

On Managerial-Consumer Eco-harmful Media Perceptions and Eco-Conscious Attitudes: Understanding the Green Media Context

Introduction

The economic consequences of media selection decisions are of great importance because they directly affect the profits of the company. At the same time, consumer concern for the environment is increasing along with the knowledge and skills related to buying eco-friendly products (Maniatis, 2015), and this concern affects attitudes toward various media types. Moreover, in markets with strong green consumption preferences such as Sweden (EPI, 2016), recent research has shown that a company's choice of advertising media can affect communication results (Rademaker et al., 2015). Specifically, communication effects are more negative when an advertising medium is perceived as more environmentally harmful than other media alternatives; hence, it is important for marketing managers to have updated and accurate knowledge about such consumer media perceptions. Knowledge about consumers' eco-harmful media perceptions is, therefore, useful to guide marketing managers in selecting the most effective and ultimately the most profitable media.

As consumers collectively adapt their preferences because of their increasing concern for the environment - exhibited through eco-conscious attitudes (ECA) - they also put higher demands on firms because corporate decisions and actions perceived as environmentally harmful are increasingly monitored, identified and exposed to the public (Amores-Salvadó et al., 2014; Bodkin et al., 2015). These eco-conscious attitudes are also manifested through growing consumer demand to act and communicate in more sustainable ways. Hence, companies are now exposed to increased public scrutiny about how they communicate their sustainability efforts to the marketplace. In countries with a strong focus on sustainability, this includes advertising media used to communicate a company's message. In the context of this increasing consumer preference for eco-friendlier corporate behavior, communication

managers cannot afford to ignore environmental factors when making advertising media decisions.

The notion that the advertising medium itself is part of a given message, or unequivocally a precondition of how a message is received, is a basic premise of communications research (McLuhan, 1994). It is therefore not surprising that the study of the effects of media channel selection has become a major stream in advertising research and a considerable concern in advertising practice (Rosengren, 2008; Grass and Wallace, 1974). Despite the vast amount of attention directed at this problem, media selection remains a challenging issue, further aggravated by the proliferation of new media (Danaher and Dagger, 2013) as well as a rapidly changing landscape of media consumption (Wahlund et al., 2013). This development underscores the need for a deeper understanding of advertising media perceptions.

It is well established that the message context can have a strong effect on how that message is received. For example, if an ad is shown next to a news story, the story topic may influence both attitude toward the message and ease of message recall (Cannon, 1982; Aaker and Brown, 1972). The media channel itself, and consumer perceptions of that channel exert a similar but subtler and even more powerful effect as a form of a semiotic of the communication exerted through the ad itself. Indeed, any message, and the medium used to convey it, emerges as a unified and inseparable whole; dividing this into different units of analysis is to misrepresent how the ad appears to the receiver such as making a given ad message reception subject to the perception of a medium's perceived environmental harmfulness (Rademaker et al., 2015). Eco-conscious attitudes are closely linked to theory on socially responsible consumption behavior and can be defined as "those consumer behaviors and purchase decisions related to environmental and resource-related problems and are motivated not only by a desire to satisfy personal needs, but also by a concern for the welfare of society in general" (Antil,

1984 p. 35). Because such personal values influence the perception of an ethically charged situation (e.g., Hunt and Vitell 1993) and consequently its subsequent decision-making process, it raises the question whether eco-conscious attitudes will be related to managers' beliefs about a specific medium's environmental impact.

Theories on construed-image relate to beliefs about beliefs or what one group believes another group believes (Cian and Cervai, 2014). Understanding eco-media image, or eco-harmful media perceptions, can be difficult because it is multifaceted, adding to its complexity (Cian and Cervai, 2014). Exploring congruence of construed eco-media image (i.e. congruency of eco-harmful media perceptions between corporate managers and consumers) is thus crucial because of its influences on the effectiveness of communication (see Rademaker et al., 2015). As such, accurate knowledge about consumers' eco-harmful media perceptions is vital to making better informed decisions for advertising effectiveness, or perhaps more importantly to mitigate the risk of communication failure derived from a channel-message mismatch.

Moreover, interest in green marketing and advertising is increasing among both advertising practitioners and scholars (Hartmann et al., 2015; Royne et al., 2012), and Taylor (2014; 2015) has called for new, more holistic approaches on research exploring environmental issues in advertising. Studying the implications of the media itself in channel selection is one avenue to answer this call. Gaining knowledge on consumer perceptions of the eco-harmfulness about specific media along with perceptions of advertising on those specific media also has direct potential for providing guidance for advertising professionals. This is particularly relevant in the selection of advertising media in markets with growing environmental awareness and concern.

We first provide an outline of the basis of consideration for managerial intervention in the context of media channel selection. It becomes clear that media channel selection is not sterile in meaning, but rather something that managerial practice must account for, or to echo

a recent call for research priorities on marketing communications, to ask “What does the communication uniquely contribute that complements other communications?” (Batra & Keller, 2016; p. 138). This question, critical in marketing communication practice and scholarly inquiry, reveals a basic problem facing managers. They must accurately predict consumer response to the marketing communication, which includes reactions to the advertising as well as the media itself, along with any potential interaction effect of message and medium. Herein lies a key aspect of the present study; it examines whether managers tasked with making media channel decisions can make such predictions on how the media itself is understood as a communicative element by its intended target audience. This is done primarily within the context of the perceived eco-harmful nature of media.

