Transferring Game Attitudes to the Brand: Persuasion from Age 6 to 14.

ABSTRACT

This paper aims to replicate previous findings regarding the differential impact of TV advertising and advergames on children’s brand attitudes and pester intentions. Using a large dataset (*N* = 940, *Mage* = 9.8, *SD* = 2.4), with children ranging between 6 and 14 years old, the influence of passive exposure to TV advertising is compared to active exposure to an advergame. In addition, the potential moderating effect of age is explored. In a between-participants experiment, Flemish children were randomly assigned to watch a TV ad, play an advergame, or a no marketing control condition. Results revealed that children who had played the advergame reported significantly more positive brand attitudes compared to children who had watched the TV ad and children in the no advertising exposure control group. Children’s pester intent was significantly higher for the advergame compared to the TV ad, but not compared to the no advertising exposure control group. The findings further showed that children’s attitudes towards the ad format mediate the impact of the advertising format on pester intent. The advergame was indirectly more persuasive than the TV ad since children reported more positive attitudes towards the advergame compared to the TV advertisement. Moreover, this mediation effect did not differ by children’s age. Persuasion knowledge did not mediate the influence of the advertising format on pester intent since children’s persuasion knowledge was not significantly related to pester intentions regardless of children’s age.

**Keywords:** children, adolescents, TV advertising, advergames, advertising format, age differences , advertising processing, affective responses.

**Introduction**

Food marketers have recently developed more subtle and interactive advertising tactics to target children, such as advergames. Advergames are online games in which advertising messages, brand logos, brand mascots, and product images are incorporated into the game-play (Mallinckrodt and Mizerski 2007; Rifon, Quilliam, Paek, Weatherspoon, Kim, and Smreker 2014). These games are designed to promote a single brand, and can be played on a company’s branded website or third-party websites (Lee, Choi, Quilliam, and Cole 2009). The main purpose of advergames is to enhance children’s attitudes towards the brand(s) featured in the game (Waiguny, Nelson and Terlutter 2012). In recent years, an increasing proportion of the marketing budget has been spent on subtle, online forms of advertising (WHO 2013). Content analyses have shown that advergames are present at an estimated 85% of child-targeted websites (Henry and Story 2009).

Advergames differ from traditional TV advertising in a number of ways. First, contrary to TV advertising, advergames integrate advertising messages within the entertaining media format of an online game. This tactic purposely fades the distinction between advertising and entertainment which impedes children’s abilities to unravel these games commercial intentions (Panic, Cauberghe, and De Pelsmacker 2013; Raney et al. 2003). Second, advergames are more interactive and immersive than TV advertising (Panic et al. 2013). In contrast to passive exposure to TV advertising, advergames are designed to be highly entertaining by incorporating game components such as competition, thereby engaging consumers with the brand in the game (Hudders, Cauberghe and Panic 2015). For instance, children may be required to collect branded items as part of the game-play in order to achieve a high score (Panic et al. 2013; Van Reijmersdal, Rozendaal and Buijzen 2012a). Moreover, since advergames mainly aim to influence children by generating positive affect towards the game, it has been argued that children process advergames at a less elaborate, more automatic level than TV ads (Nairn and Fine 2008; Buijzen, Van Reijmersdal and Owen 2010).

Prior studies comparing the effects of TV advertising and advergames on children have primarily focused on attitudinal responses such as brand attitudes and behavioral intentions such as purchase and pester intentions (cf. Hudders, Cauberghe, and Panic 2015; Owen, Lewis, Auty, and Buijzen 2013; Panic, Cauberghe, and De Pelsmacker 2013; Rifon et al. 2014; Waiguny and Terlutter 2011). These previous studies have shown that advergames have a stronger influence on children’s brand attitudes and pester intentions compared to TV advertising (cf. Hudders et al. 2015; Owen et al. 2013; Panic et al. 2013; Rifon et al. 2014; Waiguny and Terlutter 2011). The literature provides two explanations for the persuasive advantage of an advergame over a TV ad. First, due to the embedded nature of advergames, children have more trouble understanding that an advergame is a form of advertising, and are less aware of the selling and persuasive motivations of such games compared to TV advertising (Hudders et al. 2015; Owen et al. 2013). As a consequence, children do not possess enough persuasion knowledge about advergames in order to critically process its embedded commercial messages and cognitively defend against its influence. Prior research has indeed shown that children are less likely to activate and use their persuasion knowledge as a filter to process advertising while playing an advergame compared to watching a TV advertisement (Panic et al. 2013). Second, prior studies suggest that playing an advergame evokes more positive affective responses in children than watching a TV advertisement (Waiguny and Terlutter 2011). Playing an advergame affects children’s brand attitudes and pester intentions by evoking positive attitudes towards the game which subsequently get associated with the advertised brand or product through an affect transference process (Rifon et al. 2014).

However, prior studies have mainly focused on children of specific age groups, often between 7 and 10 years old, and paid little attention to the potential moderating effect of age. Children’s age is expected to moderate advertising effects, since age-related differences in cognitive skills, persuasion knowledge, advertising literacy and consumer experience are likely to influence how children react to advertising messages (Buijzen, Van Reijmersdal, and Owen 2010; Van Reijmersdal, Jansz, Peters, and van Noort, 2010). Although previous studies found no moderating effect of age, these studies only covered rather narrow age intervals. These studies only compared age differences among children from the same developmental stage. Hence, it is possible that age differences do exist when comparing advertising effects on children from different developmental stages, thus using a broad age interval that incorporates children from successive developmental stages. Moreover, recent developments in experimental research methodology suggest that the results of individual studies with relatively small sample sizes, should be confirmed by replicating these effects using a large dataset (Sakaluk, 2016). Therefore, the present study contributes to the literature by replicating these findings using a large dataset of children ranging between 6 and 14 years old, including the analysis of the moderating role of age in these processes.

**Limited Capacity Model of Mediated Processing**

The limited capacity model of mediated processing (LCMP, Lang 2000) states that consumers’ capacities or cognitive resources to process advertising information are limited. This has implications for the comparison of the effects of advergames and TV advertisements. Watching a TV advertisement is considered to be a passive type of brand exposure, whereas playing an advergame involves active exposure to the brand. Since brand identifiers are often key game-components, children actually engage with the brand in the game (Rifon et al. 2014). Moreover, actively playing an advergame requires more cognitive resources than merely passively watching a TV ad, because children have to divide their limited attention and processing capacities over two separate tasks. Playing the game can be considered the primary task, and processing the embedded advertising messages can be considered to be the secondary task (Lang 2000; Buijzen et al. 2010).

