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Boerman, S.C.; van Reijmersdal, E.A.; Neijens, P.C.

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Using Eye Tracking to Understand the Effects of Brand Placement Disclosure Types in Television Programs

Sophie C. Boerman, Eva A. van Reijmersdal, and Peter C. Neijens

University of Amsterdam, Amsterdam, the Netherlands

This eye tracking experiment ($N = 149$) investigates the influence of different ways of disclosing brand placement on viewers' visual attention, the use of persuasion knowledge, and brand responses. The results showed that (1) a combination of text ("This program contains product placement") and a product placement (PP) logo was most effective in enhancing the recognition of advertising and that a logo alone was least effective; (2) this effect was mediated by viewers' visual attention to the disclosure and brand placement; and (3) the recognition of advertising consequently increased brand memory and led to more negative brand attitudes.

The proliferation of brand placement in television programs has been a cause for concern for policymakers, consumer organizations, and academics, because brand placement may violate the right of consumers to know when they are being subjected to an advertisement (Cain 2011). To guarantee fair communication and to protect consumers from being influenced without their awareness, the European Union developed regulations that obligate broadcasters to disclose brand placement on television programs. The implementation of these brand placement disclosures (also referred to as sponsorship disclosures) differs among countries, although they all have the same goal: to help consumers distinguish commercial content from editorial content and to recognize advertising embedded in television programs (Cain 2011). In other words, brand placement disclosures aim to activate consumers'

persuasion knowledge. Earlier research has shown that brand placement disclosure can indeed enhance consumers' ability to recognize sponsored program content as advertising (Boerman, Van Reijmersdal, and Neijens 2012a). However, no study to date has compared the effects of different types of disclosure on the recognition of advertising. The first aim of this study is therefore to test which type of disclosure currently used in the European Union (i.e., a product placement [PP] logo, text stating "This program contains product placement," or a combination of logo and text) most effectively enhances the ability to recognize advertising.

Furthermore, to better understand why disclosures are effective, it is important to investigate the processes underlying disclosure effects. A prior study of brand placement disclosures demonstrated that disclosures influence the use of persuasion knowledge only when viewers recall seeing the disclosure (Boerman, Van Reijmersdal, and Neijens 2012b). This study involved comparing the level of activation of persuasion knowledge of viewers who recalled the disclosure to that of viewers who did not recall the disclosure. Although this study showed that disclosure effects depend on viewers' memory of the disclosure, it did not reveal the processes that occur while viewers watch a program. Hence, it is unknown whether viewers' attention to different disclosure types mediates their effects on the use of persuasion knowledge and how viewers' attention to such disclosure may affect their attention to brand placement.

Moreover, prior studies used self-reported measures of memory to discern viewers' attention to brand placements and disclosures (e.g., Boerman, Van Reijmersdal, and Neijens 2012a, 2012b; Campbell, Mohr, and Verlegh 2013; Tessitore and Geuens 2013; Van Reijmersdal, Tutaj, and Boerman 2013). These self-reported measures have a disadvantage in that viewers who process messages with relatively little attention are unlikely to remember them in the context of a recall task (Slater 2004). Because attention is not always active or "conscious," physiological measures of attention have been argued to be more reliable (Rosbergen, Pieters, and Wedel 1997). In particular, integrated persuasive messages, such as

Address correspondence to Sophie C. Boerman, Amsterdam School of Communication Research, University of Amsterdam, P.O. Box 15791, 1001 NG Amsterdam, the Netherlands. E-mail: S.C.Boerman@uva.nl

Sophie C. Boerman (PhD, University of Amsterdam) is an assistant professor of persuasive communication, Amsterdam School of Communication Research, University of Amsterdam.

Eva A. van Reijmersdal (PhD, University of Amsterdam) is an assistant professor of persuasive communication, Amsterdam School of Communication Research, University of Amsterdam.

Peter C. Neijens (PhD, VU University Amsterdam) is a professor of persuasive communication, Amsterdam School of Communication Research, University of Amsterdam.

brand placement and disclosures, can be processed implicitly or heuristically and thus call for implicit measures of processing (Smit and Neijens 2011). Therefore, in this study, we use eye tracking to estimate viewers' visual attention while watching a program. Eye tracking is particularly useful because it enables us to unobtrusively and directly measure viewers' attention not only to a program but also to specific visual elements within a program, such as a disclosure or brand placement. In this manner, we can measure which disclosure type most effectively attracts attention and how long viewers attend to the disclosure and brand placement.

Although eye tracking has been used in previous research to indicate consumers' attention to other types of warnings, such as product warnings in print advertisements (Fox et al. 1998), no study has used this technology to examine the role of attention in the effectiveness of a disclosure in a television program. This focus on attention is of particular interest because prior research claimed that people are more likely to activate and use their persuasion knowledge when they process a message elaborately (Buijzen, Van Reijmersdal, and Owen 2010), and elaborate processing requires high levels of attention to the message (Petty et al. 2005). By examining the mediating role of attention in the activation of persuasion knowledge, this study thus provides an important theoretical contribution to the persuasion knowledge model. The second aim of this study is to test the processes that precede the recognition of advertising by investigating what viewers visually attend to while watching a television program containing a disclosure and brand placement.

In addition, the recognition of advertising induced by a brand placement disclosure may have consequences for viewers' responses to the brand. When the manipulative intent of a message is inferred a change of meaning can occur, and the viewer may adopt a more critical processing style, which may influence the evaluation of the sender (Campbell 1995; Campbell and Kirmani 2000; Wentzel, Tomczak, and Herrmann 2010), which is the brand in this case. Prior studies have indeed demonstrated that brand placement disclosures affect brand responses, such as brand memory and brand attitudes (e.g., Boerman, Van Reijmersdal, and Neijens 2012a; Campbell, Mohr, and Verlegh 2013; Van Reijmersdal, Tutaj, and Boerman 2013). This effect is likely to be mediated by the activation of levels of persuasion knowledge, such as the recognition of advertising (Boerman, Van Reijmersdal, and Neijens 2012a). In addition, as different disclosure types may be more or less effective at enhancing the recognition of advertising, the consequences of different disclosures on brand responses may vary. Therefore, our third aim is to investigate how brand placement disclosure types affect viewers' brand responses. By doing so, we attempt to replicate earlier findings that brand placement disclosures affect viewers' brand responses and to extend our knowledge by comparing the effects of different disclosure types and by assessing the

mediating role of viewers' visual attention and the recognition of advertising.

