

The effectiveness of publicity versus advertising: a meta-analytic investigation of its moderators

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Abstract This study provides an answer to the question whether and under which conditions publicity is more or less effective than advertising. Advertising refers to paid communication that identifies the message sponsor, whereas publicity is communication that secures editorial space in media for promotion purposes and does not have an identifiable sponsor. The primary advantage of advertising over publicity is the sponsor's control over message content; its disadvantages are audience skepticism and lack of credibility. We investigate this trade-off between credibility effects and effects of recipients' processing and evaluation of message content. Results of a meta-analytic structural equation model show that the positive credibility effect of publicity is on average about three times as strong as the information evaluation effect, supporting the overall superiority of publicity over advertising. This effect, however, is moderated by prior knowledge and only holds for products about which recipients lack prior knowledge. The effects change for known products when advertising becomes superior. The effectiveness of publicity depends on further moderating variables. In particular, academic studies tend to underestimate the true effects of publicity over advertising due to experimental manipulations. Campaigns that combine publicity and advertising weaken the effects of publicity, whereas advertorials (i.e., advertisements

disguised as editorial material) are more effective, since they combine the advantages of both publicity and advertising. The results have theoretical and practical implications.

Keywords Publicity · Advertising · Meta-analysis · Structural equation model

Introduction

In recent years, organizations have placed increasingly greater importance on marketing-oriented publicity over advertising (Ries and Ries 2002; Shimp 2007). Despite the widespread belief among practitioners that publicity outperforms advertising (e.g., Hausman 2003; Pohl 2008), previous study results are far from consistent: some studies find no differences between the impact of publicity and advertising (e.g., Hallahan 1999a, b; Jo 2004; Schmidt and Hitchon 1999), and some studies show that advertising even outperforms publicity (e.g., Jacoby and Hoyer 1989; Salmon et al. 1985). Furthermore, both advertising and publicity have their disadvantages in terms of lack of credibility or lack of control by marketers, respectively (Balasubramanian 1994). This is a considerable issue when it comes to evaluating the effectiveness of both communication devices. The present study shows whether and under what conditions marketing-oriented publicity outperforms advertising in terms of communication effectiveness.

The main distinction between advertising and publicity is found in their definitions. Advertising is paid communication that identifies the message sponsor. Publicity, in contrast, secures editorial space in media (i.e., space that is not paid for) for promotion purposes (Kotler and Keller 2006) and does not identify a sponsor. This distinction implies a trade-off for managers who decide on how to

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assign their resources and budgets to either communication device. The trade-off is described by Balasubramanian (1994) in terms of control and credibility. The primary advantage of advertising is the sponsor's control over the content; its disadvantage is audience skepticism. Since the audience is aware of the fact that ad content is under control by the sponsor, recipients consider it less objective and more biased than publicity. In publicity, the situation is reversed: the perceived source (the media) is evaluated as credible due to third-party endorsement, but the content is also under their control. Although publicity is not controllable by marketers, it can be influenced in a favorable way, which constitutes the main task of public relations. Having no control over message content is crucial to marketers and can lead to disadvantages of publicity compared to advertising for two reasons. First, publicity might reveal negative information about a company and its products in some instances. Incidents of negative publicity are widely prevalent in the marketplace, whereas advertising tends to present information only in a favorable way (Ahluwalia et al. 2000; Eisend 2006). Second, publicity is both more credible and more diagnostic; communicating with consumers via publicity is less common than via advertising, which brings consumers to evaluate information more critically and can lead to more negative cognitions than advertising, even if the message content is the same. Researchers have investigated the effects of publicity versus advertising for many years and provided support both for source and information effects; they have failed, though, to provide a solution on how to best deal with the trade-off between these effects.

In this study, we provide an answer to the question of whether marketing-oriented publicity is more or less effective than advertising in general and in particular when the trade-off between credibility effects and information evaluation effects are taken into account. For this purpose, we conduct an integrative meta-analysis of research on the effects of marketing-oriented publicity versus advertising that provides generalized results. Using correlations from these studies, we test a structural equation model and compare alternative model specifications, in particular a model on source credibility and a model on information evaluation in order to answer our research question. We further explain inconsistent results of previous studies by examining the effects of relevant moderator variables.

The findings contribute to our knowledge on the source effects and information effects of both communication devices by showing the strength of each effect, how these effects work together, and under which conditions they become stronger or weaker. The moderator analysis provides a further contribution by explaining inconsistencies in previous studies. Finally, the findings have important practical implications as they advise marketers when and

how to use either marketing-oriented publicity or advertising in order to enhance communication effectiveness.

The outline of the paper is as follows. First we present models that can be applied in order to explain the effects of marketing-oriented publicity versus advertising. We further derive hypotheses related to moderator variables that might explain inconsistent findings of previous studies. Then, we present the meta-analysis method. We analyze the meta-analytic data using structural equation models and moderator regression models. Finally, we interpret and discuss the results in light of the proposed models and our main research question.

Theoretical background

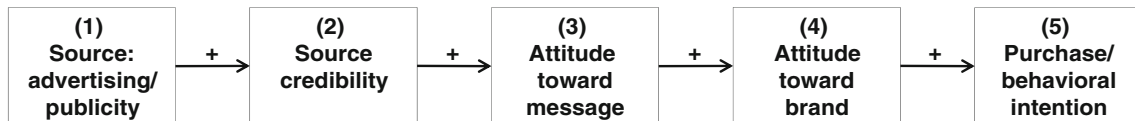
Source credibility model

Studies of source credibility date to Hovland and Weiss (1951), who found that highly credible sources were viewed as more trustworthy and generated more attitude change than low-credibility sources. The higher credibility of publicity over advertising results from the fact that media are independent sources that have no reason to give a biased or false account; this objectivity is called third-party endorsement (Cameron 1994; Lord and Putrevu 1993). An advertiser, however, has a strong vested interest in selling products and thus tends to provide only a positive view of products and avoids mentioning negative information (Eisend 2006; Kamins and Assael 1987). Message recipients infer these underlying intentions by assigning causes to communication behavior of advertisers and the media (Jones and Davis 1965; Jones and McGillis 1976). Personal gain, the intent to persuade, and source bias are main characteristics of advertising that account for its low credibility compared to publicity (Cameron 1994). Although there are means to influence advertising's credibility (e.g., by two-sided message (Crowley and Hoyer 1994)), it is widely accepted in the literature that on average publicity reaches higher levels of credibility than advertising (Cameron 1994; Lord and Putrevu 1993).

