Nettle 1999). But language is also one of the most cognitively taxing activities (Boroditsky 2011; Gibbs and Tendhal 2006). This implies that cognitive factors that

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[11] Working paper based on this chapter under review (Akpinar and Berger, 2013b)

shape linguistic processing may also help determine linguistic success.

Building on research regarding the role of the brain in language evolution (Chater, Reali and Christiansen 2009; Christiansen and Chater 2008), and the psychological foundations of culture more broadly (Clark 1996; Kashima 2008; Schaller and Crandall 2004), we study how senses shape language. In particular, we propose that linguistic variants that relate to the senses in metaphoric ways should be more culturally successful.

Figure 13: Trajectories for Usage of "sharp increase" and "sudden increase" over Time
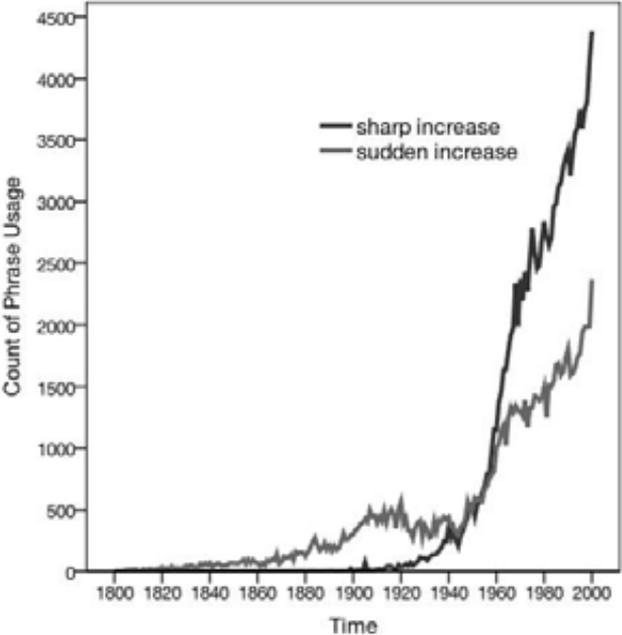
4.1 Theory

4.1.1 Senses in Language

By linking to direct bodily experiences with the physical world, sensory metaphors help express abstract concepts (Landau, Keefer and Meier 2011; Lakoff and Johnson 1980). For example, calling an unfriendly person "cold" suggests that, like a blizzard, he is not very inviting. Calling an unpleasant note "sour" suggests that, like a tart taste, it makes you wince.

Sensory metaphorical mappings are not just linguistic quirks, but have wide-ranging consequences for thought, judgment, and decision-making (Lee and Schwarz 2010; Zhong and Liljenquist 2006). Starting in childhood, people begin to scaffold abstract concepts onto existing knowledge acquired through sensory experiences (Williams, Huang and Bargh 2009). When an abstract concept is encountered (e.g., feeling socially excluded), related sensory concepts (e.g., feeling cold) may be activated (Williams and Bargh 2008). These activated concepts can then shape downstream behaviors (e.g., tendency to take warm baths, Bargh and Shalev 2012) or how the situation is described (e.g., a chilly reception, Zhong and Leonardelli 2008). Thus, abstract concepts can evoke metaphorically relevant sensory experiences, even without the presence of any actual physical sensation.

4.1.2 Memory and Cultural Success

We suggest that compared to their semantic analogues, sensory metaphors should be more memorable. Multiple streams of research support this notion. First, processing sensory metaphors (e.g., life is a bumpy road) activates the same brain regions as processing sensory experience itself (e.g., feeling roughness, Lacey, Stilla and Sathian 2012). Retrieval of sensory knowledge (e.g., cat has fur) is also more automatic and involves less processing than non-sensory knowledge (e.g., cat needs training, Golberg, Perfetti, Fiez and Schneider 2007). These findings suggest that compared to semantic analogues, sensory metaphors should be easier to retrieve because they are more strongly associated with the senses. Second, while semantic phrases are only stored with their semantic meaning, sensory metaphors are stored in both a semantic (e.g. cold as in unfriendly) and sensory code (e.g. cold as in temperature). This, combined with the frequency of exposure to sensory information in the environment should lead sensory metaphors to be cued more frequently, and thus be more accessible overall.

Greater memorability, in turn, should lead sensory metaphors to be more culturally successful. More memorable concepts are more likely to be used, which increases the chance that other people learn them and then use them in the future (Bandura 1977). Thus, a reciprocal interaction between the individual and the collective may occur (Gureckis and Goldstone 2009), whereby initial psychological advantages in memory get

magnified through social interaction (also see Chater & Christiansen, 2010).

4.1.3 Summary of Studies

Five studies test whether sensory metaphors are more memorable and culturally successful over time. Study 1 examines the usage of sensory metaphors over time. Study 2 shows that sensory metaphors are more memorable than matched semantic analogues, and that this is driven by their sensory nature and increased associative cues. Study 3 provides evidence that the cultural success of sensory metaphors is driven by increased memorability. Study 3 and 4 demonstrate that the success of sensory metaphors is driven by their sensory, rather than metaphorical nature. Finally, Study 5 underscores the results of the prior studies using a broader set of stimuli.

4.2 Empirical Studies

Study 1: Usage in 5 Million Books

To investigate the cultural success of sensory metaphors, Study 1 used the Google books corpus (Michel et al., 2011). The corpus contains over 5 million digitized books—or ~4% of all books ever printed since 1800. It includes over 361 billion English words. In order to track phrase

usage over time, we followed two steps. First, we used a rigorous procedure to generate a list of two word (adjective + noun) sensory metaphors and matched semantic analogues. Next, we retrieved the usage counts of each phrase per year during the period of 1800 and 2000 from this corpus.

Method

Two coders were given a list of hundreds of sensory adjectives (e.g. bright and cold) retrieved from exhaustive online resources (Cook 2012; Rosales-Uribe 2012;) and asked to indicate whether the adjectives were familiar or not (α = 73.1). For adjectives rated as familiar by both coders, three additional coders used dictionaries and thesauruses to generate sets of one sensory metaphorical phrase (e.g., bright student) and three matched control phrases close in meaning (e.g., intelligent student, smart student and clever student). We included three matched analogues since sensory metaphors can have multiple meanings. To remove phrases that did not make sense (e.g., oily matter) or are never used, three additional coders then rated the familiarity of each sensory metaphor and matched semantic analogues (1 = not at all familiar, 7 = extremely familiar). Phrases with above average familiarity ratings (> 4.72) were given to a final set of two coders. All phrases needed to be reasonably familiar and matched for meaning (e.g., cold person and unfriendly person). We generated thirty-two sets of phrases, each of which included

one sensory metaphor and three matched semantic analogues (see Appendix, Table S1 for the list of phrases).

Model Specification. Since phrase usage is a count variable aggregated yearly, we used a Poisson model to compare the usage of each sensory metaphor and its semantic analogues over time. We model n_{itj}, the usage of phrase i at time t, as a Poisson variable, where j is "0" for sensory metaphors and "1,2,3" for semantic analogues. Consistent with literature on Generalized Linear Models, we model the natural logarithm of the Poisson rate as a function of explanatory variables.

The goal is to estimate what drives the time-varying phrase usage, λ_{itj}. The full description of the model is as follows:

n_{itj} = usage of ith sensory metaphor at time (t), j = 0

n_{itj} = usage of jth semantic analogue to the ith semantic analogue at time t

$j = 0,1,..,s_i$

s_i = the number of semantic analogues that matches sensory metaphor i

$t = 1,…,t_i$

$n_{itj} \sim Poisson(\lambda_{itj})$

$\log(\lambda_{itj}) = \mu + \alpha_i + \delta_{j} + \lambda Z_i$ [Controls]

            $+ (\beta_{11} + \beta_{2l}*X_j)t$ [Main parameters of interest]

,where $X_j = 1$ for j = 0, $X_j = 0$ for j > 0

$\delta_j = 0$ for j=0,

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$\delta_j = 1$ for j=1 (first semantic analogue),

$\delta_j = 2$ for j=2 (second semantic analogue)

$\delta_j = 3$ for j=3 (third semantic analogue)

Our primary variable of interest was the usage of the sensory metaphors and semantic analogues over time $(\beta_{11} + \beta_{21}*X_j)t$. The coefficient (β_{21}) of interaction between time and phrase type indicates how the usage of sensory metaphors changes relative to semantic analogues.

