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Comparative advertising: Effects of concreteness and claim substantiation through reactance and activation on purchase intentions

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ABSTRACT

In this paper, we examine positive (activation) and negative (reactance) effects of concrete versus non-concrete comparative advertising and the impact of claim substantiation in such comparative advertising on purchase intentions. We also analyze the moderating role of consumers' predisposition to show reactance. The results indicate that without claim substantiation, quality comparisons (less concrete) produce higher activation but also more reactance than comparisons based on intrinsic attributes (more concrete). With claim substantiation, quality comparisons still trigger higher activation, but they only trigger more reactance in consumers who have a high predisposition to show reactance. For consumers with a low predisposition to show reactance, quality comparisons trigger even less reactance than intrinsic attribute comparisons. This research enhances the theoretical understanding of processes underlying consumer reactions to comparative advertising and provides marketers with knowledge about the appropriate use of claim substantiation as well as of the comparative basis for addressing different consumer types.

1. Introduction

Comparative advertising is used in many product categories (Beard, 2016; Kalro, Sivakumaran, & Marathe, 2010) and, as such, many different arguments are used to highlight the competitive advantage of products. For example, McDonald's advertises store hours that exceed Burger King's store hours [1], BMW claims to provide better overall quality than Audi [2], and Verizon Wireless suggests it provides better network coverage than AT&T [3]. These examples show that comparisons used in marketing vary considerably in terms of the attribute used for comparison as well as in verifiability (i.e., whether consumers can or cannot verify the comparison prior to purchase) and concreteness (i.e., comparisons can be rather broad and vague or quite concrete).

Research has only marginally examined the effectiveness of using such different product characteristics for comparative advertising. However, many studies have examined the effectiveness of comparative advertising as compared to non-comparative advertising (e.g., Donthu, 1998; Dröge, 1989; Jeon & Beatty, 2002; Jewell & Saenger, 2014; Pechmann & Stewart, 1990; Zhang, Moore, & Moore, 2011). Such studies reveal positive and negative cognitive and behavioral effects (e.g., Chang, 2007; Grewal, Kavanoor, Fern, Costeley, & Barnes, 1997). Positive effects occur because comparative advertising provides consumers with valuable information, thus leading to increased attention (Muehling, Stoltman, & Grossbart, 1990), which, in other contexts, has been shown to trigger activation (Kroeber-Riel, 1979). Negative effects are a result of consumers thinking that marketers are using comparative advertising to mislead them (Chang, 2007; Swinyard, 1981). In such cases, consumers might show reactance (a motivational reaction to offers, persons, rules, or regulations that threaten or eliminate specific behavioral freedoms) to regain their threatened freedom (Brehm & Brehm, 1981) of free product choice and opinion formation (Clee & Wicklund, 1980). Reactance can be situation-specific, but individuals also differ in their predisposition to show reactance (PSR; Brehm & Brehm, 1981).

The type of product-related information that should be provided in a comparison has received little attention. In a basic study, Jain, Buchanan, and Maheswaran (2000) examine the effects of the verifiability of product characteristics. However, this categorization only roughly covers what is common in advertising practice because comparisons based on product attributes not easily verifiable prior to purchase can still be more or less concrete, and consequently vary in their effectiveness. Thus, the objective of this research is to examine the effects of concrete versus less concrete comparisons in advertising. We examine the positive effects of such comparisons through activation and the negative effects through reactance, and the possible moderating effect of consumers' PSR. We also examine the effect of claim substantiation in terms of factual information that supports and legitimizes the comparative claim (McDougall, 1978). Claim substantiation is of

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particular interest in this context because it can compensate for a lack of advertising credibility (Snyder, 1989), considered to be the main driver of negative consumer reactions to comparative advertising (Grewal et al., 1997).

This study contributes to the literature by simultaneously examining positive and negative effects of comparative ads with differing levels of concreteness through activation and reactance. The results provide interesting new insights because there is no current research on both positive and negative effects of comparative advertising, and on the effects of claim substantiation and individual PSR levels.

The results reveal to marketers which comparative ad triggers more positive effects through activation and less negative effects through reactance, and under which conditions the use of claim substantiation is beneficial for comparative advertising with differing levels of ad concreteness.

2. Literature overview

2.1. Different bases for comparison and claim substantiation

While many studies focus on the object of comparison (e.g., Goodwin & Etgar, 1980; Kalro, Sivakumaran, & Marathe, 2014; Pechmann & Stewart, 1990), only a few studies examine the effectiveness of different product characteristics used for comparison. Pechmann and Ratneshwar (1991) show that consumers differentiate better between the advertised brand and the comparison brand in direct (vs. indirect) comparative ads when the comparison attribute is typical (vs. atypical) for the product category. Pillai and Goldsmith (2008) report that non-comparative ads produce more positive brand attitudes than comparative ads when a typical attribute of a brand with high consumer commitment is the basis for comparison. For atypical attributes, comparative and non-comparative ads do not produce differing brand attitudes (regardless of brand commitment). Yagci, Biswas, and Dutta (2009) show that irrelevant attributes for the comparison produce more negative ad and brand attitudes for across-brand than for within-brand comparisons regardless of brand image. For relevant attributes, such an effect exists only in the case of poor brand image. Iyer (1988) found that comparative advertising for new brands should contain factual rather than evaluative information because facts produce more positive brand attitudes and higher intentions to use the product. Jain et al. (2000) show that less easily verifiable comparative claims trigger more counterarguments and negative attributions and are less credible than either easily verifiable comparative claims or non-comparative claims. Snyder (1989) shows that comparative claims based on concrete (vs. vague) attributes are more credible but do not influence brand quality perceptions and interest in trials, whereas claim substantiation positively influences these variables for fictitious but not for familiar brands.