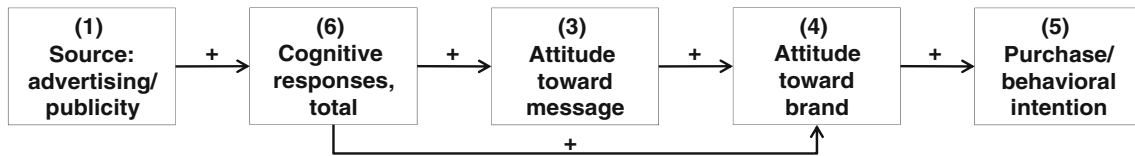
The third-party endorsement affects the perception of credibility, which in turn increases attitude and behavioral measures in a chain of effects from message attitudes to brand attitudes and behavioral intentions, in line with a hierarchy-of-effects from lower order to higher order effects that is accompanied with a decline in the strength of the effect (Eisend 2009; Grewal et al. 1997).

The source credibility model assumes the following paths (see Fig. 1): Publicity over advertising (1) enhances source credibility (2), source credibility enhances attitude toward the message (3), attitude toward the message impacts attitude toward the brand (4) and finally attitude

Source credibility model



Information processing model



Information evaluation model

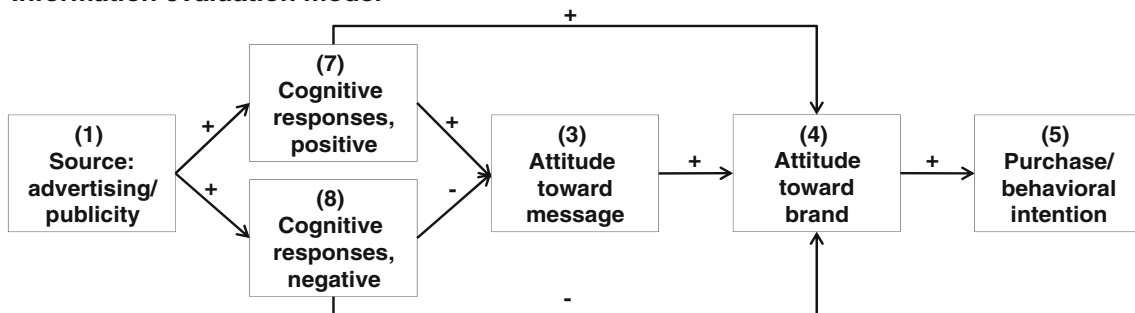


Fig. 1 Models explaining the effects of publicity versus advertising

toward the brand impacts purchase/behavioral intentions (5).

Information processing model

Processing efforts play a fundamental role in determining recipient response to promotional communications (MacInnis et al. 1991). Consumers expose themselves to media content for informational or hedonic reasons. They seek information provided by media voluntarily and mostly intentionally. At the same time, consumers tend to avoid exposure to advertising. Exposure to media content, and thus to publicity, results in a more enhanced motivation to process information compared to advertising and in an increased number of cognitive responses. Lord and Putrevu (1993) further argue that publicity has a higher risk reduction potential for consumers, which also enhances the amount of elaboration induced by publicity messages.

The increase in total cognitive responses is also due to the fact that publicity, compared to advertising, lends greater salience to information. The ability of mass media to influence the perceived importance of issues is posited by agenda setting theory that states that media mainly influence their audience's perceptions ("what to think about"), rather than their opinions ("what to think") (McCombs and Shaw 1972). Thus, agenda setting enhances issue involvement which, in turn, affects the intensity and

ease of subsequent processing. Such enhanced information processability can produce positive reactions toward the message and the object (e.g., a brand) being evaluated (Winkielman et al. 2003). The intensity of processing through enhanced elaboration is further assumed to increase message comprehension and, thus, the likelihood to accept the message, which enhances persuasiveness (McGuire 1968, 1978). Note that enhanced message processing refers to the number of cognitions only, not to the valence of cognitions that we refer to in the information evaluation model below.

The information processing model assumes the following paths (see Fig. 1): Publicity over advertising enhances total cognitive responses (6), total cognitive responses enhance attitude toward the message and attitude toward the brand, attitude toward the message impacts attitude toward the brand and attitude toward the brand impacts purchase/behavioral intentions.

Information evaluation model

The information evaluation model refers to the valence of cognitive responses; that is, whether publicity or advertising generates positive or negative cognitive responses or both. There are two reasons why publicity can lead to more negative cognitions than advertising does. First, negative information is more likely to be presented by publicity

rather than by advertising, which traditionally presents the advertised products in favorable light. Hence, publicity in comparison to advertising is more likely to lead to cognitive responses of negative valence. Additionally, since enhanced processing of information, as triggered by publicity, implies that both positive and negative cognitions are proportionally enhanced, the absolute increase is higher for negative than for positive cognitions. Negative information is considered more informative than positive information and therefore more salient (Maheswaran and Meyers-Levy 1990; Skoworonski and Carlston 1989). This leads to a more thorough processing of negative information than positive information, which impacts message and object evaluation accordingly; positive cognitive responses enhance attitudes, while negative cognitive responses reduce them.

Second, information provided by publicity is more diagnostic than information provided by advertising because communication by a marketer via publicity is less common than via advertising. This phenomenon increases elaboration likelihood, which increases the total number of cognitions as well as the negative-positive cognitions ratio due to cognitive capacity and the motivation for further scrutiny (Coulter 2005). Consumers are more likely to ask why messages are provided via publicity rather than via advertising and will more critically look for “faults” in messages, which increases critical thinking and the likelihood of generating negative cognitive responses.