In addition to our main variables of interest, we had three control variables in our model. First, we controlled for the effect of different nouns (α_i) because some sets of phrases may be inherently more popular than others because of the nouns they use. For example, there may be just more situations where someone needs to refer to a student being good (and could use phrases like bright, intelligent, or clever student) than the future being good (and could use phrases like bright, promising, or positive future). Given other sets of nouns could have been chosen, nouns used in phrases are treated as a random effect. Second, we controlled for the effect of different adjectives used for semantic analogues δ_j because certain semantic analogues may be more popular than others, which convey similar meanings. Third, we took into account the initial level of sensory metaphors and semantic analogues usage λZ_i, because initial level usage of sensory metaphors might be higher than semantic analogues. A scatterplot of the predicted values by observed values close to a 45-degree line and a pseudo-R^2 of 0.89 provide support for the goodness of fit of the model.

To allow for non-linear changes in phrase usage over time, we also run a model that includes quadratic effects of time. The quadratic model includes the same set of control effects as described in the linear model. The main parameters of interest are specified by $(\beta_{1l} + \beta_{2l} * X_j)\, t + (\beta_{1q} + \beta_{2q} * X_j)\, t^2$.

Understanding the exact interaction pattern in this second model requires combining the linear and quadratic effects, so we take the time derivative of the Poisson model:

$$d/d_t \log(\lambda_{itj}) = (\beta_{1l} + \beta_{2l} * X_j) + 2 * (\beta_{1q} + \beta_{2q} * X_j)t$$

$$= (\beta_{1l} + \beta_{2l} * X_j) + 2 * (\beta_{1q} + \beta_{2q} * X_j)t$$
, when $X_j = 1$ [sensory metaphors]

$$= \beta_{1l} + 2\beta_{1q}t$$
,when $X_j = 0$ [semantic analogues]

The difference in usage over time between sensory metaphors and semantic analogues is $\quad \Delta = (\beta_{1l} + \beta_{2l} + 2\beta_{1q}t + 2\beta_{2q}t) - (\beta_{1l} + 2\beta_{1q}t) \quad$ and can be formulated as $\Delta = \beta_{2l} + 2\beta_{2q}\, t$.

Results

Figure 14 illustrates the usage of both types of phrases. As predicted, compared to semantic analogues, sensory metaphors became more successful over time, $\beta_{\text{Time*Sensory Metaphors}} = .018$, $p < .001$. Sensory metaphors and matched semantic analogues started out as equally popular. But while the usage of semantic analogues increases over time, $\beta_{\text{Time}} =$

.007, $p = .001$, the use of sensory metaphors increases even more sharply, $\beta_{Time} = .025$, $p < .001$ (Table 1).

Figure 14: Sensory Metaphors are More Successful then Their Semantic Analogues (Study 1)
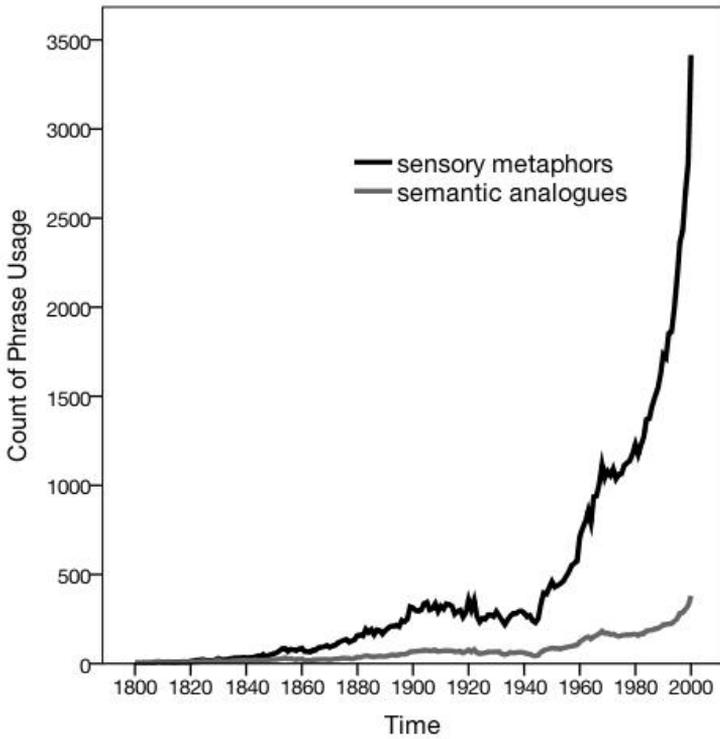
Table 1: Sensory Metaphors are Used More Frequently than Semantic Analogues over Time (Study 1)

Model Term	Linear Model(1) Coefficient(β)	Linear and Quadratic Model(2) Coefficient(β)	Exponential Coefficient (Exp β)
Intercept	-3.935 (.612)	-3.265 (.674)	.038
Time	**.007*** **(.000)**	**-.010*** **(.000)**	**.990**
Time*Sensory Metaphors	**.018*** **(.000)**	**.024*** **(.000)**	**1.024**
Time^2		**7.81E-5*** **(.000)**	**1.000078**
Time^2*Sensory Metaphors		**-3.55E-5*** **(.000)**	**1.000036**
Sensory Metaphors vs. Semantic Analogues	2.110 (.785)	2.110 (.785)	8.251
First Semantic Analogue	-.235 (.976)	-.254 (.974)	.776
Second Semantic Analogue	-.664 (.902)	-.683 (.930)	.505
Third Semantic Analogue	-.059 (.994)	-.078 (.992)	.925

*Significant at .05% level. Values in parentheses stand for p values.
Main parameters of interest are indicated in bold. Other parameters are control variables.
Sensory metaphors are coded as 1, and semantic analogues are coded as 0.
The Poisson regression expresses the log of usage as a linear function of the predictors. β can be interpreted as increase/decrease in the log of the usage, and Exp β as unit increase/decrease in the usage.

Ancillary analyses for Study 1 cast doubt on alternative explanations and underscore the robustness of these effects. First, results are the same allowing for quadratic effects of time (Table 1).

Results again show that sensory metaphors are used more frequently over time than their semantic analogues, $\beta_{Time*Sensory\ Metaphors}$ =

.024, $p < .001$; $\beta_{Time^2 *Sensory\ Metaphors} = -3.55E\text{-}5$, $p < .001$. While the usage of sensory metaphors increases with both a positive linear and quadratic trend, $\beta_{Time} = .014$, $p = .001$; $\beta_{Time}^2 = 4.257E\text{-}5$, $p < .001$, semantic analogues have a negative linear and positive quadratic trend, $\beta_{Time} = -.010$, $p < .001$; $\beta_{Time}^2 = 7.81E\text{-}5$, $p < .001$ (Table 1).

Inserting the coefficient values shows that $\Delta = \beta_{2l} + 2\beta_{2q} t = .024 - 2*3.55E\text{-}5*t$, where Δ is greater than zero for all values of t (1→ 201 years). This indicates that sensory metaphorical phrases become used more frequently than their semantic analogues.

Second, one might wonder whether these results are driven by the visual system because it is easier to form a mental picture of visual stimuli and visual imageability can enhance memory (Childers and Houston 1984; Paivio 1979). Our effects, however, hold across sensory modalities (e.g., sound, touch, and taste). Compared to their semantic analogues, even non-visual sensory metaphors are more successful over time, $\beta_{Time* Non\text{-}visual\ Metaphors} = .006$, $p < .001$. Third, the results are also not driven by less successful semantic analogues hurting the average. Comparing each sensory metaphor to its most successful analogue shows that sensory metaphors are still more successful over time, $\beta_{Time* Sensory\ Metaphors} = .017$, $p < .001$ (Table 2).

Table 2: Sensory Metaphors are Used More Frequently than Successful Semantic Analogues over Time (Study 1, Chapter 4)

Model Term	Coefficient(β)	Exponential Coefficient (Exp β)
Intercept	2.369 (.612)	10.689
Time	**.009*** **(.000)**	**1.009**
Time* Sensory Metaphors	**.017*** **(.000)**	**1.017**
Sensory Metaphors vs. Successful Semantic Analogue	-2.11 (.818)	.120

*Significant at .05% level. Values in parentheses stand for p values.
Main parameters of interest are indicated in bold. Other parameters are control variables. Sensory metaphors are coded as 1, and successful semantic analogues are coded as 0. The Poisson regression expresses the log of usage as a linear function of the predictors. β can be interpreted as increase/decrease in the log of the usage, and Exp β as unit increase/decrease in the usage.in the usage.

Study 2: The Memorability of Sensory Metaphors

Study 2 explores why sensory metaphors became more successful. We gave experimental participants a mix of sensory metaphors and matched sematic analogues to test whether sensory metaphors are more memorable, and whether this is driven by their sensory nature and increased number of associative cues.