In summary, we examine the effects of different disclosure types by testing viewers' visual attention to the disclosure and brand placement and, subsequently, their recognition of brand placement as advertising (i.e., the activation of persuasion knowledge). In addition, we explore the effects of the recognition of advertising on brand memory and brand attitude.

BRAND PLACEMENT DISCLOSURE REGULATIONS

The European Audiovisual Media Services Directive obligates broadcasters to disclose brand placement in television programs and specifically states the following: "Viewers shall be clearly informed of the existence of product placement. Programmes containing product placement shall be appropriately identified at the start and the end of the programme, and when a programme resumes after an advertising break, in order to avoid any confusion on the part of the viewer" (Audiovisual Media Services Directive 2010, p. 17). Although this regulation clearly expresses the intent to disclose brand placement, it does not specify how brand placement should be disclosed. As a result, the way that disclosures are implemented on television programs differs between countries. For instance, the United Kingdom, France, and Belgium use PP logos, whereas Poland and the Netherlands use text (e.g., "This program contains product placement").

The current sponsorship identification rules in the United States also mandate the announcement of brand placement. Section 317 of the Communications Act of 1934, as amended, 47 U.S.C. § 317, requires broadcasters to disclose to their listeners or viewers "if matter has been aired in exchange for money, services or other valuable consideration" (Federal Communications Commission [FCC] 2013). These rules require one announcement to be made either at the beginning or end of a broadcast. In practice, identifying the sponsors during a show's end credits satisfies the current disclosure rules, and these disclosures are often unreadable and incomprehensible (Ong 2011). Therefore, the FCC proposed newly revised regulations to make sponsorship identification more obvious to consumers (FCC 2008), and consumer organizations have suggested various other ways in which to disclose brand placement (Cain 2011). Hence, although this study focuses on the specific disclosures used in the European Union, the findings of this study may be useful for the development of effective brand placement disclosures in the United States.

VISUAL ATTENTION TO DISCLOSURE TYPES AND BRAND PLACEMENT

Research on warning labels (e.g., on products) provides an information-processing model that represents the sequential

stages of information processing in which consumers engage when they are exposed to warnings (e.g., Wogalter and Laughery 1996). The first stage in this model is attention: A warning that is not noticed cannot produce the intended effects (Wogalter and Laughery 1996). Similarly, prior research has demonstrated that viewers' recall of a brand placement disclosure is crucial for its effectiveness (Boerman, Van Reijmersdal, and Neijens 2012a).

Whether viewers pay attention to a disclosure may depend on its characteristics. Haramundanis (1996) argued that icons can be useful as reminders, but only after people have learned their meaning. Therefore, she argued that icons cannot stand alone and need descriptive, supporting text to be understood. Studies on the use of icons to inform people online emphasize that an icon alone is less effective in communicating information than a text or a combination of an icon and text (Wiedenbeck 1999). With respect to brand placement disclosure, a PP logo is similar to an icon. Thus, a PP logo is most likely less clear to viewers than a textual disclosure. Prior research has indicated that the comprehensibility of a PP logo can be enhanced by providing a verbal label that mentions "product placement" (Tessitore and Geuens 2013). Hence, a PP logo may be less effective and may attract less attention than a textual disclosure or a combination of logo and text.

In addition, there is an obvious difference in size: a PP logo is typically smaller than text, whereas a combination of the two is clearly the largest. The size of elements has repeatedly been shown to be positively related to attention (e.g., Rosbergen, Pieters, and Wedel 1997). Therefore, we hypothesize:

H1: The type of disclosure influences viewers' attention to the disclosure, with a PP logo attracting the least attention, followed by text ("This program contains product placement"), and a combination of the two attracting the most attention.

RECOGNITION OF ADVERTISING

The persuasion knowledge model (Friestad and Wright 1994) provides a conceptual basis for understanding how consumers respond to persuasive messages such as advertising. Persuasion knowledge is defined as consumers' theories about persuasion, including beliefs regarding the effectiveness and appropriateness of marketers' motives, strategies, and tactics, as well as ways of coping with persuasion attempts (Campbell and Kirmani 2000). When consumers recognize the persuasive intent of a message, they can cope with this attempt to persuade them by drawing on relevant persuasion knowledge to select and execute coping tactics believed to be effective and appropriate (Friestad and Wright 1994). Because this coping behavior occurs only when consumers realize that a message has a persuasive intent, the ability to differentiate a persuasive message (such as advertising) from other content is considered the first level of persuasion knowledge (John 1999; Rozendaal et al. 2011). As brand placement disclosures aim to help

viewers distinguish commercial content from editorial content, the recognition of advertising is an important factor when evaluating the effectiveness of disclosures.

Prior persuasion knowledge research has demonstrated that whether consumers use persuasion knowledge in response to a persuasive message depends on their personal focus (Kirmani and Zhu 2007), the accessibility of ulterior persuasion motives, and their cognitive capacity (Campbell and Kirmani 2000). In addition, the salience of the manipulative intent of the message itself also determines consumers' use of persuasion knowledge (Kirmani and Zhu 2007; Main, Dahl, and Darke 2007). When the persuasive intent of a message is not salient, the disclosure of this intent can enhance the activation and use of persuasion knowledge. For instance, research on consumers' use of persuasion knowledge during interpersonal communication with salespeople revealed that priming the ulterior persuasion motives prior to a sales interaction increases the use of persuasion knowledge (Campbell and Kirmani 2000). In addition, prior research on brand placement disclosures has demonstrated that disclosures may indeed activate different dimensions of persuasion knowledge, such as the recognition of advertising (Boerman, Van Reijmersdal, and Neijens 2012a; Campbell, Mohr, and Verlegh 2013).