The information evaluation model assumes the following paths (see Fig. 1): Publicity over advertising enhances positive cognitive responses (7) and negative cognitive responses (8), with the effect on negative cognitions being stronger than on positive cognitions. Positive cognitive responses enhance attitude toward the message and attitude toward the brand, while negative cognitive responses reduce attitude toward the message and attitude toward the brand. Finally, attitude toward the message impacts attitude toward the brand, which, in turn, impacts purchase/behavioral intentions.

Figure 1 presents an overview of the models to be tested. All three models can be integrated in a total model, where each of the models is nested within the total model. The integrated model allows us to test and compare the strength of the effects along each path. By comparing the total effects of each path, the trade-off between source credibility effects and effects due to information evaluation can be measured.

Moderator variables

Although the idea that publicity is more persuasive than advertising seems quite plausible, previous study results are inconsistent. Some studies did not find any differences in the impact of publicity and advertising (e.g., Hallahan

1999a, b; Jo 2004; Schmidt and Hitchon 1999). Other studies showed that advertising outperforms publicity (e.g., Jacoby and Hoyer 1989; Salmon et al. 1985). In order to account for inconsistent results and variance in findings of previous studies, some moderator variables are considered. The moderator variables that are chosen here are the ones that describe substantial differences between the studies that are used in our meta-analysis.

Product type Previous studies differ with respect to whether the product that the message refers to was previously known by the respondents. In particular, many studies use fictitious products that are all unknown by the recipients, whereas studies in natural settings use real products that can be previously known or unknown by the recipients. Consumers who differ in prior knowledge show varying preferences for marketer-dominated versus neutral sources.

Publicity is superior to advertising when consumers lack prior knowledge about the product because a lack of prior knowledge implies uncertainty and doubt about the product. A high credibility source provides the needed reassurance and is therefore more effective than a low credibility source (Lord and Putrevu 1993). As soon as consumers experience a product and learn about its features, the need for reassurance disappears and the high credibility source effect might reach its limit (ceiling effect). Instead, consumers might become less skeptical toward information provided by advertising as they are able to evaluate the given information by themselves (Chew et al. 1995). They further may prefer to expose themselves to positive information as provided by advertisements after product experience or trial has taken place in order to avoid cognitive dissonance (Harmon-Jones and Mills 1999). It has been shown that consumers actively seek for positive information and avoid negative information in order to reduce or hinder dissonance (Jonas et al. 2005).

Previous research has provided further results on when low credibility sources can be more influential than a high credibility source. When consumers’ own prior behavior (i.e., the experience with a particular product) serves as the main persuasion cue, a low credibility source facilitates the attribution of behavior to internal causes and, thus, becomes influential, whereas a high credibility source hinders such an attribution process (Dholakia and Sternthal 1977; Tybout 1978).

H1: Product type moderates the effectiveness of publicity over advertising such that unknown products lead to stronger effects of publicity, whereas known products lead to stronger effects of advertising.

Message type Most experimental studies use the same messages for both marketing-oriented publicity and adver-

tising in order to control for confounding factors in the experimental setting. The assumption of identical message types leads to unrealistic and artificial settings, because both sources typically present information in different ways. As such, some studies modified the message in order to provide more realistic conditions. Findings demonstrate that publicity and advertising that use the same messages hamper the ability of recipients to distinguish between both source types. If the same message is presented in both experimental conditions, recipients might even tend to perceive both messages as advertising messages (or publicity messages) but not as messages coming from different sources. The inability to distinguish between messages from different sources weakens the strength of the source manipulation. Although varied messages might provoke confounding effects, they enhance the manipulation strength due to a clearer differentiation between marketing-oriented publicity and advertisement, which enhances the effect sizes for the dependent variables. A previous meta-analysis indeed supported the fact that the strength of the effect size increases for realistic advertising messages over artificial ones, because the effect of the message manipulation becomes stronger (Eisend 2009).

H2: Message type moderates the effectiveness of publicity over advertising such that identical messages lead to weaker effect sizes than varied messages.

Source cue Previous studies differ with respect to whether a source cue was provided, that is, whether the source was identified in the message as publicity or advertisement. Providing a source cue can enhance the strength of the manipulation in the same way as a varied message type (versus an identical one); if a source cue is provided, it is easier for the recipients to distinguish between source types, whereas the absence of a source cue might hamper the ability to distinguish between both source types. The strength of the manipulation impacts the effect size of the dependent variables.

H3: Source cues moderate the effectiveness of publicity over advertising such that messages with a source cue lead to stronger effect sizes than messages without a source cue.

Stimulus combination The majority of previous studies examined only publicity or only advertising, but not a combination of the two sources. In real world settings, consumers are exposed to product information that is provided by different kind of communication sources, and it is likely that consumers receive information about products from both advertising and publicity sources. For

this reason, a few studies tested a sequence or a combination of publicity and advertising and compared the results to an advertising-only stimulus. The combination of both stimuli reduces the strength of the source manipulation, because respondents are less able to distinguish between the sources when sources are presented in a sequence and not in isolation. The strength of the source manipulation impacts the effects size of the dependent variables. Furthermore, the combination of both sources averages the advantages and disadvantages of the credibility of both sources. Hence, the combined effect typically lies somewhere between the effect of either advertising or publicity (Loda and Coleman 2005). Since the combination or sequence is compared to advertising only, the effect size is weaker than the effect sizes emerging from the comparison between advertising and publicity.

H4: Stimulus combination moderates the effectiveness of publicity over advertising such that combined stimuli lead to weaker effect sizes than separate stimuli.

Publicity or advertorial Marketers try to make use of the effects of both advertising and publicity at the same time by using advertorials, that is, a print advertisement disguised as editorial material. Instead of marketing-oriented publicity, some previous studies compared the effects of these advertorials with the effects of advertising-only. It is argued in the literature (Lord and Putrevu 1993) that advertorials combine the advantages of both publicity and advertising, and therefore lead to even stronger effects than publicity only. Advertorials lead to high credibility since they are perceived as editorial content; at the same time marketers control message content and can avoid the possibility of negative information effects.

H5: Publicity versus advertorial moderates the effectiveness of publicity over advertising such that advertorials compared to advertising lead to stronger effect sizes than publicity compared to advertising.

