



UvA-DARE (Digital Academic Repository)

Disclosing the persuasive nature of advergames: moderation effects of mood on brand responses via persuasion knowledge

van Reijmersdal, E.A.; Lammers, N.; Rozendaal, E.; Buijzen, M.

DOI

[10.1080/02650487.2014.993795](https://doi.org/10.1080/02650487.2014.993795)

Publication date

2015

Document Version

Final published version

Published in

International Journal of Advertising

License

Article 25fa Dutch Copyright Act (<https://www.openaccess.nl/en/in-the-netherlands/you-share-we-take-care>)

[Link to publication](#)

Citation for published version (APA):

van Reijmersdal, E. A., Lammers, N., Rozendaal, E., & Buijzen, M. (2015). Disclosing the persuasive nature of advergames: moderation effects of mood on brand responses via persuasion knowledge. *International Journal of Advertising*, 34(1), 70-84. <https://doi.org/10.1080/02650487.2014.993795>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)

Disclosing the persuasive nature of advergames: moderation effects of mood on brand responses via persuasion knowledge

Eva Adriana van Reijmersdal^{a*}, Nienke Lammers^b, Esther Rozendaal^b and Moniek Buijzen^b

^aAmsterdam School of Communication Research, Amsterdam, the Netherlands; ^bRadboud University Nijmegen, the Netherlands

(Received 13 December 2013; accepted 26 November 2014)

The aim of this study was to investigate whether the effects of advergame disclosures were moderated by gamers' moods. More specifically, we tested whether the effects of disclosures on brand recall, game attitude, and brand attitude via activated persuasion knowledge were different for people in positive moods than in negative moods. An experiment ($n = 127$) showed a moderated mediation effect: advergame disclosures activated persuasion knowledge, which resulted in higher brand recall, but also in more negative game and brand attitudes. This mediated effect was only significant for people in positive moods: a disclosure raised awareness of the advergame's persuasive nature, which subsequently led to more critical processing. People in negative moods already processed the advergame in a critical manner. These findings have important implications for theory, legislation, and the advertising practice.

Keywords: advertising; advergames; disclosure; mood; persuasion knowledge

Advergames, free online games that are created to promote a brand or brands from a specific advertiser, are becoming increasingly popular (An and Kang 2013; Lee and Youn 2008; Redondo 2012). In these games, persuasive messages are embedded into entertaining and oftentimes immersive content, masking their persuasive nature. This is deemed deceptive and can cause persuasion without gamers being aware (Livingstone 2009; Nairn and Hang 2012).

Research on the effects of advergames and in-game advertising has indeed demonstrated that these games can be very persuasive because the persuasive message is embedded in entertaining and involving content: advergames and in-game advertising have been found to increase memory of the embedded brand (Cauberghe and De Pelsmacker 2010; Gross 2010; Herrewijn and Poels 2013; Schneider and Cornwell 2005; Van Reijmersdal, Rozendaal, and Buijzen 2012), positive brand attitudes (Cauberghe and De Pelsmacker 2010; Mau, Silberer, and Constien 2008; Redondo 2012; Van Reijmersdal et al. 2012; Wise et al. 2008) behavioural intentions (Mallinckrodt and Mizerski 2007), and actual behaviour (Folkvord et al. 2013).

To inform the audience about the persuasive nature of advergames and to mitigate persuasion effects, there is an increasing call for better disclosure of the persuasive intent of advergames (Nairn and Hang 2012; Quilliam et al. 2011; Wright, Friestad, and Boush 2005). Recently, several websites of well-known brands that contain advergames,

* Corresponding author. Email: e.a.vanreijmersdal@uva.nl

including M&M, Kraft, and McDonald's, introduced disclosures (An and Kang 2013; Quilliam et al. 2011), for example 'you are viewing an advertising message that is designed to sell you something' on the website of Campbell's Soup. But advergames are not only present on corporate websites, but also on gaming websites and in app stores (Nairn and Hang 2012), in which the commercial context of the company's website is lacking. On these websites and in these stores, advergames are placed among non-commercial games, which makes it even less obvious that these games have a persuasive nature.

Although the numbers of advergames and disclosures are increasing, hardly any research exists on the effects of advergame disclosures (see An and Stern 2011, for an exception). Research on brand placements in traditional media shows that disclosures affect information processing and can attenuate persuasion by activating persuasion knowledge and making people more critical (Boerman, Van Reijmersdal, and Neijens 2012; Campbell, Mohr, and Verlegh 2013; Dekker and Van Reijmersdal 2013; Tessitore and Geuens 2013; Van Reijmersdal, Tutaj, and Boerman 2013; Wei, Fischer, and Main 2008). However, previous studies have not focused on individual susceptibility to disclosure effects due to mood.

Mood is an important factor in studying advergames, because previous research has shown that these games can improve moods and regulate stress (Russoniello, O'Brien and Parks 2009). Moreover, mood is expected to have strong influence? On disclosure effects, because the literature has demonstrated that mood determines advertising processing (Hullett 2005; Kuykendall and Keating 1990; Mackie and Worth 1989). Just as with disclosures, people's mood can determine whether they process information elaborately or more superficially, which has consequences for brand effects (Hullett 2005). Therefore, it is important to take mood into account when studying the effects of disclosures. Insights into the moderating effects of mood are crucial for our theoretical understanding of how disclosure effects may vary for different people. Hence, this study aims to examine whether the effects of advergame disclosures on persuasion are moderated by people's moods.

As indicators of persuasion, we focus on brand recall and brand attitudes, because these are considered first and important steps in the persuasion process (McGuire 1976). In addition, this study focuses on the effects of disclosure on game attitudes and on the activation of persuasion knowledge as a mechanism that explains disclosure effects. Persuasion knowledge refers to consumers' theories about persuasion and includes beliefs about marketers' motives, strategies and tactics (Campbell and Kirmani 2000; Friestad and Wright 1994, 10). It is assumed that disclosures can mitigate persuasion because they activate aspects of persuasion knowledge, such as persuasive intentions (Friestad and Wright 1994; Kirmani and Zhu 2007; Wood and Quinn 2003).

