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The role of customization, brand trust, and privacy concerns in advergaming

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This study investigates the effects of advergaming customization features and trust in the brand advertised in the advergaming on players' brand attitude and personal information disclosure. Moreover, we examine to what extent players' privacy concerns moderate these effects. Drawing on self-determination theory and uncertainty reduction theory, we developed and tested a game with varying levels of customization features and brand trust. Results show that customization possibilities and brand trust may have a positive influence on advergaming persuasion outcomes, but this influence is strongly conditioned by consumers' privacy concerns. When privacy concerns are low, a game containing customization features leads to a more positive brand attitude. However, when privacy concerns are high, the effect becomes negative. Additionally, we find that different levels of privacy concerns do not affect players' responses toward high trust brands, but toward low trust brands. For low trust brands, players with high privacy concerns show more negative game responses than players with low concerns. These findings set the boundaries for several theoretical and practical implications regarding advergaming effectiveness.

Keywords: advergaming customization; brand trust; privacy concerns; personal information disclosure; brand attitude

Subject classification codes: 10.100; 30.200; 40.100; 50.300

Introduction

As digital games increasingly take up greater parts of consumers' recreational life (Ryan, Rigby, and Przybylski 2006) and traditional advertising effectiveness steadily declines (Jaffe 2005), advertisers have started focusing more on game-related advertising tactics such as advergaming. Advergaming are free and simple digital games (Redondo 2012) specifically designed to promote a brand, product, service, or idea (Terlutter and Capella 2013). In general, advertisers employ these games to reach two goals: first, by providing consumers the opportunity to 'play with' the brand, they hope that the positive associations and feelings gained from the game transfer to their own brand, increasing consumers' brand attitude (van Reijmersdal, Rozendaal, and Buijzen 2012; Raney et al. 2003). Second, since players are regularly asked to register to play (Lee and Youn 2008), advergaming serve as a powerful asset for building brand loyalty and for collecting data about potential and existing customers (Youn and Lee 2005; Steel 2013; Çeltek 2010).

Whether or not advertisers reach these goals depends on the persuasive power of the advergaming which is related to (1) the design of the game and (2) the brand message

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included in the game (Nelson and Waiguny 2012). As for the game design, prior research on video games has shown that players respond favorably to customization possibilities, which give them the feeling that they have more pull, that is, more autonomy, in the game (e.g., Dardis, Schmierbach, and Limperos 2012; Teng 2010). This is because customization features partly satisfy individuals' psychological needs (e.g., the need for autonomy or connectedness) (Montgomery and Smith 2009; Ryan, Rigby, and Przybylski 2006). Although advergames often allow players to customize the game (Lee and Youn 2008), too, research on the effects of customization possibilities on the persuasive outcomes of advergames is scarce. This knowledge is, however, essential for scientists as well as advertisers, because it sheds light on which advergame features enhance advertising outcomes.

As for the brand message included in the game, existing research on advergames has so far neglected to investigate what impact consumers' trust associated with the brand in the game has on persuasion outcomes. This is unfortunate, because brand trust plays a crucial role in commercial exchange relationships and it can have a strong impact on marketing success (Delgado-Ballester and Munuera-Alemán 2005; Barney and Hansen 1994). Drawing on self-determination theory (SDT) (Deci and Ryan 2000; Ryan and Deci 2000) and uncertainty reduction theory (URT) (Berger and Calabrese 1975), which are both important theories to understand game effects (SDT) and brand-consumer interactions (URT), we hope to achieve a more nuanced understanding of how customization possibilities and the feelings of trust toward the brand depicted in the advergame influence consumers' responses toward advergames.

Additionally, we want to investigate which role consumer privacy concerns regarding the data collection practices of advergames play in this relationship. Prior research on advergames has paid little or no attention to consumers' growing concerns about the invasion of privacy by new advertising techniques (Flaherty 2013; Reding 2012). This is an important gap that needs to be filled especially because earlier research suggests that privacy concerns may provide a boundary condition to the positive effects of online campaigns (e.g., van Noort, Antheunis, and Verlegh 2014).

With this study, we not only extend existing literature on advergame effectiveness and shape future academic inquiries in this realm, but we also help advertisers in their selection of appropriate advergame features, in their decision of whether their brand is suitable for being depicted in an advergame, and in their handling of consumer privacy concerns.

Theoretical background

Effects of advergame customization on brand attitude and information disclosure

Advergames often allow players to customize the game by letting them choose preferred options for various elements of the game (Moore 2006; Lee and Youn 2008). The Kellogg's Dino Dig advergame (www.clubkelloggs.ca), for instance, allows players to choose the color of the gaming environment as well as the tool for digging fossils out of the ground. Customization refers to 'the degree to which a technology, good or service can be created, selected, or changed to comply with user preferences' (Teng 2010, 1549). Prior research has shown that providing video game players with customization possibilities leads to positive responses. Dardis, Schmierbach, and Limperos (2012) found that game customization significantly increases recall of integral brand placements (i.e., brand placement that is central to actual game play), but not of peripheral brand placements. In a cross-sectional survey among online gamers Teng (2010) discovered that game customization increases loyalty directly and indirectly through enhanced immersion satisfaction (i.e., satisfying players need to be

immersed into or absorbed by the game). Finally, a survey by Kwak et al. (2010) showed that personalization (i.e., customization) options in sport video games have a positive effect on game enjoyment, time spent playing the game, and repurchase intention.

An explanation for the positive effect of customization can be found in SDT (Deci and Ryan 2000; Ryan and Deci 2000), which has been previously used to explain the positive effects of video games in general and of provisions of choice more specifically (Peng et al. 2012; Tamborini et al. 2010; Ryan, Rigby, and Przybylski 2006). SDT states that human motivation can be classified along a self-determination continuum ranging from intrinsic motivation via extrinsic motivation to ‘amotivation.’ Intrinsically motivated individuals engage in activities for their own sake and they therefore experience a high degree of self-determination. In contrast to this, extrinsically motivated individuals feel less self-determined, as they only show a certain behavior because it is seen as a means to an end (e.g., to avoid punishment or to receive rewards). Eventually, a state in which individuals do not feel any motivation at all is referred to as ‘amotivation.’

A subtheory within SDT, cognitive evaluation theory (CET) (Deci and Ryan 1985), posits that individuals are intrinsically motivated to pursue activities that satisfy their three basic psychological needs: the need for competence, the need for relatedness, and the need for autonomy. The need for autonomy, which refers to ‘feeling of being the origin of one’s own behaviors’ (Ng et al. 2012, 326), is especially important for this study, because we argue that providing advergaming players with game customization possibilities is equivalent to providing them with more autonomy. Giving players the possibility to create their own gaming experience, for instance, by choosing an avatar or the design of the gaming environment, provides them with a set of options they can deliberately choose from. This set of choices may give players the feeling that they are origin of the gaming experience, which may (partly) satisfy their need for autonomy.