Measurement time While most previous studies provide an immediate measure of the influence of publicity versus advertising, a few studies provide delayed measures. This finding is particularly interesting considering the sleeper effect of sources that vary in credibility; the source credibility effect is assumed to diminish over time, because message information remains more accessible over time than source information (Kumkale and Albarracín 2004; Weinberger 1961). When source information is forgotten, message information remains as the only persuasive communication element while the effect of the source disappears.

H6: Measurement time moderates the effectiveness of publicity over advertising such that delayed measures lead to weaker effect sizes than immediate measures.

Publication year In recent years, source credibility became more important as a diagnostic tool for consumers to evaluate marketing communication because today's consumers face richer information environments than ever before (Lurie 2004), whereas the information processing capacities of consumers have remained stable. Source credibility serves as a cognitively releasing key stimulus for recipients, since it eases the evaluation of information and precludes extensive information research (Chaiken 1980). By this means, it helps recipients deal with increasing information load and richness of information environments. Previous research showed that the effect of source credibility indeed became stronger with time, and this effect persists even after controlling for method factors, which indicates that consumers rely increasingly on source credibility (Eisend 2004).

H7: Publication year of a study moderates the effectiveness of publicity over advertising such that publication year increases the effect sizes.

Method

Study retrieval

To identify relevant studies for the meta-analysis, a computerized bibliographic keyword search using *EBSCO Business Source*, *ABI/Inform* (for business publications), *PsycINFO* and *PSYINDEX* (for psychology literature), and the *Social Science Citation Index* was conducted, followed by an internet search using *Google Scholar*. Once a study was identified, references were examined in a search for further studies. The approach is consistent with recommendations made by several authors (e.g., Hunter and Schmidt 2004; Rosenthal 1994) and closely follows the steps taken in earlier meta-analyses published in the marketing literature. Furthermore, authors that were identified as providing several studies on the topic were contacted and asked for further studies.

The literature search covered the period from 1971 (the publication year of a study by Preston and Scharbach that is considered the first empirical study on the topic) up to and including 2009. Only the studies that investigated the impact of marketing-oriented publicity versus advertising on ad/article processing and related effectiveness measures were considered. In particular, the studies had to provide

empirical results on the effect of marketing-oriented publicity versus advertising on recipients concerning the following dependent variables: attitude toward message, attitude toward brand, cognitive responses (total, positive, and negative), message processing, purchase/behavioral intention, source credibility, recall, and recognition.

We considered studies that compared the effect of advertising only versus publicity plus advertising (i.e., publicity that precedes or follows advertising). Furthermore, as a basis for comparison, we also considered studies that investigated effects of advertising versus advertorials. We did not consider studies that provided results on format identification only (Wilkinson et al. 1995), since this measure is not usually considered as a dependent variable but rather as a manipulation check measure. Furthermore, we did not use content analyses that described features of various communication formats including advertising and publicity, nor did we consider evaluations of advertising versus publicity by practitioners, since these studies do not provide a measure for the effects of advertising versus publicity on recipients.

This search resulted in 36 articles. In cases where two or more studies were based on the same sample, the study that provided more data details was used (see notes in Table 1 for information on studies with the same data). In one case, three studies were based on the same sample, but they provided different results (Wang 2006, 2007; Wang and Nelson 2006); for the purpose of the analysis, they were all included and classified as results from one independent sample. Some studies did not provide sufficient data for direct calculations of effect sizes. In most cases, standard deviations of experimental groups are missing, whereas mean values are provided. We attempted to retrieve information on missing data from authors of the study. If data were unavailable, we replaced the missing values for standard deviations by regression-based multiple imputations (Schafer and Graham 2002). Multiple imputation has been shown to produce unbiased parameter estimates which properly reflect the uncertainty associated with estimating missing data. Multiple imputation is robust to departures from normality assumptions and provides adequate results even in the presence of low sample size. For one study, data could not be retrieved nor be replaced due to insufficient data in the paper (Hennessey and Anderson 1990). The study was excluded from the analysis. In sum, 30 independent samples were included in the meta-analysis (Table 1).

Meta-analytic procedure and structural equation model

The effect size metric selected for the analysis is the correlation coefficient; higher values of the coefficient indicate a stronger effect of marketing-oriented publicity

Table 1 Overview of studies and moderator variables used in the meta-analysis

	Study: Author(s) and publication year	Product type	Message type	Source cue	Stimulus combination	Publicity or advertorial	Measurement time
1	Cameron 1994	familiar	identical	with	separate	publicity	manipulated ^a
2	Celebi 2007	familiar	varied	without	separate	publicity	direct
3	Chaiken and Maheswaran 1994	unfamiliar	identical	with	separate	publicity	direct
4	Chew et al. 1995	manipulated	identical	without	separate	publicity	direct
5	d'Astous and Hébert 1991	unfamiliar	identical	without	separate	publicity	direct
6	Hallahan 1995, main study ^b	unfamiliar	identical	without	separate	publicity	direct
7	Hallahan 1995, prior study	familiar	varied	without	separate	publicity	direct
8	Hausknecht et al. 1991 ^c	familiar	identical	manipulated	separate	advertorial	direct
9	Jacoby and Hoyer 1989	familiar	varied	without	separate	publicity	direct
10	Jin 2003	familiar	varied	without	combined	publicity	delayed
11	Jin et al. 2008	familiar	varied	without	combined	publicity	delayed
12	Jin et al. 2006	familiar	varied	without	combined	publicity	delayed
13	Jo 2004	unfamiliar	identical	with	separate	publicity	direct
14	Kim et al. 2001	unfamiliar	identical	manipulated	separate	advertorial	direct
15	Küster-Rohde 2009, study 1	unfamiliar	identical	with	separate	publicity	manipulated
16	Küster-Rohde 2009, study 2	unfamiliar	identical	with	separate	publicity	manipulated
17	Loda et al. 2005 ^d	familiar	identical	without	separate	publicity	direct
18	Lord and Putrevu 1998, study 1	familiar	varied	without	separate	publicity	direct
19	Lord and Putrevu 1998, study 2	familiar	identical	with	separate	publicity	direct
20	Micu 2005	unfamiliar	varied	with	separate	publicity	direct
21	Preston and Scharbach 1971	familiar	identical	with	separate	publicity	direct
22	Putrevu 2005	unfamiliar	identical	with	separate	publicity	direct
23	Rosengren 2008	manipulated	identical	without	separate	publicity	direct
24	Salmon et al. 1985	familiar	identical	without	separate	publicity	direct
25	Schmidt and Hitchon 1999	unfamiliar	identical	without	separate	publicity	direct
26	Schwarz et al. 1986	unfamiliar	identical	with	separate	publicity	direct
27	Stammerjohan et al. 2005	manipulated	varied	without	combined	publicity	direct
28	Straughan et al. 1996	unfamiliar	identical	without	separate	publicity	direct
29	Wang 2003	unfamiliar	varied	without	combined	publicity	direct
30	Wang 2006; Wang 2007; Wang and Nelson 2006	unfamiliar	identical	with	separate	publicity	direct