Disclosing advergames

Advergame disclosures are expected to affect processing, because they activate people's persuasion knowledge (An and Stern 2011; Nairn and Hang 2012). Disclosures are used to inform the audience or to make complete information known so people can make informed decisions (Kozup et al. 2012). Disclosures can thus help people understand the commercial nature of advergames: when a disclosure is provided, people may realize that the advertiser created the advergame with the intention to persuade (Wright et al. 2005).

This process is referred to as the 'change-of-meaning' principle: when people realize that someone is trying to persuade them, the meaning of the communication is redefined and their responses change. The message will not only be understood differently, people will also disengage from the persuasion, leading to 'detachment' (Friestad and Wright

1994). This process detaches viewers from the ongoing communication, and they will be conscious that an advergame is used as a tactic to persuade them. The realization that the game is not there to entertain, but rather that is created to benefit the advertiser, can make the gamer wary (Nebenzahl and Jaffe 1998). Therefore, this realization may motivate people to process the advergame on a more systematic and critical level (Buijzen, Van Reijmersdal, and Owen 2010; Wood and Quinn 2003).

Systematic processing is based on extensive, deliberate, and effortful cognitive elaboration (Petty and Cacioppo 1986). On this level, people must show high attention to and awareness of the message, and be highly motivated and able to process the information (Petty and Cacioppo 1986). Critical systematic processing also involves awareness of the persuasive nature of the message (Buijzen, Van Reijmersdal, and Owen 2010).

More specifically, with a disclosure, people are expected to become more critical toward the game and the embedded message and may use strategies to resist the persuasion attempt (Boerman, Van Reijmersdal, and Neijens 2012), for example counter arguing or derogating the source (Friestad and Wright 1994; Zuwerink and Cameron 2003). Without a disclosure people may think that they will play a simple online game, a game that has no ulterior motive. Therefore, without a disclosure they are expected to play the game without any defences against possible persuasion raised.

Research has indeed shown that when an ulterior motive is made more accessible in people's minds, it is easier to use persuasion knowledge when evaluating the persuasive attempt (Campbell and Kirmani 2000). Studies have also found that disclosures of brand placement in television programs resulted in better memory of the placed brands, indicating higher levels of message elaboration (Boerman, Van Reijmersdal, and Neijens 2012; Van Reijmersdal, Tutaj, and Boerman 2013). In addition, Boerman, Van Reijmersdal, and Neijens (2012) showed that disclosures for brand placements in television programs resulted in more negative brand attitudes. Similarly, Dekker and Van Reijmersdal (2013) showed that disclosures for TV brand placements resulted in less acceptance of the product claims made in the program. Also, Wei, Fischer, and Main (2008) showed that telling participants that an advertiser paid for a radio show that included brand placement resulted in more negative brand attitudes.

Thus, disclosures may activate gamers' persuasion knowledge, which in turn may increase brand recall and lead to more negative game and brand attitudes. However, it is uncertain whether these effects also hold for advergames. Research has shown that cognitive capacity is not only needed to process the disclosure and the persuasive elements in the game, but also to activate persuasion knowledge (Boerman, Van Reijmersdal, and Neijens 2012; Campbell and Kirmani 2000). However, game play also demands cognitive capacity. When the capacity needed to activate persuasion knowledge is already taken up by playing the game, advergame disclosures may have less strong effects than disclosures for brand placements in media that require less cognitive resources.

Mood as a moderator of disclosure effects

Persuasion and information processing theories suggest that mood is an important moderator of persuasion processing (Batra and Stayman 1990; Bower 1981; Hullett 2005; Kuykendall and Keating 1990; Lee and Sternthal 1999; Mackie and Worth 1989). Mood is defined as an affective state that is enduring and subjectively perceived by individuals (Bronner, Bronner, and Faasse 2007). The position of mood on a single continuum ranging from positive to negative affect is considered to be the most relevant conceptualization of mood when considering its impact on persuasion (for a meta-analysis see Hullett

2005). In research, positive moods are typically seen as happy and negative moods as sad. This conceptualization is used in the present study.

Although effects of mood on persuasion processing are complicated and depend on the type of message (Wegener and Petty 1994), research has shown that people in positive moods are generally inclined to process information on a less systematic level. According to the hedonic contingency principle, people are motivated to maintain or achieve positive mood states and do not *want* to be distracted by processing other information (Hullett 2005). Another explanation comes from the affect-as-information theory (Forgas and East 2008; Schwarz and Clore 1983). This theory states that people use their mood to determine the current situation they are in. A positive mood indicates that the situation is benign. This implies that there is no need to pay attention to details or to evaluate information critically (Bless et al. 1996; Sar 2013).

People in negative moods are likely to process information on a systematic and critical level (Hullett 2005; Kuykendall and Keating 1990): according to the hedonic contingency principle, systematic processing of a message can help to attenuate negative moods, because it distracts resources from the negative state. As such, elaborate message processing can help to escape a negative mood state. The affect-as-information theory posits that a negative mood makes people think they are in a problematic situation. To adapt to this situation, people need to pay close attention to the situation and the information around them. Their mood system tells them they may be in danger, thus systematic and critical processing of information is needed to survive the situation (Forgas 1998; Sar 2013).

Because moods are such strong predictors of people's information processing and persuasion in particular (Hullett 2005), mood is expected to play a role in the effects of disclosures as well. On the one hand, people in positive moods process information less elaborately (Batra and Stayman 1990; Kuykendall and Keating 1990; Lee and Sternthal 1999). However, disclosures stimulate systematic processing. A disclosure may thus alert people that the current situation is not as benign as they thought and cause people in positive moods to switch to a more systematic and critical level of processing and activation of persuasion knowledge.