However, consumers’ association to advertising media is a multifaceted and complex issue (Grusell, 2007) as consumers may hold divergent attitudes toward different media channels and specifically advertising on these different channels. Consumers may even hold competing attitudes of wanting to reduce environmental harm while also maintaining favorable perceptions of such media channels. As such, recent research cautions the use of certain media without consideration of all effects (Francoise and Andrews, 2015). To address this multifaceted issue, we also explore other relevant factors that can have an influence on consumer response to advertising on a specific medium and that have not yet been explored in their relationship specific to eco-harmful media perceptions. The existence of such relationships can help managers in their media selection process and may result in better overall knowledge about consumer media perceptions that can ultimately lead to more effective media channel selection and communication.

The Stakes of Message Reception Mis-assessment

Managerial decision-making on advertising strategy in general, and specifically, media selection, must consider a complex array of factors to create potential for successful reception of the message conveyed. This situation is made even more challenging by ad-fatigue displayed by a growing number of consumers, the increased cost of getting the message through (Wahlund et al., 2013), the difficulty in appealing to an ever more commercial-savvy (Rosengren et al., 2015) and ad-resistant public (Verlegh et al., 2015; Fransen et al., 2015). As such, the belief that a media planner's job is to reach the maximum number of people for the least possible cost (Nowak et al., 1993) has morphed into delivering the "...right message to the right audience at the right time at the lowest possible cost" (Schultz et al., 2016; p. 3). The present work investigates the less explored factor that can be construed as better understanding the "right message" to entail a more holistic, or summative, perceptual experience of the communication. This means including the media itself, not just as a communication channel, but as a key predictor of message response. Media selection can factor into public relations issues, as a dramatic misalignment of media and message may result in negative word-of-mouth, an increasing concern in today's era of new social media (Pfeffer et al. 2014). Media/message misalignment may also prompt a number of perceptual effects that may dramatically influence the reception of the intended message.

One such instance pertaining to media selection directly is the potential of generating incongruity, i.e. a mismatch "between a stimulus element... and an existing schema" (Lee and Schumann, 2004; p. 59), in this case derived from the message versus media channel itself (Lee and Schumann, 2004). There are different ways an incongruity can yield an effect. One way is through priming (Herr, 1989), i.e. non-conscious prior exposure to stimuli rendering an effect on subsequent evaluation and recall (e.g. Epley and Gilovich, 1999). Here, the effect of the "prime" is a reaction to the medium itself. While priming is generally a more automatic, non-

conscious process, incongruity can also prompt different modes of evaluation by affecting the attention given to a certain message (Lynch and Srull, 1982), for instance, by prompting so-called cognitive elaboration (Petty et al., 1997), and in so doing bringing political and cultural considerations to a conscious evaluative effort of the stimuli. An extreme example would be a message communicated via paper pamphlet denouncing the use of paper for advertising, which would likely cause a negative response to the message. While situations where media channel selection constitutes a threat to the intended conveyance of its embedded message abound, the current work **examines** specific potential incongruity: media choice that is perceived as harmful to the environment.

Corporate Green Image and Media Communication

One context where the medium itself is a possible source of incongruence is within the domain of environmental issues. Three underlying conditions are important to the understanding of the relevance of this context. First, eco-consciousness is on the rise with an increasing number of consumers reporting concern toward a wide range of environmental issues (D'Souza, 2004; Rademaker et al., 2015). Second, this eco-consciousness, most notably present in the more mature economies in the Western world (Vaccaro, 2009), has created a societal discourse where essentially every business can gain from being perceived as environmentally-friendly, or perhaps more accurately, could potentially incur great damage if viewed as a threat to the environment (Gray and Balmer, 1998). Hence, recent works have explored the importance of effectively managing so-called "corporate green image," or the perception of a firm's role in the context of environmental issues. This aspect of corporate reputation represents a key business success factor (Amores-Salvadó et al., 2014; Bodkin et al., 2015). Third, consumers perceive certain media types as an environmental hazard. However, great uncertainty surrounds which specific medium exerts more or less environmental harm

(Achachlouei et al., 2015). Such uncertainty can also extend to perceptions of other advertising factors including goodness, trustworthiness, and irritation.