^a Moderator variable was manipulated in the study; that is, the moderator category depends on the effect size used for the final analysis

^b Same data were used in Hallahan 1999a, 2008; Hallahan 1999b

^c Same data were used in Hausknecht et al. 1989

^d Same data were used in Loda and Coleman 2005; Loda et al. 2007

over advertising on outcome variables. Most studies were experimental studies, for which we computed standardized mean differences first and then converted them to correlation coefficients. For studies that reported other measures (e.g., Student's *t*), those measures were converted to correlation coefficients following common guidelines for meta-analysis (cf., Lipsey and Wilson 2001). Since most papers reported multiple measures of marketing-oriented publicity versus advertising effects, the analysis includes single-study multiple correlation estimates for particular relationships.

The models suggested above include eight variables in total. That is to say that 28 off-diagonal cells must be filled in order to produce the input correlation matrix for structural equation modeling. In addition to the results of the effect size integration, the studies were searched for further statistical measures reporting the relationship between the dependent variables. A minimum of four correlations for each cell of the matrix is included in the correlation matrix. The use of only four estimates for such relationships is above the minimum of effect sizes that have been applied in other meta-analytic structural equation

modeling studies (e.g., Geyskens et al. 1999; Zhao et al. 2007).

The meta-analytic integration procedures were performed taking a random-effects perspective (Shadish and Haddock 1994). The integration of the correlations uses variance weights in order to consider the varying sample sizes of the studies. Furthermore, measurement errors were corrected by considering reliability coefficients of the dependent and independent variables (Hunter and Schmidt 2004). A conservative 0.8 reliability estimate was applied to objective measures (i.e., single-item measures) as suggested in the literature (Bommer et al. 1995; Dalton et al. 2003; Hunter and Schmidt 2004). In order to consider a weight for multiple measures per study, each correlation was weighted by the ratio 1 to the number of correlations per study measuring the same dependent variable.

All of the constructs in the structural equation models are measured by a single indicator, and error variances for the indicators are set to zero, since measurement errors are already considered when integrating the effect sizes. The harmonic mean of the cumulative sample size underlying each meta-analytic correlation is used as sample size for the analysis, as it is commonly practiced in meta-analytic structural equation modeling studies (and recommended by Viswesvaran and Ones 1995). The harmonic mean gives less weight to substantially large cumulative sample sizes, and, therefore, enables more conservative testing than the arithmetic mean would in the case that cumulative sample sizes show substantial variation.

For the final analysis, fit indices are provided in addition to chi-square test statistics, namely: GFI, AGFI, and RMR (root mean square residual). Chi-square difference tests are used to assess the difference in fit between the total model and the partial models that are nested within the total model.

Moderator regression analysis

The moderator variables presented in the theory section (product type, message type, source cue, stimulus combination, publicity or advertorial, measurement time, and publication year) were coded according to information provided in the studies. Table 1 provides an overview of the studies used in the meta-analysis and the moderators that apply to each study. These moderator variables are used as predictors in a regression model in order to explain the heterogeneity of the effect sizes of dependent variables that are based on a sample of at least twenty effect sizes. Following a random-effects perspective, the method of moments was applied where the residual sum of squares of an OLS regression of the moderator model was used to estimate the random variance (Raudenbush 1994). The total variance (conditional variance of the effect size due to

sampling error plus random variance of the population effect size) was then used as a weight in a weighted regression analysis.

Results

The matrix in Table 2 shows the meta-analytic correlations, the underlying number of correlations, and the cumulative sample size. The harmonic mean of the sample size is 727.

Table 3 provides the standardized path coefficients and fit indices of the suggested models. The errors of the cognitive response constructs were allowed to correlate. All models show an acceptable fit. In order to determine whether the total model provides a better explanation than the three more parsimonious models nested within it, the fit of the total model that is restricted to any of the nested models is compared with the fit of the total model with unrestricted paths. The model fit (chi-square/degrees of freedom) significantly worsens as soon as the total model has restricted paths (source credibility model: 251.639/21; information processing model: 448.703/20; information evaluation model: 335.734/16). The chi-square difference/df for the total model restricted to the source credibility model is 200.750/15, for the total model restricted to the information processing model: 401.581/15, and for the total model restricted to the information evaluation model: 335.734/16. All chi-square differences are significant ($p < .001$). Hence, the total model provides an additional explanation that goes beyond the explanatory power of each of the nested models.

Except for two coefficients, all coefficients shown in Table 3 are significant ($p < .05$) and indicate the assumed direction in the models. As suggested in the source credibility model, marketing-oriented publicity versus advertising enhances source credibility, which enhances attitude toward the message. The results of the information processing model show that marketing-oriented publicity versus advertising enhances total cognitive responses, which enhances attitude toward the message, but not toward the brand itself. The findings of the information evaluation model show that marketing-oriented publicity versus advertising enhances both positive and negative cognitive responses, but the effect is stronger for negative cognitive responses than for positive ones ($t = 2.208$, $p = .027$). Positive cognitive responses enhance attitude toward the message and the brand. Negative cognitive responses reduce attitudes toward the brand. In all models, attitude toward the message enhances attitude toward the brand, which positively impacts purchase/behavioral intentions.