In sum, we expect a moderated mediation effect. This means that we expect the effects of advergame disclosures on brand recall, game attitude, and brand attitude are mediated by activated persuasion knowledge, but that this effect is conditional; that is, dependent upon mood (see Figure 1). For people in a positive mood, effects of disclosures

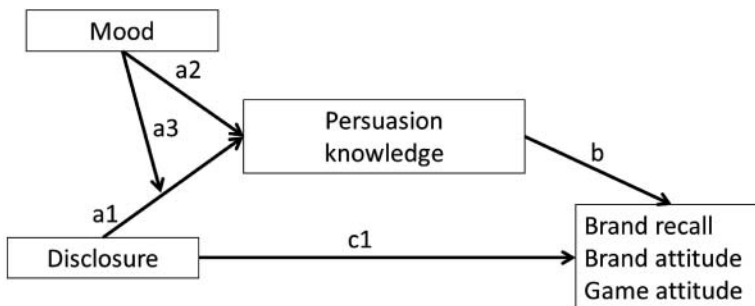


Figure 1. Conceptual moderated mediation model of advergame disclosures on brand recall, game attitude, and brand attitude. a_3 is the interaction effect between mood and disclosure on persuasion knowledge. c_1 is the direct effect of disclosure on brand recall, game attitude, or brand attitude (that is, controlled for the mediator).

on activation of persuasion knowledge are expected to be strong. For these people disclosures may serve as a cue to increase their level of elaboration to critical systematic processing. For people in positive moods, disclosure are expected to result in higher persuasion knowledge, which in turn results in more brand recall and more negative game and brand attitudes.

For people in a negative mood, disclosures may have little effect on their activation of persuasion knowledge. These people already process persuasive messages in a systematic way (Buijzen, Van Reijmersdal, and Owen 2010; Campbell and Kirmani 2000; Wood and Quinn 2003). To test this moderated mediation effect, the following hypothesis is formulated:

H1: The effect of advergame disclosures on brand recall and attitudes via the activation of persuasion knowledge is moderated by mood such that disclosures have a stronger positive effect on persuasion knowledge of people in a positive mood than of people in a negative mood, which in turn results in (a) higher brand recall, (b) more negative game attitudes and (c) more negative brand attitudes.

Method

Participants, procedure and pretest

This study employed a 2(disclosure) \times 2(mood) between-subjects design. A total of 127 Dutch people between 17 and 79 years old participated in the experiment ($M = 29.80$, $SD = 10.28$, 45% male, 65% higher educated). About one third of the participants indicated they never play games similar the one in the experiment (34%), whereas 41% indicated they play these kind of games three to four times a week. Participants were connections of the second author and were recruited online by email and social media. They were asked to forward the invitation to participate in the study to people in their network (snowballing) and got a reminder twice. It took two weeks to get enough participants. In the email, participants could click on a direct link to the online survey. The participants were randomly assigned to one of the four experimental conditions. Participants were told they were participating in a study on television viewing and gaming, and were not informed about the real aim of the study. First, the participants were exposed to a short video fragment to induce either a positive or a negative mood. Then, they were instructed to play the advergame for five minutes. After that, they filled out the questionnaire, which started with questions about their mood, background, and demographics, followed by measures of game attitude, brand recall, brand attitude, and persuasion knowledge. Finally, they were debriefed and thanked for their participation.

Following the extensive literature on mood and persuasion processing (see Hullett 2005, for a review), our experiment was designed to manipulate moods preceding exposure to the advergame. Thus, people would enter the advergame with a pre-existing mood that is unrelated to the advergame or its source to avoid confounding effects. For the mood manipulation, we selected two types of video fragments based on a pretest among 13 people. Wong and Householder (2008) showed that short video fragments are very effective to manipulate mood.

To induce a positive mood participants watched a fragment of the Dutch version of *Kids Say the Darndest Things*, which is called *Praatjesmakers* (45 seconds). In this fragment children were shown a picture of Osama Bin Laden and were asked who they thought it was. They gave funny answers, like 'it think this is Santa, before he became fat', and 'this man looks just like my grandfather.' To induce a negative mood, people

were exposed to a fragment of the movie *Sophie's Choice* about the Second World War (79 seconds). In this, a mother was shown having to choose between her two children. The one she chose would live, whereas the other would directly be sent to the gas chamber. The mother was in despair and cried because she was unable to choose between her children.

In the pretest, participants were asked to evaluate their mood after viewing the fragment on a five-point scale ranging from, *bad mood–good mood*, *negative–positive*, *unbalanced–balanced*, *depressed–happy*, and *down–uplifted* (Bronner, Bronner, and Faasse 2007; Kuykendall and Keating 1990; Cronbach's alpha = 0.90). Averages were calculated and analyses showed that the fragments differed significantly with respect to the moods they evoked (negative fragment: $M = 2.12$, $SD = 0.91$ vs. positive fragment: $M = 4.25$, $SD = 0.61$, $t(12) = 12.64$, $p < 0.001$). Therefore, these fragments were used in the main study to manipulate mood.

Stimulus materials

Participants played an advergame called *Office Escape* of the American brand Batchelors Super Noodles, which is not on the market in the Netherlands. The game shows a man eating noodles in an office. The player needs to help the man to find a way out of the office past obstacles. While doing that the man needs to collect as many cups of Batchelors noodles as possible to raise his energy level. A cup of Batchelors noodles is also constantly visible at the left side of the screen.

Half of the participants were exposed to a disclosure before they started the advergame. Based on research by Dekker and Van Reijmersdal (2013) on disclosures in television programs, we used a disclosure stating that 'This game contains advertising for Batchelors Noodles to influence you'. This disclosure informs the gamers about both the source and the intent of the game. Under the disclosure, there was a button that directed the participants to the advergame.