Method

One hundred and fifty-six participants received 32 randomly selected phrases (eight sensory metaphors, each with 3 matched semantic analogues) from the list of 128 phrases used in Study 1. They rated each phrase on either how much it relates to the senses (1 = not at all, 7 = strongly) or how many associations it has with other words and ideas (1 = associated with very few things, 7 = associated with many things). After some unrelated filler tasks, participants completed an unaided-recall task where they wrote down as many phrases as they could remember. We tested whether sensory nature and associative cues simultaneously explain the relationship between phrase type (sensory metaphors vs. semantic analogues) and memory by conducting a bias-corrected bootstrapping analysis (Preacher and Hayes 2008).

Results

As predicted, sensory metaphors were more likely to be recalled than their semantic analogues, $M_{Sensory} = 28\%$; $M_{Semantic} = 18\%$; $F(1,126) = 25.85$, $p < .001$. Further, sensory metaphors were rated as more related to the senses, $M_{Sensory} = 4.64$; $M_{Semantic} = 3.00$; $F(1,126) = 71.65$, $p < .001$ and as having more associative cues, $M_{Sensory} = 4.65$; $M_{Semantic} = 4.31$; $F(1,126) = 8.77$, $p = .004$.

To test whether sensory nature and associative cues simultaneously mediate the relationship between phrase type (sensory metaphors vs.

semantic analogues) and memory, we conducted a bias-corrected bootstrapping analysis. Supporting our theoretical perspective, sensory nature (95% *CI*s: .001 to .06) and associative cues (95% *CI*s: .001 to .03) simultaneously mediate the increased memorability of sensory metaphors (Figure 15).

Figure 15: Sensory Nature and Associative Cues Boosts Memory for Sensory Metaphors (Study 2)
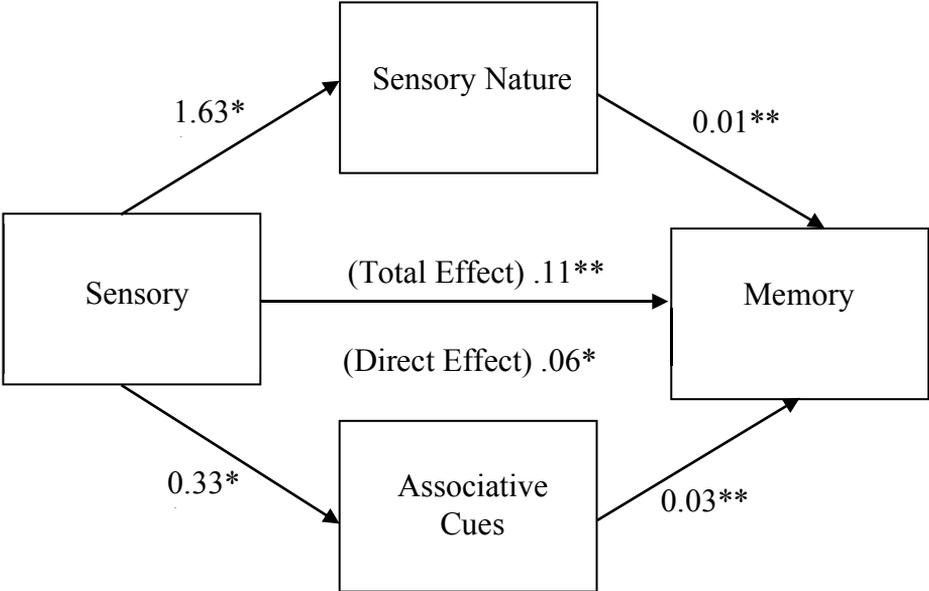
Path coefficients represent standardized regression coefficients. The coefficient above the path from sensory metaphors to memory represents the total effect with no mediator in the model; the coefficient below this path represents the direct effect when the mediators were included in the model. Coefficients significantly different from zero are indicated by asterisks (p**<.05, p*<.06). Sensory metaphors are coded as 1 and semantic analogues as 0.

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Ancillary analyses also cast doubt on alternative explanations. One might wonder whether sensory metaphors were more memorable because they were more interesting, descriptive, concrete or evoked a greater emotional response. This was not the case. In another study, we asked participants to rate a set of phrases on interestingness, descriptiveness, concreteness, or the extent to which they evoke an emotional response. Compared to semantic analogues, the sensory metaphors used here did not differ on any of these dimensions (Fs < .60, ps > .25). Thus while these other factors may contribute to cultural success in general, they have difficulty explaining the impact of sensory metaphors on memory observed here. Finally, as in Study 1, ancillary analyses demonstrate that the higher recall rates for sensory metaphors hold both for visual sensory metaphors, $M_{\text{Visual Sensory}}$ = 30%; M_{Semantic} = 19%; $F(1, 78)$ = 13.78, p < .001, and non-visual sensory metaphors $M_{\text{Non-visual Sensory}}$ = 24% ; M_{Semantic} = 16%; $F(1, 46)$ = 6.79, p < .05. This provides further evidence that the effects observed here are not driven solely by the visual system.

Study 3: Memorability and Cultural Success

Study 3 uses a larger set of sensory metaphors and the same books database as Study 1 to examine whether more memorable sensory metaphors are more culturally successful. We also tested whether greater sensory nature and increased associative cues are related to cultural success.

Method

We collected a larger set of sensory metaphors by relaxing the constraint that they needed to have matched semantic analogues. Taking the sensory adjectives that were rated high on familiarity in Study 1, two coders used dictionaries and thesauruses to generate sensory metaphors. They reached agreement on 76 sensory metaphors.

Then, using the procedure from Study 2, we had participants (n = 119) rate the phrases on their sensory nature or number of associative links. A delayed recall task measured phrase memorability. We also tested how sensory nature and prevalence of associative cues related to cultural success. We acquired phrase usage counts from the Google Books corpus, and applied the following Poisson model:

n_{it} = usage of ith sensory metaphor at time (t), t= 1…t_i

$n_{it} \sim$ Poisson (λ_{it})

$\log(\lambda_{it}) = \mu + (\beta_{11} + \beta_{21} * X_i + \beta_{31} * W_i)t$ [Main parameters of interest]

Our main variables of interest are the effect of sensory nature (X_i) and associative cues (W_i) on phrase usage over time.

Results

Consistent with Study 2, sensory metaphors that were more sensory in nature, β_{Sensory} = .33, SE = .01, t (75) = 3.22, p < .005, and had more associative cues, $\beta_{\text{Associative}}$ = .30, SE = .01, t (75) = 2.96, p < .005, were more likely to be remembered. This indicates that the same processes that led sensory metaphors to be more memorable than their semantic analogues may also influence why sensory metaphors are remembered more.

These factors are also related to cultural success. Consistent Study 1, the usage of sensory metaphors increased over time, β_{Time} = .026, p < .001. More importantly, metaphors that has better recall (at the individual level) had sharper increases in usage (at the collective level), $\beta_{\text{Time*Memory}}$ = .002, p < .001. Further, the rate of increase was higher for sensory metaphors that are more sensory in nature, $\beta_{\text{Time*Sensory Nature}}$ = .001, p = .058 and have more associative cues, $\beta_{\text{Time*Associative Cues}}$ = .003, p < .001 (Figure 16 and Table 3).

It is difficult (if not impossible) to directly measure phrases' memorability at different points in the past, but results of Study 3 are at least consistent with the notion that that memory contributes to cultural success. They also provide additional evidence that sensory nature and increased associative cues drive the memorability of sensory metaphors and potentially their cultural success.