The integrated model supports most of these paths, but it also shows changes regarding the cognitive response measures. The changes are due to the increased number of

Table 2 Meta-analytic correlations

		Source	Source credibility	Attitude toward message	Attitude toward brand	Purchase/ behavioral intention	Cognitive responses, total	Cognitive responses, positive
Source credibility	r	.225						
	N ^b	20						
	k ^a	2666						
Attitude toward message	r	.173	.469					
	k	63	19					
	N	5250	827					
Attitude toward brand	r	.204	.429	.625				
	k	28	10	11				
	N	2954	980	873				
Purchase/behavioral intention	r	.188	.309	.430	.773			
	N	24	10	11	6			
	k	2623	979	872	1026			
Cognitive responses, total	r	.133	.017	.169	.108	.015		
	k	28	8	8	4	4		
	N	1577	501	545	548	547		
Cognitive responses, positive	r	.079	.019	.182	.238	.157	.848	
	k	20	8	8	4	4	4	
	N	1721	501	545	548	547	549	
Cognitive responses, negative	r	.193	-.018	-.045	-.236	-.179	.393	.089
	k	8	8	8	4	4	4	4
	N	629	501	545	548	547	549	549

^a k: number of correlations

^b N: cumulative sample size with harmonic mean = 727

explanatory variables, and the total effect from source to both attitude measures is now distributed over more paths. The effect of total cognitive responses on attitude toward the brand becomes negative, which is contrary to the assumptions of the information processing model. While the impact of positive cognitive responses on attitude toward the message becomes non-significant, the path from negative cognitive responses to attitude toward the message becomes significant.

The total effects in Table 4 show that the source credibility path explains most of the variance in the dependent variables brand attitudes and purchase/behavioral intention; the effect is about three times as strong as the effect of the information evaluation model, and more than five times as strong as the total effect of the information processing model.

Next to the dependent variables in the correlation matrix (source credibility, attitude toward message, attitude toward brand, purchase/behavioral intention, total, positive, and negative cognitive responses), we collected effect sizes for recall, recognition, and message processing, with positive mean correlation coefficients for these variables that indicate that publicity over advertising enhances these outcome

measures. The results are as follows: recall: mean $r=.074$, number of correlations $k=34$, total $N=4201$; recognition: mean $r=.294$, $k=8$, $N=613$; message processing: mean $r=.243$, $k=24$, $N=148,343$.

The correlations for each dependent variable show considerable variance. Indeed, except for recognition, the Q-statistics (homogeneity statistic) indicate that the total variance of the correlations for each dependent variable is significantly higher ($p<.01$) than the within-study variances (i.e., the variance due to sampling). The remaining variability (heterogeneity) can be explained by moderator variables. The moderator variables suggested above are used as predictors in a regression model in order to explain the heterogeneity of the effect sizes for dependent variables that are based on a sample of at least twenty effect sizes (i.e., attitude toward message, attitude toward brand, purchase/behavioral intention, recall, total and positive cognitive responses, and message processing). For two of the regression models, the explained variance is not significant (total cognitive responses: $QR=4.213$, $df=5$, $p=.519$; message processing: $QR=4.683$, $df=6$, $p=.585$). They were not considered in the following analysis. The results of the regression models are presented in Table 5.

Table 3 Direct effects and fit indices for structural equation models

	Source credibility model	Information processing model	Evaluation model	Total model
Source → Source credibility	.225 ***	–	–	.225 ***
Source → Cognitive responses, total	–	.133 ***	–	.133 ***
Source → Cognitive responses, positive	–	–	.079 *	.079 *
Source → Cognitive responses, negative	–	–	.193 ***	.193 ***
Source credibility → Attitude toward message	.469 ***	–	–	.465 ***
Cognitive responses, total → Attitude toward message	–	.169 ***	–	.172 **
Cognitive responses, total → Attitude toward brand	–	.002	–	–.178 **
Cognitive responses, positive → Attitude toward message	–	–	.188 ***	.038
Cognitive responses, positive → Attitude toward brand	–	–	.261 ***	.296 ***
Cognitive responses, negative → Attitude toward message	–	–	–.062	–.108 **
Cognitive responses, negative → Attitude toward brand	–	–	–.259 ***	–.166 ***
Attitude toward message → Attitude toward brand	.625 ***	.625 ***	.587 ***	.595 ***
Attitude toward brand → Purchase/behavioral intention	.772 ***	.772 ***	.772 ***	.771 ***
Model statistics				
χ^2	50.889	47.122	61.103	114.664
df	6	5	6	15
GFI	.974	.975	.974	.969
AGFI	.934	.926	.907	.908
RMR	.068	.080	.079	.055

* $p < .05$; ** $p < .01$; *** $p < .001$

$N = 727$

The effect of marketing-oriented publicity over advertising on attitude toward message, attitude toward brand, source credibility, recall, and positive cognitive responses is stronger for unknown products than for known ones, supporting H1 for these variables. A varied message format leads to stronger effects of marketing-oriented publicity over advertising for attitude toward message, attitude toward brand, and purchase/behavioral intention than does an identical message. This finding supports H2 for the former variables. Providing a source cue did not affect any of the dependent variables. Hence, the assumption stated in H3 is not supported by the data. The combination of publicity plus advertising leads to weaker effects for attitude measures than does publicity-only messages,

supporting H4 for both variables. Advertorials versus advertising lead to stronger effects than publicity versus advertising for dependent variables for which we could test this effect, namely attitude toward message and recall. This finding supports H5. No effect emerged for measurement time. Thus, H6 is not supported by the data. Publication year positively impacts the effect on recall, which supports H7 for this outcome measure.