CET further states that the satisfaction of individuals’ basic psychological needs leads to several positive outcomes such as increased psychological well-being, enhanced interest in an activity, inherent satisfaction with it, and enjoyment of an activity (Deci and Ryan 2000). In the video-gaming environment, prior research shows that the degree of satisfaction of the need for autonomy can vary depending on autonomy-supportive features in the video game design: players who reported higher experienced in-game autonomy had more positive experiences than people experiencing low autonomy (Ryan, Rigby, and Przybylski 2006). Moreover, games emphasizing autonomy through opportunities for action were more likely to draw players back to them (Rigby and Ryan 2011), meaning that when players had the possibility to create their own game experience in the game, they were more likely to continue playing the game in the future. Furthermore, recent studies demonstrated that satisfying the need for autonomy in video games increases enjoyment, the desire for future game play, game recommendations, and game ratings (e.g., Przybylski, Rigby, and Ryan 2010; Tamborini et al. 2010; Peng et al. 2012; Neys, Jansz, and Tan 2014). Recent research has shown that the positive associations and feelings gained from the game, such as game enjoyment and the desire for future game play, can transfer to the brand depicted in the game, increasing consumers’ brand attitude (van Reijmersdal, Rozendaal, and Buijzen 2012; Raney et al. 2003). This effect is commonly known as the spill-over effect (e.g., Wise et al. 2008; Nelson, Yaros, and Keum 2006). Based on the above reviewed literature we expect that customization possibilities in advergaming satisfy players’ need for autonomy, which, in turn, positively influences their affective responses toward the game and the brand depicted in the game. Hence, we hypothesize:

H1a: Game customization will increase advergaming players’ positive attitude toward the brand depicted in the game.

In addition to that, providing players with more autonomy in the advergame might also have positive effects on their willingness to disclose personal information (Cozby 1973; Derlega 1988). As outlined above, higher levels of perceived autonomy lead to higher levels of intrinsic motivation. Existing literature shows that intrinsic motivation, in turn, leads to more interest in an activity (Deci and Ryan 2000) and to more effort spent on an activity (Ryan and Deci 2000).

Apart from that, customization possibilities in advergames increase players' subjective feelings of presence in or involvement with the game (Bailey, Wise, and Bolls 2009). Since consumers have a limited capacity for processing information (Lang 2000; Kahneman 1973), higher levels of involvement in a game hinder the activation of concerns about sharing personal information. Consequently, when players are more absorbed in the game, they may be less critical about sharing personal information with the sponsor of the advergame, especially if the game requires the player to share information in order to continue playing the game – a feature that is often built into advergames (cf., van Noort et al. 2014). Peng and colleagues (2012) have shown, for example, that intrinsic motivation increases players' desire for future game play. Based on these findings, we propose that:

H1b: Game customization will increase advergame players' disclosure of personal information.

Effects of brand trust on personal information disclosure

Brand trust can be defined as 'a feeling of security held by the consumer that the brand will meet his/her consumption expectations' (Delgado-Ballester and Luis Munuera-Alemán 2001, 1242). This feeling is based on consumers' perception that the brand is reliable in that it has the required capacity to respond to consumer's needs and on the belief that the brand does not take opportunistic advantage of consumers' vulnerability (Delgado-Ballester and Luis Munuera-Alemán 2001).

Brand trust develops over time and it evolves from past experience and prior interactions (Rempel, Holmes, and Zanna 1985). As many marketing scholars have pointed out, brand trust plays a key role in commercial exchange relationships, because it can create competitive advantage and promote marketing success (e.g., Delgado-Ballester and Munuera-Alemán 2005; Barney and Hansen 1994). Especially in situations where no further information about the quality of a product or service is available, as it is the case in advergames, brand trust plays an important role, because it works as an information surrogate, which may serve as an indicator for the general reliability of the brand or supplier (Adler 1998). Based on this, it becomes apparent that the brand depicted in the advergame has an important function, as it communicates whether or not the sponsor of the game is trustworthy. This, in turn, may influence whether advertisers reach the two goals they pursue, namely increasing brand attitude and gathering personal information about consumers.

While the relationship between brand trust and brand attitude is obvious and well-established in existing literature (e.g., Okazaki, Katsukura, and Nishiyama 2007), research on the effect of brand trust on personal information disclosure is relatively scarce – especially in the advergaming context. In this study, we propose that brand trust may have a positive effect on the disclosure of personal information. According to the theory of social response, individuals have the tendency to treat computers as social actors although they know that machines do not have feelings, intentions, or human motivations (Nass and Moon 2000;

Nass, Moon, and Carney 1999). Similar findings have been documented for brands, which are often seen as having a personality that makes them more or less suited as a relationship-partner (Aaker and Fournier 1995; Smit, Bronner, and Tolboom 2007). Given the fact that advergames are computer games containing a brand, it does not seem far-fetched to apply interpersonal communication theories to human–computer and consumer–brand interactions as they occur in advergames.

The disclosure of personal information on the Internet in general, and via advergames specifically, can be considered as an inherently risky situation, due to the uncertainty and lack of control with regard to how disclosed information is handled (Youn 2009). Whether or not individuals disclose information therefore depends on how they cope with this uncertainty. One important interpersonal communication theory that can be used to explain why and when individuals disclose personal information is URT (Berger and Calabrese 1975). This theory was originally formulated to explain initial communication interactions between strangers, but in time, researchers began to apply it to general interpersonal interactions as well (Bylund, Peterson, and Cameron 2012). URT is based on the assumption that when strangers meet, individuals are primarily motivated to reduce uncertainty and to increase predictability about the behavior of themselves and of the person they interact with. As the amount of interaction between strangers increases, the level of uncertainty decreases. Moreover, as uncertainty is further reduced, the amount of communication will increase (Berger and Calabrese 1975).

Translating this to personal information disclosure in advergames, we propose that when advergames interact with players by asking them to share personal information with the brand behind the game, the following will occur: first, players will experience uncertainty, because they do not know what is going to happen with their data and they will feel the wish to reduce this uncertainty. Second, players will strive to increase the predictability of the behavior of the people in charge of the brand doing the request. Brand trust is an essential indicator of the reliability of a brand and a predictor of a brand's future behavior (Delgado–Ballester and Luis Munuera–Alemán 2001).

Therefore, when advergame players experience high levels of brand trust, uncertainty can be decreased and predictability increased, leading to more personal information disclosure.