Hence, playing an advergame may require most of children’s processing capacities, resulting in sparse resources to both process the branded message and activate coping mechanisms such as persuasion knowledge or advertising literacy. Thus, when children get immersed into the game, this might distract them, and inhibit the activation of persuasion knowledge (Nairn and Fine 2008). Children are therefore likely to process advergames in a less elaborate, more implicit manner compared to TV advertising (Nairn and Fine 2008; Buijzen et al. 2010). Due to the implicit effects of advergames, children will not be able to apply conscious coping mechanisms such as persuasion knowledge (Nairn and Fine 2008).

**TV Advertising versus Advergames**

Prior research has shown that advergames are more persuasive than TV advertising (cf. Hudders, Cauberghe, and Panic 2015; Owen, Lewis, Auty, and Buijzen 2013; Waiguny and Terlutter, 2011). Waiguny and Terlutter (2011) showed that an advergame has a more positive impact on children’s (age 8-10) brand attitudes compared to a TV ad. Likewise, Hudders et al. (2015), found that playing an advergame resulted in higher purchase requests than watching a TV advertisement among children between 5 and 8 years old. Rifon et al., (2014) compared children’s active brand exposure to passive brand exposure by comparing children (age 5-10) who played an advergame with those who merely watched the advergame being played. Results showed that playing versus watching the game did not affect brand attitude, although purchase requests were significantly higher among children who played the game compared to children who watched the game being played, even after controlling for game attitude. In addition, watching a TV ad should result in more positive brand attitudes compared to no advertising exposure (e.g. Borzekowski and Robinson 2001).

With regard to brand memory, a few studies reported that children’s brand recall is lower for an advergame than a TV ad (Verhellen, Oates, De Pelsmacker, and Dens 2014; Waiguny and Terlutter 2011). However, this is likely to depend on the prominence of the brand placements in the advergame and the TV ad. One study showed that prominent brand placements in advergames result in a higher brand recall than less prominent brand placements (Van Reijmersdal, Rozendaal, and Buijzen 2012). Based on these findings, it was expected that:

Hypothesis 1: a) Brand attitudes and pester intentions will be significantly higher after playing an advergame, compared to exposure to a TV ad or no marketing. b) Brand attitudes and pester intentions will be significantly higher after exposure to a TV ad compared to no marketing.

Hypothesis 2: Brand recognition will be significantly higher after watching a TV ad compared to playing an advergame.

**The Role of Persuasion Knowledge**

Persuasion knowledge plays an important role within the research on child-targeted marketing effects. The Persuasion Knowledge Model (PKM) defines persuasion knowledge as: “knowledge about the tactics and intentions of advertising” (Friestad and Wright 1995; 1999; Panic et al. 2013, p. 265). This knowledge incorporates the abilities to recognize and understand the persuasive intentions of advertising and employ effective coping tactics (Ham, Nelson, and Das 2015). According to the Persuasion Knowledge Model (PKM, Friestad and Wright 1994), consumers first need to recognize and understand the tactics and intentions of advertising in order to be able to cognitively defend themselves against it. Since persuasion knowledge cultivates with overall cognitive development and consumer experience, younger children are expected to be more susceptible to advertising compared to older children and adolescents (Brucks, Armstrong and Goldberg 1988; Gunter, Oates, and Blades 2005; John 1999; Mcalister and Cornwell 2009; Moses and Baldwin 2005; Panic et al. 2013).

Most studies have conceptualized and measured children’s persuasion knowledge as the abilities to 1) recognize advertising, and 2) understand advertising’s selling and persuasive intentions (Campbell and Kirmani 2000; Ham et al. 2015; Mallinckrodt and Mizerski 2007; Panic et al. 2013). This corresponds to the concept of cognitive advertising literacy, another common and frequently used measuring scale within the literature on child-targeted advertising (Rozendaal et al. 2013). Cognitive advertising literacy involves the skills to recognize commercial content, identify its commercial source, and understand its tactics and selling and persuasive intentions (Rozendaal et al. 2013). Some researchers also measure the attitudinal dimension of advertising literacy which addresses children’s skepticism towards advertising or disliking of advertising (Hudders et al. 2015; Rozendaal et al. 2013).

It has been argued that the integration of advertising within an online game makes it more difficult for children to consciously notice the advergame’s hidden commercial purpose (Moore and Rideout 2007; An, Jin, and Park 2014; Owen, Lewis, Auty, and Buijzen 2013; Rifon et al. 2014). An, Jin, and Park (2014) found that about 75% of the children (age 7-11) in their study did not consider an advergame as advertising. Another study showed that even adding an ‘ad break’- a warning that the game features advertising- to an advergame did not enhance children’s understanding of the game’s selling intent (An and Stern 2011). Comparative research has shown that children are less aware of the commercial function and persuasive intent of an advergame compared to a TV ad (cf. Hudders et al. 2015; Owen et al. 2013; Panic et al. 2013). Owen et al. (2013), for instance, confirmed that children (age 6-10) have significantly less understanding of nontraditional (e.g. movie and in-game brand placement, advergames) compared to traditional advertising formats. In a study conducted by Panic et al. (2013), children’s persuasion knowledge was significantly higher for a TV ad than an advergame. Hudders and colleagues (2015) observed that both children’s cognitive (understanding the commercial source and selling intent) and affective advertising literacy (disliking the ad) were lower for an advergame compared to a TV commercial. Children’s lack of awareness of advertising’s intents may inhibit the activation of cognitive defense from persuasion knowledge (cf. Hudders et al. 2015; Owen et al. 2013; Panic et al. 2013; Waiguny and Terlutter 2011).

Furthermore, prior studies found that persuasion knowledge only appears to diminish the impact of TV advertising, but not advergames (Mallinckrodt and Mizerski, 2007; Van Reijmersdal, Rozendaal, & Buijzen, 2012; Panic et al. 2013). Panic et al. (2013) showed that persuasion knowledge only negatively influenced children’s (7-10 years) purchase requests for a TV advertisement but not for an advergame. Waiguny and Terlutter (2011) also found that activated persuasion knowledge only resulted in more skeptical attitudes towards the brand after watching a TV ad but not after playing an advergame. Similarly, persuasion knowledge did not mediate the effects of the advergame in a study conducted by Rifon et al. (2014). Verhellen et al. (2014) did not find a moderating effect of persuasion knowledge on the impact of the advertising format on brand attitude. These findings seem to suggest that the dampening effect of persuasion knowledge or advertising literacy only works for TV advertising but not for advergames.

Hypothesis 3: a) The impact of the advertising format on pester intent is mediated by persuasion knowledge (source recognition and understanding persuasive intent). More specifically, it is expected that persuasion knowledge for the advergame will be significantly lower than for the TV advertisement, resulting in higher pester intentions.

b) Persuasion knowledge is only negatively related to pester intent in the TV ad condition, but not in the advergame condition.