The few studies on claim substantiation in comparative advertising show that consumers perceive substantiated claims as more reliable, helpful, and informative than unsubstantiated claims and that consumers show higher ad awareness (Earl & Pride, 1980; McDougall, 1978). Golden (1979) reports that for comparative and non-comparative advertising, substantiated claims produce higher believability and credibility for the market leader, whereas unsubstantiated claims are more beneficial for new and weak brands. Boush and Ross (1986) compare different types of claim substantiation and report that believability is highest for independent test results (vs. advertiser-initiated test results and surveys) that represent the opinion of the general population (vs. specific users).

Existing studies show that research on the effects of different product characteristics used in comparative ads is limited and that the impact of claim substantiation has not yet been considered in this context. Our new research aims to address these issues.

2.2. Negative effects of comparative advertising

Consumers often judge comparative advertising as more offensive (Wilson, 1976), more aggressive (Wilson & Muderrisoglu, 1979), and less credible (Beard, 2015; del Barrio-García & Luque-Martínez, 2003; Shimp & Dyer, 1978) than non-comparative advertising. Comparative advertising can also evoke counterarguments and source derogation (Belch, 1981; Jain et al., 2000; Swinyard, 1981; Wilson & Muderrisoglu, 1980).

Goodwin and Etgar (1980) show that consumers perceive indirect comparative advertising for products with high functional utility as more impersonal than direct comparative advertising. Kalro, Sivakumaran, and Marathe (2013) found that under analytical (imagery) processing, indirect comparative ads are perceived as more (less) manipulative than direct comparative ads.

The summarized studies focus mainly on negative *cognitions* triggered by comparative advertising but omit the more comprehensive concept of reactance that comprises negative *cognitions and emotions* (Brehm & Brehm, 1981; Worchel, 1974). Our studies provide detailed insights into the negative effects of comparative advertising in terms of reactance.

2.3. Positive effects of comparative advertising

Research on activation in the context of comparative advertising does not exist. However, two studies examined the concept of attention. While activation represents an internal energy mobilization and excitement (Purcell, 1982), attention is the cognitive capacity allocated to the external environment (Muehling et al., 1990). However, these concepts are closely related because higher activation triggers further examination of external stimuli in terms of attention, thus the latter is a consequence of activation (Matthews & Margetts, 1991).

Muehling et al. (1990) show that consumers perceive comparative (vs. non-comparative) ads as more attention-grabbing and more stimulating, an aspect typically used to measure activation (Mehrabian & Russell, 1974). Pechmann and Stewart (1990) found that direct comparisons attract more attention than indirect comparisons or non-comparative ads when the ad compares low to high share brands.

Thus, different types of comparative advertising trigger differing attention. In our studies, we consider activation because it has not been examined yet and because it triggers both cognitive and emotional reactions (Muehling et al., 1990) and might, therefore, affect reactance.

3. Framework and hypotheses

3.1. Effects of comparison concreteness through **reactance** on attitudes toward the ad, attitudes toward the product, and purchase intentions

Differing levels of comparison concreteness are likely to trigger differing levels of consumer reactance. According to reactance theory (Brehm & Brehm, 1981), individuals facing a threat to personal freedom react negatively toward the threat. Thus, consumers might consider comparative advertising an attempt to influence their attitudes toward the advertised and compared products as well as their purchase behavior. Applying attribution theory (Kelley, 1967) where individuals try to understand and explain intentions behind the phenomena they experience to a marketing context suggests that consumers are likely to perceive the manipulative attempt of a marketing campaign because they tend to believe that marketers behave in a way advantageous to themselves. In addition, the persuasion knowledge model (Friestad & Wright, 1994) suggests consumers have some knowledge about advertising tactics, want to interpret the causes of such influence attempts, and try to cope with them (Friestad & Wright, 1994). Comparative advertising is such an advertising tactic; consumers are likely to ascribe a manipulative intent to the advertiser and try to cope with such manipulation by developing reactance in order to regain their threatened

freedom (Fransen, Verlegh, Kirmani, & Smit, 2015). Drawing additionally on equity theory (Adams, 1965) according to which individuals' reactions depend on their evaluation of investment-benefit ratios between social exchange partners can further support the argument for the relation between comparative advertising and reactance arousal. In the context of comparative advertising, consumers' investment is the effort spent on processing the comparison. The benefit consists of receiving pre-purchase information about the product. As a comparative ad might require comparatively more effort, but still provide one-sided and not necessarily helpful information, the investment-benefit ratio is likely to be dissatisfying. Consequently, the reaction has a negative valence.

Consumer reactance is likely to depend on how concrete the product attribute used for the comparison is. The specific basis for comparison remains unclear for less concrete comparisons without claim substantiation and consumers are unsure whether the advertiser wants to provide information or just manipulate them. Less concrete comparisons are less credible (Snyder, 1989) because consumers can interpret them in different ways and perceive such ambiguity as misleading (Shimp, 1978) and manipulative. Consequently, less concrete comparisons without claim substantiation can trigger more reactance than more concrete comparisons without claim substantiation.

We additionally differentiate for consumers' PSR. High PSR consumers have a stronger desire for autonomy and self-determination (Wicklund, 1974), are generally more sensitive to influence attempts than low PSR individuals (Wu, Cutright, & Fitzsimons, 2011), react more strongly to manipulative attempts, and show more reactance than low PSR individuals (Dillard & Shen, 2005; Shen & Dillard, 2005; Wu et al., 2011). Nonetheless, *low* and *high* PSR individuals value personal freedom (Quick & Stephenson, 2008), develop perceptions of how advertising tries to mislead them, and show more reactance for less concrete rather than more concrete comparisons without claim substantiation. Thus:

H1. For high and low PSR individuals, less concrete comparisons *without* claim substantiation trigger more reactance than more concrete comparisons *without* claim substantiation.

In addition, we discuss reactance arousal through less versus more concrete comparisons with claim substantiation. Claim substantiation is external proof that makes the comparative claim more credible (Golden, 1979; Snyder, 1989) and informative, and increases ad content awareness (Earl & Pride, 1980). As less concrete comparisons with claim substantiation are still more misleading (due to their interpretative quality) than more concrete comparisons with claim substantiation, consumers are likely to perceive a greater influence attempt and show more reactance when faced with less concrete comparisons with claim substantiation.