The Complexity of Estimating Media Eco-Harmfulness

A given medium's eco-harmfulness can be calculated in terms of its spot impact, its lifecycle and even in terms of its more systemic impact. That is, to assess media eco-harmfulness, its entire value chain (and disposal chain) must be considered, which can be challenging. For example, a seemingly simple mail-delivered brochure undergoes numerous processes to enable its final form, ranging from delivery logistics to the wood to pulp to paper to print chain; it may even entail the chemical processing. The environmental impact of the multitude of activities should be considered for more technically complex media, such as a smartphone, but is almost impossible to fully capture. Yet, consumers generally perceive certain media, such as paper-based advertising, as a commercial activity that creates environmental problems (Miskin, 2009). These factors crystalize a clear message to advertising strategists and managers: when considering media channel selection, advertisers must consider how a medium itself is *perceived*, including its environmental effect, to avoid risk to brand equity and corporate reputation (Rademaker et al., 2015). The ability to accurately predict consumer perceptions of a given medium's eco-harmfulness thus becomes a priority.

As noted, accurate estimation of the environmental impact of different forms of media remains a complex issue. Print media are widely understood among consumers as environmentally harmful, primarily because they contribute to unsustainable use of natural resources that generate waste in a highly conspicuous manner (Miskin, 2009). However, alternatives such as online and broadcast media cannot simply be regarded as a linear improvement, because they offer their own environmental challenges, such as energy consumption and problems embedded in the production of electronic devices (Reichart and Hischier, 2003).

The prerequisites for delivering content via online channels should entail consideration toward the manufacturing of media products, their usage, as well as the infrastructure they require including data transferring capabilities via the Internet, telephone networks and the global positioning system (Reichart and Hirschler, 2003). Another critical issue with increased attention is the shortening life cycles of electronic media products. Considering the average lifespan of personal computers is two to four years and less than two years for mobile devices (SEPA, 2011), digital communication appears in a less positive light in the context of environmental impact. This issue is further aggravated by the fact that only ~20 percent of global electronic waste is properly recycled (Kerns, 2015), while ~80 percent is transported to countries with pre-transitional economies for processing that rarely lives up to the idea of “recycling” in the stricter sense of the term. The majority of the disposal and recycling of electronic waste carried out today creates a serious environmental problem, such as spreading various hazardous substances into the environment and routinely exposing those people involved in the process to such harmful substances (Pradhan and Kumar, 2014). Hence, the digital revolution, which at face value seems to offer environmental benefits such as decreased paper waste, carries its own set of environmental issues not readily transparent or easily assessed by consumers. Coupled with the fact that media managers constitute a specialist subset of consumers, the lack of clarity in such situations creates conditions for a consistent divergence in the evaluation of the environmental impact of different media. It follows that differences in interpretation between senders and receivers of any given message-medium assemblage become highly possible. It is specifically toward this possibility that we seek further knowledge.

Divergence in Manager and Consumer Values and Perceptions

Central to the context of this study is values, understanding, and knowledge that act as the premise for assessment of eco-harmful media perceptions which would naturally differ

between individuals that have different levels of knowledge on and ways of relating to media. Eco-conscious attitudes (ECA) are values framed in the wider context of an increasing preoccupation with socially responsible consumption (Antil, 1984). An employee's personal values influence ethically charged decision-making. Attitudes are mirrored in a set of beliefs about an object or situation and signify a predisposition to respond (Stiff and Mongeau, 2003). For advertising professionals, their personal values develop in tandem with their understanding of their professional goals and the organizational environment in which they find themselves (Chiou and Pan, 2008; Hunt and Vitell, 1986; 1993). A situation where this group would likely diverge in their perceptions from the general public is probable. Hence, the following research question is posed:

RQ1: Are marketing managers' eco-conscious attitudes (ECA) congruent with consumers' ECA?

If such eco-conscious attitudes differ, this may, in turn, lead to unexpected and unintended consumer reception of the advertising itself. Hence, the following research question is posed:

RQ2: To what extent are marketing managers' assessments of consumers' attitudes toward the eco-harmful advertising media congruent with consumers' actual attitudes?

Although managers and consumers may diverge in their eco-conscious attitudes, this does not imply that managers constitute a homogenous group regarding environmental concern. And despite considerable interest on how eco-conscious attitudes affect consumer behavior, little research exists on how they affect advertising media **perceptions**. Yet a meaningful contribution can be derived from understanding how marketing managers' personal eco-conscious attitudes can influence their appraisal of consumer perceptions of different advertising media. Hence, the following research question is posed:

RQ3: Do different levels of eco-conscious attitudes (ECA) influence marketing managers' assessments of consumer attitudes toward different types of advertising media?

Other types of media perceptions and consumer response to advertising

Whereas eco-harmful media perception is a relatively new research area, the advertising literature has studied other types of advertising and media perceptions (Rademaker et al., 2015). With the vast array of media available today, consumers' association to advertising is multifaceted (Grusell, 2007) as consumers may hold divergent attitudes toward different media channels as well as advertising on these different channels. Consumers may even hold competing attitudes of wanting to reduce environmental harm while also maintaining favorable perceptions of such media channels. As such, recent research cautions the use of certain media channels without consideration of all effects (Francoise and Andrews (2015). To address this multifaceted issue, we also explore other relevant factors that can have an influence on consumer response to advertising on specific media. Specifically, we investigate "goodness," "irritation," and "trustworthiness" because these three factors are commonly studied in the context of attitudes toward different media channels overall (Chu, 2013; Morindo and Chang, 2013; Grusell, 2007), but they have not been explored in their relationship specific to eco-harmful media perceptions, and the existence of such relationships can help managers in their media selection process. In short, the present study extends the existing literature so that an understanding of the combination of these three specific factors, along with perceptions of eco-harmfulness, may result in better overall knowledge about consumer media perceptions that can ultimately lead to more effective media channel selection and communication, particularly with regard to eco-harmfulness.