**Affect Transference**

Previous research has shown that children like advergames more than TV advertising (Panic et al. 2013; Waiguny and Terlutter 2011). Several studies found that advergames persuade through affect transfer from the game to the brand (cf. Hudders et al., 2015; Owen et al. 2013; Panic et al. 2013; Waiguny and Terlutter 2011). Panic et al. (2013) showed that children’s attitudes towards the advergame were positively associated with purchase requests. Hudders et al. (2015) found that children’s overall positive attitudes towards the advergame advertising format explained the persuasive advantage of the advergame over the TV ad. Similarly, Rifon et al. (2014), reported that children’s (age 5-10) attitudes towards the advergame were positively associated with brand attitudes and taste perceptions. Therefore, it is expected that an advergame will evoke more positive attitudes towards the advertising format than TV advertising. In turn, these attitudes will at least partially transfer to attitudes towards the brand and pester intentions. Together, this implies a mediation where the effects of advertising format on brand attitudes and pester intentions are mediated by attitudes towards the ad.

Hypothesis 4: The impact of the advertising format on pester intent is mediated by attitudes towards the advertising format.

**The Moderating Role of Age**

Age plays an important role in how consumers react to advertising (Van Reijmersdal, Jansz, and Peters 2010). The influence of advertising partially depends on age-related differences in cognitive development, persuasion knowledge, advertising literacy, and consumer experience (Friestad and Wright 1994; John 1999; Moschis 1987; Valkenburg 2004; Valkenburg and Cantor 2001). As they mature, children gradually develop the skills to critically reflect on advertising like adult consumers can (John 1999; Valkenburg and Cantor 2001). Prior studies have shown that persuasion knowledge and cognitive and affective advertising literacy increase with age. From age five, children start to recognize advertising, and by age ten most children understand advertising’s commercial and persuasive intentions (Oates, Blades and Gunter 2002; Rozendaal, Buijzen, and Valkenburg 2012; Valkenburg and Cantor 2001; Valkenburg 2004).

However, studies show that even during late childhood (10-12 years old), children still have not perfected the recognition of advertising, certainly for non-traditional forms of advertising (Blades, Oates, and Li 2013). Moreover, these children’s recognition could be improved with a cue warning them about the persuasive intent of advertising in order to employ their advertising literacy (Brucks, Armstrong, and Goldberg 1988; Cai and Zhao 2010). Child development theories assume that children acquire a mature capacity for cognitive and affective advertising literacy from age 12 (John 1999). From that age, children learn hypothetical reasoning skills, and become able to autonomously process advertising critically and systematically (Buijzen et al. 2010; John 1999; Pechmann, Levine, Loughlin, and Leslie 2005). Adolescents’ more mature level of cognitive and affective advertising literacy might thus enable them to overrule the affect transfer induced by playing an advergame.

However, few studies have investigated the moderating role of age on interactive advertising effects. Most of these studies found no significant age differences. Auty and Lewis (2004), for instance, showed that children’s memory of a brand that was placed in a movie did not differ between the 6 year olds and the 12 year olds in their study. Mallinckrodt and Mizerski (2007) reported that children’s age (5-8 years) did not moderate the impact of an advergame on their affective and conative brand responses, although older children displayed higher levels of persuasion knowledge (source and intent of the advergame). In a study conducted by Van Reijmersdal et al. (2010), age did not moderate the effects of in-game brand placement on teenage girls (age 11-17).

However, other studies did find significant age differences. Waiguny, Terlutter and Zaglia (2011) found that young children (age 9-10) were significantly more positive towards an advergame compared to older children (age 11-12). In a food brand placement experiment among children aged 9, 12, and 15 years old, Uribe and Fuentes-Garcia (2015) observed that teenagers (age 12 and 15) were more aware of the brand, and they were less likely than the 9 year olds to prefer fast food in general, and McDonald’s in particular after exposure to the brand placement. Rifon et al. (2014) reported that younger children (age 5-7) were more strongly affected by the influence of playing an advergame, and a stronger brand integration in the advergame, on the perception that cereal is healthy, compared to older children (age 8-10). However, the effects of playing versus watching an advergame on brand attitude, purchase request and taste expectations were not moderated by children’s age. Taste expectations were higher among the youngest group, but not when taking game attitude into account.

Although most studies found differential effects for TV ads and advergames among children between 5 and 10 years old (cf. Hudders, Cauberghe, and Panic 2015; Owen, Lewis, Auty, and Buijzen 2013; Waiguny and Terlutter, 2011), Verhellen et al. (2014) found no differential effects of a TV ad, an advergame, a trailer, or a trailer followed by an advergame, on teenager’s (11-14 years) brand attitude and brand choice. Hence, the findings regarding the potential moderating role of age are inconsistent. It is also important to note that most prior studies that examined the moderating role of age, only compared children within rather narrow age intervals, usually up to age 10 or 12. It is imperative to compare children younger than twelve years old with those who are older since the latter are expected to have acquired mature levels of persuasion knowledge and ad processing skills (Buijzen et al. 2010; John 1999; Pechmann, Levine, Loughlin, and Leslie 2005).

This results in the following research question:

Research question 1: Does the mediating impact of persuasion knowledge and attitudes towards the advertising format differ by age? Does persuasion knowledge only mediate the impact of the ad format on pester intent for children in the oldest group (12-14), but not for younger children? Do attitudes towards the advertising format only mediate the impact of the ad format on pester intent for children in the two youngest groups, but not among the oldest children?

**Method**

A three-level (Type of Advertising) between-subjects experiment was conducted. The type of advertising was manipulated by selecting a TV ad and an advergame promoting the same product: Kellogg’s Coco-Pops™ sugared breakfast cereals. This product category was selected because it appeals to young as well as older children and adolescents. The TV ad and advergame were part of the same Kellogg’s Coco-Pops™ *Mission Jungle 2* advertising campaign (2013). Both featured the same product, the same narrative, the same branded colours and etc. A no advertising exposure control group was added to assess the absolute effects of advertising.

A sample of 940 Flemish children, ranging between 6 and 14 years old (*MAge* = 9.8, *SD* = 2.4, 53.5 % girls), were randomly assigned to either watch a TV ad (*N* = 342), play an advergame (*N* = 286), or a no advertising exposure control group (*N* = 312). The standard approach in the literature to compare advertising format effects was followed (cf. Hudders et al. 2015; Verhellen et al. 2014; Waiguny and Terlutter 2011; Panic et al. 2013). Ethical approval for the study was obtained from the first author’s university’s designated ethical committee. The children were told that the researcher was interested in children’s overall television viewing or online gaming. In the informed consent letter we asked the parents not to brief the children on the true purpose of the study.