However, a disclosure affects the use of persuasion knowledge only in viewers who recall seeing the disclosure (Boerman, Van Reijmersdal, and Neijens 2012b). Thus, viewers' attention while watching a program may play an important mediating role in the effectiveness of brand placement disclosures. The importance of attention is also emphasized in persuasion knowledge and persuasion-processing theories. Viewers are most likely to apply their persuasion knowledge when processing a message elaborately (Buijzen, Van Reijmersdal, and Owen 2010; Campbell and Kirmani 2000). Elaborate processing requires high levels of attention to the message (Petty et al. 2005), which is, in this case, the brand placement about which the disclosure is informing viewers. Thus, the degree to which viewers pay attention to brand placement most likely increases the likelihood that they will recognize it as advertising.

Viewers' attention to brand placement is in turn most likely influenced by brand placement disclosure. As the attention to a disclosure increases, its opportunity to effectively communicate its message is also enhanced. Because a disclosure informs a viewer about upcoming brand placements in a program, it may function as a cue or information prime for the brand's appearance in the program (Bennett, Pecotich, and Putrevu 1999). In this manner, the disclosure makes viewers aware of the upcoming brand placement in a program, which causes them to pay greater attention to it. Consequently, this greater attention results in viewers being more likely to recognize such brand placement as advertising. Therefore, we propose that the attention that viewers pay to a disclosure and subsequently to brand placement increases the likelihood that they recognize such advertising:

H2: A brand placement disclosure increases viewers' recognition of advertising; this effect is mediated by their visual attention to the disclosure and brand placement.

EFFECTS ON BRAND RESPONSES

Brand Memory

Because a brand placement disclosure can influence viewers' attention while watching a program and enhance their recognition of advertising, such a disclosure may have important effects on viewers' brand responses. A relevant brand response for both advertisers and legislators involves viewers' memory of the brand. Prior research has demonstrated that the disclosure of brands in movies and television programs directly increases viewers' brand recall (Bennett, Pecotich, and Putrevu 1999; Boerman, Van Reijmersdal, and Neijens 2012a; Van Reijmersdal, Tutaj, and Boerman 2013). However, Campbell, Mohr, and Verlegh (2013) found that top-of-mind awareness of a brand is lower after a brand placement disclosure compared with a context with no disclosure. The authors argued that viewers correct their brand recall (by intentionally not mentioning the brand when asked to list brands for a specific category) to avoid the influence of the brand placement. In addition, they showed that the extent to which participants infer the persuasive influence of a placement mediates the effect of a disclosure on brand recall. Thus, viewers' persuasion knowledge, such as their recognition of advertising, could be an important mediator of the effect of a disclosure on brand memory.

This notion is consistent with the limited capacity model of motivated mediated message processing (LC4MP), which argues that the memory of a message is a composite of the outcome of three subprocesses of information processing: encoding (i.e., constructing a mental representation of the message in working memory), storage (i.e., linking the message to information in working memory), and retrieval (i.e., reactivating a specific piece of information in working memory; Lang 2006). Because the application of persuasion knowledge requires the elaborate processing of a message (Buijzen, Van Reijmersdal, and Owen 2010), the recognition of advertising may increase the encoding, storing, and retrieval of the brand in a program. Thus, a brand placement disclosure increases the likelihood that viewers attend to brand placement and elaborate on it to recognize it as advertising. Because of this elaborate processing of brand placement, viewers are highly likely to allocate processing resources to the encoding, storage, and retrieval of brand placement. These processes cause brand placement and closely related information to become more active in working memory. Because the brand is part of brand placement and hence is closely related, elaborate processing of brand placement may thus lead to better brand memory.

Brand Attitude

The activation of persuasion knowledge may also change viewers' evaluation of a brand. When persuasion knowledge is activated, people may adopt a more critical processing style and evaluate the persuasive message suspiciously (Campbell 1995; Campbell and Kirmani 2000; Wentzel, Tomczak, and Herrmann 2010). As a result, the activation of persuasion knowledge can lead to diminished persuasion (Buijzen, Van Reijmersdal, and Owen 2010). This process is related to reactance theory (Brehm 1966), which argues that people want to maintain their freedom and do not want to be manipulated. Hence, people tend to resist persuasion attempts when they recognize them as such (Main, Dahl, and Darke 2007; Wei, Fischer, and Main 2008).

Research has shown that the activation of persuasion knowledge has a negative effect on consumers' attitudes toward advertisements and brands (Campbell 1995) and leads to decreased interest in the featured items (Brown and Krishna 2004). Furthermore, various studies have demonstrated that disclosures of persuasive intent can induce these negative results. For example, forewarning research has shown that disclosing the persuasive intent of a (noncommercial) message leads to resistance and diminished persuasion (e.g., Quinn and Wood 2004). In addition, earlier studies on the disclosure of brands embedded in radio shows (Wei, Fischer, and Main 2008), forewarning of the persuasive intent of a print ad (Lee 2010), and online ad breaks (An and Stern 2011) all demonstrated negative disclosure effects on brand evaluations. Moreover, the disclosure of brand placements was also proved to negatively affect brand attitudes (Boerman, Van Reijmersdal, and Neijens 2012a; Campbell, Mohr, and Verlegh 2013) and purchase intention (Tessitore and Geuens 2013).

Hence, as a result of the recognition of advertising, a disclosure may also affect viewers' evaluation of a brand integrated into the program: When viewers are aware of brand placement attempting to persuade them, they may counteract this attempt by adapting their attitudes toward the brand, meaning that the disclosure could mitigate the persuasive effect of the brand placement. Thus, based on persuasion knowledge and reactance theories as well as prior research, we expect that the recognition of program content as advertising induced by a disclosure negatively affects viewers' brand attitude.

In summary, when a brand placement disclosure increases the recognition of advertising, this activation of persuasion knowledge may subsequently affect viewers' responses to the brand. Because the effect of a disclosure on the recognition of advertising is likely to be mediated by viewers' visual attention to the disclosure and brand placement, we propose an indirect effect:

H3: A brand placement disclosure has an indirect effect on viewers' (a) brand memory and (b) brand attitude; this effect is mediated by viewers' visual attention to the disclosure and brand placement and by the recognition of advertising.

