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Children's Responses to Traditional Versus Hybrid Advertising Formats: the Moderating Role of Persuasion Knowledge

Abstract

Research on the impact of advertising on children has failed to keep pace with the rapidly changing media environment. Using an experimental approach, children's responses towards traditional (television advertisement) versus new, hybrid advertising techniques (trailer, advergame and their combination), and the moderating role of persuasion knowledge are investigated. Results show that children who played an advergame have more difficulty recalling the advertised brand than children who saw a traditional television advertisement. When confronted with integrated marketing communications (a trailer followed by an advergame), children without knowledge of persuasive intent developed a more positive brand attitude than children with persuasion knowledge. The implications of these results are discussed.

Keywords: Persuasion Knowledge, Hybrid Advertising, Advergames, Consumer Policy

Introduction

The present paper investigates whether children respond differently to traditional versus new integrated forms of advertising, and how this process is influenced by their degree of knowledge of the persuasive intent of these formats.

Children's understanding and processing of advertising has been the subject of much academic and societal debate (e.g., Macklin 1983; Macklin 1987; Oates et al. 2001). Advertising directed towards children is ubiquitously present in their daily environment (Calvert 2008). Marketers see children as an important target market because of their spending power and influence on the allocation of the family budget (Buckingham 2000). There is a general concern among parents, consumer organizations and policy makers that advertising may have unintended or negative consequences for children, such as the adoption of a consumerist mindset or the cultivation of poor eating habits (Buijzen & Valkenburg 2000, 2003; Ferguson et al. 2011; Garde 2008). An important reason for this concern is that children do not fully understand advertisers' tactics and their persuasive intentions (Bijmolt et al. 1998). Researchers generally take a developmental psychological point of view, stating that children lack both cognitive and information processing skills to fully comprehend commercial messages, making them more susceptible to persuasive attempts (Eagle 2007; John 1999; Kunkel et al. 2004). Commercial communication is not by definition deceptive, but children run a greater risk of being misled by marketing communications than do adults (Eagle 2007). In many countries, policy makers have issued regulations or directives to the advertising industry to protect children from the harmful consequences of high advertising exposure. For example, in Flemish Belgium there is a ban against advertising on the public broadcaster's youth channel, and children's programmes cannot be interrupted by advertising (Brewaeys 2009); the UK has banned advertisements for unhealthy foods during children's programmes (Ofcom 2007); Australia and Norway do not allow advertisements during programmes aimed at pre-school children; and in Sweden, policy makers have completely banned television advertising directed at children (Oates et al. 2001). The importance of protective measures is also highlighted by the European Union in the 'Television Without Frontiers' and 'Audiovisual Media Services' directives (Woods 2008).

Children's media usage has undergone fundamental changes. They spend more of their time using a growing amount of different media (Rideout et al. 2010). Consequently, children are confronted with an increasing number of advertising messages through channels that are strongly

diversifying (Shin, Huh & Faber, 2012). They grow up in an environment that is characterized by a rapidly evolving interactive digital media culture that has changed the way advertisers communicate with their target audience (Calder et al. 2009; Calvert 2008). The saturation of traditional advertising (e.g. print advertising, television advertising) and increased media interactivity has resulted in a variety of hybrid and integrated advertising formats (Balasubramanian 1994). By integrating advertising messages with media content, advertisers hope to avoid consumer skepticism elicited by traditional advertisements.

Children are increasingly exposed to these new hybrid forms of advertising. Advertisers use novel formats such as branded trailers (a commercial message announcing a programme or a website) or advergames (branded custom-built online games) to promote their products and brands (Mallinckrodt & Mazerski 2007; Moore & Rideout 2007). Perhaps because of the advantages hybrid advertising techniques offer to advertising practitioners, they raise considerable concerns among parents, educational professionals and policy makers, especially when they are targeted at children and particularly when they are promoting certain product categories such as food. The integrated nature of these advertising formats blurs the lines between the commercial message and media content (Balasubramanian 1994). Moreover, hybrid advertising makes a clear identification of selling intent more difficult than with traditional advertising, especially for inexperienced consumers and children. Consequently, children who are not aware of the persuasive nature of hybrid advertising messages may be unconsciously and unwillingly influenced (John 1999). Such a scenario is even more likely when children are confronted with multiple commercial messages for a brand across different channels (Integrated Marketing Communications, IMC). The IMC principle holds that a carefully aligned combination of marketing communication tools leads to more effective persuasion (De Pelsmacker et al. 2013; Kitchen & Schultz 2009). These issues pose a challenge to both academics and policy makers concerned with protecting the integrity of the child.