In the TV ad condition, children watched a ten minute TV fragment featuring a popular youth series: Gogogo from Ketnet (Public child-targeted Television channel in Flanders, Belgium). This TV programme centers around seven teenagers in a boarding school. Although the programme was originally targeted at teenagers and preteens, it is well-liked among children from a broad age range. After two minutes and 45 seconds, the TV series was interrupted by a 19 second Kellogg’s Coco-Pops™ *Mission Jungle 2* (2013) commercial (Figure 1). The commercial shows the brand character Coco experiencing an adventure with his friends in the jungle. The Kellogg’s Coco-Pops™ brand logo was edited into the top left corner of the TV fragment, and remained visible during the ten minute exposure.

In the advergame condition, children played the *Mission Jungle 2* (2013) advergame on the Kellogg’s Coco-Pops™ website (Figure 1). For ten minutes, children had to collect as many Coco Pops as possible while avoiding obstacles in the jungle. This game's degree of difficulty was very low thus children did not require prior experience with online gaming or particular skills. Adolescents (age 12-14) found the advergame significantly less challenging compared to the other two groups (age 6-8; age 9-11) (*F*(2, 283) = 4.14, *p* = .017). The Kellogg’s Coco-Pops™ brand logo was prominently visible in the top left corner during the ten minute gameplay, and children were required to actively engage with the brand by collecting the Kellogg’s Coco-Pops™ cereal flakes as part of the game.



Figure 1 Kellogg’s Coco-Pops™ *Mission Jungle 2 (2013) TV ad (left) and Advergame (right)*

Afterwards, brand attitude, pester intent, brand preference, brand recognition, persuasion knowledge, and attitudes towards the specific advertising format were measured using a standardized, online questionnaire. The youngest children (6-9 years) individually watched the TV fragment or played the advergame, after which they were interviewed face-to-face so the researcher could first explain and practice the use of smiley-scales. Older children watched the TV ad or played the advergame individually in small groups of ten children in the same classroom, before individually completing the online survey. Children in the control condition were not exposed to any advertising, but merely completed a shorter online survey.

First, children’s brand attitude, pester intentions and brand preferences were measured. To measure children’s attitude towards Kellogg’s Coco- Pops™, they were asked to indicate how much they liked the brand on a one-item, 5-point Likert smiley-scale ranging from ‘not at all’ to ‘very much’ (Pecheux and Derbaix 1999; Van Reijmersdal et al. 2012). Pester intentions were assessed using a one item, 4-point Likert scale (“Will you ask your parents to buy Kellogg’s Coco Pops?”; ‘No definitely not’, ‘No, I don’t think so’, ‘Yes, I think so’, and ‘Yes, definitely’ (Van Reijmersdal et al. 2012). To assess brand preferences, the children were asked to imagine that they could choose a box of sugared breakfast cereal between four brands: Nestlé s Crunch, Kellogg’s Coco-Pops, Golden Bridges’ Choco Chips, or Crownfields’ ‘Choco Rice’. Then, brand recognition, persuasion knowledge and attitudes towards the advertising format were measured. Persuasion knowledge was measured after the main dependent variables (brand attitude and pester intent) to prevent that these questions would actually activate children’s persuasion knowledge and thus bias their responses to the main dependent variables. To measure brand recognition, the children were asked to indicate which brand(s) they recognized from the game/ TV ad choosing from a list of four sugared breakfast cereal brand logos: Nestlé, Kellogg’s, Golden Bridge, and Crownfield. Persuasion knowledge was measured using the two-item scale following Van Reijmersdal, Rozendaal, and Buijzen (2012, p. 38). Source recognition was measured by asking the children: “Who created the TV ad/advergame?” (Kellogg’s Coco Pops, the teacher, the researcher, the supermarket, ‘I don’t know’). Understanding advertising’s selling intent was measured by asking: “What does the TV ad/ advergame want you to do?” (play, be a good pupil, buy Kellogg’s Coco Pops, be happy). The scores on these two questions were summed to obtain one measure of persuasion knowledge. Attitudes towards the specific advertising format were assessed using a 3-item, 5-point Likert scale (cf. “How much did you like the game/TV ad?”, Derbaix and Pecheux, 2003). Finally, children’s feelings of hunger were measured using Birch and Fisher’s Cartoon Hunger Scale (2000, p. 1343).

**Results**

*Descriptive Statistics*

Participant’s age did not differ significantly between the experimental conditions (*F*(2, 937) = .68, *p* = .508). A correlational table (Table 1) shows significant negative relations between age on the one hand, and attitudes towards the advertising format (*r* = -.36, *p* <.0001), attitudes towards the endorser Coco (*r* = -.35, *p* <.0001), attitude towards the brand (*r* = -.25, *p* <.0001), and pester intent (*r* = -.21, *p* <.0001) on the other hand. However, age was significantly positively related to persuasion knowledge (*r* = .41, *p* <.0001).

*The Impact of the Ad Format on Brand Attitude and Pester Intent*

A one-way ANOVA showed that the impact of the advertising format on brand attitude was significant (Welch *F*(2, 621, 882) = 6.60, *p* = .001). Children who had played the advergame reported significantly more positive brand attitudes compared to children who had watched the TV ad (see Table 2, *t*(623,766) = 3.71, *p* <.0001), and children in the no advertising exposure control group (*t*(593,578) = -2.26, *p* = .024). For pester intent, the impact of the advertising format was also significant (*F*(2, 935) = 3.14, *p* = .044). Pester intent was significantly higher for the advergame than the TV ad (Table 2, *t*(935) = 2.46, *p* = .014), but not compared to the control group (*t*(935) = .91, *p* = .363). Thus hypothesis 1a was partially confirmed[[1]](#footnote-1). Brand attitudes and pester intentions did not differ significantly between the TV ad and the control condition (*tBrand attitude*(650, 614) = -1.39, *p* = .164; (*tPester intent*(935) = 1.57, p = .118). Hence, hypothesis 1b was not confirmed.

When controlling for the influence of children’s feelings of hunger, the main effects of the advertising format on brand attitude (*F*(1, 930) = 6.24, *p* = .002), and pester intent (*F*(1, 930) = 3.10 , *p* = .046) remained significant. Hunger levels were significantly related to brand attitude (*F*(1, 930) = 7.55, *p* = .006, *B* = .14), but not to pester intent (*F*(1, 930) = 2.81, *p* = .094, *B* = .08). However, after controlling for children’s feelings of hunger, and attitudes towards the advertising format, the main effects of the advertising format on brand attitude (*F*(1, 619) = .04, *p* = .844), and pester intent (*F*(1, 618) = .48 , *p* = .490) were not significant anymore. Children’s attitudes towards the advertising format did have a significant effect on both brand attitude (*F*(1, 619) = 212.89, *p* <.0001, *B* = .61), and pester intent (*F*(1, 619) = 129.36, *p* < .0001, *B* = .48).