Figure 16: Sensory Metaphors with Higher Sensory Nature (A) and Associative Cues (B) are More Successful (Study 3)

A   B
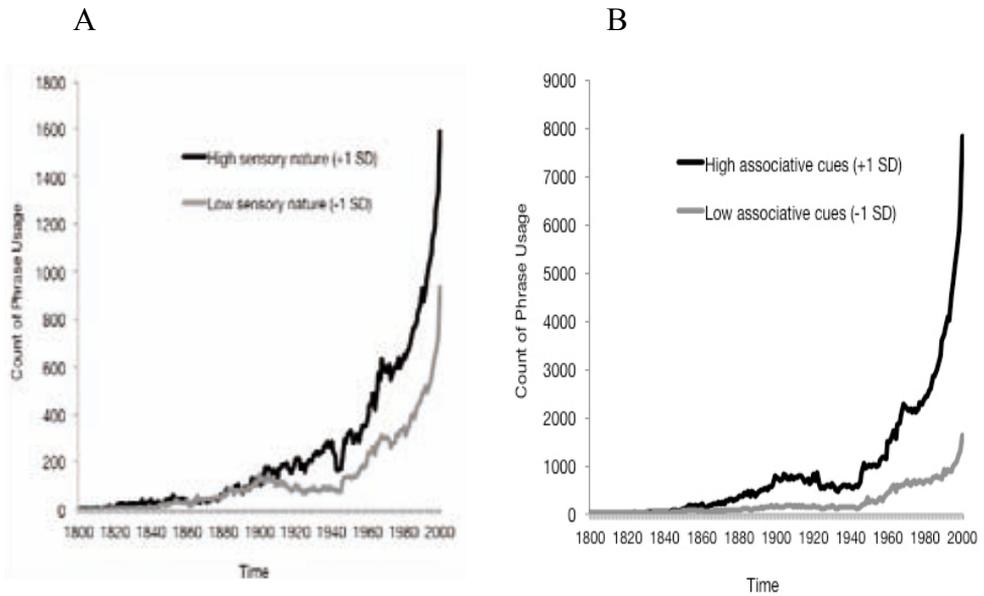
Table 3: Sensory Metaphors with Higher Sensory Nature and Associative Cues are Used More Frequently over Time (Study 3)

Model Term	Coefficient (β)	Exponential Coefficient (Exp β)
Intercept	1.579 (.000)	4.850
Time	.026* (.000)	1.026
Sensory Nature	-.452* (.000)	.636
Associative Cues	-.524* (.000)	.592
Time*Sensory Nature	**.001* (.05)**	**1.001**
Time * Associative Cues	**.003* (.000)**	**1.003**

*Significant at .05% level. Values in parentheses stand for p values.
Main parameters of interest are in bold. Other parameters are control variables.
The Poisson regression expresses the log of usage as a linear function of the predictors.
β can be interpreted as increase/decrease in the log of the usage, and Exp β as unit increase/decrease in the usage.

Study 4: Sensory Nature or Metaphorical Nature?

We showed that the success of sensory metaphors is driven by their sensory, rather than metaphorical nature. Study 4 uses the same books database and further tests this idea by comparing the cultural success of sensory and non-sensory metaphors.

Method

We used the sensory metaphors from Study 3 and collected non-sensory metaphors (e.g., healthy market, stubborn stain) from the Master Metaphors List (Lakoff, Espenson and Schwarz 2012). To generate a reasonable number of phrases (N = 49) we allowed them to be up to four words long. Next, we used the Google Books corpus to measure how frequently each sensory and non-sensory metaphor was used from 1800 to 2000. We tested whether sensory metaphors were used more frequently over time compared to non-sensory metaphors using a similar model used in Study 1.

Results

Compared to non-sensory metaphors, sensory metaphors became more successful over time, $\beta_{\text{Time*Sensory Metaphors}}$ = .005, p < .001 (Figure 17, Table 4). The usage of non-sensory metaphors increased over time, β_{Time} = .024, p < .001, but the use of sensory metaphors increased even more sharply, β_{Time} = .029, p < .001.

Ancillary analyses show that these results were not driven by the fact that the sensory metaphors were somehow more familiar. Three independent coders rated the familiarity of each phrase (1 = not at all familiar, 3 = extremely familiar, α = .67). We then ran three separate models comparing sensory and non-sensory metaphors at each level of

familiarity. The results remain the same: sensory metaphors are more successful over time (Table 4).

Table 4: Sensory Metaphors are Used More Frequently than Non-Sensory Metaphors over Time (Study 4)

Model Term	Full Model	Familiarity=1	Familiarity=2	Familiarity=3
		Coefficients(β)		
Intercept	1.235 (.000)	-.123 (.519)	1.285 (.000)	1.365 (.000)
Time	**.024*** **(000)**	**.022*** **(.000)**	**.018*** **(.000)**	**.027*** **(.000)**
Time*Sensor Metaphors	**.005*** **(.000)**	**.005*** **(000)**	**.006*** **(.000)**	**.002*** **(.000)**

*Significant at .05% level. Values in parentheses stand for p values.
Main parameters of interest are indicated in bold.
Sensory metaphors are coded as 1, and non-sensory metaphors are coded as 0.
The Poisson regression expresses the log of usage as a linear function of the predictors.
B can be interpreted as increase/decrease in the log of the usage**.**

Combined with the results of Study 3, Study 4's findings underscore the notion that it is their sensory nature in particular, rather than their metaphorical nature, that contributes to sensory metaphors' cultural success. One might wonder whether sensory phrases in general, even those without metaphorical meaning, might also have increased success. While sensory phrases with primary meaning (e.g., warm weather) do relate to the senses, they compete only against other sensory phrases (e.g., hot weather) for use. Consequently, their usage is less likely

to depend on their sensory nature per se (which should be similar across competitors) and more by the prevalence of situations in which they could potentially be used (i.e., the actual temperature).

Figure 17: Sensory Metaphors are More Successful than Non-Sensory Metaphors (Study 4)
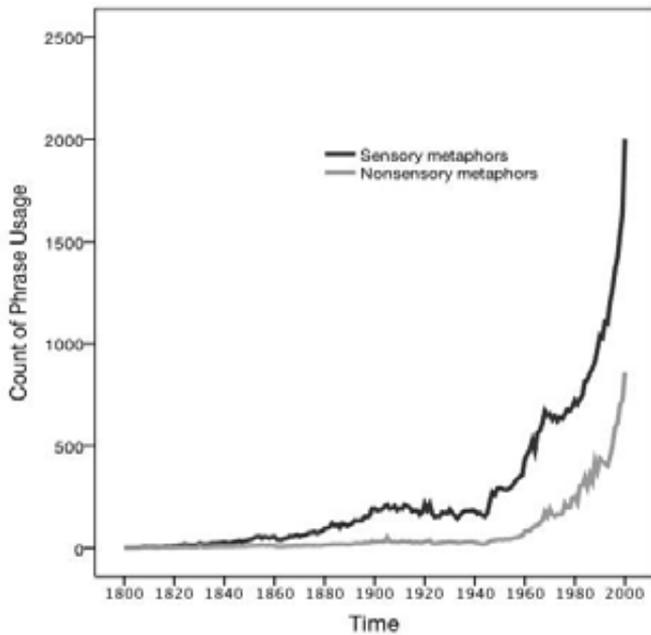
Study 5: A Broader Set of Sensory Metaphors

Study 5 tests the generalizability of our effects by using an alternate method to generate a broader set of sensory metaphors.

Method

It may be difficult for people to generate sensory metaphors that are no longer popular, so we used a rigorous procedure to generate a comprehensive list of sensory metaphors that could have existed at any point in time. First, the online resources used in Study 1 were used again to generate the list of sensory adjectives for (N = 366). To form a list of nouns (N = 1575), we used the word list Oxford 3000 (2007) which is a list of words selected by language experts for their importance and usefulness in the English language. We then combined these two lists to form all possible combinations (N = 576,450).

Second, we retrieved the usage counts for each combination from Google Books corpus. Not surprisingly, many of the combinations did not make sense, or were never used with any frequency, so we filtered out any phrases that were used less than 5000 times in the last 200 years.

Third, to ensure that the combinations were actually sensory metaphors (rather than sensory phrases with primary meanings e.g., cold water) we took the remaining 5432 phrases, gave independent coders a definition of sensory metaphors, and had them rate each phrase on whether or not it was a sensory metaphor (1 = definitively not a sensory metaphor, 3 = definitely a sensory metaphor). Phrases rated as definitely sensory metaphors (N = 377) were retained for further analysis.

Similar to Study 3, we also examined whether phrases that had higher sensory nature and more associative cues were used more

frequently over time. Two sets of four coders each used 7-point scales to rate the final set of sensory metaphors on either how much they relate to senses or how many associations they have with other words and ideas (α's = .63 and .69 respectively). We retrieved phrase usage counts each year from 1800 to 2000 from the Books corpus, and applied the same model used in Study 3.

Results

Consistent with our other studies, usage of sensory metaphors increased over time, β_{Time} = .013, $p < .001$. Further, the rate of increase was higher for sensory metaphors that are more sensory in nature, $\beta_{Time*Sensory\ Nature}$ = .001, $p < .001$ and have more associative cues, $\beta_{Time*Associative\ Cues}$ = 1.782E-5, $p < .05$ (Figure 18 and Table 5). The fact that these effects persist using a vastly different method of phrase generation suggests that they are not restricted to the particular set of phrases used.