Measures

Mood

To see whether the video fragments were successful in manipulating mood, we used the same measure as in the pretest on a seven-point scale. Item scores were averaged to create a single measure of mood (Cronbach's alpha = 0.99, $M = 4.71$, $SD = 1.66$). This measure was used as a manipulation check.

Persuasion knowledge

To measure the activation of persuasion knowledge, we asked the participants about the source and intent of the advergame. First, they were asked who they thought had created the game with the answering options 'the researcher,' 'a gaming site,' or 'Batchelors Noodles' (An and Stern 2011; van Reijmersdal, Rozendaal, and Buijzen 2012). If participants chose the last option, they showed knowledge of the commercial source of the game, therefore this was coded as 1, all other answering options were coded as 0. Second, they were asked whether they thought the game was created to 'inform,' 'entertain,' or 'persuade' (Van Reijmersdal, Neijens and Smit 2010; Wright, Friestad, and Boush 2005). If participants chose the last option they showed knowledge of the persuasive intent of

the advergaming, therefore, this answer was coded as 1, the other answers were coded as 0. The scores on these two questions were summed to create a single measure of activation of persuasion knowledge ($r = 0.57$, $M = 1.32$, $SD = 0.83$).

Brand recall, game attitude, and brand attitude

Brand recall was measured by asking participants which brands they recalled seeing in the advergaming (Gross 2010). If they mentioned Batchelors noodles this was coded as 1, if they did not mention Batchelors noodles, this was coded as 0 (76% yes). Participants were asked for their attitude toward the game with seven items on a seven-point semantic differential (*bad–good*, *negative–positive*, *unappealing–appealing*, *uninteresting–interesting*, *unattractive–attractive*, *difficult–easy*, and *boring–exciting*) with the question ‘To me the game is . . .’ (Chung and Zhao 2004; Gross 2010). Scores were averaged to create a single measure of game attitude (Cronbach’s alpha = 0.97, $M = 3.66$, $SD = 1.54$).

Brand attitude was measured with five items on a seven-point semantic differential (*bad–good*, *negative–positive*, *unfavourable–favourable*, *uninteresting–interesting*, *unappealing–appealing*) with the question ‘To me Batchelors noodles is . . .’ (Chung and Zhao 2004). Scores were averaged to create one measure of brand attitude (Cronbach’s alpha = 0.98, $M = 3.86$, $SD = 1.59$).

Results

Manipulation and confound checks

The manipulation check showed that participants who had watched the negative fragment, experienced significantly more negative moods ($M = 3.70$, $SD = 1.68$), than participants who had watched the positive fragment ($M = 5.81$, $SD = 0.61$), $F(1, 215) = 86.62$, $p < 0.01$, $\eta^2 = 0.04$. Therefore, the manipulation of mood was successful.

Further analyses showed that the people in the experimental groups did not significantly differ with respect to their average age and sex. However, the disclosure conditions differed with respect to participants’ level of education, $F(1, 125) = 3.93$, $p = 0.05$, $\eta^2 = 0.03$; $M_{\text{disclosure}} = 4.16$, $SD = 1.03$; $M_{\text{no disclosure}} = 4.50$, $SD = 0.85$). In addition, level of education was significantly correlated with the dependent variables (all $ps < 0.05$). Therefore, level of education was included in all analyses as a covariate.

Testing the hypotheses

Before we test the hypotheses, we provide an overview of the main and interaction effects of disclosures and mood, see Table 1 for the means. Then we test the complete moderated mediation model.

For the activation of persuasion knowledge, ANCOVA analysis with disclosure, mood and their interaction as the predictors and level of education as covariate showed significant main effects of disclosure, $F(1, 122) = 53.55$, $p < 0.001$, $\eta^2 = 0.31$, and mood, $F(1, 122) = 23.80$, $p < 0.001$, $\eta^2 = 0.16$, which were qualified by a significant interaction effect, $F(1, 122) = 20.62$, $p < 0.001$, $\eta^2 = 0.15$. As Table 1 and Figure 2 show, without a disclosure people in a negative mood showed significantly higher activated persuasion knowledge than people in a positive mood. With a disclosure, this difference is no longer significant: the disclosure has activated the persuasion knowledge of people in a positive mood to the same level as people in a negative mood (with or without a disclosure). The

Table 1. Effects of disclosure and mood on persuasion knowledge, brand recall, game attitude and brand attitude.

	No Disclosure		Disclosure	
	Mood			
	Negative	Positive	Negative	Positive
Persuasion Knowledge ²	1.50 (0.68) ^a	0.31 (0.64) ^b	1.66 (0.53) ^a	1.79 (0.49) ^a
Brand Recall ¹	27 ^a	3 ^b	47 ^a	7 ^b
Game Attitude ²	2.75 (0.96) ^a	4.85 (0.84) ^b	2.49 (1.01) ^a	4.74 (1.47) ^b
Brand Attitude ²	2.92 (0.94) ^a	5.54 (1.19) ^b	2.72 (1.19) ^a	4.39 (0.96) ^c

Notes:

¹ Percentages brand recall² Mean scores are portrayed with standard deviations between parentheses.^{ab} Means with different superscripts in the same row differ significantly at $p < 0.05$.

disclosure had no effect on the activation of people's persuasion knowledge in negative mood. The analysis showed no significant effect of the covariate level of education, $F(1,122) = 2.88, p = 0.09, \eta^2 = 0.02$.