To assess whether brand recognition was higher for the TV ad than the advergame, a chi-square analysis was conducted. The advertising format significantly influenced brand recognition (*X²* (1) = 4.4, *p* = .048). Significantly less children remembered seeing the brand in the advergame (88%) compared to the TV ad condition (93%) (Table 2). Hence, the second hypothesis was confirmed.

*The Mediating Effect of Persuasion Knowledge and Attitudes Towards the Advertising Format*

First, a multiple mediation analysis was conducted to examine the mediating impact of persuasion knowledge and attitudes towards the advertising format on the effect of the advertising format (0 = advergame, 1 = TV ad) on pester intent (hypothesis 3 and 4) (PROCESS macro, Hayes 2013, Model 4). The analysis showed that the advertising format influences both children’s persuasion knowledge (*a1* = .93, *SE* = .16, *t* = 5.77 , *p* < .0001), and attitudes towards the ad format (*a2* = -.55, *SE* = .07, *t* = -7.75 , *p* < .0001, Figure 2). As expected, these results indicate that children’s persuasion knowledge was significantly higher for the TV ad than the advergame, whereas their attitudes towards the advertising format were significantly higher for the advergame than the TV ad.

However, only children’s attitudes towards the ad format significantly influenced pester intent (*b2* = .49, *SE* = .05, *t* = 10.65, *p* < .0001), while persuasion knowledge did not (*b1* = -.007, *SE* = .53, *t* = -.14, *p* = .891). Consequently, the indirect effect of the advertising format on pester intent via attitudes towards the ad was significant (*a2 x b2* = -.27, *SE* = .04, 95% CI = [-.36 - -.19]), whereas the indirect effect via persuasion knowledge was nonsignificant (*a1 x b1* = -.001, *SE* = .007, 95% CI = [-.018 - .012]). Further, the direct effect of the advertising format on pester intent was nonsignificant after controlling for persuasion knowledge and attitudes towards the advertising format (*c’* = .06, = *SE* = .08, *t* = .73 , *p* = .470). Hence, these findings disconfirm hypothesis 3a and confirm hypothesis 4.

To examine the link between persuasion knowledge and pester intent for the TV ad and the advergame separately (H3b), two multiple regression analyses were conducted with pester intent as the dependent variable, and persuasion knowledge, attitudes towards the ad format, age, and their interactions as independent variables. These analyses showed that for the advergame, persuasion knowledge did not significantly affect pester intent (*F*(6, 267) = 12.5, p <.0001; *B* = .06, *SE* = .09, *t* = .63 , *p* = .529), and this did not differ by age (*B* = -.02, *SE* = .04, *t* = -.69, *p* = .493). Children’s attitudes towards the advergame were significantly and positively related to pester intent (*B* = .16, *SE* = .02, *t* = 6.66 , *p* <.0001), and this did not differ by age (*B* = -.04, *SE* = .03, *t* = -1.41, *p* = .161), or persuasion knowledge (*B* = -.01, *SE* = .11, *t* = -.09, *p* = .931). The effect of age was nonsignificant (*B* = -.05, *SE* = .03, *t* = -1.76, *p* =.079).

For the TV ad, persuasion knowledge did not significantly affect pester intent either (*F*(6, 330) = 15.02, p <.0001; *B* = .10, *SE* = .08, *t* = 1.29 , *p* = .197), and this did not differ by age (*B* = -.03, *SE* = .03, *t* = -.87, *p* = .383). Children’s attitudes towards the TV ad were significantly positively related to pester intent (*B* = .14, *SE* = .02, *t* = 7.15 , *p* <.0001), and this did not differ by age (*B* = .04, *SE* = .02, *t* = 1.66 , *p* = .097). The interaction between attitudes towards the TV ad and persuasion knowledge almost reached significance (*B* = .15, *SE* = .08, *t* = 1.94 , *p* = .053). Visual inspection of the interaction effect showed that the slopes differed by persuasion knowledge. At a low level of persuasion knowledge, pester intentions were even rather high when attitudes towards the TV ad were low, and an increase in these attitudes resulted in a moderate increase in pester intent (Figure 3). At a medium and high level of persuasion knowledge, however, pester intentions were very low when attitudes towards the TV ad were low, and an increase in these attitudes resulted in a sharp increase in pester intentions. Children’s age was significantly negatively related to pester intent even after controlling for persuasion knowledge and attitudes towards the ad (*B* = -.06, *SE* = .03, *t* = -2.17, *p* = .031). Thus hypothesis 3b was not confirmed.

*The Moderating Effect of Age*

Second, to explore whether these effects are moderated by age, a moderated mediation analysis was conducted with the ad format as the independent variable, persuasion knowledge and attitudes towards the ad format as mediators, age as a moderator, and pester intent as the dependent variable (RQ1) (PROCESS macro, Hayes 2013, Model 8, Figure 4). The analysis showed that the conditional indirect effects of the ad format via persuasion knowledge and attitudes towards the ad format did not differ by age. The conditional indirect effect of the advertising format on pester intent via persuasion knowledge was nonsignificant for children with an average age (9.8 years, *b* = .01, *SE* = .01; BCBI [.00, .03]), as well as for children with an age below (7.5 years, *b* = .01, *SE* = .01; BCBI [.00, .05]) and above the average (12.2 years, *b* = .00, *SE* = .01; BCBI [-.02, .01]). Hence, persuasion knowledge did not moderate the impact of the ad format on pester intent regardless of children’s age.

The conditional indirect effect of the advertising format on pester intent via attitude towards the ad format was significant for children with an average age (*b* = -.26, *SE* = .05; BCBI [-.37, -.18]), as well as for children with an age below (*b* = -.023, *SE* = .04; BCBI [-.32, -.15]) and above the average (*b* = .-19, *SE* = .05; BCBI [-.31, -.10]). Hence, attitudes towards the ad format mediate the impact of the ad format on pester intent for young as well as older children and adolescents, regardless of children’s age.

*Exploratory Analyses*

The PROCESS analysis further showed a significant interaction effect between ad format and age to predict persuasion knowledge (*a3* = -.05, *SE* = .02, *t* = -2.14 , *p* = .03, Figure 4). More specifically, a spotlight analysis showed that, persuasion knowledge was only significantly higher for the TV ad compared to the advergame among young children (*Mage*= 7.5) (*Madvergame*= .80, *SE* = .06, *MTVad* =1.03, *SE* = .05, *Mdiff* = -.22, *SE* = .08, *p* = .006, *95% CI* [ -.377 - -.065]), but not among children with a mean age (*Mage*= 9.9), or above average age (*Mage*= 12.2). The PROCESS analysis further showed that the impact of the ad format on attitudes towards the advertising format (TV ad / advergame) did not differ by children’s age *(a4* = .03, *SE* = .03, *t* = 1.16, *p* = .24, Figure 4). Finally, the PROCESS analysis showed that the impact of the ad format on pester intent did not differ by age *(a5* = .00, *SE* = .03, *t* = -.01, *p* = 1.0).