Figure 18: Sensory Metaphors with Higher Sensory Nature (A) and Associative Cues (B) are More Successful (Study 5)

A   B
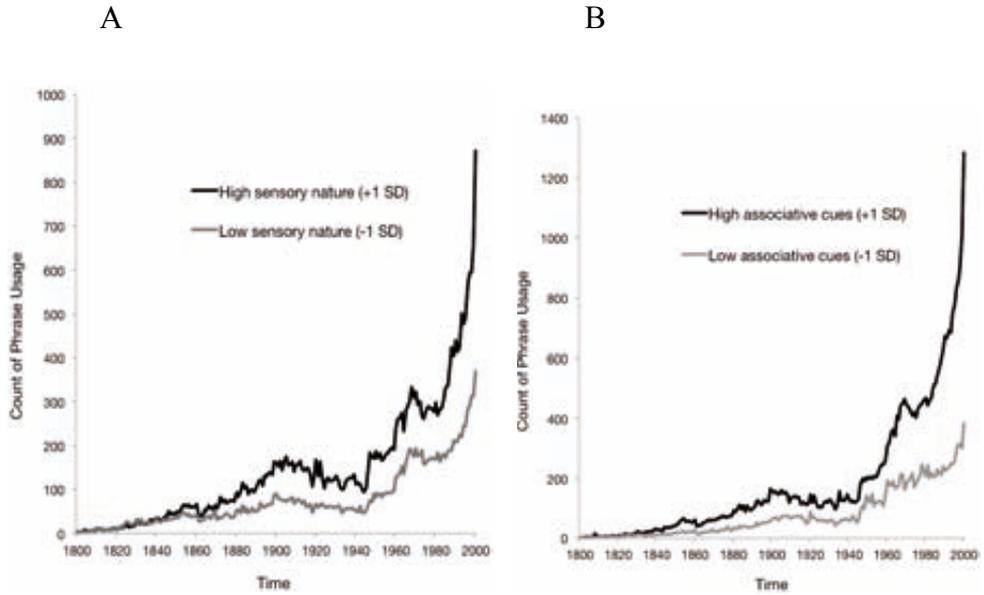
Table 5: Sensory Metaphors with Higher Sensory Nature and Associative
Cues are Used More Frequently over Time (Study 5)

Model Term	Coefficient(β)	Exponential Coefficient (Exp β)
Intercept	2.143* (.000)	8.524
Time	.013* (.000)	1.013
Sensory Nature	-.093* (.000)	.912
Associative Cues	.100* (.000)	1.106
Time* Sensory Nature	**.001* (.000)**	**1.001**
Time *Associative Cues	**1.782E-5 * (.01)**	**1.000**

*Significant at .05% level. Values in parentheses stand for p values.
Main parameters of interest are in bold. The Poisson regression expresses the log of usage as a linear function of the predictors. β can be interpreted as increase/decrease in the log of the usage, and Exp β as unit increase/decrease in the usage.

Study 6: Implications for Advertising

Study 6 applies the results demonstrated in the advertising context. Given the rise of social media, advertisers are interested in creating catchy and more memorable ads. This study aims to show that advertising slogans with sensory metaphors will make slogans more memorable. We gave experimental participants a series of ad copies either created with sensory

metaphors or matched sematic analogues to test whether sensory metaphors make ads more memorable.

Method

Forty-seven participants were assigned to one of two ad copies that contained slogans either with a sensory slogan ("You always receive a *warm welcome* from Hover Airlines") or its semantic analogue ("You always receive a *friendly welcome* from Hover airlines") in randomized order. After some unrelated filler tasks, participants completed an unaided-recall task where they were asked to remember as many words as possible from the advertising slogan. We tested whether the ad slogan with sensory metaphor was recalled more compared to the ad slogan with semantic analogue.

Results

Consistent with our results in Study 3, the sensory metaphor was more likely to be recalled than its semantic analogue, $M_{Sensory} = 50\%$; $M_{Semantic} = 12\%$; $\chi(1) = 8.08$, p = .005. Further, the ad slogan with sensory metaphor was more likely to be recalled compared to the ad slogan with semantic analogue. While participants could remember 87% of the whole ad slogan with a sensory metaphor, participants could remember 65% of

the ad slogan with semantic analogue, $F(1,45) = 6.57$, $p = .001$.[12] This study provides initial empirical evidence to demonstrate that sensory metaphors can be used to create memorable and catchy advertising, which might get more popular over time.

4.3 General Discussion

Taken together, these findings identify a potential mechanism through which the senses shape linguistic success. Sensory metaphors became more culturally successful than their semantic analogues and are more memorable because of their higher sensory nature and associative cues. Given the innate, pancultural nature of sensory experience (Landau, Keefer, and Meier 2011; Shepard 1984), the success of sensory metaphors should also hold in other language families (e.g., Afro-Asiatic, Sino-Tibetan).

Using sensory metaphors in speech may also facilitate interpersonal interaction. Given the basic nature of sensory experience, sensory metaphors should provide common ground (Clark, 1996) between

[12] We have also used two other advertising slogans created with sensory metaphors ("Have a bright smile with Crown Toothpaste"; "Life can get hard, Kohl Mascara") and semantic analogues ("Have a happy smile with Crown Toothpaste"; "Life can get difficult, Kohl Mascara"). When aggregated across three sets of semantic phrases and semantic analogues (n=65), the results still hold. Sensory metaphors were more likely to be recalled ($M_{Sensory} = 67\%$; $M_{Semantic} = 35\%$; $\chi(1) = 8.95$, $p = .003$). Further, ad slogans with sensory metaphors were more likely to be recalled compared to ad slogans with semantic analogues. While participants could remember 71% of the whole ad slogan with sensory metaphors, participants could remember 54% of the ad slogan with semantic analogues, $F(1,128) = 8.95$, $p = .003$.

interaction partners. Consequently, referring to this bedrock level of universally shared human experience may strengthen social bonds, enhance conversation flow, and foster idea exchange.

4.3.1 Theoretical and Managerial Contributions

This research extends recent work on embodied cognition from typically short-term laboratory effects to longer-term cultural-linguistic patterns. Through metaphorical scaffolding, incidental sensory experiences (e.g. touching hard objects) can shape seemingly unrelated judgments (e.g. seeing an interaction partner as rigid, Ackerman, Nocera and Bargh 2010). We extend this work to show that similar scaffolding processes impact the cultural success of sensory metaphors, and their memorability. Further research might examine whether priming foundational physical concepts (e.g., distance and temperature) makes the corresponding sensory metaphors easier to encode and retrieve and, as a consequence, used more frequently.

These findings also bolster recent theorizing on the psychological foundations of culture (Kashima 2008; Schaller and Crandall 2004) and the role of the brain in shaping language evolution (Chater, Reali and Christiansen 2009; Christiansen and Chater 2008). Some have argued that culture is comprised of many individual units, or memes, that are similar to their genetic equivalents, undergo variation, selection, and retention (Dawkins, 1976). When shared across individuals, psychological processes

can act as selection mechanisms, shaping the language, norms, and institutions that make up culture (Heath, Bell and Strenberg 2001; Markus and Kitayama 1991). In this case, the metaphorical link between language and sensory experience may help shape cultural success.

This research has also important managerial implications. In the clutter of advertising, marketers aim to create catchy ad slogans (e.g., Just Do It) that get contagious. Consumers often talk about content that are accessible (Berger and Schwartz 2011), so ad slogans that are recalled more may also initiate further word of mouth during offline conversations. This research suggests that using sensory metaphors in ads (e.g., "Taste the Rain Rainbow" ad slogan by *Skittles*) could lead to more memorable, and therefore successful advertising content.

Chapter 5. General Discussion

5.1 Summary

This dissertation investigates the psychological drivers of consumer information sharing while illustrating content-related characteristics that shape social transmission and, more broadly, cultural success. Both Chapter 2 and Chapter 3 focused on the psychological drivers of word of mouth and their outcomes at an individual level. Chapter 2 examined the psychological drivers of product harm sharing. Chapter 2 demonstrated that, under both chronic (Study 1) and primed independent self-construal (Study 2 and 3), individuals were less likely to share product harm information that has higher self-relevance. However, the negative effect of self-relevance on sharing was attenuated under independent self-construal (Study 3 and 4). Study 2 established a boundary condition for the effect of self-relevance on sharing, as it demonstrated that self-relevance decreased the likelihood of sharing when the severity of the risk was high. This research also provided evidence for the mechanisms underlying the observed effects. Study 4 demonstrated that a) defensive processes (pronounced under independent self-construal) and b) the desire to reduce one's own worries (pronounced under interdependent self-construal) acted as opposing drivers that shape how product harm information is shared. Overall, Chapter 2 demonstrated that product harm

information is shared less when highly self-relevant and severe, but priming individuals with interdependent self-construal can attenuate the reduction in the likelihood of sharing.