Existing literature has reported that depending on the medium used, advertising can be perceived differently and have different communication effects. This is the case even when the same advertisements are used toward the same target audience (Rademaker et al., 2015). It is thus plausible that eco-harmful media perceptions are related to other types of media perceptions and specifically advertising on these particular media. As noted, three important

types of media perceptions related to advertising emerged as commonly studied because they are critical factors in understanding **media for advertising purposes**. These include goodness, irritation and trustworthiness.

Goodness

While advertising can bring pleasure and enjoyment, it can also evoke opposing feelings. Research shows consumers tend to perceive advertising itself as something “bad” and often associate advertising with negative rather than positive aspects, leading to skepticism toward advertising (Sternvik, 2003). These negative attitudes can create major challenges for marketing managers because consumers with negative ad attitudes often make efforts and choices against advertising (Speck and Elliot, 1997). We explore whether a negative relationship exists between eco-harmful media perceptions and **perceptions of advertising on certain media as “good.”** That is, as the perception of a medium in terms of eco-harmfulness increases, do **perceptions of advertising as “good” on that medium decrease?** Hence, we pose the following:

RQ4: Is there a negative relationship between eco-harmful media perceptions and “good” perceptions of advertising on certain media types?

Irritation

Advertising can also evoke irritation among consumers (Coulter et al., 2001) and that irritation can be caused by an overabundance of exposure to different types of advertising messages (Dunér and Jönsson, 2007). However, the level of irritation is higher when media consumption is disrupted by advertising. For example, studies report consumers are more positive toward advertising in newspapers as opposed to ads on TV where as many as 18 ads may be squeezed into a single commercial break (Grusell, 2008). We examine if a positive relationship exists between eco-harmful media perceptions and media perceptions as “irritating.” That is, as the perception of a medium as eco-harmful increases, **do perceptions of advertising on that medium as “irritating” also increase?**

RQ5: Is there a positive relationship between eco-harmful media perceptions and “irritating” advertising perceptions on certain media types?

Trustworthiness

With consumers becoming less trustful of all sources of information, trust in business continues to diminish, including trust in advertising (Rosengren, 2008). Consequently, consumers are paying less attention to advertising (Dahlén and Edenius, 2007), and “trust is something many brands have lost for one reason or the other. Most often brands lose trust when they lose perspective on who their customers are” (Duncan, 2002, p. 3). To effectively reach their target markets, managers must understand consumers’ changing advertising media trust perceptions. We examine if there is a negative relationship between eco-harmful media perceptions and **perceptions of advertising on certain media** as “trustworthy.” That is, we propose the following:

RQ6: Is there a negative relationship between eco-harmful media perceptions and “trustworthy” advertising perceptions on certain media types?

Method

Procedure and sampling

We developed two surveys, one for consumers and one for marketing managers. The consumer survey was conducted with an online panel where 2411 respondents from Sweden were randomly recruited (n=1928/2411; 80% response rate). This sample was found to be representative of the Swedish population in terms of age, gender and geographical distribution. The survey targeting marketing managers polled 499 members of the Association for Swedish Advertisers (ASA), a broad set of companies with different levels of annual media investments. Respondents were promised anonymity. After three rounds of reminder emails, the final response rate was 39 percent (n=193, 51% female, age 20-65 years); this included partially completed surveys resulting in n=106 and n=117 respectively.

We then selected several different media types as recommended by Grusell (2007) and included newspapers and magazines, mobile phones (SMS and MMS), outdoor (billboard) advertising, cinema, radio, TV, direct mail and the Internet because of their paper/electronic characteristics. In addition, paper catalogues and brochures, and in-store ads (posters) were added, comprising a set of 10 media types.

Measures

The ECA scale was developed to measure ecological conscious attitudes using variables consolidated from existing scales (Antil, 1984) and from measures used by organizations such as the World Wide Fund for Nature (Schaefer and Crane, 2005). While these scales take a broader perspective including general opinions about the welfare of society, the ECA scale focuses on an individual's attitude toward product consumption relative to one's responsibility to protect the environment. The final set of five ECA items (See Appendix A) was developed in cooperation with a group of experts on the issue including both researchers and marketing practitioners. Both managers and consumers responded to the ECA scale on their respective questionnaires.

Marketing managers' ECA scores were also categorized as either high or low by creating a new categorical variable via visual binning in SPSS. This new variable used the integer values 1 or 2 to represent low ECA (<6) and high ECA (≥ 6), splitting the sample into two groups where low ECA represents those who to some extent are personally committed to not harming the environment, and high ECA represents those who to a great extent are personally committed to not harming the environment. This allowed us to classify the managers into two different groups to understand differences between them. The cut-off point for low ECA was set at <6 instead of its mid-point of 5.5 to compensate for a slight skew in responses.