With respect to brand recall, logistic regression analysis – with disclosure, mood and their interaction as the factors and level of education as covariate – showed no main effect of disclosure ($OR = 6.98, p = 0.15$) and no interaction effect between mood and disclosure ($OR = 0.23, p = 0.34$). There was a significant main effect of mood ($OR = 0.15, p = 0.02$): People in a positive mood showed significantly lower brand recall (5%) than people in a negative mood (38%). The analysis also showed a significant effect of the covariate level of education, ($OR = 2.12, p = 0.1$) indicating that recall increased with the level of education.

With respect to game attitude, ANCOVA analysis – with disclosure, mood, and their interaction as the predictors and level of education as covariate – showed no significant main effect of disclosure, $F(1, 122) = 1.44, p = .023, \eta^2 = 0.01$ nor an interaction effect

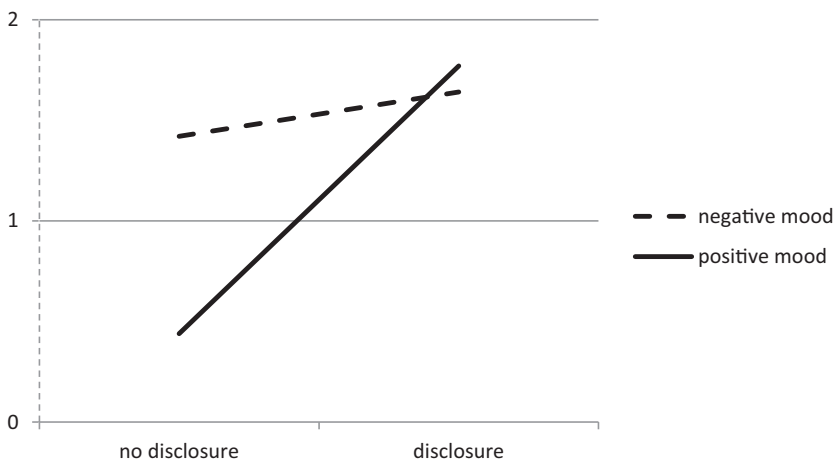


Figure 2. Interaction effect between disclosure and mood on the activation of persuasion knowledge.

between mood and disclosure $F(1, 122) = 0.09, p = 0.76, \eta^2 = 0.001$. The analysis showed a significant main effect of mood, $F(1, 122) = 129.51, p < 0.001, \eta^2 = 0.52$. People in a positive mood showed significantly more positive game attitudes ($M = 4.80$; $SD = 1.57$) than people in a negative mood ($M = 2.61$; $SD = 0.99$). The analysis showed no significant effect on the covariate level of education, $F(1,122) = 1.63, p = 0.20, \eta^2 = 0.01$.

For brand attitude, the analyses showed main effects of disclosure, $F(1, 122) = 12.93, p < 0.001, \eta^2 = 0.10$ and mood, $F(1, 122) = 123.85, p < 0.001, \eta^2 = 0.50$, which were qualified by a significant interaction effect between disclosure and mood, $F(1, 122) = 6.73, p = 0.01, \eta^2 = 0.05$. As shown in Table 1, the disclosure had no effect on brand attitude of people in a negative mood, whereas, the disclosure significantly decreased the brand attitude of people in a negative mood. The analysis showed no significant effect on the covariate level of education, $F(1,122) = 0.92, p = 0.34, \eta^2 < 0.01$.

To test the hypotheses, moderated mediation analyses were conducted using the PROCESS macro (Hayes 2013, Model 7). This macro also offers the possibility to test conditional indirect effects and provides confidence intervals based on bootstrapping for the mediated effect at the two levels of the moderator. The analyses showed three moderated mediation effects.

With respect to brand recall (H1a), the indirect effect of advergame disclosure via activation of persuasion knowledge was positive and significant for people in a positive mood ($b = 3.41, SE = 6.29$; BCBI [1.15; 22.90]), but not significant for people in a negative mood ($b = 0.59, SE = 1.70$; [-0.24; 6.89]). This means that for people in a positive mood, disclosure activated persuasion knowledge, which in turn resulted in more brand recall. For people in a negative mood, the disclosure did not increase persuasion knowledge, resulting in a non-significant indirect effect on recall. This means that H1a is supported by the data.

With respect to game attitude and brand attitude, the indirect effect of disclosure via activation of persuasion knowledge was negative and significant for people in a positive mood ($b = -0.94, SE = 0.32$; [-1.66; -0.40] and $b = -1.42, SE = 0.36$; [-2.25; -0.82] respectively), but not significant for people in a negative mood ($b = -0.16, SE = 0.14$; [-0.55; 0.47] and $b = -0.25, SE = 0.20$; [-0.73; 0.08] respectively, see Table 2).

Table 2. Effects of disclosure on brand recall, game attitude, and brand attitude via persuasion knowledge for positive and negative moods (moderated mediation).

	Path in the moderated mediation model (Figure 1)					Mood	
	a1	a2	a3	b	c1	Negative	Positive
Brand recall	0.23 (0.15)	-1.07* (0.17)	1.10* (0.24)	2.55* (0.61)	-0.62 (0.60)	0.59 (1.70) [-0.24;6.89]	3.41 (6.29) [1.15;22.90]
Game attitude	0.23 (0.15)	-1.07* (0.17)	1.10* (0.24)	-0.70* (0.20)	0.17 (0.30)	-0.16 (0.14) [-0.55;0.47]	-0.94 (0.32) [-1.66; -0.40]
Brand attitude	0.23 (0.15)	-1.07* (0.17)	1.10* (0.24)	-1.06* (0.18)	0.03 (0.28)	-0.25 (0.20) [-0.73; 0.08]	-1.42 (0.36) [-2.25; -0.82]

Note: Unstandardized b-coefficients (with boot SE between parentheses) are presented. In the right part of the table the total indirect effects for two types of mood and [Bias corrected 10,000 bootstrap confidence intervals between brackets] are presented. Significant indirect effects are in bold.