Empirical research, indeed, supports these assumptions, demonstrating that trust leads to less perceived risk (i.e., uncertainty) (Pavlou 2003; Mayer, Davis, and Schoorman 1995) and that trust has positive effects on purchase intention and word-of-mouth behavior (Sichtmann 2007), and, more importantly, sharing identifiable information on the Internet (Mesch 2012). Therefore, we hypothesize that:

H2: The higher the feelings of brand trust in the brand depicted in the advergame, the more personal information will be disclosed.

The role of consumer privacy concerns

Advergames are not only used as a means to increase consumers' brand attitude (van Reijmersdal, Rozendaal, and Buijzen 2012; Raney et al. 2003), but also for collecting personal information about players. The *Kellogg's Fruit Loop advergame* (www.clubkelloggs.ca), for instance, asks players to disclose their personal information (i.e., first and last name, birth date, province) before playing the game. Other games store meta information about the player during game, for instance IP address, which strategic moves the player takes, etc. (Thurm and Kane 2010). These direct and indirect requests to provide

personal information may induce privacy concerns in advergame players. Existing literature has shown that individuals may differ widely in the extent to which they experience concern for privacy (Phelps, Nowak, and Ferrell 2000) and in the extent to which they cope with these concerns (Debatin et al. 2009; Sheehan and Hoy 1999). Therefore, we propose that our hypothesized effects vary with the level of privacy concerns. Consumer privacy can be defined as ‘the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others’ (Westin 1967, 7). Today, privacy is increasingly becoming a prominent issue associated with computer-mediated communication (Okazaki, Li, and Hirose 2009), because information on the Internet is persistent, replicable, searchable, and shareable (Boyd 2008; Papacharissi and Gibson 2011), thereby making consumers vulnerable in that they have little control over how the information they disclosed is handled by marketers (Youn 2009). In response to the growing concerns (Reding 2012; Flaherty 2013), researchers have begun to empirically examine the antecedents and consequences of online privacy concerns (e.g., Taddicken 2014; Youn 2009; Wirtz, Lwin, and Williams 2007). These studies have led to mixed results.

On the one hand, it has been shown that although consumers are worried about their online privacy, for instance, within the social web, they do not apply these concerns to their online usage behavior correspondingly (e.g., Debatin et al. 2009; Yao, Rice, and Wallis 2007). This phenomenon is referred to as the ‘privacy-paradox’ (Barnes 2006; Norberg, Horne, and Horne 2007), which is assumed to occur due to a lack or problem of risk awareness and due to consumers’ lack of awareness regarding privacy protection possibilities (Tufekci 2008; Debatin et al. 2009; Taddicken 2014).

On the other hand, several studies have found that privacy concerns strongly relate to risk reducing behavior such as withholding or falsifying personal information, using privacy-enhancing techniques (e.g., encryption), asking for removal from mailing lists, sending highly negative messages (i.e., ‘flaming’), or changing attitudes (Sheehan and Hoy 1999; Wirtz, Lwin, and Williams 2007; Jahangir and Begum 2007). Many scholars from different perspectives adopted multiple theories (e.g., privacy calculus theory, theory of planned behavior) to explain these effects (see Li 2012 for review).

The role of privacy concerns in online advertising was studied, for example, by van Noort et al. (2014), who found that consumers respond more positively to online campaigns when they experienced low levels of privacy concern. However, these positive effects disappear as privacy concerns increase. In line with these findings, Smit, van Noort and Voorveld (2014) showed that privacy-concerned Internet users have a more negative attitude toward online behavioral advertising than consumers with low privacy concerns. Maslowska, van den Putte, and Smit (2011) empirically demonstrated that consumers’ affective online campaign responses were more positive when privacy concerns were low.

Based on the above reviewed literature, it becomes clear that privacy concerns influence consumer behavior in various, not easily predictable ways. Advergame features interacting with consumer privacy concerns in different ways make life even more complicated. On the one hand, advergame features can help to reduce consumer privacy concerns, which may positively affect advergame effectiveness: since interactive marketing techniques, such as advergames, are characterized by their blurred boundaries between advertising and entertainment (Raney et al. 2003), they can reduce consumers’ awareness that the game they are playing is in fact a disguised advertising medium (Waiguny, Nelson, and Terlutter 2014). This implies that the entertaining masquerade of advergames, which might be intensified by providing players with more autonomy through

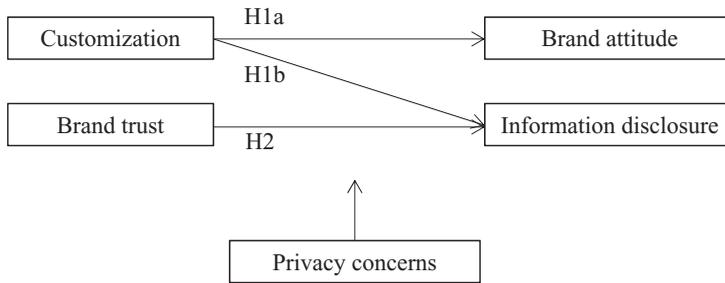


Figure 1. Proposed effects of game customization and brand trust on brand attitude and personal information disclosure and the role of privacy concerns.

customization possibilities, may reduce consumers' levels of privacy concerns. The latter, in turn, is likely to be beneficial for advergame persuasion outcomes. In addition, privacy concerns may also be reduced by depicting a trusted brand in the game. When consumers trust a brand, they feel more secure in their interaction with the brand and they perceive the brand to be reliable and responsible for their interests and welfare (Delgado-Ballester, Munuera-Aleman, and Yague-Guillen 2003). Based on this, privacy concerns are likely to be low if the game contains a brand people trust, which may, in turn, enhance advergame effectiveness.

On the other hand, privacy concerns may negatively influence advergame effectiveness even if the game contains customization features and a trusted brand. As Molesworth (2006) demonstrated, brand placements in video games are perceived as an invasion of privacy by players. This invasion of privacy could lead to feelings of irritation on the side of the player (Martí-Parreño et al. 2013), which may undermine the entertainment factor of advergames induced by customization features, thereby impairing advergame effectiveness. These findings suggest that privacy concerns may interact with features of the game, which, in conjunction, may negatively influence persuasion outcomes of advergames.

As the previously outlined mixed findings indicate, consumers react differently to privacy concerns and features of advergames may interact with privacy concerns in various ways, too. As it is impossible to propose hypotheses based on previous mixed findings, we pose the following research question:

RQ: To what extent are privacy concerns related to brand attitude and information disclosure, and how do privacy concerns interact with effects of advergame features?