Consumers' eco-harmful media perceptions were measured with the question, "To what extent do you think the following media are harmful for the environment (0=not at all harmful,

10 = very harmful)? Marketing managers' beliefs about consumers' eco-harmful media perceptions were measured with "In your opinion, to what extent do consumers think the following media are harmful for the environment? (0=not at all harmful, 10 = very harmful)? This was done for each of the 10 media used in this study.

For subsequent analytical purposes, we used principal components analysis (PCA) to categorize the 10 different media into logical groups. Prior to performing PCA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix for the managers as well as the consumers both revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value exceeded the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix for both groups. Two separate PCAs (one for managers and one for consumers) supported a categorization that divided the media into two groups, paper and electronic. (See Appendix B).

Consumer perceptions of good, irritating, and trustworthy advertising perceptions for each media type were measured by the following questions: "To what extent do you think it is good or bad with advertising in the following media?" "To what extent do you think advertising is irritating in the following media?" and "To what extent do you trust advertising in the following media?" A scale of 0 to 10 was used for each item.

Results

RQ1 and RQ2: Eco-conscious attitudes and marketing managers' assessments of consumer eco-harmful media perceptions

To answer RQ1 and RQ2, t-tests were used. For RQ1, which questioned if marketing managers' eco-conscious attitudes (ECA) are congruent with consumers' ECA, the results reveal a significant difference ($p < .001$) for the average ECA between the marketing managers ($M = 7.18$, $SD = 1.62$, $n = 106$) and the consumers ($M = 6.47$, $SD = 1.95$, $n = 1928$; $t = -4.40$,

$p < .001$, two-tailed). This finding indicates that marketing managers feel more personally responsible toward the environment than the consumers.

For RQ2, t-tests compared the consumers' eco-harmful perceptions of each media type to the managers' beliefs about consumers perceptions of each media type. The analysis revealed statistically significant differences across all media types. The findings (Table 1) demonstrate that consumers perceive advertising in several media to be more harmful for the environment compared to what the marketing managers estimate that consumers believe. These media include newspapers and magazines, mobile phones, outdoor posters, radio, tv, cinema and the Internet. Results also show that consumers perceive three media as significantly less harmful to the environment compared to marketing managers' beliefs about consumers: direct mail, catalogues and brochures, and in-store posters. One important commonality of the three latter forms of media is they are all paper-based. In sum, consumers seem to consider paper-based media to a less extent harmful to the environment than what the marketing managers estimated, with the exception of newspapers and magazines, and outdoor posters where the opposite was true.

It is important to note that the differences are basically in the degree of the belief of eco-harmfulness. This degree of significance is most pronounced for mobile phones and for direct mail. However, it is also important to note that radio was perceived by consumers as the least eco-harmful medium ($M = 2.04$), while the managers' beliefs put mobile phones as the lowest ($M = 1.46$). Four means of perceived eco-harmfulness by the managers were actually below 2.

RQ3: Managers' eco-conscious attitudes (ECA) and consumer assessments

To answer RQ3, and to further build on the findings for RQ2, the differences between the high and low **manager** ECA groups were assessed by employing t-tests for each of the two media categories as identified by the PCA: paper-based and electronic-based advertising

media. Results (Table 2) suggest that marketing managers with a high ECA believe consumers perceive paper-based media as more harmful for the environment than managers with a low ECA (high: $m = 5.88$, $sd = 1.42$ vs. low: $m = 5.36$, $sd = 1.25$; $t = -1.80$, $p = .032$). At a significance level of $p = .08$, the findings indicate that marketing managers with a high ECA believe consumers perceive electronic media as less harmful for the environment than managers with a low ECA (high: $m = 1.44$, $sd = 1.61$ vs. low: $m = 1.91$, $sd = 1.84$; $t = 1.36$, $p = .088$).

Overall, the findings confirm the existence of discrepancies between consumer eco-harmful media perceptions and marketing managers' assessments of consumer perceptions across different media types. The results also suggest that managers' estimates of what consumers consider eco-harmful media are affected significantly by the managers' personal eco-conscious attitudes.

Eco-harmful media perceptions and other perceptions

The relationship between eco-harmful media perceptions and perceptions of advertising (good, irritating, and trustworthy) on certain media types among consumers ($n = 1928$) was investigated using Pearson product-moment correlation coefficients. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. In the analysis, the two different media categories identified earlier through PCA were used, i.e. paper-based and electronic-based media (Table 3).

There are significant, negative correlations between eco-harmful media perceptions and perceptions of advertising on certain media types as good for both paper-based media ($r = -.23$) and electronic-based media ($r = -.15$), although this negative correlation is higher for the paper-based media. This indicates that higher levels of eco-harmful media perceptions are associated with lower perceptions of advertising on certain media types as good. That is, eco-harmful media are not associated with "good" advertising.