In this context, we also consider consumers' PSR. *High* PSR individuals value personal freedom highly and are sensitive to manipulative attempts that might threaten their freedom. They presumably consider claim substantiation an additional attempt to mislead them and urge them to purchase the advertised product. Therefore, high PSR individuals will show more reactance for less concrete comparisons with claim substantiation than for more concrete comparisons with claim substantiation.

Low PSR individuals tend to accept information rather than perceiving it as an influence attempt (Wu et al., 2011). Less concrete comparisons are rather general in nature and provide valuable information for consumer decisions, especially when they are substantiated and therefore credible (Snyder, 1989), reliable, and helpful (McDougall, 1978). Thus, low PSR individuals perceive less concrete comparisons with claim substantiation as less manipulative than more concrete substantiated comparisons. Furthermore, consumers might question the choice of very specific and concrete comparisons and consider other aspects more appropriate for a substantiated comparison. They might consider such specific comparisons insufficient and thus make negative inferences on product evaluations (Kardes, Posavac, & Cronley, 2004), interpreting the concrete and substantiated comparison as an attempt to detract from other issues. Consequently, low PSR individuals perceive more concrete comparisons with claim substantiation as more manipulative than less concrete comparisons with claim substantiation and thus show more reactance when faced with more concrete comparisons. Thus:

H2. For high (low) PSR individuals, less (more) concrete comparisons *with* claim substantiation trigger more reactance than more (less) concrete comparisons *with* claim substantiation.

Comparative advertising produces counterarguments against the advertiser and the ad (Belch, 1981; Jain et al., 2000; Swinyard, 1981; Wilson & Muderrisoglu, 1980), indicating reactance arousal (Dillard & Shen, 2005). Higher levels of reactance after contact with manipulative advertising produce more negative ad attitudes and lower purchase intentions (Quick & Kim, 2009) as well as more negative evaluations of the source of the threat (Miller, Lane, Deatrick, Young, & Potts, 2007; Worchel, 1974). Consumers might consider the manufacturer of the advertised product to be the source of the threat and evaluate the product offered more negatively with increasing reactance. As there is no sufficient theoretical basis for predicting such a negative relationship between reactance and attitudes toward the product in a hypothesis, we will test this relation exploratively and only include attitudes toward the ad and purchase intentions in hypothesis 3. The term “attitude toward the product” refers to the product advertised (not the product category). Even if the term “attitude toward the brand” might be more common here, it is more appropriate to use the term “attitude toward the product” because, in order to avoid brand bias, we do not use brands. Thus:

H3. The more reactance consumers experience after contact with comparative advertising, the more negative their attitudes toward the ad and the lower their purchase intentions.

*3.2. Effects of comparison concreteness through **activation** on reactance, attitudes toward the ad, attitudes toward the product, and purchase intentions*

The varying concreteness of the comparative advertising might produce different levels of activation depending on how cognitive resources are used to process the comparative ad. The amount and structure of encoding cues in ads determine the extent of resources allocated to the processing of advertising messages (Muehling et al., 1990). Consumers need to use more cognitive resources to process less concrete comparisons rather than more concrete ones because less concrete comparisons *without* claim substantiation offer many plausible interpretations (Shimp, 1978) and represent more complex encoding cues than concrete comparisons *without* claim substantiation, which clearly state the competitive advantage. As spending more cognitive effort increases activation, less concrete comparisons *without* claim substantiation presumably produce higher activation than more concrete comparisons *without* claim substantiation. We suppose that this effect exists for both low and high PSR individuals because they all spend more cognitive effort on less concrete comparisons and thus more complex encoding cues to derive meaning from such comparisons. In order to further explain the effect of comparison concreteness on activation, we also draw on construal-level theory (Trope & Liberman, 2010), which describes the link between psychological distance and mental construal. According to this theory, psychologically distant items are mentally processed in an abstract way and attention is drawn to abstract and schematic information, while psychologically close items are mentally processed in a concrete way and attention is drawn to concrete and specific information (Trope, Liberman, & Wakslak, 2007). Furthermore, the theory suggests a reciprocal effect in that abstract (concrete) mental representations lead to processing of

psychologically distant (close) objects (Liberman & Trope, 2008). Transferring these arguments to the context considered here, we argue that a concrete comparison without substantiation in advertising leads to a concrete mental representation, while a less concrete comparison without substantiation is likely to produce an abstract mental representation. The assumption of construal level theory that an abstract mental presentation leads to the processing of psychologically distant objects suggests that such an abstract mental representation triggers more activation because the processing of psychologically distant objects requires more effort than the processing of psychologically close objects. As argued above, this effect is likely to occur for both high and low PSR individuals:

H4. For high and low PSR individuals, less concrete comparisons *without* claim substantiation trigger higher activation than more concrete comparisons *without* claim substantiation.

As comparisons *with* claim substantiation are credible (Snyder, 1989), low PSR consumers, who are less likely to react negatively to influence attempts (Wu et al., 2011) and less sensitive to manipulative attempts, are willing to spend cognitive effort on interpreting the substantiated comparative claim. As less concrete comparisons require more cognitive resources, less concrete comparisons with claim substantiation produce higher activation than more concrete comparisons with claim substantiation. *High* PSR individuals do not spend much cognitive effort on understanding the advertising message correctly because they are more sensitive to potential influence attempts (Wu et al., 2011) and are likely to react skeptically to claim substantiation as they consider it an additional manipulative attempt. Thus, the effect that less concrete comparisons *with* claim substantiation trigger higher activation than more concrete comparisons *with* claim substantiation is stronger for low PSR than for high PSR individuals:

H5. Less concrete comparisons *with* claim substantiation trigger higher activation than more concrete comparisons *with* claim substantiation. This effect is stronger for low PSR individuals than for high PSR individuals.