METHOD

Participants and Procedure

To test these hypotheses, we conducted an experiment ($N = 180$ students from a Dutch university, $M_{\text{age}} = 21.78$; 73% female) using an eye tracker to measure participants' visual attention while watching a television program. The between-subjects experimental design included four conditions: a program without a brand placement disclosure and three disclosure conditions, namely, a PP logo, text reading "This program contains product placement," and a combination of text and logo. Participants were randomly assigned to one of the conditions. Regardless of its type, the brand placement disclosure was shown for six seconds in the upper-right corner. This choice was made because an earlier study showed that a disclosure that is displayed for six seconds is more effective than a disclosure that is displayed for three seconds (Boerman, Van Reijmersdal, and Neijens 2012a). All types of disclosures were displayed at the beginning of the program after 24 seconds, immediately after the opening leader.

Two participants were excluded from the analyses because of technical problems, leaving a sample of 178 participants (no disclosure $n = 29$; logo $n = 50$; text $n = 50$; text + logo $n = 49$). In addition, because there were no data for the attention to the disclosure (the first mediator) for the no-disclosure condition, this group was not considered in the serial multiple mediation models.

The participants were recruited through posters and flyers posted throughout the university building and were informed that they were participating in an eye tracking study of how people watch television. The participants were first asked to read an introduction text and to sign an informed consent. They were then asked to sit behind the screen with the eye tracker and to make themselves comfortable. Eye tracking was conducted using the SMI RED eye tracker with a gaze sample rate of 120 Hz per second. This eye tracker was attached to a 22-inch screen that was placed 23 to 32 inches from the participant. For calibration, the participants had to follow a moving black dot with their eyes. After calibration, the participants watched an episode of a television program. Subsequently, the participants completed the questionnaire on a computer in a cubicle. This questionnaire began with questions related to the program (in this order: program familiarity, program viewing frequency, episode familiarity, attention to the program, and program involvement) followed by advertising recognition and brand-related questions (i.e., brand recall, brand familiarity, and brand attitude), among others. Finally, the participants were asked about their gender and age. After the questionnaire, the participants were debriefed, thanked, and given either €5 or a research credit for their participation.

Stimulus Materials

All participants watched a shortened episode of *Grijpstra & De Gier*, a Dutch police series about two officers that lasted 7 minutes 38 seconds and pertained to the new girlfriend of one of the officers. With regard to the brand placement, there were two moments in which the coffee brand Nescafé was visible during the episode. During the first placement, the two officers stood in front of a coffee machine while getting coffee and having a conversation. The brand name Nescafé was clearly readable on the coffee machine for a total of 11 seconds. The second placement occurred during a conversation between the officers and their assistant. The assistant held a cardboard coffee cup with the brand Nescafé on it close to his face and sipped from the cup. The cup with the brand was visible for a total of 14 seconds.

Measures

The eye tracking data were prepared and exported using the SMI BeGaze software. To determine how long viewers' eyes were directed at the disclosure and the brand placements, we created three areas of interest (AOIs): one for each disclosure, one for the first brand placement, and one for the second brand placement. Because of possible noise in the eye tracking data and possible peripheral attention (see, e.g., Purucker et al. 2013), the surface size of the AOIs were 300% of the actual disclosure or brand name. Visual attention to the AOIs was estimated by the fixation time (the sum of all fixation durations) in seconds within the AOI; a fixation was measured when a participant's eyes stayed at a particular point for a minimum of 80 milliseconds. Research has demonstrated the validity of fixation time as an indicator of attention (e.g., Christianson et al. 1991).

Visual attention to the disclosure and brand placement.

The participants' visual attention to the disclosure was measured by the fixation time in seconds within the disclosure AOI ($M = 0.70$, $SD = 0.82$). In addition, we created a dummy variable in which the participants scored 0 if they did not fixate on the disclosure AOI and 1 if they fixated on the AOI at least once (in total, 63% fixated on one of the disclosures). Visual attention to the brand placement was reported by the total fixation time in seconds within the AOIs of the first and second brand placement ($M = 1.40$, $SD = 1.13$). Video clips with examples of the disclosures and participants' visual attention to these disclosures are available in the online appendix.

Recognition of advertising. Viewers' recognition of the advertising in the program (i.e., activation of the first level of persuasion knowledge) was measured by asking the participants to use a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*) to indicate the extent to which they agreed with the following statement: "The episode of *Grijpstra & De Gier* I just watched contained advertising" ($M = 4.91$, $SD = 2.21$). The same measure was used by Boerman, Van

Reijmersdal, and Neijens (2012a), and it is based on measures used to estimate consumers' ability to recognize content as advertising (e.g., Rozendaal, Buijzen, and Valkenburg 2010).

Brand responses. Brand memory was measured by asking the participants whether they recalled seeing any brands in the episode of *Grijpstra & De Gier*. If they answered "yes," then they were given the option to indicate which brands. Brand recall was coded as 1 (*recalled Nescafé*) or 0 (*did not recall any brands or recalled an incorrect brand*). Approximately half of the participants (48%) correctly recalled seeing Nescafé. Brand attitude was measured using three 7-point semantic differential scales: *Bad/Good*, *Dislike/Like*, and *Negative/Positive* (e.g., Bruner 2009). The mean score of the three items was used as a measurement of brand attitude (Eigenvalue = 2.66; explained variance = 88.49%; $\alpha = .93$; $M = 4.51$, $SD = 1.05$).