* $p < 0.01$

As expected, for people in a positive mood, the disclosure activated persuasion knowledge, which in turn resulted in more negative game and brand attitudes. For people in a negative mood, the disclosure did not increase persuasion knowledge, resulting in a non-significant indirect effect on both game and brand attitude.

In sum, the results showed a moderated mediation effect of advergame disclosure on brand recall, game attitude, and brand attitude: as expected for people in a positive mood, advergame disclosures increased persuasion knowledge which in turn led to increased brand recall, but simultaneously also to more negative game attitudes and brand attitudes. This effect did not hold for people in a negative mood. They already had high levels of persuasion knowledge, which were not increased by the disclosure.

Discussion

The aim of this study was to investigate whether the effects of advergame disclosures were moderated by gamers' moods. More specifically, we tested whether the effects of disclosures on brand recall, game attitude and brand attitude via the activation of persuasion knowledge were moderated by mood.

This leads to an important conclusion. Our results show that the effects of advergame disclosures depend on an individual's mood. As expected, our results showed that disclosures only affected people in a positive mood: The disclosure made them more aware of the persuasive nature of the advergame as indicated by higher persuasion knowledge, which in turn led to more brand recall and more negative game and brand attitudes than without a disclosure. These results seem to indicate that, with a disclosure, people in a positive mood process the advergame on a more elaborate and critical level than without a disclosure. In this situation, disclosures activate people's persuasion knowledge; that is, their knowledge about the commercial source and persuasive intent of the advergame.

Without a disclosure, people in a negative mood already process the advergame on a more elaborate and critical level (as indicated by their levels of persuasion knowledge, brand recall scores and more negative brand and game attitudes) than people in a positive mood and, therefore, do not need a disclosure. For these people there seems to be a ceiling effect.

Interestingly, the results for brand recall and brand and game attitudes show that disclosures and mood have dissociative effects; that is, the effects were in opposite directions (Balasubramanian, Karrh, and Patwardhan 2006). Advertising is intended to increase recall and to lead to more positive attitudes. Disclosures, however, seem to evoke more elaborate processing among people in positive moods as indicated by increased brand recall, but because these people become aware of the persuasive nature of the advergame, this also seems to result in more critical processing as indicated by less positive attitudes. As intended by regulators, our study shows that disclosures can offset these effects by raising the awareness of the persuasive nature of the game (Cain 2011).

Implications

Our findings have important theoretical and practical implications. Our study was the first to underline that disclosure effects depend on moods. Mood is an important factor that can help explain individual's differential susceptibility to advergame disclosure effects. Therefore, it is crucial to include mood in theoretical models on the effects of advergame disclosures.

Moreover, this study adds to the persuasion knowledge literature as it shows that mood is an important determinant of the activation of persuasion knowledge next to cognitive resources, accessibility of attitudes, persuasion expertise, and regulatory focus (Campbell and Kirmani 2000; Kirmani and Zhu 2007).

Our findings also extend our knowledge about the hedonic contingency principle and affect-as-information theory. Advergame disclosures seem able to steer information processing in such a way that people in positive moods process information in advergames more thoroughly as indicated by their activated persuasion knowledge and brand recall and their negative attitudes, whereas without a disclosure people in a positive mood are inclined to process on a less elaborate level. This was indicated by their relatively low levels of activation of persuasion knowledge and brand recall and relatively positive attitudes, compared with people in a positive mood that saw a disclosure, but also compared with people in negative moods.

These findings also imply that disclosures have a stronger effect than mood. Whereas positive moods would induce less elaborate processing, the disclosure seems to be able to overrule this process and stimulate more elaborate processing, as indicated by the recall and attitude scores in this study. More research is needed to further explore the relative influence of moods and disclosures on people's level of information processing.

For public policy, our findings show that disclosures preceding advergames effectively inform audiences about the persuasive nature of these games. Moreover, disclosures can mitigate the persuasive effects of advergames among people in positive moods. Our findings show that without a disclosure, these people are most susceptible to advergames' effects and most likely to be unaware of the games persuasive nature. Moreover, advergames are designed to work via low elaborate, affective mechanisms that generate positive affect and moods (Buijzen, Van Reijmersdal, and Owen 2012; Russoniello, O'Brien, and Parks 2009). People in negative moods seem to process the advergame more critically and are more aware of the persuasive nature. Disclosures do not affect these gamers, but they do not need to be informed, as they already know. Therefore, disclosures are most needed, but also most effective, in contexts that are designed to evoke positive moods, including advergames. These results are very promising for future policies on disclosing advergames.

Although existing advertising legislation and regulations do not prescribe how advergame disclosures should be designed and implemented (beyond the general criteria laid down in the Unfair Commercial Practices Directive (Directive 2005/29) that a commercial practice shall not be unfair, and in particular shall not be misleading or aggressive to consumers), advertisers are increasingly disclosing the persuasive nature of these games on their websites (Quilliam et al. 2011). One may argue that the branded context of advergames on corporate websites can function as a disclosure of the advergames persuasive nature. However, advergames offered on gaming sites and in app stores lack this context. Especially for these situations, advergame disclosures can be effective and should be encouraged. Our study shows that disclosures for advergames without any context are effective: they can have the desired effects of informing the audience about advergames' persuasive nature and, moreover, they attenuate persuasion effects.

For advertisers, our results show that disclosures increase awareness of advergames' persuasive nature among people in positive moods, resulting in more brand recall, but at the same time in more negative brand attitudes. Therefore, advergame disclosures do not necessarily seem to benefit advertisers, although increased transparency about the practice may eventually be appreciated by the audience (Cain 2011; Nebenzahl and Jaffe 1998).