**Discussion**

The current study aimed to replicate previous findings regarding the differential impact of TV advertising and advergames on children while including age as a moderator. Corresponding to prior studies, the results indicate that an advergame is more effective than a TV advertisement in terms of brand attitude and pester intent (Hudders et al. 2015; Verhellen et al. 2014; Waiguny and Terlutter 2011). However, similar to previous studies (cf. Rifon et al. 2014) these effects disappeared when taking children’s attitudes towards the advertising format into account. Thus suggesting that this is a very important variable.

Moreover, watching the TV ad did not enhance children’s brand attitude and pester intent compared to a no advertising exposure control group. Brand attitudes, pester intent, and brand preferences were lower among children who had watched the TV ad compared to children who weren’t exposed to any advertising. It is unclear how to explain this finding since children’s overall attitudes towards the TV ad were positive, although all children found the advergame more enjoyable. However, this might also indicate that children are better able to defend against a TV ad than an advergame, since they have less experience with the latter. Although persuasion knowledge wasn’t related to pester intent in this study, watching the TV ad may have evoked advertising skepticism or disliking. Children in the TV ad condition were actually exposed to two types of brand exposure: a passive brand placement during the TV series, as well as a TV ad featuring the brand name and brand logo. This double brand exposure may have activated children’s advertising skepticism resulting in less positive advertising outcomes. Unfortunately, advertising skepticism was not measured in this study.

Moreover, apart from the attitude effect, marketing also aims for brand recall, for which the repetitive showing of even disliked advertisements is a viable means (see Schmidt & Eisend, 2015). In line with the literature, children’s brand recognition was lower for the advergame than the TV ad (Waiguny and Terlutter 2011; Verhellen et al. 2014). As explained by the limited capacity model of mediated processing (LCMP, Lang, 2000), playing the advergame might have distracted children from consciously noticing the brand logo in the game. The higher level of brand recognition in the TV ad condition may partially explain why persuasion knowledge was higher for the TV ad than the advergame. Brand recognition can also be seen as an element of persuasion knowledge. If one recognizes the brand, one might also recognize the fact that the message has a commercial nature. In this study, persuasion knowledge was significantly higher among those who had recognized the brand. However, it should be noted that brand recognition as an element of persuasion knowledge occurs rather post hoc instead of an "online" recognition of persuasion, and there are several other reasons why a brand can be recognized. Moreover, this finding indicates that an advergame persuades via positive affect evoked by the game-play, rather than via the prominence of the brand placement in the game (Nairn and Fine 2008).

Similar to previous studies, the impact of the advertising format on pester intent was not mediated by persuasion knowledge (Hudders et al., 2015; Rifon et al., 2014). Moreover, the absence of this mediation effect was independent of age. Although persuasion knowledge was higher for the TV ad than the advergame, children did not appear to use their persuasion knowledge as a cognitive defense for neither advertising format. This corresponds to the cued processors theory (Brucks et al. 1988) stating that children up until age 12 still need a warning cue in order to be able to process advertising critically. Children above twelve years old, however, should be able to employ their persuasion knowledge autonomously. Nevertheless, in this study, persuasion knowledge was not related to pester intent, regardless of the ad format and children’s age. These findings support the view that even teenagers do not actively use their persuasion knowledge to reflect on commercial messages. Further exploratory analyses into the moderating role of age revealed that persuasion knowledge was only higher for the TV ad than the advergame among the youngest children in this sample. This further contrasts the expectation that an advergame is more persuasive than a TV ad due to lower levels of persuasion knowledge for the advergame.

The impact of the advertising format on pester intent was only mediated by children’s attitudes towards the advertising format, and this mediation effect did not differ by age. Children’s attitudes towards the advertising format were significantly higher for the advergame than the TV ad, regardless of children’s age. In turn, higher attitudes towards the advertising format resulted in higher pester intentions. This corresponds to previous studies that found that children’s positive attitudes towards an advergame explain the persuasive advantage of an advergame over a TV ad (Panic et al., 2010; Hudders et al., 2015).

These findings suggest that children’s attitudes towards the advertising format are key to understand the persuasive advantage of an advergame. According to the Processing of Commercial Media Content Model (PCMC), the type of advertising influences how children respond to advertising (Buijzen et al., 2010). Conform the PCMC model, advergames appear to automatically evoke positive affect which transfers to the brand, thereby overruling cognitive defenses, even among teenagers.

We found no empirical evidence that an advergame persuades through a different pathway compared to a TV ad. The findings suggest that persuasion knowledge isn’t related to pester intent for neither advertising format and regardless of children’s age. Instead, for both the TV ad and the advergame, children’s attitudes towards the advertising format affected pester intent even after controlling for children’s age and level of persuasion knowledge.

However, the data showed that the influence of attitudes towards the TV ad on pester intent differ by persuasion knowledge. At a low level of persuasion knowledge, pester intentions were already moderate when attitudes towards the TV ad were low, thus showing a moderate positive relationship. However, the positive relationship between attitudes towards the TV ad and pester intent was much steeper at a medium and high level of persuasion knowledge. This suggests that attitudes towards the TV ad play an even more important role when persuasion knowledge is moderate to high.

In conclusion, the current study showed that the persuasive advantage of an advergame over a TV ad could not be explained by differences in the activation of persuasion knowledge, regardless of children’s age. Instead the answer lies in an affect transference from children’s attitudes towards the advergame. This affect transfer mechanism was observed for the entire age range of the sample. Children between 6 and 14 years old found the advergame far more enjoyable than the TV ad, which resulted in an affect transfer from the game to the brand.

The contribution of this study is that we showed that this is even the case for teenagers, although the literature assumed that children above twelve years old would be able to override the affect transfer by using their persuasion knowledge (Friestad and Wright 1994). Further, the findings of this study suggest that age-differences in advertising susceptibility are partially due to underlying age-related differences in attitudes towards the advertising format. Additional analyses showed that attitudes towards the ad format partially mediate the link between age and pester intent.

However, this study also has a few limitations. A first limitation of this study is that one might wonder whether we have actually compared the impact of a TV ad with that of an advergame or did we compare passive brand placement in a TV series with active brand placement in an advergame? In our TV ad condition, the brand logo was visible during the whole 10 minute TV series fragment. In every-day life, it is not realistic to have the brand logo featured on the TV screen during a TV program. A better approach might be to compare passive and active brand exposure within the same advertising format.