Regression analysis based on small samples runs the risk of biased estimates in cases where the normality assumption has been violated. We visually checked the distribution and controlled for the possibility of outliers; we also tested the distribution of the dependent variables for normality, which always yielded fit to the normality assumption. As

Table 4 Total effects on attitude toward brand and purchase intention

	Overall		Unknown products		Known products	
	Attitude toward brand	Purchase/behavioral intention	Attitude toward brand	Purchase/behavioral intention	Attitude toward brand	Purchase/behavioral intention
Source credibility model	.062	.048	.089	.069	–.063	–.049
Information processing model	.009	.007	.009	.007	.009	.007
Information evaluation model	–.019	–.015	–.008	–.006	–.144	–.111

Table 5 WLS regression analysis

Predictor (Moderator)	Source credibility	Attitude toward message	Attitude toward brand	Purchase/behavioral intention	Recall	Cognitive responses, positive
Constant	−54.391 (37.868) ^a	13.061 (7.136)	−.732 (18.429)	−43.043 (30.102)	23.519 (5.453) ***	24.502 (21.846)
Product type: unknown vs. known	−.493 (.196) **	−.156 (.045) ***	−.367 (.134) **	−.310 (.247)	−.220 (.071) **	−.537 (.147) ***
Message type: identical vs. varied	.161 (.299)	.383 (.094) ***	1.064 (.244) ***	.840 (.303) **	.143 (.117)	− _b
Source cue: with or without	.261 (.360)	−.025 (.040)	−.022 (.130)	.213 (.235)	.092 (.055)	−.048 (.131)
Stimulus combination: separate vs. comb.	.192 (.303)	−.312 (.095) ***	−.885 (.282) **	−.194 (.513)	.301 (.286)	− _b
Publicity versus advertorial	− _b	.595 (.043) ***	− _b	− _b	.920 (.055) ***	− _b
Measurement time: immediate vs. delay.	−.226 (.161)	−.048 (.074)	−.237 (.203)	−.094 (.319)	.239 (.266)	.239 (.201)
Publication year	.027 (.018)	−.006 (.003)	.001 (.010)	.022 (.015)	.012 (.003) ***	.012 (.011)
Model summary						
QR (explained)	26.825 ***	237.834 ***	34.419 ***	16.903 **	399.217 ***	17.390 **
R ²	.683	.582	.604	.510	.782	.575
k ^c	20	63	28	24	34	20

^aThe unstandardized regression coefficient with the standard error in brackets is given

^bThe moderator variable is a constant for the particular subset of variables

^ck is the number of effect sizes included in the regression model

* $p < .05$; ** $p < .01$; *** $p < .001$

the sample of effect sizes compared to the number of predictors is rather small, which might bias the results of the multiple regression models and also reduces statistical power of single predictors, a second series of regression models based only on the significant predictors in the initial analysis was computed. The results remained unchanged.

The moderator model showed that the effect of publicity versus advertising on positive cognitions and on source credibility decreases significantly for known versus unknown products. If we replace the coefficients in the model with the coefficients for both subgroups (source to positive cognitive responses: $-.413$ (known products) and $.166$ (unknown products); source to source credibility: $-.217$ (known products) and $.323$ (unknown products)) the results indicate a moderator effect (Table 4). For unknown products, the total effects of the source credibility model become stronger showing the same direction as in the overall model. In addition, the total effects of the information evaluation model become weaker. Hence, the overall effects of publicity over advertising become stronger. For known products, however, the total effects of the source credibility model become negative, and the negative effect of the information evaluation increases. This moderating factor results in an overall negative effect, which shows that advertising outperforms publicity for known products.

Correlation coefficients for either known or unknown products were not available for all cells in the matrix. In the analysis described above, we computed the total effects based on the correlation coefficients of the initial matrix except for correlation coefficients mentioned above (correlation between source and source credibility; correlation between source and positive cognitive responses) that were used in order to compute the effects for either unknown or known products. In an additional analysis, we further checked for significant differences of other correlation coefficients when the data provided in the primary studies allowed us to test for differences between known and unknown products. Significant differences emerged for the correlation between source credibility and attitude toward message (known products: $.697$, unknown products: $.470$). When using these values for each subgroup to compute the total effects in Table 4, the effects for unknown products show a negligible change, whereas the negative effects of the source credibility model for known products increases by almost one third, providing stronger support for the moderator effect.

Discussion

Contribution and theoretical implications

The results of the meta-analysis support the effect of publicity over advertising that is due to a source credibility

effect, an information processing effect, and an information evaluation effect. While the last effect is an overall negative effect, both other paths show a positive effect, with the source credibility effect being about three times as strong as the negative effect due to information evaluation. The results show that the trade-off between credibility and control over message content is in favor of the credibility of the source, supporting the overall superiority of marketing-oriented publicity over advertising. This effect is moderated by prior product knowledge though. Indeed, the described relationship holds and becomes stronger for unknown products. However, the effect changes for known products where the overall effect of the source becomes negative, indicating that advertising outperforms publicity. These results show that marketing-oriented publicity versus advertising is superior for products about which consumers lack prior knowledge and are in need of reassurance that is more likely provided by a high credibility source. Most studies that have investigated and supported the positive effects of media coverage refer to product innovations, product pre-announcements, or products with which most consumers are not yet familiar (e.g., Basuroy et al. 2003; Henning-Thurau et al. 2006). The superior effect of advertising over publicity for known products comports with the assumption that consumers' need for reassurance disappears with product experience and knowledge, and the credibility effect simply reaches a ceiling. Instead, consumers become less skeptical toward advertising and prefer positive information as provided by advertising after experiencing a product. Selecting positive advertising allows consumers to avoid cognitive dissonance that may arise from contradictory product experiences and messages. These findings are also in line with studies that show that a low credibility source can be more persuasive when the consumer's own prior behavior serves as a persuasion cue (Dholakia and Sternthal 1977; Tybout 1978).

The meta-analytic findings contribute to the research on negativity effect (Fiske 1980). When consumers are exposed to publicity, message processing and processing of negative information are enhanced. This process provides another explanation for the negativity effect of publicity. The models suggested in this paper show that an overall evaluation of publicity effects must consider different effect paths next to the negativity effect in order to test for the overall effect of publicity versus advertising on consumers. By introducing prior knowledge as an important moderator, the findings further suggest that the negativity effect might be less severe in cases where consumers do not yet know about a product.

The paths in the total model show results that differ from the paths in the individual models. They can be explained by the fact that the number of explanatory variables has increased in the total model, and the total effect from source

on both attitude measures in the partial models are now distributed over more paths, especially as related to cognitive response measures and source credibility.