Limitations and future research

There are four limitations of the current study that call for future research. First, our study was the first to test the effects of advergame disclosures and mood on adults' brand recall, game attitude, brand attitude, and activation of persuasion knowledge. However, more research is needed to further deepen our insights into the effects of the recently-introduced advergame disclosures. Future research may show whether the effects of advergame disclosures also hold for other effects, such as behavioural outcome variables.

Second, our study focused on the moderation effects of disclosures and mood on persuasion knowledge and how this, in turn, affects persuasive outcomes. Exploration of the main effects also showed direct effects of mood on brand recall, brand attitude and game attitude. Although these were mediated by persuasion knowledge, these direct effects findings are interesting in itself. Future research may further explore how mood affects people's responses to advergames, in particular the persuasive outcomes of these games.

Third, based on extensive literature on mood effects on persuasion, we manipulated mood independently from the persuasive stimulus; that is, the advergame (Hullett 2005). This gave us the opportunity to examine the effects of mood on processing of an advergame without confounds between mood and the game content or individual characteristics. Our results showed that a mood evoked before playing the advergame can be so strong that the mood is maintained while playing the game and, moreover, affects processing of the game. However, this is only one way of evoking moods; importantly, they may also be induced by an advergame itself (Redondo 2012). Future research can show whether the effects of moods induced by the advergame also moderate disclosure effects.

Fourth, our study used an advergame without a context. Future research is needed to show whether our results also hold for advergames that are presented within an online context, for example a corporate website. This website may provide cues to the gamers, which makes a disclosure redundant.

In conclusion, this study adds to the literature as it is the first to examine the differences in individual susceptibility to the effects of advergame disclosures and the underlying mechanism. As such, it forms a significant basis for future research on the effects of advergame disclosures and mood on individuals processing of persuasive content.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Dutch Science Foundation (NWO) [452-08-010].

References

- An, S., and H. Kang. 2013. Do online ad breaks clearly tell kids that advergames are advertisements that intend to sell things? *International Journal of Advertising* 32, no. 4: 655–78.
- An, S., and S. Stern. 2011. Mitigating the effects of advergames on children. *Journal of Advertising* 40, no. 1: 43–56.
- Balasubramanian, S.K., J.A. Karrh, and H. Patwardhan. 2006. Audience response to product placement: An integrative framework and future research agenda. *Journal of Advertising* 35, no. 3: 115–41. doi: 10.2753/JOA0091-3367350308

- Batra, R., and D.M. Stayman. 1990. The role of mood in advertising effectiveness. *Journal of Consumer Research* 17(September): 203–14.
- Bless, H., G.L. Clore, N. Schwarz, V. Golisano, C. Rabe, and M. Wolk. 1996. Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology* 71, no. 4: 665–79. doi: 10.1037/0022-3514.71.4.665
- Boerman, S.C., E.A. Van Reijmersdal, and P.C. Neijens. 2012. Sponsorship disclosure: Effects of duration on persuasion knowledge and brand responses. *Journal of Communication* 62, no. 6: 1047–64. doi: 10.1111/j.1460-2466.2012.01677.x
- Bower, G.H. 1981. Mood and memory. *American Psychologist* 36, no. 2: 129–48. doi: 10.1037/0003-066X.36.2.129
- Bronner, F., J. Bronner, and J. Faasse. 2007. In the mood for advertising. *International Journal of Advertising* 26, no. 3: 333–55.
- Buijzen, M., E.A. Van Reijmersdal, and L.H. Owen. 2010. Introducing the PCMC model: An investigative framework for young people's processing of commercialized media content. *Communication Theory* 20, no. 4: 427–50.
- Cain, R.M. 2011. Embedded advertising on television: Disclosure, deception, and free speech rights. *Journal of Public Policy and Marketing* 30, no. 2: 226–38.
- Campbell, M.C., and A. Kirmani. 2000. Consumers' use of persuasion knowledge: The effects of accessibility and cognitive capacity on perceptions of an influence agent. *Journal of Consumer Research* 27(June): 69–83.
- Campbell, M.C., G.S. Mohr, and P.W.J. Verlegh. 2013. Can disclosures lead consumers to resist covert persuasion? The important roles of disclosure timing and type of response. *Journal of Consumer Psychology* 23, no. 4: 483–95.
- Cauberghe, V., and P. De Pelsmacker. 2010. Advergames: The impact of brand prominence and game repetition on brand responses. *Journal of Advertising* 39, no. 1: 5–18.
- Chung, H., and X. Zhao. 2004. Effects of perceived interactivity on web site preference and memory: Role of personal motivation. *Journal of Computer-Mediated Communication* 10, no. 1.
- Dekker, K., and E.A. Van Reijmersdal. 2013. Brand placement disclosures to mitigate persuasion: The role of celebrity endorsement and disclosure type. *Journal of Promotion Management* 19, no. 2: 224–40.
- Folkvord, F., D.J. Anschutz, M. Buijzen, and P.M. Valkenburg. 2013. The effect of playing advergames that promote energy-dense snacks or fruit on actual food intake among children. *The American Journal of Clinical Nutrition* 97, no. 2: 239–45.
- Forgas, J.P. 1998. On being happy and mistaken: Mood effects on the fundamental attribution error. *Journal of Personality and Social Psychology* 75, no. 2: 318–31.
- Forgas, J.P., and R. East. 2008. On being happy and gullible: Mood effects on skepticism and the detection of deception. *Journal of Experimental Social Psychology* 44, no. 5: 1362–7.
- Friestad, M., and P. Wright. 1994. The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research* 22, no. 1: 1–31.
- Gross, M. L. 2010. Advergames and the effects of game-product congruity. *Computers in Human Behavior* 26, pp. 1259–65.
- Hayes, A.F. 2013. *Introduction to mediation, moderation and conditional process analyses*. New York: Guilford Press.
- Herrewijn, L., and K. Poels. 2013. Putting brands into play: How game difficulty and player experiences influence the effectiveness of in-game advertising. *International Journal of Advertising* 32, no. 1: 17–44.
- Hullett, C.R. 2005. The impact of mood on persuasion: A meta-analysis. *Communication Research* 32, no. 4: 423–42.
- Kirmani, A., and R. Zhu. 2007. Vigilant against manipulation: The effect of regulatory focus on the use of persuasion knowledge. *Journal of Marketing Research (JMR)* 44, no. 4: 688–701.
- Kozup, J., C.R. Taylor, M.L. Capella, and J. Kees. 2012. Sound disclosures: Assessing when a disclosure is worthwhile. *Journal of Public Policy and Marketing* 31, no. 2: 313–22.
- Kuykendall, D., and J.P. Keating. 1990. Mood and persuasion: Evidence for the differential influence of positive and negative states. *Psychology and Marketing* 7, no. 1: 1–9.
- Lee, A., and B. Sternthal. 1999. The effects of positive mood on memory. *Journal of Consumer Research* 26, no. 2: 115–27.
- Lee, M., and S. Youn. 2008. Leading national advertisers' uses of advergames. *Journal of Current Issues and Research in Advertising* 30, no. 2: 1–13.