Control variables. The questionnaire included several control variables to ensure that the effects of disclosure type were not caused by other differences between the experimental groups. To measure the participants' program familiarity and program viewing frequency, we asked them whether they were familiar with the television program *Grijpstra & De Gier* (0 = *no*, 1 = *yes*) and how many full or partial episodes (of a total of 46 episodes divided over 5 seasons aired between 2004 and 2007) they had watched. Approximately half of the participants (51%) were familiar with the program; and on average, they had seen five episodes ($M = 5.17$, $SD = 6.67$). The participants who indicated that they were familiar with the program were also asked whether they had ever seen the episode shown in the experiment before. Approximately 2% were familiar with the episode. Furthermore, all participants were asked to rate how attentively they had watched the episode on a scale from 1 (*Absolutely not attentive*) to 7 (*Very attentive*; self-reported attention to the program; $M = 5.79$, $SD = 0.94$). We measured program involvement using the mean of the ten 7-point semantic differential scales from Zaichkowsky's (1994) Personal Involvement Inventory (Eigenvalue = 5.50; explained variance = 54.99%; $\alpha = .91$, $M = 4.32$, $SD = 0.86$). Furthermore, we measured the

participants' brand familiarity ("Do you know the brand Nescafé?" 0 = *no*, 1 = *yes*) and brand use ("How often do you drink Nescafé coffee?" 1 = *Never*, 2 = *Monthly*, 3 = *Weekly*, 4 = *One cup daily*, 5 = *More than one cup daily*). Most participants (98%) were familiar with the brand Nescafé, but 69% stated that they never drink Nescafé coffee, whereas 10% reported that they drink Nescafé weekly or more often. Brand use was therefore dichotomized (0 = *Never*, 1 = *Drinks Nescafé*). In addition, we asked the participants to use a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*) to indicate the extent to which they were interested in coffee (product interest; $M = 4.13$, $SD = 2.10$).

RESULTS

Randomization

The experimental groups did not differ with respect to gender, $\chi^2(2) = 0.16$, $p = .924$; age, $F(2, 146) = 1.21$, $p = .301$; brand familiarity, $\chi^2(2) = 0.50$, $p = .779$; brand use, $\chi^2(2) = 1.39$, $p = .498$; or product interest, $F(2, 146) = 2.50$, $p = .085$. With regard to the program, there were no differences between the experimental groups in terms of the participants' program familiarity, $\chi^2(2) = 0.28$, $p = .868$; program viewing frequency, $F(2, 146) = 0.89$, $p = .417$; episode familiarity, $\chi^2(2) = 2.03$, $p = .362$; attention to the program, $F(2, 146) = 1.29$, $p = .233$; and program involvement, $F(2, 146) = 1.23$, $p = .296$. Gender, brand use, product interest, and attention to the program were included as covariates in all analyses to control for any confounding effects.

Descriptive Statistics

Table 1 shows the descriptive statistics for all variables for the experimental groups. There were no direct significant differences between the groups, except the differences with regard to visual attention to the disclosure type (see the next section) and the recognition of advertising, $F(3, 170) = 17.98$, $p = .013$, $\eta^2 = .06$. The lack of significant

TABLE 1
Descriptive Statistics for the Experimental Conditions

Variable	No Disclosure	Logo	Text	Text + Logo
Visual attention to disclosure	n.a.	0.04 (0.18) ^a	0.90 (0.69) ^b	1.19 (0.91) ^c
Visual attention to brand placement	1.26 (1.17) ^a	1.17 (0.94) ^a	1.62 (1.22) ^a	1.42 (1.19) ^a
Recognition of advertising	4.17 (2.33) ^{ab}	4.20 (2.40) ^a	5.48 (1.88) ^b	5.04 (2.17) ^{ab}
Brand memory	37.9% ^a	40.0% ^a	60.0% ^a	42.9% ^a
Brand attitude	4.74 (1.12) ^a	4.27 (0.94) ^a	4.57 (1.01) ^a	4.69 (1.16) ^a

Note. Visual attention is measured in fixation time in seconds; brand memory represents the percentage of participants who recalled the brand; all other variables are scaled from 1 to 7. $N = 178$: no disclosure $n = 29$, logo $n = 50$, text $n = 50$, text + logo $n = 49$.

^{a,b,c} Means with a different superscript in the same row differ significantly at $p < .05$. n.a. = not applicable.

differences likely emerged because the effects of the disclosure were mediated by viewers' visual attention to the disclosure.

Visual Attention to Disclosure Types

To test the degree to which participants paid attention to the different disclosure types, we conducted an ANCOVA with disclosure type as the independent variable; with visual attention to the disclosure as the dependent variable; and with gender, brand use, product interest, and attention to the program as covariates. The results (see Table 1) showed a significant difference in the attention to the types of disclosure, $F(2, 142) = 18.08, p < .001, \eta^2 = .37$. Post hoc pairwise comparisons using the Bonferroni correction demonstrated significant differences between the logo ($M_{\text{logo}} = 0.04, SD_{\text{logo}} = 0.18$) and the text ($M_{\text{text}} = 0.90, SD_{\text{text}} = 0.69; p < .001$) and between the logo and the text + logo combination ($M_{\text{text + logo}} = 1.19, SD_{\text{text + logo}} = 0.91; p < .001$). In addition, the text + logo combination attracted more visual attention than the text alone ($p = .032$).

In addition to the amount of attention, we tested which disclosure type viewers most likely fixated on. The results from a chi square analysis are comparable to the ANCOVA results, $\chi^2(2) = 98.43, p = .000$. Only 8% of the participants fixated on the logo, 88% fixated on the text, and 94% fixated on the combination of text and logo. These results support hypothesis 1: The PP logo attracted the least visual attention, followed by the text, and the combination of the two attracted the most attention.

Effects on the Recognition of Advertising

To test the effects of the brand placement disclosures on the recognition of advertising mediated by viewers' visual attention to the disclosure and to the brand placement (hypothesis 2), we used Hayes' PROCESS macro (Hayes 2012). This macro uses an ordinary least squares or logistic regression-based path analytical framework to estimate the direct and

indirect effects in mediator models. In addition, the macro uses bootstrap methods for inferences regarding indirect effects in mediation models. Thus, other than Baron and Kenny's method (1986), this macro provides a formal test of indirect effects when there is no direct effect of the independent and dependent variables (Hayes 2009). This makes PROCESS particularly suited for the serial multiple mediation model in this study, because the model assumes only an indirect effect of the brand placement disclosure on the recognition of advertising and brand responses and no direct effect. All analyses used 10,000 bootstrap samples to estimate the bias-corrected bootstrap confidence intervals (BCBCIs).

To test the differences between the three disclosure types, we created dummy variables for each type. We conducted three separate serial multiple mediation analyses with one of the disclosure types as the independent variable and another as a covariate, making the excluded type the reference category. In the analyses, the attention to the disclosure functioned as the first mediator, attention to the brand placement was the second mediator, and recognition of advertising was the dependent variable. Gender, brand use, product interest, and attention to the program were included as covariates. The results are shown in Table 2, which corresponds to the model in Figure 1.