While extreme activation is cognitively demanding and has a negative valence, moderate activation enhances the cognitive performance and has a positive valence (Kroeber-Riel, 1979; Purcell, 1982; Thayer, 1978). Activation triggered by advertising is rather moderate (Kroeber-Riel, 1979) and thus has a positive valence (Purcell, 1982; Thayer, 1978) that can attenuate negative emotional and cognitive reactions, such as reactance, and can produce favorable ad attitudes (Henthorne, LaTour, & Nataraajan, 1993; LaTour, Pitts, & Snook-Luther, 1990), product attitudes, and purchase intentions through a transfer of excitement (Batra & Ray, 1986; LaTour & Rotfeld, 1997):

H6. The higher the activation consumers experience after contact with comparative advertising, the lower the reactance triggered by comparative advertising and the more positive their attitudes toward the ad and the product, thus the higher their purchase intentions.

3.3. Effects of attitudes toward the ad and toward the product on purchase intentions

We analyze these relations for reasons of completeness. Based on previous research, we expect these relations to be positive (e.g., Brown & Stayman, 1992; MacKenzie, Lutz, & Belch, 1986; Shimp, 1981: effect of attitudes toward the ad on attitudes toward the product; e.g., Spears & Singh, 2004: effect of attitudes toward the product on purchase intentions):

H7. More positive attitudes toward the ad produce more positive attitudes toward the product, which, in turn, increase purchase intentions.

3.4. The main effect paths

The *negative path* represents effects through reactance and is based on the intertwined model (Rains, 2013) according to which reactance mediates effects of manipulative attempts (in our study: the comparative ad) on attitude formation. Reactance directly affects ad attitudes, which, in turn, influence product attitudes and purchase intentions (Batra & Ray, 1986).

The *positive path* represents effects through activation, and the *positive-negative path* mirrors the effects through activation and reactance. These two paths are based on the activating properties of comparative advertising. As activation affects cognitions and emotions (Gorn, Pham, & Sin, 2001), we expect activation to mediate effects on ad attitudes and reactance.

As reactance arousal depends on the number of threats encountered (Brehm & Brehm, 1981) and perceiving a claim substantiation as an additional threat depends on consumers' PSR, we expect a moderating impact of PSR only if claim substantiation is used. For reasons of completeness, we also formulate the hypotheses for the suggested serial mediation and moderated mediation effects:

H8. *Without* claim substantiation, comparison concreteness has indirect effects on purchase intentions mainly through three paths: a negative effect path, a positive effect path, and a positive-negative effect path (see Fig. 1).

H9. *With* claim substantiation, the interaction of comparison concreteness and consumers' PSR has indirect effects on purchase intentions mainly through three paths: a negative effect path, a positive effect path, and a positive-negative effect path (see Fig. 1).

4. Empirical studies

4.1. Manipulation of comparison concreteness

We used an overall quality comparison (less concrete) and an intrinsic product attribute comparison (more concrete) to manipulate comparison concreteness. Quality comparisons are less concrete than intrinsic attribute comparisons because they do not highlight specific product attributes and can be interpreted in many different ways.

4.2. Pretests

The first pretest aimed to identify relevant intrinsic product attributes for different products. Twenty-two respondents rated the importance of five intrinsic attributes for a purchase decision (7-point scales: 1 = not at all important, 7 = very important). The results led to choosing the attributes displayed in Table 1.

In the second pretest, two groups of 30 respondents evaluated the comparison concreteness for four products per group ("…is based on a concrete product attribute", 1 = strongly disagree, 5 = strongly agree). The results in Table 1 show that intrinsic attribute comparisons are perceived as more concrete than overall quality comparisons. The results are consistent across products, although not always significant due to small subsample sizes.

4.3. Study 1

This study examines the effects of quality and intrinsic attribute comparisons (without claim substantiation) through reactance and activation on attitudes toward the ad, the product, and purchase intentions.

4.3.1. Method

The sample comprises 529 respondents (49.7% women, average age: 29.7 years). The data were collected in Switzerland through an

The upper part of the Figure 1 gives an overview of the hypothesized relationships while the lower part shows the main effect paths