Chapter 3 explored the psychological drivers of online content that is both shared and valuable to the brand. By using a combination of field data and experiments, Chapter 3 demonstrated that different types of advertising appeals (soft sell integral vs. soft sell not integral vs. hard sell) affected ad and brand-related outcomes differently. The results reveal that compared to hard sells, soft sell appeals improve ad-related outcomes. That is, soft sell appeals increase the share rate (Study 1), the willingness to share (studies 2 and 3) and ad evaluations (Study 2 and 3). In contrast, hard sell ads improve brand-related outcomes. They increase brand evaluations and purchase likelihood (Study 2 and 3). Soft sell ads in which the product is integral to the plot (soft sell integral appeals) solve this conundrum, as they provide the best of both approaches. They improve ad-related outcomes (i.e., the share rate (Study 1), the willingness to share (Study 2 and 3) and ad evaluation (Study 2 and 3), while also facilitating favorable outcomes for the brand (i.e., brand evaluation, brand recall and purchase likelihood (Study 2, 3 and 4)). Chapter 3 also identified the mechanisms underlying these effects. Study 3 demonstrated that soft sell integral appeals increase brand knowledge and reduce negative inferences concerning persuasion attempts, which jointly improve favorable brand-related outcomes. Overall, Chapter 3 demonstrated that soft sell integral

appeals increase sharing while also providing downstream benefits to the brand.

The final empirical section, Chapter 4, demonstrated how individual psychological processes shape collective outcomes. Using a combination of secondary data and lab experiments across five studies, Chapter 4 demonstrated that senses shape linguistic success. More specifically, it revealed that compared to semantic equivalents, sensory metaphors are used more frequently over time by analyzing a corpus that contains over 5 million digitized books. The effects hold across different sensory modalities (e.g., sound, touch and taste, Study 1). This research provided evidence that sensory metaphors become more successful over time because they are more likely to be recalled. Ease of recall is driven by these metaphors' sensory nature and higher number of associative cues (Study 2 and 3). Demonstrating that these results are not due to other factors, such as being interesting, descriptive, concrete or evoking a greater emotional response, rules out further alternative explanations. Studies 3 and 4, together, combined secondary data and laboratory experiments and underscored the notion that the success of sensory metaphors is driven by their sensory nature in particular, rather than their metaphorical nature. Study 5 generalized the findings using a broader set of stimuli and replicated the effects. Finally, Study 6 demonstrated a practical implication of the theory, showing that more memorable advertising slogans could be crafted by using sensory metaphors. In sum, Chapter 4 demonstrated that psychological processes, in this case relating

linguistic variants to sensory information, shape memory at an individual level, which in turn can shape collective outcomes (i.e., cultural linguistic success).

5.2 Theoretical Contributions and Future Research

This dissertation offers substantive theoretical contributions to diverse fields of research while determining the psychological drivers of consumer information sharing and contributes to the current research on social transmission more broadly. While there is a great deal of work on word of mouth, this dissertation provides two novel contributions. First, the majority of existing work has focused on why consumers discuss brands (e.g., Berger and Schwartz 2011), their product experiences (e.g., De Angelis et al. 2012; Moldovan, Goldenberg and Chattopadhyay 2011) or share certain news articles to a greater extent (Berger and Milkman 2012). There is limited work on: a) consumer-generated content not based on personal experiences but obtained from external sources (Chapter 2) and b) company-generated advertising content (Chapter 3). Second, while there is a growing body of quantitative work revealing the consequences of word of mouth (Chintagunta, Gopinath, and Venkataraman 2010; de Bruyn et al. 2008; Godes and Mayzlin 2009; Hinz et al. 2011; Toubia and Stephen 2013; Trusov, Bucklin, and Pauwels 2009), little work has combined the two perspectives and shown how psychological processes at an individual level can shape collectives outcomes at an aggregate level

(Chapter 4). In the following sections, I discuss the theoretical contributions of each chapter in detail, as well the future research questions raised by this dissertation.

5.2.1 What Makes Consumers Share Product Harm Information?

Existing research on word of mouth has primarily focused on positive and negative information shared about products based on consumers' own experiences (De Angelis et al. 2012; Moore 2012). Chapter 2 of this dissertation fills a gap in the literature by focusing on why consumers share negative hearsay that is not directly related to their own experiences but is encountered in other sources such as media reports and rumors among consumers. Research suggests that when consumers have a high level of interest in a product category, they are more likely to share such self-relevant information about products with others (Dawar, Parker and Price 1996; Sundaram, Mitra and Webster 1998). On the contrary, Chapter 2 of this dissertation has shown that this is not always the case. Bridging the literature on word of mouth and health psychology, Chapter 2 demonstrates that consumers are *less* likely to share product harm information when it has high self-relevance because they exhibit defensive processes against the threat.

The second important contribution of Chapter 2 is that it reveals the conditions in which the sharing of product harm information can be

influenced. Because the content of the information that consumers share is often difficult to control, such interpersonal communication can be moderated by the relationship between the sender and the recipient, which is the other important factor that shapes word of mouth (Berger 2012). While it might be difficult to manipulate the relationship dynamics between the communicating parties (i.e., tie-strength, similarity; De Bruyn and Lilien 2008), research has demonstrated that the way individuals perceive themselves in relation to others (self-construal) can be temporarily manipulated through environmental cues. Chapter 2 demonstrated that by manipulating self-construal, the negative effect of high self-relevance on the sharing of product harm information is attenuated under interdependent self-construal. These findings are also important for consumers' welfare, as consumers might be encouraged to discuss products' health risks via self-construal manipulation.

Chapter 2 prompts several interesting research questions. First, future research could explore how the precise content of the information influences product harm sharing. In Chapter 2, we focused on product harm information specific to the product categories (e.g., plastic bottles, caffeinated drinks), but such content could also relate to specific brands (e.g., Mattel's plastic products, Zara's chemically processed jeans) or issues that are not necessarily relevant to one's own health (e.g., harm inflicted on animals in product tests). Future research could explore how brand commitment or relevance to certain others could influence product harm information sharing. Second, this research focused on hearsay, while

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there could be product harm information based on consumers' own experiences. Investigating the different mechanisms that shape the sharing of such content under different levels of self-construal awaits further research. Finally, while Chapter 2 demonstrated that self-construal shapes product harm information sharing, the effect of different characteristics of communicating parties (e.g., size, type, and audience) warrants further research. For instance, well-connected people can reach many people but do not have more influence compared to less well-connected people (Hinz et al. 2011). Could it be that people with different levels of connection are more successful in being influential under different levels of self-construal? This is, would sharing under interdependent self-construal make well-connected consumers more influential in spreading product harm information? These are interesting research questions that would certainly extend the important findings reported in Chapter 2.

5.2.2 Valuable Virality

While previous work on word of mouth has primarily focused on the causes of word of mouth, Chapter 3 of this dissertation also investigated the consequences of word of mouth and combined the causes and consequences of word of mouth to understand when it most benefits the brand. Research suggests that consumers are reluctant to share advertisements that appear to be direct sales attempts because they do not enjoy being perceived as shilling for brands (Darke and Ritchie 2007;

Verlegh, Verkerk, Tuk and Smidts 2004). However, research suggests that the ads that go viral are often those that are not particularly persuasive (Tucker 2012). Therefore, could it be that the viral ads do not meaningfully improve brand-related outcomes? Chapter 3 solves this conundrum and presents conditions in which ads can both go viral and help the brand.

The second important contribution of Chapter 3 is that it bridges the gap between the word of mouth and advertising literatures and demonstrated important conditions in which prior findings in advertising may be reversed. While the existing advertising literature suggests that soft sell appeals should help brands (Ang, Lee, Leong 2007; Pieters, Warlop and Wedel 2002), this dissertation has shown that this is not always the case. Chapter 3 demonstrated that soft sell appeals actually harm brand-related outcomes when the brand is not an integral part of the plot. Soft sell appeals in which the brand is integral to the plot increase brand knowledge and reduce negative inferences about persuasive attempts, which in turn increase brand evaluations and purchase intentions, as shown in Chapter 3.