These results demonstrated significant indirect effects of the brand placement disclosure on the recognition of advertising for all comparisons. Compared with the logo, both the text (indirect effect = 0.26, boot SE = 0.14, 95% BCBCI [.03; .60]) and text + logo (indirect effect = 0.37, boot SE = 0.18, 95% BCBCI [.07, .77]) resulted in better recognition of advertising. In addition, the text + logo combination resulted in greater recognition of advertising than the text alone (indirect effect = 0.11, boot SE = 0.06, 95% BCBCI [.03, .30]). This indirect effect of disclosure type on the recognition of advertising was mediated by the effect of viewers' visual attention to the disclosure on their visual attention to the brand placement ($b = 0.40, p = .076$), which consequently increased the recognition of advertising ($b = 0.79, p < .001$). These significant indirect effects provide evidence to support hypothesis 2.

TABLE 2
Indirect Effect of Brand Placement Disclosure Types on the Recognition of Advertising

Disclosure (Reference)	Indirect effect [95% BCBCI]	a_1	a_2	a_3 (total)	a_3' (direct)	d_1	d_2	d_3
Text (Logo)	.26 (.14) [.033, .597]	.83 (.10)***	.06 (.24)	1.19 (.46)*	.97 (.47)*	.40 (.22) [†]	-.10 (.29)	.79 (.15)***
Text + Logo (Logo)	.37 (.18) [.065, .766]	1.19 (.15)***	-.23 (.32)	.83 (.48) [†]	.76 (.60)	...	...	...
Text + Logo (Text)	.11 (.06) [.025, .304]	.36 (.17)*	-.29 (.26)	-.36 (.44)	-.20 (.45)	...	...	...

Note. Unstandardized b coefficients (with boot SE between parentheses) correspond to the paths in Figure 1; controlled for gender, brand use, product interest, and attention to the program; ... = the scores are the same as the scores above; BCBCI = bias-corrected 10,000 bootstrap confidence interval; $N = 149$.

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

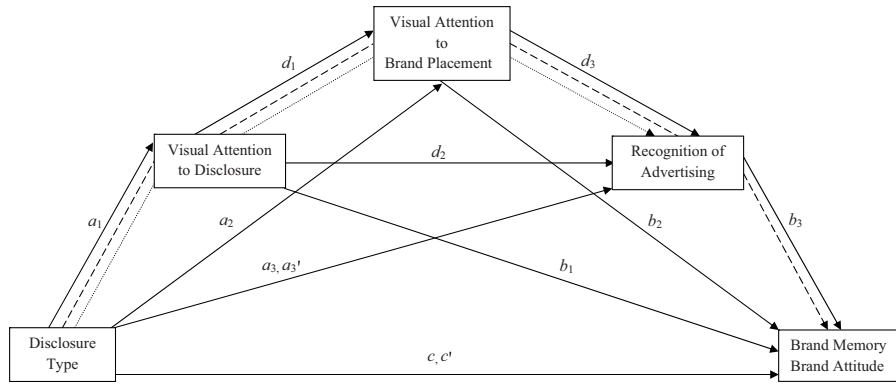


FIG. 1. Indirect effect of brand placement disclosure types on brand memory and brand attitude via visual attention to the disclosure, visual attention to the brand placement, and the recognition of advertising. Solid lines represent the tested direct paths; coefficients can be found in Tables 2 and 3. Dotted lines represent the tested indirect effect of disclosure type on the recognition of advertising (Table 2). Striped lines represent the tested indirect effects of disclosure type on brand memory and brand attitude (Table 3).

Effects on Brand Responses

To test the effects of the disclosures on brand memory and brand attitude (hypothesis 3), we conducted three separate serial multiple mediation analyses comparing the three disclosure types for each dependent variable. In these analyses, attention to the disclosure functioned as the first mediator, attention to the brand placement was the second mediator, and recognition of advertising was the third mediator. Again, gender, brand use, product interest, and attention to the program were included as covariates. The results from these analyses are shown in Table 3, which corresponds to the model in Figure 1.

Brand memory. Regarding brand memory, the results demonstrated no significant direct effect (c'), but significant indirect effects were found for all comparisons. Compared with the logo, the text gained more attention, which led to

greater attention to the brand placement and consequently to better recognition of advertising, which subsequently resulted in greater brand memory (indirect effect = 0.24, boot SE = 0.16, 95% BCBCI [.00, .60]). The same indirect effect appeared for the text + logo condition compared to the logo only (indirect effect = 0.34, boot SE = 0.21, 95% BCBCI [.01, .81]). Compared with the text, the text + logo combination indirectly resulted in better brand memory (indirect effect = 0.10, boot SE = 0.07, 95% BCBCI [.01, .32]). This means that the combination of text and logo had the strongest positive effect on brand memory, followed by the effect of the text-only disclosure. Hence, viewers' recognition of advertising increased their brand memory, which supports hypothesis 3a.

Brand attitude. The analyses with brand attitude as the dependent variable revealed small but significantly negative indirect effects for all comparisons. Both the text (indirect

TABLE 3
Indirect Effects of Brand Placement Disclosure Types on Brand Memory and Brand Attitude

Disclosure (Reference)	Indirect Effect [95% BCBCI]	b_1	b_2	b_3	c (total)	c' (direct)
Brand memory						
Text (Logo)	.24 (.16) [.004, .595]	-.60 (.38)	.43 (.26) [†]	.91 (.17)***	.77 (.42) [†]	.66 (.68)
Text + Logo (Logo)	.34 (.21) [.009, .806]	...	...	...	.20 (.42)	.32 (.76)
Text + Logo (Text)	.10 (.07) [.009, .324]	...	...	...	-.57 (.42)	-.35 (.58)
Brand attitude						
Text (Logo)	-.03 (.02) [-.080, -.003]	-.11 (.13)	.15 (.09) [†]	-.10 (.04)*	.28 (.19)	.44 (.22)*
Text + Logo (Logo)	-.04 (.02) [-.106, -.006]	...	...	...	.46 (.22)*	.64 (.26)*
Text + Logo (Text)	-.01 (.01) [-.042, -.002]	...	...	...	.17 (.22)	.20 (.22)

Note. Unstandardized b coefficients (with boot SE between parentheses) correspond to the paths in Figure 1; controlled for gender, brand use, product interest, and attention to the program; coefficients for $a_1, a_2, a_3, d_1, d_2,$ and d_3 are presented in Table 2; ... = the scores are the same as the scores above; BCBCI = bias-corrected 10,000 bootstrap confidence interval; $N = 149$.