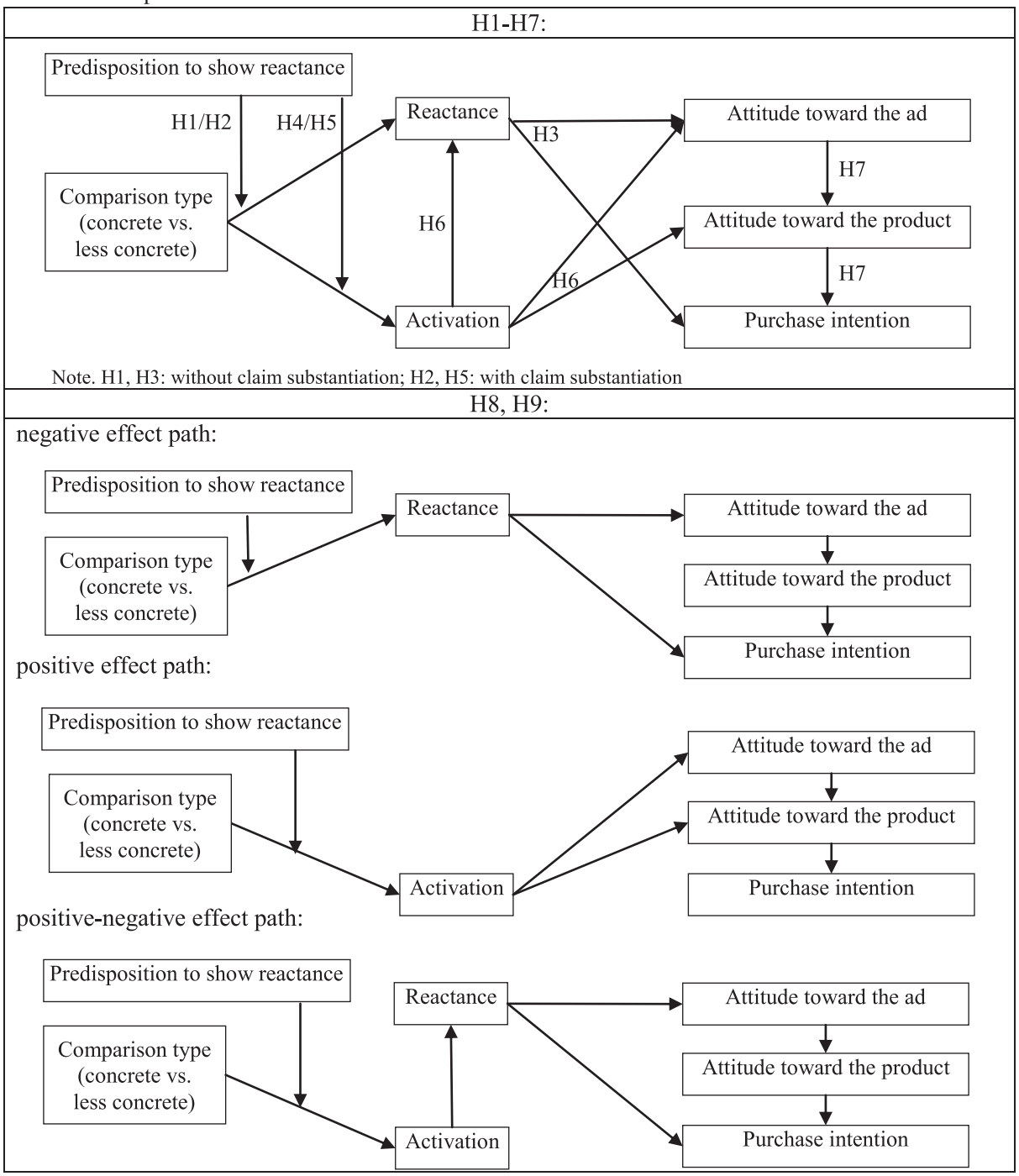

Fig. 1. Hypothesized relationships and main effect paths.

online questionnaire. The study was based on a 2 (comparison type: quality vs. intrinsic attribute) × 8 (test products: shower gel, thermal bath entry, chocolate bar, public transportation, coffee machine, gym membership, vacuum cleaner, intercontinental flight) between-subjects design. We used test products from different categories to ensure higher generalizability of the results.

The respondents had to imagine they noticed a billboard with the test ad in an everyday situation. Then, they were shown the ad and asked to complete the questionnaire. The test ads contained a product picture without any logo or brand name and the comparative message (quality comparison: quality of the test product is higher than that of competitor products; intrinsic attribute comparison: product performs better on the respective attribute than competitor products). We used implicit comparisons and unbranded products in order to avoid bias through brand attitudes, brand image, or familiarity with any existing or fictitious advertised and/or the comparison brand.

The reactance measure had two components: anger (four items, $\alpha = 0.866$) and negative cognitions (Dillard & Shen, 2005). To measure cognitions, respondents were asked to list all thoughts when seeing the ad. Following the procedure suggested by Quick and Stephenson (2007), two coders first identified negative thoughts ($\kappa = 0.817$) in terms of responses that expressed disagreement with the comparative

Table 1
Study 1: results of pretests 1 and 2.

Product	Pretest 1: Attribute importance		Pretest 2: Concreteness		
	Intr. Attribute	Importance	Intr. attribute	Quality	t-value
Shower gel	Proportion of moisturizers	5.045	3.367	2.600	−2.739**
Thermal bath entry	Number of pools	5.591	4.067	2.700	−4.681***
Chocolate bar	Cocoa proportion	5.409	3.800	2.967	−2.512*
Public transportation	Time saving	6.000	3.067	2.448	−2.134*
Coffee machine	Easiness to clean	6.182	3.467	3.100	−1.152
Gym membership	Opening hours	6.273	3.833	2.800	−3.520**
Vacuum cleaner	Suction power	6.182	3.300	2.833	−1.574
Intercontinental flight	Free luggage pieces	5.737	4.167	2.500	−6.474***
Overall			3.633	2.744	−8.351***

*p < 0.05, **p < 0.01, ***p < 0.001.

message and disapproval of the ad or advertiser. The coders discussed conflicting coding and achieved agreement. Then, they identified emotions based on the list of feelings of Shaver, Schwartz, Kirson, and O'Connor (1987) and excluded them in order to avoid any overlap with the already measured negative emotional reaction (κ = 0.885). In the case of conflicts, discussions between the coders again led to the final coding. The remaining negative cognitions formed the cognitive component of reactance. As reactance is best represented by a combination of anger and negative cognition (Rains, 2013, for a meta-analysis), standardized values of anger and the total number of negative cognitions per person were aggregated and formed the reactance value. We measured activation with four slightly adapted items from the general activation measurement scale (Thayer, 1978, α = 0.867), attitudes toward the ad with six items (Machleit & Wilson, 1988, α = 0.963), and attitudes toward the product with three items (Goodstein, Edell, Moore, Agres, & Dubitsky, 1990, α = 0.914). We operationalized purchase intention through two items (Park, Lee, & Han, 2007, r = 0.844) and used the 11 item, Hong psychological reactance scale (Hong & Faedda, 1996) to measure respondents' PSR. Hong and Faedda (1996) identify a four-factor solution, whereas Shen and Dillard (2005) describe a single score across all 11 items as theoretically and empirically justifiable; Wu et al. (2011) used this approach in their research. Thus, we averaged all 11 items of the Hong psychological reactance scale in order to determine the PSR score. PSR is a continuous variable. Based on our objective and the theorized effects, we distinguished between PSR above (high PSR) and below (low PSR) the median (MD = 3.649). We used seven-point scales to measure all variables.