The model proposed here is depicted in Figure 1.

Method

Participants and design

181 students aged 18–31 years ($M = 21.79$, $SD = 2.90$) participated in the experiment in exchange for extra course credit or five euros. Of those respondents 76% was female. Sixty-four percent indicated never playing computer games. Twenty-three respondents were removed from the original sample ($n = 204$) because they did not answer properly to the questions or because their answer showed demand effects, that is, socially desirable answers.

The experimental design was a 2 (customization: high vs. low) \times 2 (brand trust: high vs. low) between subjects factorial design. Participants were randomly assigned to the following four experimental conditions: high customization–high brand trust ($n = 44$); high

customization—low brand trust ($n = 45$); low customization—high brand trust ($n = 45$); low customization—low brand trust ($n = 47$).

Stimulus material

To test the hypotheses, an advergaming that resembled the popular arcade game 'Flappy Birds' was specifically developed for this study. In this game, participants were asked to navigate a flying bird through a maze of tubes without colliding with the tubes. This game was chosen because arcade games are most frequently used for advergaming (Lee and Youn 2008). The following two factors were manipulated in the advergaming.

Customization served as a between subjects factor and it could take on the value high or low customization. In the high customization condition, after clicking on a link to the game, respondents were directed to a landing page where they could customize the game in five steps. In the first step, respondents could choose one out of three different avatar birds. In the second step, they could pick one out of three hats for their bird. After that, they could give their bird a name, which remained visible directly above the flying bird during the whole game. In the fourth step, respondents could select one out of three differently colored gaming environments. Finally, in the fifth step, respondents could indicate whether they wanted to see their personal high score in the left corner of the game while playing or not. In the low customization condition all these options were absent on the landing page of the game.

Brand trust was the second between subjects factor, which could take on the value high brand trust or low brand trust. Prior to the target study, a pretest was conducted to select suitable brands that either elicit high or low levels of brand trust. Before conducting the pretest we established a list of 40 trusted and not trusted brands by asking 10 students to write down brands they do or do not trust. In the pretest we asked 29 student participants ($M_{\text{age}} = 23.71$, $SD = 2.43$; 75.9% female) to rate these 40 brands on their level of brand trust using one item adapted from Chaudhuri and Holbrook (2001, 81–93) ('I trust brand X') with responses ranging from '1 = absolutely not' to '5 = absolutely.' Based on the results from the pretest we selected the brands Hema (retail, food, and drinks), Ikea (furniture), Dove (skin care), Philips (electronics), and Spa (mineral water) as high trust brands and the brands Primark (cheap clothes), Burger King (fast food), Shell (energy and petrochemicals), Nationale Postcode Loterij (zip code lottery), and McDonald's (fast food) as low trust brands. Only one of these brands was depicted in each game version. We included five different instances of 'high trust' brands and five different instances of 'low trust' brands, because we wanted to ensure that our findings would be due to variations in brand trust, and not to idiosyncratic differences between brands. To ensure that brand exposure frequency, which was 5–7 seconds per brand, was equal among all conditions, in all game versions brands were depicted three times on billboards during the first 90 seconds of playing. The sponsorship disclosure 'This game is sponsored by brand X' remained in the upper left corner during the whole game.

Procedure

Participants were recruited via a departmental subject pool at a Dutch university and via posters and flyers distributed on the campus. Prior to participating in the study informed consent was obtained. After that, respondents were randomly assigned to one of the four conditions. Hereafter, they were asked to rate 20 brands (including the 10 target brands) on their level of brand trust using the same question item as in the pretest. Next, they

conducted an unrelated distractor study for approximately 15 minutes. Hereafter, respondents were asked to play the advergame. Based on participants' individual results of the brand trust ratings at the beginning of the experiment and on the condition they were randomly assigned to, the advergame either contained the brand they trusted least or most. After finishing the game, participants were asked to complete a questionnaire in which they answered questions (in the following order) on autonomy, game enjoyment, privacy concerns, brand recall, brand recognition, brand trust, brand familiarity, brand attitude, personal information disclosure, in-game competence, manipulation checks, prior gaming experience, and finally demographics. At the end of the experiment participants were thanked for their participation and they could choose whether they wanted to receive course credit or five euros as a reward.

Measures

Dependent variables

Brand attitude was measured with three items on a seven-point semantic differential scale (1 = *negative pole* to 7 = *positive pole*) adapted from Dahlén (2005): After the fragment 'To me brand X is ...' respondents could choose between 'bad/good,' 'negative/positive,' and 'unsatisfying/satisfying.' The scale had an excellent internal reliability ($\alpha = .96$), hence scale items were averaged to form an overall brand attitude scale ($M = 4.34$, $SD = 1.92$).

Personal information disclosure was measured using direct behavioral measures. After playing the advergame for about 90 seconds a pop-up appeared with the following request: 'This is the end of the trial version. To continue with the real game version, in which your scores are stored in a ranking list, share your personal information with brand X.' Respondents had the possibility to disclose information by typing in their name, sex, age, e-mail address, postcode, and telephone number. They were free to choose whether or not they wanted to share information and how much information they wanted to share. If they wanted to share information, they could type it in an open text field and click on 'Send' afterwards. It was not possible to click on 'Send' without disclosing at least the name. In case respondents did not want to share information they could close the pop-up by clicking on 'Cancel.' After clicking on 'Send' or 'Cancel', respondents played the game again for 90 seconds.

Sometimes respondents obviously disclosed fake information (e.g., 'hell no!'; '1234567'). Therefore the answers were coded as follows. A general disclosure scale was constructed by assigning for each of the six disclosure options a '0' if the participant did not disclose information or if he obviously disclosed fake information and a '1' if the participant disclosed information. Information disclosure varied from '0' (no disclosure) to '6' (all information disclosed) with an average disclosure score of 1.01 ($SD = 1.94$).

Consumers' privacy concerns

Privacy concerns were measured by four seven-point Likert scale items (1 = *strongly disagree*, 7 = *strongly agree*) adopted from Okazaki, Li, and Hirose's (2009, 63–77) privacy concerns 'collection' dimension: 'It usually bothers me when online games ask me for personal information,' 'When online games ask me for personal information, I sometimes think twice before providing it,' 'It bothers me to give personal information to so many online games,' and 'I'm concerned that online games are collecting too much personal information about me.' As the scale was reliable, items were averaged to form one

single index for privacy concerns with higher scores representing higher levels of concern ($M = 6.14$, $SD = .89$, $\alpha = .78$).