Chapter 3 raises several interesting research questions. One important issue to explore is how different aspects can be used to make brands integral and which aspects would be most effective. For instance, while our studies used content (e.g., Foam City) well-suited to the product category (e.g., soap), in some instances it might be important to make the product features or brand image an integral part of the plot. Another

important question is how brand placements affect ad- and brand-related outcomes. While only revealing the brand at the very end of a commercial might reduce overt branding, it might also lead consumers to perceive an attempt at manipulation, as our results suggest. Future research should examine how the frequency and placement of brands could be optimized to benefit the brands and ads simultaneously. Future research could also examine which type of soft sell appeal is more valuable and viral. Advertisers occasionally use controversial content, polysemy or celebrity endorsers in an effort to create viral content, but not all such attempts produce the intended consequences (Puntoni, Schroeder and Ritson 2010). It is important to understand how different types of content can become both valuable and viral for the brands. While this dissertation focused on company-generated content in Chapter 3, some companies have recently shifted to a strategy of co-creating their ads with their consumers. Some recent work suggests that consumer-generated content could be more convincing than market generated content (Bronner and de Hoog 2010). Future research should examine whether consumer co-created ads are less likely to generate persuasive inferences and more valuable virality. Finally, while companies expect their customers to spread the content over different social media platforms, these channels might not be equally effective. Recent work suggests that certain blogging sites (i.e., Twitter) make consumers less active and less likely to share brand related content as the channel matures (Toubia and Stephen 2013). Thus, companies should test further which type of platforms are the most effective through

the different stages of consumer decision process for viral marketing campaigns. Could it be that broadcasting platforms (e.g., Twitter) are more effective for creating awareness and interest, whereas narrowcasting platforms (e.g., emails, Facebook) are more effective for creating sharing among consumers? These are important research questions that would provide further managerial implications for the findings reported in Chapter 3.

5.2.3 How Senses Shape Cultural Success

While there substantial academic attention has been devoted to demonstrating the collective outcomes of word of mouth (e.g., Chevalier and Mayzlin 2006; Chintagunta, Gopinath, and Venkataraman 2010; Godes and Mayzlin 2009; Trusov, Bucklin, and Pauwels 2009) and social transmission more broadly (e.g., Muchnik, Aral and Taylor 2013; Sharad, Watts and Goldstein 2012), little work (i.e., Berger and Le Mens 2009; McShane, Bradlow and Berger 2012) has focused on understanding how individual processes can explain collective outcomes. Chapter 4 contributes a broader perspective and provides a novel theoretical contribution by demonstrating how social transmission influences cultural success in the linguistic domain.

Chapter 4 demonstrated that senses shape linguistic success, and this finding contributes to two main research streams. First, it extends

recent work on embodied cognition, which has shown that sensory experiences can shape judgments and decisions (e.g., Ackerman, Nocera and Bargh 2010; Lee and Schwarz 2010; Zhong and Liljenquist 2006) such as laboratory effects that persist for relatively short periods of time and cultural patterns in language that exist over long-term periods. Chapter 4 reveals that similar scaffolding processes can shape the memorability of phrases, which in turn explains higher usage over time.

The second important contribution of Chapter 4 is that it combines the psychological foundations of culture (e.g., Kashima 2008; Schaller and Crandall 2004) with the role of the brain in shaping the evolution of language (e.g., Chater, Reali and Christiansen 2009; Christiansen and Chater 2008). This work shows that psychological processes at a cognitive level shape the language, which is one of the key aspects of culture (Markus and Kitayama 1991). Finally, Chapter 4 has clear implications for advertising. We have shown that using sensory metaphors could improve recall of slogans, which advertisers can use to create contagious slogans.

Chapter 4 raises several important research questions. While we focused on the collective outcomes of using sensory metaphors, further research could adopt a micro-level perspective and investigate how using sensory metaphors influences conversations among individuals. Given the innate nature of sensory experiences, sensory metaphors could provide a common ground (Clark, 1996) among individuals and enhance conversation flow. Another interesting question concerns how brief sensory experiences (e.g., through priming methods in experimental

laboratory studies) could influence the use of sensory metaphors. Is it possible that being primed with sensory experiences increases the use of sensory metaphors in language? Furthermore, while sensory metaphors in general become more common over time, it would be interesting to understand who is more likely to use such phrases. For example, research has shown that individuals who feel more powerful have greater access to their bodily experiences (Guinote 2009), which might make them more likely to employ metaphorical phrases. Finally, with the advent of new social media, the interactions among consumers take place also through different mobile platforms. The sensory input of the content shared can vary across different channels (Libai et al. 2010). A mobile consumer interaction might be text based (e.g., tweet or email), or visual and sound based e.g., a photo or viral video). Investigating the effect of using sensory metaphors (compared to semantic analogues) across these diverse channels on creating viral content might be fruitful for further research.

5.3 Practical Contributions

The findings of this dissertation also have important practical implications. Drivers of word of mouth have been studied in various domains, including the health effects of products, viral online content and the success of linguistic units. These findings have not only implications for managers but also for consumer welfare and public policy makers and

the foundations of culture more generally. Below, I will summarize the various implications of each empirical chapter.

Chapter 2 has practical implications both for policy makers and marketers. First, our findings have important implications for policy makers who would like to encourage communication about health concerns. We provide evidence that by priming interdependent self-construal with environmental cues, consumers can be positively influenced to share product harm information with others. Second, our findings have important implications for managers who would like to take control of product harm information that is becoming contagious. Rather than applying a single approach, they should pursue different strategies based on the relevance of the information for different consumer segments (e.g., heavy users, geographic segments with high usage).

Chapter 3 has important marketing implications for understanding how to create content that is both shared and beneficial to the brand. It helps companies devise more effective word of mouth marketing campaigns. We provide an important reminder of how to design effective viral ads. Our results suggest that if the viral ad could just as easily be for an entirely different brand or product category, it is less likely to be effective. Our results can be applied to other types of company-generated content (e.g., online games, interactive ads or mobile apps).

Chapter 4 has broad implications for multi disciplines. Language is a fundamental aspect of human societies and integral part of everyday life. Understanding the psychological drivers of linguistic persistence is a

fundamental contribution to understanding the foundations of culture. Chapter 4 demonstrates that sensory experiences can even influence which phrases catch on and become culturally pervasive. These findings have important implications for managers. By using sensory metaphors, more catchy slogans that are easier to recall can be designed.

5.4 Conclusion

In this dissertation, I addressed the psychological drivers of consumer information sharing by integrating various research perspectives. I explored this phenomenon in terms of organic word of mouth (i.e., product harm information), fertilized word of mouth (i.e., viral online content) using individual-level outcomes and content that becomes shared and successful at a collective level (e.g., linguistic persistence). By identifying distinct drivers of information sharing, this dissertation illustrates how certain aspects of content (i.e., relevance of information, advertising appeals, linguistic units that relate to the senses) makes certain messages more socially transmittable than others.

Social transmission is a complex phenomenon, and especially due to the rise of social media, it now receives substantially more attention among both marketing practitioners and scholars. In this dissertation, I attempted to unravel the drivers of social transmission; however, there are several interesting and important questions that remain unexplored beyond those that I have raised in the preceding sections.

In conclusion, I would like to raise three perspectives that I believe will contribute to future studies of social transmission. First, this is an era of "big data," where there are several resources for studying social transmission such as blogs, online reviews, and tweets that are reflections of actual sharing behavior. In Chapter 3 and Chapter 4, I used viral video lists and a book corpus, respectively, which allowed me to study what causes advertisements to be shared and how language has been shaped over the course of 200 years. Using big data will help researchers understand complex phenomena such as social transmission, as they provide access to several variables that we would not be able to measure directly.

Second, social transmission should be studied through multi-disciplinary approach. While a substantial body of quantitative research has examined the consequences of word of mouth and social transmission, little work has attempted to understand the psychological drivers of these outcomes. As demonstrated in the three empirical chapters of this dissertation, various, distinct individual psychological processes can explain sharing behavior and relate to various different disciplines (e.g., health psychology in Chapter 2, advertising in Chapter 3 and linguistics and the processing of sensory information in Chapter 4). Further research should adopt an interdisciplinary approach and apply more innovative techniques such as neuroscientific methods rather than simply conducting laboratory experiments to tease out psychological processes.

Finally, while it is important to understand the dynamics of social transmission among consumers, it is also important to generate insights that have value for practitioners and social welfare more generally. In this dissertation, I provide practically relevant results that can help both marketers and public-policy makers understand when consumers discuss health risks (Chapter 2), when advertisements can go viral and contribute to marketers' brands (Chapter 3) and how language evolves over time, providing an understanding of foundations of culture and implications for advertising (Chapter 4). I hope that this dissertation will inspire further work that seeks to identify and explain consumer sharing mechanisms using novel techniques and stimulate multi-disciplinary research.