Table 1: Eco-harmful media perceptions: consumer perceptions vs. managers estimations of consumer perceptions

Medium	Consumers n =1928 M (SD)	Managers n =117 M (SD)	<i>t</i> (<i>df</i>)	<i>p</i>	η^2
Direct mail	7.28 (2.63)	7.99** (1.91)	-3.81 (144)	< .001	.01
Catalogues and brochures	6.31 (2.62)	6.91** (2.07)	-2.97 (140)	.004	.01
Newspapers and magazines	5.68 (2.62)	4.97** (2.38)	2.86 (2043)	.004	.01
Outdoor posters	4.68 (2.60)	4.26* (2.16)	2.03 (137)	.045	.01
In-store posters	4.18 (2.55)	4.81** (2.27)	-2.92 (134)	.004	.01
TV	2.58 (2.47)	2.17* (2.09)	2.01 (137)	.046	.01
Mobile phones	2.49 (2.66)	1.46** (1.76)	5.92 (150)	< .001	.02
Cinema	2.14 (2.18)	1.71* (1.88)	2.07 (2043)	.038	.01
Internet	2.08 (2.24)	1.54* (1.95)	2.55 (2043)	.011	.01
Radio	2.04 (2.26)	1.53** (1.91)	2.79 (136)	.006	.01

Note: **) $p \leq .01$; *) $p \leq .05$

Table 2: High/Low ECA – managers’ assessment of consumer perceptions of media type eco-harmfulness

Media type	ECA		<i>t</i> (<i>df</i>)	<i>P</i>	η^2
	High n = 72 M (SD)	Low n = 34 M (SD)			
Paper-based ¹	5.88 (1.42)	5.36 (1.25)	-1.80 (73)	.032**	.03
Electronic-based ²	1.44 (1.61)	1.91 (1.84)	1.36 (104)	.088*	.02

***p* < .05; **p* < .10; Scale: 0 = not at all harmful, 10 = very harmful

¹) Newspapers and magazines, catalogues and brochures, outdoor posters, direct mail and instore posters

²) Mobile phones, TV, radio, cinema and the Internet

There are also significant, positive correlations between eco-harmful media perceptions and **advertising** perceptions as irritating for both paper-based media ($r = .29$) and electronic-based media ($r = .17$). This indicates that higher levels of eco-harmful media perceptions are associated with higher **irritation levels of advertising on these media**. Hence, eco-harmful media, and in particular, **advertising in** paper-based media, **are associated with irritation**.

Finally, there are significant, negative, but low correlations between eco-harmful media perceptions and **advertising** perceptions as trustworthy for paper-based media ($r = -.13$) and electronic-based media ($r = -.07$). This indicates that higher levels of eco-harmful media perceptions are associated with lower levels of **advertising** perceptions as trustworthy, suggesting that eco-harmful media are not perceived as **carrying trustworthy ads**. In short, RQ4-RQ6 are all answered affirmatively, reinforcing existing research showing that consumers’ eco-harmful media perceptions are related to communication perceptions and effectiveness.

Table 3: Correlations

Advertising on Paper-based Media^a				
<i>Media type</i>	<i>Eco-harmful</i>	<i>Good</i>	<i>Irritating</i>	<i>Trust</i>
Eco-harmful	1	-.23***	.29***	-.13***
Good		1	-.61***	.41***
Irritating			1	-.28***
Trust				1
Advertising on Electronic-based Media^b				
<i>Media type</i>	<i>Eco-harmful</i>	<i>Good</i>	<i>Irritating</i>	<i>Trust</i>
Eco-harmful	1	-.15***	.17***	-.07***
Good		1	-.61***	.44***
Irritating			1	-.30***
Trust				1

^a) Newspapers and magazines, catalogues and brochures, outdoor posters, direct mail and instore posters

^b) Mobile phones, TV, radio, cinema and the Internet; ***) $p < .001$

Discussion and Implications

Our findings demonstrate that managers' assessments of consumer perceptions of the environmental harmfulness of various types of media are multi-faceted. Specifically, the findings show multiple statistically significant incongruences in the ratings across the different media. In particular, consumers consider paper-based media including direct mail to be significantly less harmful to the environment than marketing managers' beliefs about consumers. As such, the findings add important knowledge to existing work showing the positive values that consumers place on direct mail (Francoise and Andrews, 2015). These misperceptions by the managers may manifest in suboptimal media channel selection decisions.

The results also suggest that managers' personal eco-conscious attitudes (ECA) can influence managers' assessment of the harmfulness of various media types. Specifically, the divide between the perceived harmfulness of paper- and electronic-based media is generally less pronounced for managers reporting lower ECA scores, which may partially explain the misperceptions. It is also interesting to note that while certain electronic media are still perceived as low in perceived eco-harmfulness by consumers, the significant difference in beliefs of those perceptions by managers suggests that the negative eco-harmful effects of electronic media are better understood by consumers than managers might think. It is feasible that this tendency may become more pronounced in the future and such misperceptions may translate into inaccurate strategic media decisions, reinforcing the idea that managers are not always as well aligned with consumers as they believe.