Control variables and manipulation checks

Customization. To check whether the manipulation of customization was successful we used a combined five-item scale consisting of four in-game autonomy items adapted from Ryan et al. (2006, 344–60) and one item adapted from Peng et al. (2012) (1 = *strongly disagree*, 7 = *strongly agree*): ‘I experienced a lot of freedom in the game,’ ‘I had a lot of choices in the game,’ ‘I felt controlled and pressured to be a certain way’ (reversed), ‘I did things in the game because they interested me,’ and ‘I had many opportunities to choose how the game looks like.’ Conducting a principal component analysis with orthogonal rotation (varimax) on the autonomy items yielded one component with eigenvalues over Kaiser’s criterion of 1 (EV = 2.53), which explained 50.64% of the variance. Still, one item was excluded due to reliability problems. The remaining items were averaged to form one customization scale ($M = 2.81$, $SD = 1.22$, $\alpha = .80$).

Brand trust was measured with six seven-point Likert scale items (1 = *strongly disagree*, 7 = *strongly agree*) adapted from Delgado-Ballester (2004): ‘I feel confidence in brand X,’ ‘X is a brand that never disappoints me,’ ‘X is a brand that meets my expectations,’ ‘X guarantees satisfaction,’ ‘X would be honest and sincere in addressing my concerns,’ and ‘X would make any effort to satisfy me.’ The reliability of this scale was excellent ($\alpha = .95$), hence, items were averaged to form a single brand trust measure ($M = 3.68$, $SD = 1.69$).

A number of control variables were collected to make sure that the effects were not caused by other differences between groups. First, *game enjoyment* was measured using four seven-point Likert scale items (1 = *strongly disagree*, 7 = *strongly agree*) adapted from the Intrinsic Motivation Inventory (Ryan, Mims, and Koestner 1983) for example ‘I enjoyed playing the game,’ ‘I thought the game was boring’ (reversed). The scale was reliable, therefore items were averaged ($M = 3.13$, $SD = 1.36$, $\alpha = .89$). Second, *in-game competence* was measured using four seven-point Likert scale items (1 = *strongly disagree*, 7 = *strongly agree*) adopted from Ryan et al. (2006, 344–60), for instance, ‘I felt very capable and effective during the game,’ and ‘The game kept me on my toes but did not overwhelm me’ ($M = 3.12$, $SD = 1.21$, $\alpha = .82$). Third, *prior gaming experience* was assessed by asking participants how many times a week they play online games on average with answer options ranging from ‘1 = never’ to ‘5 = more than 15 times a week.’ They were also asked whether they knew the game Flappy Birds (0 = *no* and 1 = *yes*) and if so, how many times they have played Flappy Birds until now in total (1 = *never* to 5 = *more than 15 times a week*). Fourth, *game professionalism* was assessed to ascertain that the game was perceived to be realistic. Participants were asked whether they agreed (1 = *strongly disagree*, 7 = *strongly agree*) with the statement ‘I could encounter the game I just played on a real gaming website’ ($M = 4.16$, $SD = 1.88$). Fifth, *brand familiarity* was measured by asking participants ‘How familiar are you with brand X?’ (1 = *very unfamiliar* to 7 = *very familiar*) ($M = 5.71$, $SD = 1.30$). Sixth, to check whether participants had seen the brand depicted in the game, *brand memory* was measured by asking participants to write down in an open text field which brand they remembered having seen in the game (free recall) and by presenting participants 10 brands from which they could choose the one they had seen during the game (recognition). As for the free recall measure, a ‘0’ was coded when participants did not write down the correct brand and a ‘1’ if they did recall the brand correctly. As for the recognition measure, a ‘0’ was assigned if

participants clicked on a wrong brand and a '1' if they clicked on the correct brand. Average memory scores were very high ($M_{\text{recall}} = .94$, $SD = .23$; $M_{\text{recognition}} = .91$, $SD = .30$), suggesting that participants had noticed the brand that was shown in the game. Finally, participants' age, gender, nationality, and educational background were ascertained.

Results

Manipulation checks and control variables

As intended, participants in the high customization condition perceived that they had more options and freedom to customize the game ($M = 3.16$, $SD = 1.28$) than respondents in the low customization condition ($M = 2.47$, $SD = 1.07$), ($t(171.10) = -3.91$, $p < .001$). Additionally, respondents in the high brand trust condition experienced significantly more brand trust ($M = 5.01$, $SD = 1.07$) than respondents in the low brand trust condition ($M = 2.39$, $SD = 1.07$), ($t(179) = -16.54$, $p < .001$), indicating that the brand trust manipulation was successful, too. The experimental groups did not differ with respect to game enjoyment, in-game competence, prior gaming experience, game professionalism, brand familiarity, brand memory, age, gender, nationality, and educational background.

Before testing our hypotheses, we conducted analyses of variance (ANOVAs) to check whether there would be brand specific results. These analyses showed that information disclosure did not differ between brands, $F(9, 171) = 1.06$, $p = .40$. For brand attitude, there was a significant difference between the high trust brands and the low trust brands, $F(9, 171) = 32.09$, $p < .001$. *Post hoc* tests (Bonferroni) showed that the high trust brands led to a more positive brand attitude than the low trust brands. Within the group of the five high trust brands there were no significant differences. The same applied to the low trust brands. Regarding brand trust, there were no significant differences neither within the group of the five high trust brands nor within the group of the five low trust brands.

Testing hypotheses

All hypotheses were tested running ordinary least squares (OLS) regressions for each dependent variable, with customization, brand trust, privacy concerns, and the interactions of privacy concerns with the other two variables as predictors. Following Hayes (2013), main effects parameterization was applied to the categorical independent variables before running the analyses in order to parameterize the model correctly. This means that the two levels of both independent variables were coded with codes of -0.5 and 0.5. The variables privacy concerns and personal information disclosure both had skewness problems since participants had very high privacy concerns ($M = 6.14$, on a seven-point scale; skewness = -1.13) and hardly disclosed any personal information ($M = 1.01$, on a six-point scale; skewness = 1.64). Consequently, we decided to use bootstrapping (5000 samples), because the sampling distribution was asymmetrical and parametric tests could not be used (Field 2013). Moreover, we mean-centered the moderator variable privacy concerns in order to avoid multicollinearity problems. Variance inflation factor diagnostics did not point to any multicollinearity problems.

The regression model with brand attitude as dependent variable and customization, brand trust, privacy concerns, and the interactions of privacy concerns with customization and brand trust was highly significant, $F(5, 175) = 62.38$, $p < .001$, and it explained 64%

Table 1. Regression results (*b* values).