4.3.2. Results and discussion

We conducted a moderated serial mediation analysis with PROCESS (in SPSS). As no model template in the program covers a moderated serial mediation, we used model template 6 (serial mediation, 10,000 bootstrap samples; independent variable: comparison type; dependent variable: purchase intention; mediators: activation, reactance, attitude toward the ad, and attitude toward the product); and, included the moderator (PSR) as the control variable, as suggested by Hayes (2015). Since based on the theoretical arguments presented above we did not expect any moderating effect, we included PSR in the model simply to prove there are no such effects. As expected, the interaction effects of PSR and comparison type (without claim substantiation) on reactance (β = −0.049, t = −0.397, p > 0.05) and on activation (β = 0.142, t = 0.614, p > 0.05), but also on attitudes toward the ad (β = 0.207, t = 1.185, p > 0.05), on attitudes toward the product (β = −0.129, t = −0.736, p > 0.05), and on purchase intentions (β = 0.098, t = 0.551, p > 0.05) are non-significant. Neither are the moderated serial mediations significant: negative path (effect: 0.007, 95% CI: [−0.028, 0.041]), positive path (effect: 0.024, 95% CI: [−0.052, 0.104]), positive-negative path (effect: 0.005, 95% CI: [−0.010, 0.021]). Thus, the effects of comparison type without claim substantiation on these variables do not depend on PSR.

In order to gain more detailed insights into the effects of comparative advertising without claim substantiation through reactance

Table 2
Study 1: Direct and the indirect effects of the serial mediation.

Direct effects	β	t-value	Indirect effects	Effect	CI 95%	
CT→R	0.224	3.625***	CT→R→A_{ad}→A_P→PI	−0.031	−0.054	−0.013
A→R	−0.235	−10.107***	CT→A→A_{ad}→A_P→PI	0.046	0.008	0.090
			CT→A→R→A_{ad}→A_P→PI	0.009	0.002	0.018
CT→A	0.274	2.374*				
			CT→R→PI	−0.020	−0.054	0.009
CT→A_{ad}	−0.092	−1.034	CT→R→A_{ad}→PI	−0.053	−0.090	−0.023
A→A_{ad}	0.631	17.602***	CT→R→A_P→PI	−0.014	−0.037	0.003
R→A_{ad}	−0.521	−8.447***	CT→A→PI	0.008	−0.020	0.042
			CT→A→R→PI	0.006	−0.003	0.017
CT→A_P	0.143	1.597	CT→A→R→A_{ad}→PI	0.015	0.002	0.031
A→A_P	0.264	5.773***	CT→A→R→A_P→PI	0.004	−0.001	0.012
R→A_P	−0.128	−1.926	CT→A→A_{ad}→PI	0.078	0.013	0.154
A_{ad}→A_P	0.534	12.104***	CT→A→A_P→PI	0.036	0.006	0.076
			CT→A_{ad}→PI	−0.042	−0.120	0.036
CT→PI	−0.037	−0.407	CT→A_{ad}→A_P→PI	−0.024	−0.072	0.021
A→PI	0.029	0.617	CT→A_P→PI	0.071	−0.017	0.165
R→PI	−0.087	−1.300	Total	0.090	−0.148	0.336
A_{ad}→PI	0.453	9.026***				
A_P→PI	0.497	11.299***				

R^2_R = 0.172; R^2_A = 0.011; R^2_{Aad} = 0.533; R^2_{AP} = 0.548; R^2_{PI} = 0.644; *p < 0.05, **p < 0.01, ***p < 0.001.
CT: Comparison type (0 = intrinsic attribute, 1 = quality), R: Reactance, A: Activation, A_{ad}: Attitude toward the ad, A_p: Attitude toward the product, PI: Purchase intention.

Table 3
Study 2: Direct and indirect effects of the moderated serial mediation.

Direct effects	β	t-value	Indirect effects	Effect	CI 95%	
$CT_{ITR} \rightarrow R$	0.026	0.205	CT_{ITR}*PSR → R → A_{ad} → A_P → PI	−0.256	−0.402	−0.155
A → R	−0.158	−5.175***	CT_{ITR}*PSR → A → A_{ad} → A_P → PI	−0.067	−0.123	−0.029
PSR → R	0.061	0.685	CT_{ITR}*PSR → A → R → A_{ad} → A_P → PI	−0.027	−0.053	−0.011
CT_{ITR}*PSR → R	1.098	8.607***	CT_{ITR} → R → A_{ad} → A_P → PI	−0.006	−0.067	0.047
$CT_{ITR} \rightarrow A$	3.041	23.064***	CT_{ITR} → A → A_{ad} → A_P → PI	0.276	0.163	0.436
PSR → A	0.066	0.490	CT_{ITR} → A → R → A_{ad} → A_P → PI	0.112	0.054	0.199
CT_{ITR}*PSR → A	−0.733	−3.891***	CT_{ITR} → R → PI	−0.006	−0.067	0.055
$CT_{ITR} \rightarrow A_{ad}$	2.078	9.054***	CT_{ITR} → R → A_{ad} → PI	−0.007	−0.092	0.065
A → A_{ad}	0.450	7.983***	CT_{ITR} → R → A_P → PI	−0.011	−0.111	0.087
R → A_{ad}	−1.150	−13.963***	CT_{ITR} → A → PI	0.247	−0.127	0.545
PSR → A_{ad}	0.038	0.239	CT_{ITR} → A → R → PI	0.115	0.004	0.217
CT_{ITR}*PSR → A_{ad}	−1.000	−4.06***	CT_{ITR} → A → R → A_{ad} → PI	0.132	0.054	0.313
$CT_{ITR} \rightarrow A_P$	0.223	1.094	CT_{ITR} → A → R → A_P → PI	0.201	0.079	0.330
A → A_P	0.141	2.875**	CT_{ITR} → A → A_{ad} → PI	0.326	0.143	0.752
R → A_P	−0.756	−9.437***	CT_{ITR} → A → A_P → PI	0.238	−0.028	0.475
A_{ad} → A_P	0.366	9.720***	CT_{ITR} → A_{ad} → PI	0.495	0.282	0.967
PSR → A_P	−0.169	−1.290	CT_{ITR} → A_{ad} → A_P → PI	0.420	0.274	0.626
CT_{ITR}*PSR → A_P	−0.344	−1.678	CT_{ITR} → A_P → PI	0.123	−0.148	0.380
$CT_{ITR} \rightarrow PI$	0.204	1.149	Total	2.653	2.305	3.112
A → PI	0.081	1.876				
R → PI	−0.239	−3.131**				
A_{ad} → PI	0.238	6.623***				
A_P → PI	0.553	13.770***				
PSR → PI	−0.173	−1.508				
CT_{ITR}*PSR → PI	0.046	0.256				