- Livingstone, S. 2009. Debating children's susceptibility to persuasion- where does fairness come in? *International Journal of Advertising* 28, no. 1: 170–4.
- Mackie, D.M., and L.T. Worth. 1989. Processing deficits and the mediation of positive affect in persuasion. *Journal of Personality and Social Psychology* 57, no. 1: 27–40.
- Mallinckrodt, V., and D. Mizerski. 2007. The effects of playing an advergame on young children's perceptions, preferences, and requests. *Journal of Advertising*, 36, no. 2: 87–100.
- Mau, G., G. Silberer, and C. Constien. 2008. Communicating brands playfully: Effects of in-game advertising for familiar and unfamiliar brands. *International Journal of Advertising* 27, no. 5: 827–51.
- McGuire, W.J. 1976. Some internal psychological factors influencing consumer choice. *Journal of Consumer Research* 2(March): 302–19. doi: 10.1086/208643
- Nairn, A., and H. Hang. 2012. *Advergames: It's not child's play. A review of research*. London, UK: Family and Parenting Institute.
- Nebenzahl, I.D., and E.D. Jaffe. 1998. Ethical dimensions of advertising executions. *Journal of Business Ethics* 17, no. 7: 805–15.
- Petty, R.E., and J.T. Cacioppo. 1986. *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Quilliam, E.T., M. Lee, R.T. Cole, and K. Mikyoung. 2011. The impetus for (and limited power of) business self-regulation: The example of advergames. *Journal of Consumer Affairs* 45, no. 2: 224–47.
- Redondo, I. 2012. The effectiveness of casual advergames on adolescents brand attitudes. *European Journal of Marketing* 46, no. 11/12: 1671–88.
- Russoniello, C., K. O'Brien, and J.M. Parks. 2009. The effectiveness of casual video games in improving mood and decreasing stress. *Journal of Cyber Therapy and Rehabilitation* 2, no. 1: 53–66.
- Sar, S. 2013. The effects of mood, gender, and ad context on type of elaboration and product evaluation. *Journal of Marketing Communications* 19, no. 5: 308–23.
- Schneider, L., and T.B. Cornwell. 2005. Cashing in on crashed via brand placement in computer games. *International Journal of Advertising* 24, no. 3: 321–43.
- Schwarz, N., and G.L. Clore. 1983. Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology* 45, no. 3: 513–23.
- Tessitore, T., and M. Geuens. 2013. PP for product placement or puzzled public? *International Journal of Advertising* 32, no. 3: 419–42.
- Van Reijmersdal, E.A., P.C. Neijens, and E.G. Smit. 2010. Customer magazines: Effects of commerciality on readers reactions. *Journal of Current Issues and Research in Advertising* 32, no. 1: 59–67.
- Van Reijmersdal, E.A., E. Rozendaal, and M. Buijzen. 2012. Effects of prominence, involvement, and persuasion knowledge on children's cognitive and affective responses to advergames. *Journal of Interactive Marketing* 26, no. 1: 33–42.
- Van Reijmersdal, E.A., K. Tutaj, and S.C. Boerman. 2013. The effects of brand placement disclosures on skepticism and brand memory. *Communications: The European Journal of Communication Research* 38, no. 2: 127–46.
- Wegener, D.T., and R.E. Petty. 1994. Mood management across affective states: The hedonic contingency hypothesis. *Journal of Personality and Social Psychology* 66, no. 6: 1034–48.
- Wei, M., E. Fischer, and K.J. Main. 2008. An examination of the effects of activating persuasion knowledge on consumer response to brands engaging in covert marketing. *Journal of Public Policy and Marketing* 27, no. 1: 34–44.
- Wise, K., P.D. Bolls, H. Kim, A. Venkataraman, and R. Meyer. 2008. Enjoyment of advergames and brand attitudes: The impact of thematic relevance. *Journal of Interactive Advertising* 9, no. 1: 1–11.
- Wong, N.C.H., and B. Householder. 2008. Mood and ad processing: Examining the impact of program-induced moods on subsequent processing of an antismoking public service advertisement. *Communication Studies* 59, no. 4: 402–14.
- Wood, W., and J.M. Quinn. 2003. Forewarned and forearmed? Two meta-analytic synthesis of forewarning of influence appeals. *Psychology Bulletin* 129, no. 1: 119–38.

- Wright, P., M. Friestad, and D.M. Boush. 2005. The development of marketplace persuasion knowledge in children, adolescents, and young adults. *Journal of Public Policy and Marketing* 24, no. 2: 222–33.
- Zuwerink, J.J., and K.A. Cameron. 2003. Strategies for resisting persuasion. *Basic and Applied Social Psychology* 25, no. 2: 145–61.