Second, we can wonder whether similar effects will be found when using advertising stimuli that are targeted predominantly to teenagers. The personal relevance of the advertisement for the receiver is important since it affects the amount of attention the receiver will pay to the ad, as well as the motivation to process advertising messages. Children’s attitudes towards the endorser Coco, the TV ad, and the advergame decreased with increasing age, hence younger children were more positive towards these advertisements than older children.

Third, in this study, we only measured the conceptual dimension of persuasion knowledge using two items (source recognition and understanding selling intent). Hence, it is possible that persuasion knowledge does mediate advertising format effects when other dimensions of this concept are taking into account, such as advertising skepticism.

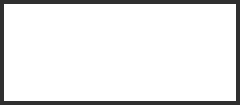
Future studies should aim to explain age differences in advertising responsiveness, by taking into account age-related differences in perceived relevance of advertising, cognitive attention, processing motivation, attitudinal responses, physiological responses such as Galvanic Skin Responses, and self-regulation abilities such as impulse-control. Furthermore, future studies should examine whether these findings also hold with affective advertising literacy and children’s actual critical processing of advertising as mediators (Hudders et al. 2015; Rozendaal et al. 2014).

Appendix 1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 1. Correlations | | | | | | | | |
|  | | Brand attitude | Pester intent | Age | Hunger | Attitude towards endorser | Persuasion knowledge | Attitude towards ad format |
| Brand attitude | Pearson Correlation | 1 |  |  |  |  |  |  |
| N | 938 |  |  |  |  |  |  |
| Pester intent | Pearson Correlation | ,544 | 1 |  |  |  |  |  |
| Sig. (2-tailed) | ,000 |  |  |  |  |  |  |
| N | 936 | 938 |  |  |  |  |  |
| Age | Pearson Correlation | -,247 | -,209 | 1 |  |  |  |  |
| Sig. (2-tailed) | ,000 | ,000 |  |  |  |  |  |
| N | 938 | 938 | 940 |  |  |  |  |
| Hunger | Pearson Correlation | ,094 | ,058 | -,091 | 1 |  |  |  |
| Sig. (2-tailed) | ,004 | ,077 | ,005 |  |  |  |  |
| N | 934 | 934 | 936 | 936 |  |  |  |
| Attitude towards endorser | Pearson Correlation | ,497 | ,341 | -,352 | ,119 | 1 |  |  |
| Sig. (2-tailed) | ,000 | ,000 | ,000 | ,003 |  |  |  |
| N | 624 | 624 | 626 | 623 | 626 |  |  |
| Persuasion knowledge | Pearson Correlation | -,089 | -,090 | ,405 | -,106 | -,129 | 1 |  |
| Sig. (2-tailed) | ,028 | ,026 | ,000 | ,009 | ,001 |  |  |
| N | 613 | 613 | 615 | 612 | 614 | 615 |  |
| Attitude towards ad format | Pearson Correlation | ,521 | ,425 | -,363 | ,043 | ,463 | -,193 | 1 |
| Sig. (2-tailed) | ,000 | ,000 | ,000 | ,281 | ,000 | ,000 |  |
| N | 626 | 626 | 628 | 625 | 626 | 615 | 628 |

|  |  |  |  |
| --- | --- | --- | --- |
| Table 2. Descriptive Statistics | *M(SD)* |  |  |
|  | **Advergame** | **TV ad** | **Control group** |
| Attitude towards Kellogg’s Coco Pops | 3.99 (.96) | 3.68 (1.13) | 3.81 (1.08) |
| Pester Intent | 2.90 (1.0) | 2.70 (1.03) | 2.83 (.97) |
| Preference for Kellogg’s Coco Pops | 75% | 66% | 67% |
| Attitude towards the advertising format | 4.06 (.84) | 3.54 (.89) | / |
| Persuasion Knowledge | 1.17 (.77) | 1.28 (.76) | / |
| Brand recognition | 88% | 93% | / |

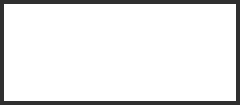
Figure 2. Multiple mediation analysis of ad format on pester intent via persuasion knowledge and attitudes towards the ad format.



**Persuasion Knowledge**

***b1* = -.007**

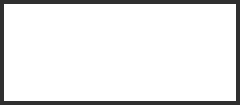
***a1* = .93**



***c’* = .06**

**Ad Format**

**Pester Intent**



***b2* = .49**

***a2* = -.55**

**Attitude towards Ad Format**

Figure 3. Pester Intent by Attitudes towards the Ad Format and Persuasion Knowledge in the TV ad Condition

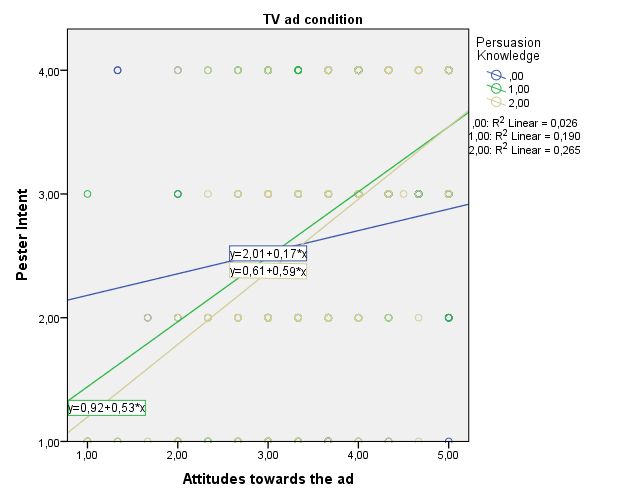
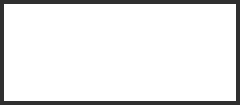


Figure 4. Moderated mediation analysis of ad format on pester intent via persuasion knowledge and attitudes towards the ad format.

**Age**



**Persuasion Knowledge**

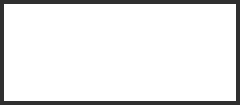
***a3* =-.05**

***b1* = .07**

***a1* = .60**

**Age**

***a5* = .00**

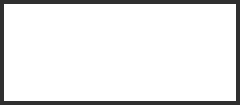


***c’* = .03**

**Ad Format**

**Pester Intent**

***a2* = -.85**



***b2* = .44**

**Attitude towards Ad Format**

***a4* = .03**

**Age**

**References**

An, S., Jin, H.S., and Park, E.H. 2014. Children's advertising literacy for advergames: Perception of the game as advertising. Journal of Advertising, 43(1), 63-72.<http://dx.doi.org/10.1080/00913367.2013.795123>

An, S., and Stern, S. 2011. Mitigating the effects of advergames on children. *Journal of Advertising*, 40(1), 43-56. DOI: 10.2753/JOA0091-3367400103

Auty, S., & Lewis, C. 2004. Exploring children's choice: The reminder effect of product placement. *Psychology & Marketing*, *21*(9), 697-713.