$R^2_R = 0.339$; $R^2_A = 0.634$; $R^2_{Aad} = 0.700$; $R^2_{AP} = 0.690$; $R^2_{PI} = 0.796$; *p < 0.05, **p < 0.01, ***p < 0.001.
CT_{ITR}: Comparison type with independent test result (0 = intrinsic attribute, 1 = quality), R: Reactance, A: Activation, PSR: predisposition to show reactance (0 = low, 1 = high), A_{ad}: Attitude toward the ad, A_p: Attitude toward the product, PI: Purchase intention.

and activation on attitudes toward the ad/product and purchase intentions, we also conducted a serial mediation analysis with PROCESS (Hayes, 2013, model 6, 10,000 bootstrap samples) without the moderator PSR to test our hypotheses. The results in Table 2 show that quality comparisons trigger more reactance but also higher activation than intrinsic attribute comparisons. This provides support for hypotheses 1 and 4. Reactance, in turn, has negative effects on attitudes toward the ad but not on purchase intentions, which provides partial support for hypothesis 3. Reactance does not influence attitudes toward the product. Activation reduces reactance and has positive effects on attitudes toward the ad and the product but not on purchase intentions. This finding provides partial support for hypothesis 6. Attitudes toward the ad have positive effects on attitudes toward the product and purchase intentions, and attitudes toward the product, in turn, positively affect purchase intentions. Thus, hypothesis 7 is supported. The comparison type has no direct effects on attitudes toward the ad, and the product, and on purchase intentions. Furthermore, the serial mediations through the negative path, the positive path, and the positive-negative path are significant. This provides support for hypothesis 8.

This first study aimed to examine basic effects of comparison concreteness through activation and reactance on purchase intentions. In order to focus on these effects and to keep the experimental design simple, we did not include claim substantiation in this study. However, as claim substantiation might have interesting effects, we conducted Study 2 where we considered such effects.

4.4. Study 2

In this study, we examine the additional impact of claim substantiation in the context of effects of quality versus intrinsic attribute comparisons through reactance and activation on attitudes toward the ad/product and purchase intentions.

4.4.1. Pretest

Sixty respondents judged the credibility (1 = not at all credible, 7 = totally credible) of different claim substantiations (independent test result (ITR), consumer support (CS), expert support (ES)). The results show that an independent test result is more credible than consumer support ($M_{ITR} = 4.904$ vs. $M_{CS} = 4.388$, $t = 5.991$, $p < 0.001$) and than expert support ($M_{ITR} = 4.904$ vs. $M_{ES} = 4.356$, $t = 5.841$, $p < 0.001$). These results are consistent across comparison types (quality comparison (n = 40): $M_{ITR} = 4.953$ vs. $M_{CS} = 4.625$, $t = 3.100$, $p < 0.01$; $M_{ITR} = 4.953$ vs. $M_{ES} = 4.534$, $t = 3.699$, $p < 0.001$; intrinsic attribute comparison (n = 20): $M_{ITR} = 4.806$ vs. $M_{CS} = 3.913$, $t = 6.185$, $p < 0.001$; $M_{ITR} = 4.806$ vs. $M_{ES} = 4.000$, $t = 4.864$, $p < 0.001$). These findings led to choosing independent test results for Study 2.

4.4.2. Method

The sample consists of 480 respondents (50.7% women, average age: 27.5 years). Study 2 was based on a 2 (comparison type with independent test result: quality vs. intrinsic attribute) × 8 (test products: same as in Study 1) between-subjects design. Going beyond the insights generated by Study 1, the experimental design of Study 2 included an independent test result (information that the product had won an independent product test related to the comparative claim). In Study 2, we used the same comparative claims as in Study 1 to ensure the comparability of the results. We used the same indicators and scales as in Study 1 ($\alpha_{activation} = 0.913$, $\alpha_{anger} = 0.931$, $\alpha_{Aad} = 0.869$, $\alpha_{Ap} = 0.947$, $r_{PI} = 0.784$). The same two coders determined the negative cognitions by identifying negative thoughts ($\kappa = 0.892$) and deleting negative emotional reactions ($\kappa = 0.931$). Again, we classified the respondents into high and low PSR individuals based on a median split (MD = 3.636).

4.4.3. Results and discussion

We again used PROCESS model 6 (Hayes, 2015, 10,000 bootstrap samples; dependent variable: purchase intention; independent variable: comparison type with independent test result; mediators: reactance, activation, attitude toward the ad, and attitude toward the product;

moderator: PSR). The results in Table 3 show that reactance has negative effects on attitudes toward the ad and purchase intentions. These results provide support for hypothesis 3. In addition, reactance negatively influences attitudes toward the product. Activation reduces reactance arousal and has positive effects on attitudes toward the ad and attitudes toward the product but has no effect on purchase intentions. Thus, hypothesis 6 is partially supported. More positive attitudes toward the ad produce more positive attitudes toward the product, which, in turn, increase purchase intentions. This provides support for hypothesis 7. Moreover, attitudes toward the ad have a direct positive influence on purchase intentions.