	Brand attitude <i>b</i>	Information disclosure <i>b</i>	Hypothesis
Intercept	4.38	1.02	
Cust	-.06	.01	H1ab rejected
BT	2.92***	.34	H2 rejected
PC	-.33***	-.43**	
BT × Cust	-.20	.02	
PC × Cust	-.40*	.19	
PC × BT	.36 [†]	.72*	
PC × BT × Cust	.42	-.36	
<i>R</i> ²	.64***	.08*	

Note: BT = brand trust, cust = customization, PC = privacy concerns.

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

of the variance in brand attitude. As can be seen in Table 1, customization had no significant effect on brand attitude; hence, the results did not support H1a.

Additionally, the regression model with personal information disclosure as dependent variable and customization, brand trust, privacy concerns, and the interactions of privacy concerns with customization and brand trust was significant, $F(5, 175) = 3.05$, $p < .05$, and it explained 8% of the variance in personal information disclosure. The results showed that customization had no significant effect on personal information disclosure, rejecting H1b. Moreover, there was no significant effect of brand trust on personal information disclosure; hence, H2 was rejected too.

Next we tried to find an answer to our research question: to what extent are privacy concerns related to brand attitude and information disclosure, and how do privacy concerns interact with effects of advergame features? Results showed that privacy concerns had strong negative effects on brand attitude and personal information disclosure. Moreover, the analyses yielded two significant two-way interactions: (1) privacy concerns interacted significantly with customization and (2) privacy concerns interacted (marginally) significantly with brand trust. The interaction effect of privacy concerns and customization on brand attitude was significant and probed using the Johnson and Neyman (JN) (1936) technique (cf. Hayes and Matthes 2009; Hayes 2013). This ‘floodlight analysis’ circumvents problems associated with pick-a-point approaches, such as arbitrarily selecting ‘low,’ ‘moderate,’ and ‘high’ values on the moderator, by identifying the regions of the moderator continuum where the effect of the independent variable on the dependent variable is statistically significant and where it is not (Hayes 2013). As can be seen in Figure 2, when privacy concerns were low (i.e., below -1.67), participants in the high customization condition had a more positive brand attitude than participants in the low customization condition. In contrast to this, when privacy concerns were high (i.e., above $.87$), participants in the high customization condition were more negative toward the brand than participants in the low customization condition.

Additionally, the interaction effect of privacy concerns and brand trust on brand attitude was marginally significant in the regression model. Analyses with the JN technique showed that the whole interaction was significant. As visualized in Figure 3, in the high brand trust condition there was no big difference in brand attitude between participants

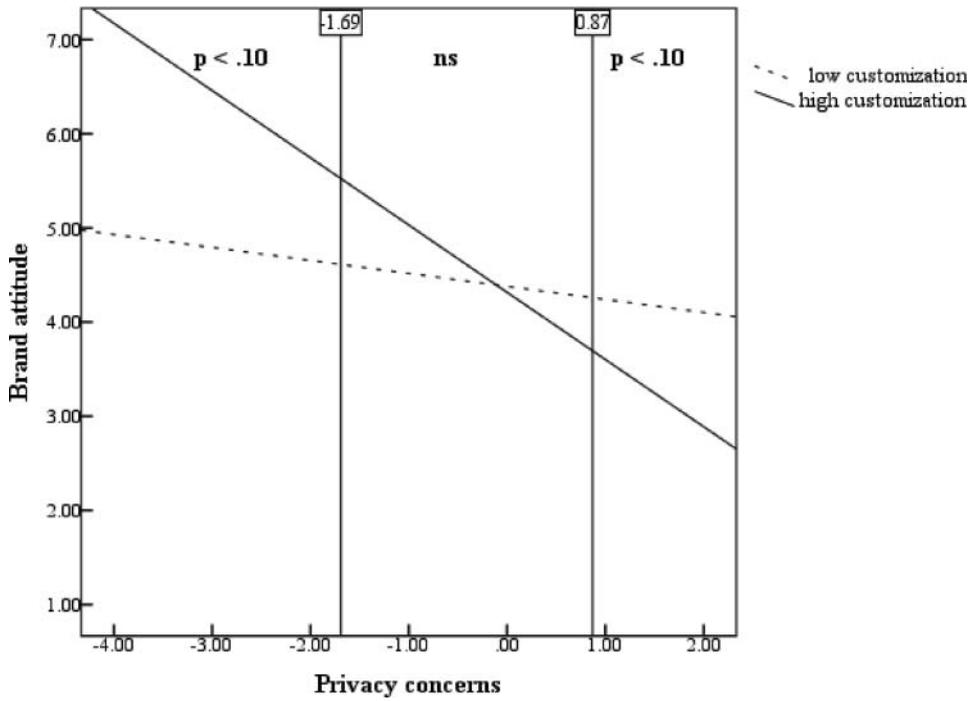


Figure 2. Relationship between privacy concerns and brand attitude for participants in the high or low customization condition.

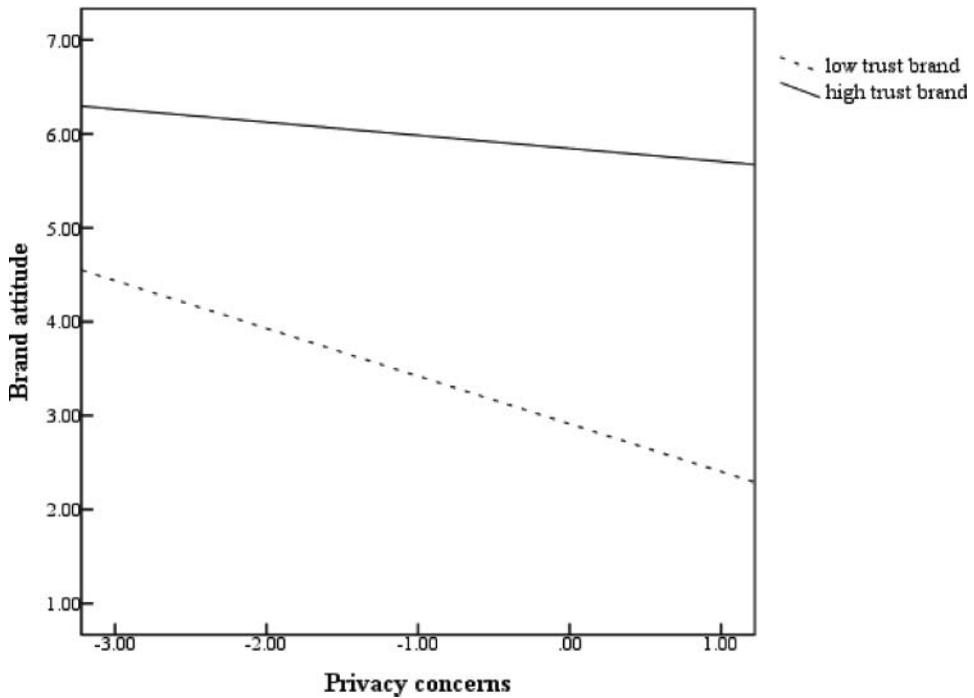


Figure 3. Relationship between privacy concerns and brand attitude for participants in the high or low brand trust condition.