Blades, M., Oates, C., & Li, S. 2013. Children’s recognition of advertisements on television and on Web pages. *Appetite*, *62*, 190-193.

Birch, L. L., and Fisher, J.O. 2000. Mothers' child-feeding practices influence

daughters' eating and weight. *American Journal of Clinical Nutrition* 71(5), 1054-1061.

Boush, D. M., Friestad, M. , and Rose, G.M. 1994. Adolescent skepticism toward TV advertising and knowledge of advertiser tactics. Journal of consumer research, 165-175.

Borzekowski, D. L., & Robinson, T. N. (2001). The 30-second effect: an experiment revealing the impact of television commercials on food preferences of preschoolers. Journal of the American Dietetic Association, 101(1), 42-46.

Brucks, M., Armstrong G.M., and Goldberg, M.E. 1988. Children's use of cognitive defenses against television advertising: A cognitive response approach. Journal of consumer research 14(4), 471-482.

Buijzen, M., Van Reijmersdal, E.A., and Owen, L.H. 2010. Introducing the PCMC model: An investigative framework for young people's processing of commercialized media content. Communication Theory 20(4), 427-450. doi:10.1111/j.1468-2885.2010.01370.x

Cai, X., & Zhao, X. (2010). Click here, kids! Online advertising practices on popular children's websites. Journal of Children and Media, 4(2), 135-154.

Ham, C.D., Nelson, M.R., and Das, S. 2015. How to Measure Persuasion Knowledge. International Journal of Advertising, 34(1), 17-53 http://dx.doi.org/10.1080/02650487.2014.994730

Derbaix, C., and Pecheux, C. 2003. A new scale to assess children's attitude toward TV advertising. Journal of Advertising Research 43(4), 390-399.

Friestad, M., and Wright, P. 1994. The persuasion knowledge model: How people cope with persuasion attempts. Journal of consumer research, 1-31.

Hudders, L., Cauberghe, V., and Panic, K. 2015. How advertising literacy training affect children’s responses to television commercials versus advergames. International Journal of Advertising, 35(6), 909-931. DOI:10.1080/02650487.2015.1090045.

John, D. R. 1999. Consumer socialization of children: A retrospective look at twenty-five years of research. Journal of consumer research 26(3), 183-213.

Lang, A. 2000. The limited capacity model of mediated message processing. Journal of communication 50(1), 46-70.

Lee, M., Choi, Y., Quilliam, E. T., & Cole, R. T. (2009). Playing with food: Content analysis of food advergames. Journal of Consumer Affairs, 43(1), 129-154.

Livingstone, S., and Helsper, E.J. 2006. Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked research literatures in relation to obesity and food choice. Journal of communication 56(3), 560-584.

Mallinckrodt, V., and Mizerski, D. 2007. The effects of playing an advergame on young children's perceptions, preferences, and requests. Journal of Advertising 36(2), 87-100.

Moore, E. S., and Rideout, V.J. 2007. The online marketing of food to children: is it just fun and games? Journal of Public Policy & Marketing 26(2), 202-220.

Moschis, G. P. 1987. Consumer socialization: A life-cycle perspective. Free Press.

Nairn, A., and Fine, C. 2008. Who’s messing with my mind? The implications of dual-process models for the ethics of advertising to children. International Journal of Advertising 27(3), 447-470.

Oates, C., Blades, M., & Gunter, B. (2002). Children and television advertising: When do they understand persuasive intent? Journal of Consumer Behaviour, 1(3), 238-245.

Owen, L., Lewis, C., Auty, S., and Buijzen, B. 2013. Is Children's Understanding of Nontraditional Advertising Comparable to Their Understanding of Television Advertising? Journal of Public Policy & Marketing 32(2), 195-206.

Panic, K., Cauberghe, V., and De Pelsmacker, P. 2013. Comparing TV Ads and Advergames Targeting Children: The Impact of Persuasion Knowledge on Behavioral Responses, Journal of Advertising 42(3), 264-273.

Pecheux, C., and Derbaix, C. 1999. Children and attitude toward the brand: A new measurement scale. Journal of Advertising Research 39(4), 19-19.

Pechmann, C., Levine, L., Loughlin, S., & Leslie, F. 2005. Impulsive and self-conscious: Adolescents' vulnerability to advertising and promotion. Journal of Public Policy & Marketing, 24(2), 202-221.

Rifon, N. J., Taylor Quilliam, E., Paek, H. J., Weatherspoon, L. J., Kim, S. K., & Smreker, K. C. 2014. Age-dependent effects of food advergame brand integration and interactivity. International Journal of Advertising, 33(3), 475-508.

Rozendaal, E., Buijzen, M., & Valkenburg, P. 2011. Children’s understanding of advertisers’ persuasive tactics. International Journal of Advertising, 30(2), 329-350.

Sakaluk, J. K. 2016. Exploring small, confirming big: An alternative system to the new statistics for advancing cumulative and replicable psychological research. Journal of Experimental Social Psychology, 66, 47-54.

Uribe, R., & Fuentes-García, A. 2015. The effects of TV unhealthy food brand placement on children. Its separate and joint effect with advertising. Appetite, 91, 165-172.

Valkenburg, P. M. 2004. Children's responses to the screen: A media psychological approach. Mahwah New Jersey: Lawrence, Erlbaum Associates, Routledge.

Van Reijmersdal, E. A., Jansz, J., Peters, O., & Van Noort, G. 2010. The effects of interactive brand placements in online games on children’s cognitive, affective, and conative brand responses. Computers in Human Behavior, 26(6), 1787-1794.

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(1), 33-42.

Verhellen, Y., Oates, C., De Pelsmacker, P., and Dens, N. 2014. Children’s responses to traditional versus hybrid advertising formats: The moderating role of persuasion knowledge. Journal of Consumer Policy 37(2), 235-255.

Waiguny, M. K., and Terlutter, R. 2011. Differences in children’s processing of advergames and TV commercials. Advances in Advertising Research 2, 35-51.

Waiguny, M. K., Terlutter, R., & Zaglia, M. E. 2011. The influence of advergames on consumers’ attitudes and behaviour: an empirical study among young consumers. International Journal of Entrepreneurial Venturing, 3(3), 231-247.

Waiguny, M. K., Nelson, M.R., and Terlutter, R. 2014. The Relationship of Persuasion Knowledge, Identification of Commercial Intent and Persuasion Outcomes in Advergames—the Role of Media Context and Presence. Journal of Consumer Policy 37(2), 257-277.

1. In the control group, 67% preferred Kellogg’s Coco-Pops over three other similar brands, compared to 75% in the advergame group, and 66% in the TV ad group. However, further analysis of brand preference lies outside of the scope of this study. [↑](#footnote-ref-1)