These findings not only complement recent research that cautions from making decisions without considering a media channel's broader effects because of consumers' complex relations to a specific media channel (Francoise and Andrews, 2015), but they also support that estimation of the actual eco-harmfulness of various media channels is contentious and there is considerable confusion among consumers about which specific medium exerts more or less environmental harm (Achachlouei et al., 2015). Recent research suggests the perceived eco-harmfulness of media is an increasingly important factor in message reception (see Rademaker et al., 2015), and our results add several new nuances to this knowledge. For example, we show that higher levels of eco-harmful media perceptions are significantly associated with lower perceptions of advertising on certain media as good and trustworthy, but higher perceptions of irritation. This reinforces that perceptions of perceived eco-harmfulness relate to other advertising and media perceptions and communication effectiveness, and as such, play an important role in creating a synergistic effect within its media context. By extrapolation, the argument can be made that the perceived eco-harmfulness of media could

render a halo effect on the aggregate communicative effect of a given message. Hence, managers must realize that differences in perceptions of harm along with the relationships between eco-harmfulness and **advertising perceptions on certain media** suggest a message in one of the more eco-harmful media will **likely** not be perceived positively.

Further, the findings indicate that managers and consumers do differ in their eco-conscious attitudes **(ECA)**, and this difference has direct potential for derailing marketing communications initiatives and subsequent consumer response. This problem is compounded further by the fact that market research on media channel selection rarely extends beyond attempting to optimize reach and directing this reach toward the appropriate target groups. Simply put, the findings suggest that managers potentially mis-assess a key factor in a context in which their assessment is **prone** to be a key determinant of which strategy is deployed. Misalignment with a target market can result in a negative outcome regardless of where the misalignment falls. In this case, however, the misalignment can result in a potentially negative environmental reputation for the company. Hence, a media manager must select certain less eco-harmful media for certain messages. Moreover, a concentrated media mix in one of the media that is misperceived (e.g., direct mail) may be poorly received and should likely be avoided if a company wishes to be perceived as environmentally friendly. A media strategy utilizing a range of media with varying levels of eco-harmfulness **– along with the appropriate blend of** good, non-irritating and trustworthy media – may help mitigate this problem. This can also be helpful in expanding reach. If expanding frequency is a goal, a manager should probably consider one media type that is perceived as low in eco-harmfulness **and features less irritating advertising**.

The results also indicate that managers' personal eco-conscious attitudes exert a significant influence on their appraisal of consumer media perceptions. While this **may seem** hardly surprising, it does provide further impetus for moving away from “gut feeling”-based

decision making and developing processes for furthering evidence-based media channel selection. It also suggests that companies should consider individual eco-conscious attitudes (ECA) in recruiting employees that make media decisions. In sum, our research indicates the need to further explore what can be gained from extending this potential frame of research to cover attitudes toward the medium *itself*. This observation, working as a premise to the study and the pertinence of that is confirmed by the results, is perhaps the most valuable outcome from this study. Relevance does not stop at guiding managerial decision making in the context of media channel selection. Rather, it can be extended to the understanding of the reception of mediated communication in general, emphasizing the importance of covering the entire summative “package” of stimuli, or “assemblage” of meaning, including the conveyance of the medium, and its implications when operating jointly with the advertising message being communicated. The relevance of this, often overlooked, in the context of media channel selection, particularly in the increasingly sensitive communication ecosystem in which advertisements are a part, is difficult to exaggerate. Managers must make media decisions about where to place specific messages and this decision should reflect that, in terms of consumer perception, the message and the media are a unified whole. A manager’s full understanding of consumer perceptions of media channels and advertising on those channels can influence these decisions and as such, these multi-faceted perceptions should be accounted for in the media channel selection process. This includes eco-harmfulness, goodness, irritation and trustworthiness.

Given that a medium’s characteristics in terms of how that medium affects the environment are often neglected in current media selection models, marketing managers may rely heavily on current information about consumers’ media attitudes from a network of cooperating agencies such as advertising and market research agencies. When assessing consumers’ media attitudes, the focus may emphasize reach and frequency rather than

consumers' perceptions toward advertising in different media. Considering the latter could minimize the risk for overlooking changes in consumers' perceptions toward advertising media such as consumers' increasing concern for the environment relative to advertising media.

These results should be interpreted with the context of the study in mind. Eco-conscious attitudes among consumers in Sweden are exceptionally high, and Swedish consumers are prone to avoid advertising; an estimated 22% of Swedes actively avoid advertising in traditional media (Callius, 2008). Sweden also belongs to the top three most sustainable countries in the world based on its stringent and well-enforced environmental policies (EPI, 2016). This context is specific and the issues broached by the present study should be replicated in other settings; however, for the purposes of the present study it seems a striking fit.