Positive and negative cognitive responses are correlated with total cognitive responses, but they are not identical, because total cognitive responses also include neutral and other responses and not just the sum of positive and negative cognitive responses. Still, the explained variance in attitude measures as caused by the source is now shared over more paths, amongst them three paths related to cognitive responses; this leads to a re-distribution of effects of cognitive responses in the total model. As for attitude toward the brand, the negative effect of negative cognitive responses in the evaluation model is reduced, while there is now a significant effect of total cognitive responses on brand attitude. That is, increased cognitive responses can be unfavorable for brand evaluation since evaluation becomes more critical due to the fact that the overall increase in cognitive responses includes an increase in the ratio of negative to positive cognitions, as suggested by the evaluation model. Although this might be beneficial for attitudes toward a message as indicated by the positive effect of total cognitive responses on attitudes toward the message (i.e., the message is perceived as more balanced when both positive and negative information is included), it affects brand evaluation in a negative way, because increasing amounts of negative brand information worsen brand evaluation (Eisend 2006). As for the effect on message attitudes in the total model, effects of positive cognitive responses diminish, because the total model now includes an alternative positive effect of total cognitive responses and the positive effect of source credibility that both seem to be responsible for the positive influence of the source on message attitudes.

The results of the moderator regression models provide further insights into when marketing-oriented publicity is the preferred strategy over advertising. As explained above, publicity is more effective (in terms of source credibility, attitude toward the message, attitude toward the brand, and positive cognitive responses) than advertising for unknown products, whereas advertising outperforms publicity for known products. As another effect, it turns out that a varied message type leads to stronger effects (related to source credibility, attitude toward the message, attitude toward the brand, and purchase/behavioral intentions) than identical messages. Different types of messages are mostly used in publicity and advertising in the real world, whereas identical messages are mostly used in laboratory experimental designs. This illustrates the perils with a merely academic approach when investigating such issues and the need to combine both methods: experimental research with high internal validity and field research that provides high external validity. Source cue did not have any effect on the

effect sizes. A simple explanation might be found in the stimuli that were used in the studies: source cues were provided when the sources could not easily be identified by the study participants. It can be assumed that participants in all other studies were aware of the difference between both types of sources. The findings further show that marketing-oriented publicity versus advertising affects attitude toward the message and the brand when it is used as an isolated stimulus (i.e., when recipients are not exposed to advertising and publicity at the same issue). The strength of the effect of exposure to both sources in sequence or in combination is below the effect of exposure to publicity only. The combination apparently mixes the advantage of publicity only with the disadvantage of advertising only. As for advertorials, they lead to stronger effects on attitude toward message and recall than publicity—in line with the idea that advertorials combine the advantages of both publicity and advertising—and therefore can lead to increased effects (Lord and Putrevu 1993). Measurement time did not affect any of the dependent variables, which can be explained by short delays that were applied in most experiments in the meta-analysis. The strength of the sleeper effect depends on the length of the delay (e.g., Gruder et al. 1978). Finally, the results show that the effect of publicity over advertising increased over the years as related to recall. An increase of credibility effects has been supported in previous research (Eisend 2004), because credibility became an important cue for consumers in order to deal with increasing information load and more complex information evaluation tasks. Our results show that the effect primarily relates to memory effects, that is, source credibility increasingly eases the retrieval of information from memory.

Managerial implications

The findings provide several practical implications as well. First and foremost, they show that marketing-oriented publicity is superior for products that consumers do not yet know about. Particular emphasis can therefore be given to publicity for market introductions. Indeed, Ries and Ries (2002) provide some anecdotal evidence on the success of well-known brands such as eBay, Starbucks, PlayStation that were introduced without large advertising budgets and focused on publicity and word-of-mouth instead. As soon as consumers get to know a product, marketers should rather rely on advertising campaigns. This advice goes hand in hand with the fact that the newsworthiness of products declines with progress in the life cycle and media might lose interest in reporting about these products (Shimp 2007). However, the practical implication is somewhat limited, since ordinary products (e.g., fast-moving consumer goods) might not be interesting for media at all and

might be unable to provide a story for press release; in that case, marketers need to invest in advertising as a more general means of communication for promoting a brand.

The findings are also interesting in the light of recent results by Rinallo and Basuroy (2009) who showed that advertising spending influences media coverage. This situation seems to be preferable for new products, but not necessarily for products consumers already know about. The moderator regression analysis further suggests that advertorials are a good alternative to publicity, and that the effect of publicity is stronger when consumers are not exposed to both publicity and advertising at the same time. This result implies that publicity and advertising campaigns should rather be planned separately and in a way that both campaigns take place at different times.

Limitations and future research

While research integration is an essential step of knowledge accumulation as it provides empirical generalizations that are useful for practical marketing decisions, a meta-analysis also has some shortcomings when primary studies do not provide sufficient information in order to test for further moderator variables. For instance, the effects for the moderator prior knowledge are still quite general and allow for further specification. Previous research has shown that for consumers who know a product and have developed a prior attitude, commitment moderates the effect of negative publicity (Ahluwalia et al. 2000). This effect does not contradict our overall findings but specifies them in a way that could not be considered in this meta-analysis since primary studies did not provide sufficient information. There are other special cases that are not considered by the highly generalized results of our meta-analysis but might provide interesting moderators for further research, such as the case of highly credible advertising (e.g., two-sided advertising) and low credibility media (e.g., tabloids). We could also not test whether the incidence of increased negative cognitions as triggered by publicity is due to the higher probability of negative information in publicity messages or due to the more critical evaluation of these messages by consumers. Furthermore, the dependent variables that were available for the meta-analysis could be refined in future primary studies to provide more precise results. For instance, the mere number of either positive or negative cognitions was the only measure for the valence of cognitions. Proportion measures (e.g., negative to positive cognitions) would be a more precise way to measure both the effect on and the influence of the valence of cognitions in future studies. Finally, although the study gives clear advice on when and how it makes sense to use either publicity or advertising, the study could not consider the costs for both communication methods as another important

variable. Further research should try to integrate the cost factor that can considerably vary over advertising and publicity in order to provide a clearer picture of the effectiveness of both communication devices.

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