[†] $p < .10$; * $p < .05$; *** $p < .001$.

effect = -0.03 , boot SE = 0.02 , 95% BCBCI [-0.08 , -0.00]) and text + logo (indirect effect = -0.04 , boot SE = 0.02 , 95% BCBCI [-0.11 , -0.01]) disclosures indirectly resulted in slightly less favorable brand attitudes compared with the logo only. The text + logo combination appeared to have a small but significant indirect effect on brand attitude compared with the text (indirect effect = -0.01 , boot SE = 0.01 , 95% BCBCI [-0.04 , -0.00]), indicating that the disclosure indirectly influenced brand attitude when viewers recognized the advertising. Hence, the results support hypothesis 3b.

DISCUSSION

This study examined the effects of brand placement disclosure types on viewers' visual attention while watching a program containing brand placement, their use of persuasion knowledge (i.e., the recognition of brand placement as advertising), and their brand responses. Our first aim was to test which type of disclosure is most effective in enhancing the recognition of advertising in a television program. The results demonstrated that a combination of text and PP logo was the most effective in increasing the recognition of advertising, followed by the text-only disclosure. The logo alone was found to be the least effective.

The second aim of this study was to test the processes that precede the recognition of advertising by investigating what viewers attend to while watching a television program containing a disclosure and brand placement. Using eye tracking, we were able to directly measure the focus of viewers' eyes while watching the program. These data demonstrated large differences in their visual attention to various disclosure types. Only 8% of the participants fixated on the logo compared with 88% fixating on the text and 94% fixating on a combination of text and logo. Thus, the text and logo combination attracted the most attention. In addition, our findings demonstrated that the effects of a disclosure on the recognition of advertising were mediated by viewers' attention to the disclosure and the brand placement. Because we found no direct effect of the disclosure types, we can conclude that a disclosure influenced the recognition of advertising only when viewers attended to it and consequently paid greater attention to the brand placement. These findings explain the differing levels of effectiveness of the three types of disclosure: The combination of text and logo has the greatest effect on the recognition of advertising because it attracts the most visual attention, whereas a logo alone is the least effective because it attracts little attention.

The current study is one of the first to provide evidence for this mediating role of attention in the activation of persuasion knowledge. Our findings support processing and persuasion knowledge theories stating that the retrieval and application of persuasion knowledge require elaborate processing (Buijzen, Van Reijmersdal, and Owen 2010) and that people should have the cognitive capacity for this processing (Campbell and Kirmani 2000). This eye tracking study demonstrated that

visual attention to the disclosure and brand placement are important underlying mechanisms of the effect of a disclosure on the recognition of advertising, which need to be considered when studying the effects of disclosures. In this manner, this study provides an important contribution to the persuasion knowledge model by providing evidence that attention to a persuasive message (as indicated by the fixation time on brand placement) is an important precondition for the activation of persuasion knowledge. This attention to brand placement can be increased by a disclosure that informs viewers about this advertising.

The importance of attention indicates why certain disclosure types are more effective than others: The effects of a disclosure on viewers' use of persuasion knowledge depend on the degree to which they pay attention to the disclosure. However, future research is needed to examine other potential explanations for why a combination of text and logo is more effective than solely a text or logo. Apart from the attention that a disclosure attracts, its effectiveness could, for instance, also be explained by the amount of information that it provides. The combination of text and logo includes the most information, which may not only increase viewers' attention but also enhance the level of cognitive elaboration. Understanding both the content of text and the meaning of a logo likely requires more cognitive effort than processing text or logo alone. In addition, future research should investigate the mechanisms that explain why a combination of text and PP logo attracts more attention than either text or a PP logo alone. Although we used a PP logo that is similar to the logos that are actually used in programs, the reduced attention may have resulted from the logo's lack of appeal. Further research may thus explain whether viewers' attention to a disclosure is driven by its size, font, or color, or by a combination of textual and visual information. Research may also identify whether viewers' attention to disclosures could be attributed to the ease of comprehension or processing fluency (Schwarz 2004).

Our third aim was to investigate how brand placement disclosure types affect viewers' brand responses. Replicating the findings of prior research (e.g., Bennett, Pecotich, and Putrevu 1999; Boerman, Van Reijmersdal, and Neijens 2012a; Van Reijmersdal, Tutaj, and Boerman 2013), the current study showed that a brand placement disclosure increases the recognition of advertising and consequently indirectly affects both brand memory and brand attitudes. Again, a combination of text and logo was found to be the most effective in altering viewers' brand responses. These findings show that the effects of brand placement disclosures follow three stages: a disclosure must first attract (visual) attention; subsequently, it activates viewers' persuasion knowledge; and as a result, it influences the persuasive effects of the brand placement. Because these stages are similar to the stages of information processing that consumers engage in when exposed to warnings on products (e.g., Wogalter and Laughery 1996), our

findings indicate that this information-processing model also applies to brand placement disclosures.

The positive effect on brand memory was mediated by viewers' visual attention to the disclosure, their visual attention to the brand placement, and their recognition of advertising. This means that, to increase brand memory, attention to the brand placement is not sufficient; viewers must also recognize it as advertising. These findings are consistent with processing and persuasion knowledge theories arguing that the activation of persuasion knowledge requires elaborate processing of the content (Buijzen, Van Reijmersdal, and Owen 2010). Hence, as viewers' recognition of advertising in a program is strengthened, their memory of the brand incorporated into the program also improves. Prior studies have reported direct effects of disclosure on brand memory. However, an important difference with those studies is that the brand placement disclosures actually mentioned the brands (Bennett, Pecotich, and Putrevu 1999; Boerman, Van Reijmersdal, and Neijens 2012a), which was not the case for the disclosures tested in this study; thus, the disclosure in those previous studies also functioned as additional brand exposure. Moreover, the previous studies used different types of sponsored content, such as more prominent brand placements or forms of brand integration (Boerman, Van Reijmersdal, and Neijens 2012a; Van Reijmersdal, Tutaj, and Boerman 2013). Further research is needed to compare the effects of the content of a disclosure for different types of sponsored content.