Table S1. *Sensory Metaphors and Semantic Analogues*

Set	Sensory Metaphor	1st Semantic Analog	2nd Semantic Analog	3rd Semantic Analog
1	Loud color	Flamboyant color	Flashy color	Showy color
2	Cold person	Distant person	Unfriendly person	Unpleasant person
3	Dark side	Evil side	Immoral side	Sinful side
4	Dark moments	Gloomy moments	Sad moments	Unhappy moments
5	Dirty joke	Crude joke	Obscene joke	Vulgar joke
6	Dirty look	Cross look	Disapproving look	Hostile look
7	Hard test	Challenging test	Demanding test	Difficult test
8	Hard work	Challenging work	Demanding work	Difficult work
9	Hot spot	Hip spot	Popular spot	Trendy spot
10	Rough estimate	Approximate estimate	Ballpark estimate	Close estimate
11	Sharp increase	Quick increase	Severe increase	Sudden increase
12	Warm smile	Friendly smile	Kind smile	Welcoming smile
13	Concrete evidence	Actual evidence	Certain evidence	Real evidence
14	Warm welcome	Friendly welcome	Kind welcome	Sincere welcome
15	Solid argument	Convincing argument	Reliable argument	Sound argument
16	Bitter person	Annoyed person	Displeased person	Resentful person
17	Sweet nature	Friendly nature	Good nature	Pleasant nature
18	Bitter lesson	Harsh lesson	Painful lesson	Unpleasant lesson
19	Bright future	Optimist future	Positive future	Promising future
20	Bright smile	Cheerful smile	Happy smile	Sunny smile
21	Bright student	Clever student	Intelligent student	Smart student
22	Clear evidence	Apparent evidence	Obvious evidence	Sure evidence
23	Clear language	Coherent language	Comprehensive language	Understandable language
24	Colorful person	Eclectic personality	Exciting personality	Lively personality
25	Flat tone	Boring tone	Dreary tone	Lifeless tone
26	Short reply	Curt reply	Rude reply	Uncivil reply
27	Small changes	Insignificant changes	Minor changes	Slight changes
28	Strong argument	Compelling argument	Convincing argument	Persuasive argument
29	Strong supporter	Fervent supporter	Loyal supporter	Passionate supporter
30	Sharp mind	Clever mind	Intelligent mind	Quick mind
31	Straight face	Emotionless face	Poker face	Serious face
32	Big problem	Considerable problem	Prominent problem	Substantive problem

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Summary (English)

Consumers often share experiences, opinions or certain content with others. For example, they suggest restaurants, recommend article posts, share online videos, pass along rumors and complain about customer services. Such word of mouth determines what catches on and becomes popular, and therefore has important implications for consumer behavior. With the rise of social media, word of mouth has received even more interest by both academic scholars and marketers. Whereas much research has shown that word of mouth is frequent and important, there has been limited work on understanding what makes certain content more shared than others. This dissertation fills this gap, and explored the psychological drivers that shape consumer information sharing and more broadly cultural success. It integrates various research perspectives and illustrates particular content characteristics that make people share some content more than others.

The first two essays of this dissertation focus on psychological drivers of sharing behavior with individual level outcomes. Chapter 2 shows that high self-relevance (as opposed to low self-relevance) reduces the likelihood of sharing product harm information. This process is moderated by consumer self-construal (independent vs. interdependent). Chapter 3 explores how advertising content can get viral, and how and when this virality benefits the brand. It shows that soft sell appeals where the brand is integral to the plot boost sharing while also bolstering brand-related outcomes. Chapter 4 shows that content characteristics can also

shape collective outcomes. Using field data and experiments, it shows that phrases that relate to senses in metaphoric ways (e.g., a cold person) are more memorable than their semantic equivalents (e.g, an unfriendly person). This contributes to their cultural success, meaning that the use of phrases related to the senses is more widespread and persistent over time.

From a theoretical point of view, this dissertation has a cross-disciplinary contribution to the fields of health psychology, advertising, persuasion knowledge, language, embodied cognition and foundations of culture. The practical implications of this dissertation should be of high interest to public policy makers striving to protect consumers from detrimental health effects of products, for marketers trying to take control in product harm crises, and for advertising practitioners seeking to develop viral content that helps their brands, and slogans that catch on.

Summary (Dutch)

Consumenten delen ervaringen, meningen of content vaak met anderen. Ze bevelen bijvoorbeeld restaurants of artikelen aan, delen filmpjes online, wisselen de laatste roddels uit of klagen over klantenservice. Het zijn deze mond-tot-mond-uitingen (Word of Mouth, WoM) die bepalen wat 'in' is en wat niet, en daarmee hebben ze een belangrijke invloed op het gedrag van consumenten. Met de opmars van de sociale media krijgen ook de wetenschap en de marketing steeds meer aandacht voor WoM. Hoewel verschillende studies hebben uitgewezen dat WoM een belangrijke en veelgebruikte strategie is, is er nog maar weinig onderzoek gedaan naar de vraag waarom bepaalde content meer gedeeld wordt dan andere. Dit proefschrift vult deze lacune en onderzoekt de psychologische drivers die het delen van informatie door consumenten sturen. Het proefschrift integreert verschillende onderzoeksbenaderingen en belicht welke kenmerken en factoren ervoor zorgen dat bepaalde content meer gedeeld wordt dan andere.

In de eerste twee essays van dit proefschrift staan de psychologische drivers van deelgedrag centraal op individueel gedrag. In hoofdstuk 2 wordt aangetoond dat hoge zelfrelevantie (in tegenstelling tot lage zelfrelevantie) ledit tot een afname in het delen van informatie over de schadelijkheid van producten. Dit proces wordt gemodereerd door de *self-construal* van consumenten (onafhankelijk of wederzijds-afhankelijk). In hoofdstuk 3 wordt de viraliteit van reclamefilmpjes onderzocht en wanneer en op welke manieren een merk hiervan profiteert. Het blijkt dat een

softsell-benadering waarbij het merk een integraal onderdeel van het verhaal uitmaakt, consumenten aanzet tot het delen van reclamefilmpjes met anderen en tegelijkertijd merkgerelateerde uitkomsten versterkt. Hoofdstuk 4 laat zien dat de kenmerken van content ook collectieve uitkomsten kunnen vormgeven. Met behulp van velddata en experimenten wordt aangetoond dat zinnen die op metaforische wijzen aan de zintuigen refereren (bijv. een koude persoon) beter beklijven dan hun semantische equivalenten (bijv. een onvriendelijke persoon). Dit draagt bij aan het gebruik van dergelijke uitdrukkingen en hun culturele succes op de langere termijn.

Vanuit theoretisch oogpunt is deze dissertatie een discipline-overstijgende bijdrage, die relateert aan gezondheidspsychologie, reclame, overtuigingskracht, taal, belichaamde cognitie en cultuurgrondslagen. De praktische implicaties van dit proefschrift zijn van groot belang voor beleidsmakers die zich bezig houden met consumentenbescherming op het gebied van gezondheidseffecten van producten, voor voorlichters die moeten optreden bij problemen rondom schadelijke producten en voor reclamemakers die viral content willen ontwikkelen om hun merken te ondersteunen en slogans te bedenken die aanslaan.

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About the author

Ezgi Akpinar was born in Adapazari, Turkey on January 29th, 1984. She received her Bachelors' with honors in Economics and Business Administration from the Koc University in Turkey, Master's degree in Marketing from the Tilburg University in the Netherlands. Before starting her Ph.D., she worked as a consultant in the Nielsen, conducting market research for clients in the FMCG sector. Her main research interests concern word of mouth marketing, advertising and social contagion. She presented her work at leading international conferences such as the Association for Consumer Research, the Society for Consumer Psychology and the European Marketing Academy Conference. The empirical chapters of this dissertation have been invited for revision in the top-tier academic journals including the Journal of Marketing Research and the Proceedings of Natural Academy of Sciences. She was a visiting scholar at the Wharton Business School at the University of Pennsylvania in 2012. Since September 2013, she is working as an Assistant Professor in Marketing at the Vrije University, Amsterdam.

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CONSUMER INFORMATION SHARING

UNDERSTANDING PSYCHOLOGICAL DRIVERS OF SOCIAL TRANSMISSION

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First, we study how self-relevance (i.e., high vs. low) impact sharing behavior of product harm information, and this process is moderated by consumer self-construal (independent vs. interdependent). Second, we examine how advertising content can get viral, and how and when this benefits the brand. Finally, we explore how phrases that relate to senses in metaphoric ways (e.g., cold person) lead to higher recall, which contributes their cultural success over time.

The practical implications of this dissertation are of interest for professionals in the area of marketing, advertising, and public policy making. From a theoretical point of view, this dissertation has a cross-disciplinary contribution, and relates to the fields of health psychology, advertising, persuasion knowledge, linguistics, embodied cognition and foundations of culture.

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