Furthermore, the results show that PSR moderates the effects of comparative advertising with independent test results on reactance, activation, and attitudes toward the ad. We also conducted simple moderation analyses (Hayes, 2013, PROCESS model 1, 10,000 bootstrap samples; independent variable: comparison type with independent test result; dependent variables: reactance, activation, attitudes toward the ad; moderator: PSR) to gain further insights into these interactions. For *high PSR* individuals, quality comparisons with an independent test result trigger more *reactance* than intrinsic attribute comparisons with an independent test result (effect: 0.759, 95% CI: [0.578, 0.940]). For *low PSR* individuals, intrinsic attribute comparisons with an independent test result produce more *reactance* than quality comparisons with an independent test result (effect: –0.454, 95% CI: [−0.631, −0.277]). This provides support for hypothesis 2. Moreover, quality comparisons with an independent test result cause higher *activation* than attribute comparisons with an independent test result and this effect is even stronger for *low PSR* (effect: 3.041, 95% CI: [2.782, 3.300]) than for *high PSR* individuals (effect: 2.308, 95% CI: [2.043, 2.572]). Thus, hypothesis 5 is supported. Quality comparisons with an independent test result produce even more positive *attitudes toward the ad* than intrinsic attribute comparisons with an independent test result; this effect is stronger for *low PSR* (effect: 3.968, 95% CI: [3.566, 4.370]) than for *high PSR* individuals (effect: 1.242, 95% CI: [0.832, 1.653]). Furthermore, the effect sizes of the moderated serial mediations are significant for all three paths. Thus, hypothesis 9 is supported.

5. Conclusion

The results of the two studies presented show that comparative advertising triggers both positive and negative consumer reactions. The negative effects (in terms of more reactance) and positive effects (in terms of higher activation) of more or less concrete comparative advertising occur with and without claim substantiation. Consumers who are very sensitive to manipulative attempts are more activated because they spend cognitive effort on decoding the ads, but at the same time show more reactance for less concrete quality comparisons than for more concrete intrinsic attribute comparisons because they also feel that such ambiguous comparisons are used to mislead them. This effect is not influenced by substantiation through an independent test result because high PSR consumers question the substantiation.

The same effect exists for low PSR consumers when the ad does not contain substantiation. However, these consumers show less reactance even toward less concrete comparisons when these claims are substantiated, for example, through an independent test result. Furthermore, less concrete claims produce higher activation of such consumers because they process the relevant and credible ad.

Higher activation and lower reactance enhance ad evaluations, which, in turn, positively influence product evaluations and further purchase intentions. Consistent with the results of Snyder (1989), our results do not suggest a direct impact of comparison concreteness on behavioral intentions such as purchase intention. Going beyond this insight, our results help to understand how comparative ads are processed and, consequently, influence purchase intentions indirectly. Moreover, our results are in line with the basic finding of Golden (1979) and Snyder (1989) that claim substantiation does not have a general positive impact. Going even further, our findings show that the effectiveness of claim substantiation does not only depend on the ad content but also on consumer characteristics such as PSR.

These results contribute to previous research on comparative advertising by showing that examining comparative versus non-comparative advertising or different types of competitor-related information is insufficient to fully understand consumer reactions to comparative advertising. Rather, the effects of comparative advertising depend on which product characteristics are used in the comparison and whether the comparison is more or less concrete. Our study results provide new insights into the role of claim substantiation in this context and show that enhancing credibility improves the effectiveness of comparative advertising only under particular conditions. Moreover, these results contribute to previous research by simultaneously considering positive and negative effects through reactance and activation.

We recommend that marketers consider the positive *and* negative effects of comparative advertising and create comparative ads that fully benefit from the positive effects through activation but that simultaneously limit the negative effects through reactance. If no claim substantiation is used, quality comparisons have more negative effects through reactance but more positive effects through activation than intrinsic attribute comparisons. The positive effects are twofold. Quality comparisons result in higher activation but also indirectly reduce reactance arousal and, therefore, should be preferred. Nonetheless, marketers should pretest the comparative claims they are planning to use with the target audience in order to identify ads with quality comparisons that produce high activation and comparatively low reactance. Although the pretesting of ads should be standard procedure in marketing practice, experience with failed advertising campaigns shows that pretesting is insufficient (e.g., not at all, only superficially, or not related clearly enough to the stimuli used and the audience targeted).

For comparisons with claim substantiation, we can derive the following recommendations. Marketers should use quality comparisons for low and high PSR consumers and if no information about the PSR levels of the target consumers is available. Although this recommendation seems to be quite simple, it is based on differing effects. For low PSR consumers, quality comparisons in combination with an independent test result are clearly beneficial because they produce more activation and less reactance than intrinsic attribute comparisons with an independent test result. For high PSR consumers, quality comparisons with an independent test result have a higher potential to trigger reactance, but at the same time trigger more activation, which, in turn, reduces reactance. Thus, particularly when high PSR consumers are addressed, it is important to carefully pretest alternative quality comparisons with independent test results in order to identify the one that triggers comparatively high activation but, at the same time, comparatively low reactance. If no information about the PSR level of the target audience is available, marketers should use quality comparisons with an independent test result because of the higher potential to trigger activation, which indirectly reduces reactance for high PSR and for low PSR individuals, and because negative effects through reactance only occur in the high PSR consumer group.

The research presented here has some limitations, offering opportunities for further research. As we did not specify the competitor in our test ads, future research might examine the effect of comparisons with explicit reference to competitors. Furthermore, it might be interesting to investigate the role of claim substantiation when comparing brands with different market positions or familiarity levels. As consumer characteristics such as self-construal (Choi & Miracle, 2004), different processing styles (Thompson & Hamilton, 2006), or product involvement (Soscia, Girolamo, & Busacca, 2010) have already been shown to influence the effectiveness of comparative advertising, future research might examine the role of such variables in the context of comparison concreteness. In addition, we have only used construal level theory to develop some of our hypotheses. Future studies could test in detail the

assumptions of this theory in the context of comparative advertising and comparison concreteness.

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