Limitations, Future Research and Conclusions

Limitations of this study must be noted. First, while we asked managers about their beliefs about consumer perceptions of the eco-harmfulness of the different media, we did not ask about the managers' own perceptions of media eco-harmfulness. This would have provided more insight; hence, future research in this area should include such assessments. Further, while we utilized expert consultation and assessed psychometric properties of the scales, we did not conduct a pretest of adaptations. Future research can help to further validate these scales. Additionally, while we used billboards in the study, they were considered outdoor posters; digital billboards were not included due to their limited use in Sweden at the time of data collection. We also did not include email advertising specifically, but rather grouped all forms of Internet advertising together. Future inquiry should further dissect the different forms of Internet advertising. Finally, several single-item scales were used in this study to make the surveys less monotonous and less time-consuming for respondents which led to greater survey effectiveness. While such scales come with limitations, research has shown that single item

measures are as predictively valid as multiple-item measures (Bergkvist and Rossiter 2007; Bergkvist 2015).

Overall, this study offers important contributions to the existing literature. First, this research assesses perceptions of the environmental impact of advertising in different media channels and how managers' personal attitudes can affect their decision-making (see Jones, 1991). Naturally, this does not imply this is the only factor (see Françoise and Andrews, 2015), but one that should be considered. Additional work must be done in this area, and the context of environmental harm assessment of various commercial activities is of particular relevance because the present research has established discrepancies in consumers' actual media perceptions and managerial beliefs about such consumer perceptions. Second, the current work demonstrates significant relationships between eco-harmful media perceptions and three other advertising-related factors: goodness, trustworthiness and irritation. Specifically, results show that perceptions of eco-harmfulness are positively and significantly related to perceptions of advertising irritation for both paper- and electronic-based media, but negatively related to perceptions of advertising goodness and trustworthiness. This multifaceted understanding of media reinforces the importance of looking at the holistic nature of the communicated message within the media context.

One logical next step is to examine if a message geared toward furthering corporate green image yields a different outcome from managerial expectations when carried to consumers via a specific medium. Other possible venues where the potential for managerial mis-assessment of consumer attitudes toward media channels yielding an effect can also be assessed, possibly with similar outcomes. Future research on media channel selection should acknowledge that the medium itself implicitly provides a frame for interpretation of the message, and this framing may distort the message from its intended conveyance. If the

medium is truly the message, it is high time for an expansion of the scope that takes this assessment seriously.

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APPENDIX

APPENDIX A – Measures for RQ1-RQ3

Upper panel: The five variables measuring Eco Conscious Attitudes (ECA) All items measured on a scale ranging from 0-10, where 0 represented “completely disagree” and 10 “completely agree.”

Lower panel: Items measuring consumer/manager consumer eco-harmful perceptions about each of the 10 advertising media. Both items were measured on a scale ranging from 0-10, where 0 represented “Not at all harmful” and 10 “Very harmful.”

ECA Items	Included	ECA Items	Included
I am very concerned about the environmental situation of today.	Yes	In order to sustain the environment, I print out paper as little as possible.	Yes
I do everything I can in my everyday life in order not to contribute to harming the environment.	Yes	I will stop buying products from companies that are guilty of harming the environment even if it would create discomfort for me.	Yes
I am very precise with paper being sorted and recycled.	Yes	Cronbach’s alpha = .809 (consumers) Cronbach’s alpha = .768 (managers)	
	Consumers	Managers	
To what extent do you think that the following advertising media are harmful for the environment?		In your opinion, to what extent do consumers perceive the following advertising media to be harmful for the environment?	

APPENDIX B - Principal Component Analysis

Principal component factor analysis for Eco-Harmful Media Perception. Reporting: Two factors with Eigenvalue>1 identified, Cronbach's alpha, % Variance explained. Kaiser-Meyer-Olkin value, and Bartlett's test of sphericity reported for the two separate PCAs. Top panel: Managers. Lower panel: Consumers.

Media	Cronbach's α	% variance explained	KMO
Managers EHMP PCA*			0.84
Radio, Internet, TV, cinema and mobile phones	0.94	44.4	
Catalogues and brochures, newspapers and magazines, direct mail, outdoor posters and in-store posters	0.65	21.0	
*Significant result of Bartlett's Test of Sphericity			
Consumers EHMP PCA*			0.88
Radio, Internet, TV, cinema and mobile phones	0.92	45.5	
Catalogues and brochures, newspapers and magazines, direct mail, outdoor posters and in-store posters	0.86	26.1	
*Significant result of Bartlett's Test of Sphericity			

MANAGERIAL SLANT - JAR

- Managers should consider the broader effects of the various media types because consumer perceptions of different media vary based on their perceptions of a medium's eco-harmful characteristics as well as perceptions of advertising on that media.
- Prior research showed that eco-harmful media perceptions affect advertising effectiveness in eco-conscious countries; this study shows that managers in such countries have an incongruent view about consumers' eco-harmful media perceptions.
- Marketing managers and consumers have different levels of eco-conscious attitudes. These differences may explain the existing incongruent views.
- Media perceived as more eco-harmful are also perceived as carrying advertising that is more irritating; in contrast, media perceived as less harmful are perceived as carrying advertising that is considered good and trustworthy.
- This research provides the foundation for additional inquiry on green consumer and managerial perceptions affecting communication effectiveness.