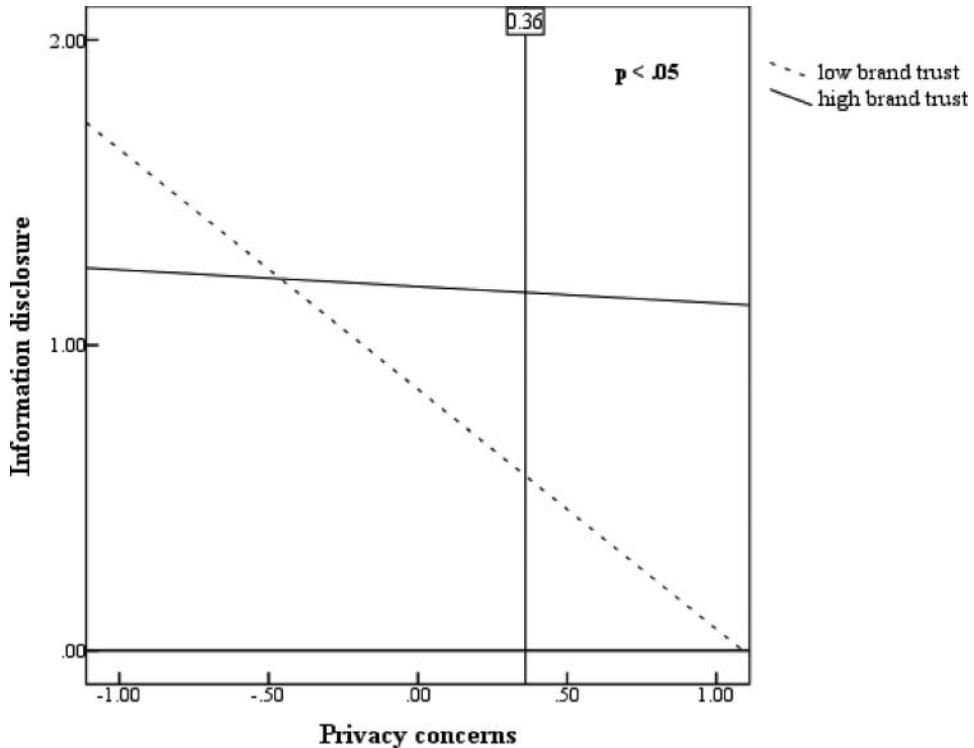


Figure 4. Relationship between privacy concerns and personal information disclosure for participants in the high or low brand trust condition.

with higher or lower privacy concerns. However, in the low brand trust condition, participants with lower privacy concerns had a more positive attitude toward the brand than participants with high privacy concerns.

Finally, there was a significant interaction effect of privacy concerns and brand trust on personal information disclosure. As can be seen in Figure 4, for privacy concern scores above .36, in the high brand trust condition there was no difference in information disclosure between participants with higher or lower privacy concerns. However, in the low brand trust condition, participants with high privacy concerns disclosed less information than participants with low privacy concerns.

Conclusion and discussion

The present study adds to the literature on advergames by investigating the effects of advergame customization features (1) and consumers' trust in the brand depicted in the game (2) on consumers' brand attitude (3) and disclosure of personal information (4). Moreover, it sheds more light on the extent to which consumer privacy concerns (5) play a role in these relationships. Four main conclusions emerge from the research.

First, our findings show that consumer privacy concerns have negative main effects on brand attitude and personal information disclosure. These findings are in line with prior research that demonstrated that privacy concerns lead to risk reducing behavior

(Sheehan and Hoy 1999; Wirtz, Lwin, and Williams 2007) and that they have detrimental effects on persuasion outcomes (e.g., van Noort, Antheunis, and Verlegh 2014). Second, our study demonstrates that players do not adopt a more positive attitude toward the brand in the game and they are not encouraged to share more personal information due to higher levels of customization. The reason for these findings lies in our third conclusion, which is: the degree of consumer privacy concern affects the effectiveness of customization features. In line with prior research showing that providing players with more autonomy in the game leads to positive affective outcomes (Przybylski, Rigby, and Ryan 2010; Peng et al. 2012; Ryan, Rigby, and Przybylski 2006), our study also demonstrates that players have a more positive brand attitude when the game contains customization features, but only if their privacy concerns are low. Instead, when privacy concerns are high, a game containing customization features leads to a more negative brand attitude. It seems as if players with low privacy concerns are not afraid to engage with the game, leading to positive affective responses. However, when privacy concerns are high, customization features may be perceived as an invasion of privacy, because highly concerned players may think that their customization preferences are being stored and used for marketing purposes (e.g., consumer profiling). This may lead, in turn, to a more negative brand attitude. More research is needed to investigate the interaction of privacy concerns and customization in more detail. The five levels of customization used in our study did not really induce privacy concerns, but this was also not the aim of our manipulation. It might be interesting for future research to investigate which kind of customization is acceptable to advergame players in terms of privacy concerns and which one is not. Or to put it differently, where do advergame players draw the ‘cool–creepy line’ when it comes to customization in advergames? At which customization level advergame players start worrying about their privacy? Additionally, future research might want to investigate the mechanism underlying the effect of customization features on brand attitude. Is it the lack of capacity to be skeptical about privacy due to higher involvement/flow or the greater intrinsic motivation that lead to positive advergame responses?

Fourth, our results show that different levels of privacy concerns do not affect players’ responses (i.e., brand attitude and information disclosure) toward high trust brands, but toward low trust brands. This interesting finding can be explained as follows: prior research has shown that when consumers trust a brand, they feel secure in their interaction with the brand and they perceive the brand to be reliable and responsible for their interests and welfare (Delgado-Ballester, Munuera-Aleman, and Yague-Guillen 2003). Thus, when players feel secure in the brand interaction, they do not seem to link their general (high or low) privacy concerns to the trusted brand, which is why personal information disclosure and brand attitude is hardly affected negatively. However, when the game contains a low trusted brand, the situation changes. Here, players do not seem to feel secure in the interaction with the brand, which is why they use their general privacy concerns as some kind guidance for their response: when general privacy concerns are lower, players share more information with the low trust brand and they have a more positive brand attitude. However, when privacy concerns are higher, they share less information with a low trusted brand and they have a more negative brand attitude. It seems, thus, that trusted brands can withstand privacy issues in advergames. This finding strongly resembles earlier findings of Wai-gun, Nelson, and Marko (2013), who demonstrated that familiar brands are invulnerable to the influence of negatively laden (i.e., violent) content in advergames.