In addition, our findings extend those of Campbell, Mohr, and Verlegh (2013), who found a negative effect of brand placement disclosure on top-of-mind awareness of a brand and argued that this effect is caused by viewers' tendency to correct their answers because of the persuasive influence of the brand placement. As Campbell, Mohr, and Verlegh (2013) discussed, this correction may be a consequence of the activation of persuasion knowledge. Our study demonstrated that a disclosure can indeed activate persuasion knowledge and that this activation leads to more attention to the brand placement and to greater brand memory. In our study, brand memory was measured by directly asking the participants whether they recalled seeing any brands in the television program. Campbell, Mohr, and Verlegh (2013) asked the participants in their study to list top-of-mind brands for a specific category. Because their task did not directly ask participants to indicate their memory of the brand in this specific situation, participants had the opportunity to intentionally omit the brand. This correction is similar to the negative effect on brand attitude found in the current study. The recognition of advertising induced by the disclosure created awareness of the persuasion attempt, which may have caused participants to correct their attitude because of the persuasive effect of the brand placement. Future research could investigate this mechanism and examine the effects of the correction of brand responses as a result of disclosure and the activation of persuasion knowledge in greater detail.

With respect to brand attitude, this study demonstrated that the recognition of advertising stimulated by a brand placement disclosure caused viewers to evaluate the brand less positively. Thus, the change of meaning described in the persuasion knowledge model (Campbell and Kirmani 2000; Friestad and Wright 1994) can be induced by a brand placement disclosure. These findings are consistent with prior forewarning (e.g., Quinn and Wood 2004) and advertising disclosure research (e.g., Boerman, Van Reijmersdal, and Neijens 2012a; Wei, Fischer, and Main 2008) demonstrating that disclosing the persuasive intent of a message can diminish persuasion. In accordance with reactance theory (Brehm 1966), this study showed that viewers will attempt to resist persuasion when they recognize the advertising in a program (Wei, Fischer, and Main 2008). Thus, brand placement disclosure indirectly reduces viewers' susceptibility to advertising (Buijzen, Van Reijmersdal, and Owen 2010) and mitigates the persuasive effects of brand placement. Hence, our findings provide valuable insights into how brand placement disclosure influences the persuasion process.

Notwithstanding these important findings, further research is needed to examine alternative explanations for our findings by investigating factors that could moderate the effects of brand placement disclosures. Although the participants' gender, self-reported attention to the program, brand use, and product interest did not appear to confound any of the effects found in this study, these factors could be important moderators. For instance, prior research has shown that brand placement has a negative effect on brand attitude when in the context of high levels of persuasion knowledge and low involvement (Matthes, Schemer, and Wirth 2007). However, one could also argue that viewers who are highly involved with a program are more likely to react negatively against persuasion attempts. Future research could examine how involvement moderates disclosure effects.

Moreover, research on advertising embedded in a radio show demonstrated that the activation of persuasion knowledge has little effect on brand evaluations when listeners have high levels of brand familiarity (Wei, Fisher, and Main 2008). Hence, a disclosure may have less influence on people who are highly familiar with a brand. The current study, however, did demonstrate a negative effect on brand attitude, although 98% of the participants were familiar with the brand. This discrepancy in results may be explained by attitude importance. Attitudes that are considered personally important are more persistent and resistant to change (Krosnick 1988). In their study on the effects of the activation of persuasion knowledge, Wei, Fischer, and Main (2008) placed a sneaker brand (Puma) in a radio show, whereas in the current study, a coffee brand (Nescafé) was placed in a television program. It is possible that consumers perceive their attitude toward a well-known coffee brand as less important than their attitude toward a well-known sports brand. Consistent with this notion, the third study by Wei, Fischer, and Main (2008) demonstrated that

participants' attitudes toward a highly familiar sports brand remained relatively stable over time. Further research could thus investigate the moderating effects of brand familiarity and attitude importance in the context of brand placement disclosures.

Because brand placement disclosure regulations are still being developed and modified (for instance, in the United States), this study has important practical implications and could contribute to the development of effective disclosures. Our study compared the different types of disclosures used in the European Union and demonstrated that the use of text stating "This program contains product placement" combined with a PP logo is most effective in enhancing the recognition of advertising. Regulators could use this knowledge to create useful guidelines for more effective brand placement disclosures. For advertisers, brand placement disclosure has two sides. On one side, disclosures increase viewers' attention to brand placement and enhance their brand memory and thus can be beneficial for creating brand awareness.

On the other side, disclosures indirectly result in less favorable brand attitudes, which is a negative outcome for advertisers. One of the advantages of brand placement is that viewers are not always aware of it, and therefore brand placement has the potential to overcome consumers' skepticism (Bhatnagar, Aksoy, and Malkoc 2004). Brand placement disclosures remove this advantage by making viewers aware of the persuasive intent of brand placement. This situation raises the question of whether advertisers still benefit from brand placement when it is accompanied by a disclosure. However, the negative effects of brand placement disclosures on brand attitude and purchase intentions found in this and other studies (e.g., Tessitore and Geuens, 2013) apply only to the short term. More research is needed to understand whether the negative effects on brand attitude persist in the long term. Directly pointing viewers to the brand placement in a television program causes them to feel less positive about the brand in that specific disclosure situation but may not necessarily lead to lasting negative evaluation of the brand or lower intentions to purchase the brand at a subsequent time. Overall, brand placement disclosures are able to satisfy their stated purpose and may result in more fair communication by enabling consumers to know when they are being subjected to advertising. However, advertisers should be aware that an informed audience may become more skeptical of brands placed in television programs.

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