Limitations, future research, and implications

Investigating how advergame characteristics and consumer privacy concerns affect advertising effectiveness is very important, given that game play is becoming more and more ingrained in our recreational lives (Ryan, Rigby, and Przybylski 2006) and that consumers are increasingly worrying about their online privacy (Flaherty 2013; Reding 2012). Such an investigation is, however, difficult, and we therefore need to consider some limitations of our study. Most notably, the work presented here is purely experimental in nature: participants were exposed to a preselected advergame for a certain period of time. This might have had consequences for participants' motivation to play and therefore for some of our findings. While game play outside the laboratory is usually self-selected and intrinsically satisfying (Malone and Lepper 1987), asking people to play an advergame in a laboratory setting in exchange for extra course credit or money rather needs to be considered as externally motivating. As the meta-analysis of Deci, Koestner, and Ryan (1999) showed, extrinsic rewards undermine intrinsic motivation. However, even if intrinsic motivation was low in our study due to the laboratory setting, we still found effects. Therefore, it is reasonable to expect that effects would even be stronger in a more naturalistic setting in which players play the advergame out of pure intrinsic motivation. Future research might, thus, focus more on a naturalistic setting to validate our results.

Second, in this study we developed an advergame based on the already existing game 'Flappy Birds'. Although we controlled for several prior gaming experience variables, using a familiar and popular game might still have had unaccounted effects on our findings. Moreover, this study only tested one arcade game, which belongs to the most popular advergame genres (Lee and Youn 2008). Future research should also focus on other, maybe unknown advergames, with different genres, content, and customization interfaces, because we expect these factors to influence advergame persuasion outcomes, too. Additionally, future research might also want to test advergames containing a more prominent, or central brand placement. In our study, brands were depicted on billboards in the background of the game, which can be considered as a rather subtle or peripheral form of brand placement. Research has shown that the more prominently a brand is placed in the advergame, the higher levels of brand recall and recognition will be (van Reijmersdal, Rozendaal, and Buijzen 2012, 33–42). Moreover, brand disclosures in advergames result in more negative brand and game attitudes (van Reijmersdal et al. 2015). Based on these insights, it is reasonable to expect that our results might have varied if we had included a more central brand placement in our study. Probably, the effects of privacy concerns and brand trust would have been stronger if the brand placement in our study would have been more prominent. Future research is needed on this matter.

Third, we have to note here that our results are based on a student sample, which might have had consequences for the generalizability of our results. Our participants showed on average very high levels of privacy concerns and very low levels of personal information disclosure, which is most likely due to the educational background of our sample. Students are probably more critical about and aware of the aim of new advertising techniques and they therefore experience higher levels of privacy concern than other individuals. In fact, recent research has shown that higher educated people have more knowledge about online behavioral advertising techniques than lower educated people (Smit, Van Noort, and Voorveld 2014, 15–22). The assumption that our sample was more critical than the average gaming population is also supported by the fact that 64% of the respondents indicated not playing computer games in general. It might be that respondents in our sample had higher privacy concerns regarding advergames compared

to ‘average’ players, leading to the rather low percentage of actual game play. Apart from that, our sample may not have perfectly reflected the population of advergame players, because women were overrepresented. Existing literature shows that women, at least in Europe, are to a higher degree concerned with privacy issues and more risk averse in the context of, for instance, online behavioral advertising (Smit et al. 2014). Thus, they should also be more risk averse when confronted with the claim of information disclosure during playing an advergame, which might have affected our results. Based on these limitations, our results need to be interpreted in the light of the specific sample description. To verify that our findings also hold in other circumstances, future research should place emphasis on replicating our findings in a more generalizable sample.

Despite these limitations this study has several important theoretical and practical implications. The most important theoretical contribution of this study is that it shows that effects of advergame features (i.e., customization and brand trust) are moderated by advergame players’ perceived privacy concerns. When advergame players’ privacy concerns are low, customization features in advergames enhance players’ brand attitude. However, when privacy concerns are high, customization features lead to a more negative brand attitude. A similar trend has been found for low trusted brands, but not for high trusted brands. Given the fact that consumers are increasingly concerned about their privacy (Reding 2012; Flaherty 2013) and that online games often collect consumer information (Thurm and Kane 2010), these findings imply that theoretical and empirical models of advergame effects should not only take into account advergame characteristics, but also the moderating influence of privacy concerns. The same applies for the theories that have been used as framework for this study. According to CET (Deci and Ryan 1985), a subtheory within SDT, satisfying individuals’ need for autonomy (i.e., ‘feeling of being the origin of one’s own behaviors’ (Ng et al. 2012, 326) leads to positive responses, such as an increased desire for future game play. Our findings add an interesting side note to this theory, because we show that basic need satisfaction is not everything. When privacy concerns are too high, advergame players rather seem to choose for caution than for need satisfaction. Hence, in the online context, motivational theories such as SDT should also acknowledge the important conditioning role privacy concerns may play.

What goes along with the finding that privacy concerns may provide a boundary condition to the positive effects of advergames is the need to find possible ways to reduce consumer privacy concerns, thereby enhancing advergame effectiveness. One way to do so might be to increase consumers’ knowledge about advergame privacy practices, which may enhance their feeling of control over their information and, in turn, reduce privacy concerns (Nowak and Phelps 1992; Nowak and Phelps 1995; Dommeyer and Gross 2003). In future research, advertisers and researchers can try to find out to what extent information about advergame privacy practices may reduce negative effects of privacy concerns.

Additionally, based on the reported findings, we recommend advertisers who are developing an advergame to be aware of the important role brand trust may play in game persuasion effectiveness. Moreover, in order to increase consumers’ attitude toward the brand depicted in the game, advertisers should provide players with customization possibilities. However, it is important to note here that including customization features does not automatically lead to marketing success. It is necessary to take consumer privacy concerns into account, too, because high privacy concerns may spoil positive effects of customization features, making expensive game design efforts useless. Ideally, advertisers should directly address consumers’ privacy concerns by providing them with clear information about data gathering and use.

To summarize, our study shows that advergame customization possibilities and consumers' trust in the brand depicted in the game may have a positive influence on advergame persuasion outcomes, but this influence is strongly conditioned by consumers' privacy concerns. We can conclude that in order to reach advergame persuasion outcomes, marketers should not only focus on the design of the game and the brand message included in the game, but they also need to address consumers' growing privacy concerns.

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