Despite the clear relevance of these questions, scientific literature that contrasts children's responses to hybrid advertising techniques with traditional advertising techniques is still scarce. Although Waiguny and Terlutter (2011) have studied how children's brand responses vary between television advertisements and advergames, research on other hybrid formats and how these interact with each other is still missing. In order to reach a full understanding of how children cope with today's complex multimedia advertising environment, these aspects need to be

further explored. The present study aims to fill this void in scientific knowledge on children's responses to different hybrid advertising techniques. As such, we inform policy makers and educational professionals, and help them to translate their concerns regarding hybrid advertising into more effective policy guidelines.

The detrimental effects of exposure to advertising can be remedied by enhancing children's advertising literacy (Brucks et al. 1988; John 1999; Livingstone & Helsper 2006). Children who possess a more advanced understanding of the persuasive intent of a commercial message are thought to process advertisements in a more critical way, for example by developing counter argumentation (Friestad & Wright 1994, 2005). This has led governmental and non-governmental organizations to join forces with the advertising industry to develop media and advertising literacy programmes to educate children on media usage and how to cope with persuasion in mass media (Eagle 2007). For example, in Canada, Concerned Children's Advertisers (CCA) aims to develop children into critical thinkers who are able to cope with and understand the media messages to which they are exposed. The CCA has provided a range of educational programmes for children on diverse topics, including media and advertising literacy. Another example is the Media Smart programme in the UK that focuses specifically on advertising. Media Smart is a didactical programme, designed for use in primary schools. It teaches children what the goal of advertising is, and how advertisers try to influence them (Buckingham et al. 2007).

Both scholarly research and consumer policy making has not kept pace with recent developments in the advertising environment. Despite the increasing exposure of children to new commercial communication formats, most studies and policy efforts to date focus on television and more traditional forms of advertising (e.g., Buijzen & Valkenburg 2000; Ferguson et al. 2011; Oates et al. 2001). The present study wishes to address this gap and contribute to a better understanding of the impact that integrated advertising formats have on children. To our knowledge, it is the first study to make an explicit comparison between children's responses to traditional television advertising and new integrated advertising formats (i.e. a branded trailer, an advergame and their combination). To inform both future policy making efforts and academic research on this topic, we aim to provide an overview of the different effects of traditional television advertising, hybrid advertising and IMC.

Second, we investigate whether children's responses to different advertising formats vary according to their knowledge of the persuasive attempt of these techniques. Previous research has

demonstrated that understanding of the persuasive intent and advertising tactics influences how adolescents and children respond to advertising messages (Boush et al. 1994; Eagle 2007; Livingstone & Helsper 2006). We build on this research by studying the moderating effect of persuasion knowledge on children's responses to advertising messages, and contribute to it by studying new hybrid forms of advertising.

A third contribution of our study is that we focus on an age category that has been largely undervalued in advertising literacy research, i.e., 12 to 14 year olds. Previous research has mainly used younger subjects between 6 and 12 years of age (e.g., Bijmolt et al. 1998; Buijzen & Valkenburg 2000, 2003; Eagle 2007). Recently, some authors have started to question the widely held belief that these younger children are more influenced by advertising than older children (e.g., Livingstone & Helsper 2006; Nairn & Fine 2008; Rozendaal et al. 2011). Through this study, we wish to contribute to this ongoing debate by exploring how older children respond to different advertising formats.

Literature Review and Hypotheses

The first goal of our study is to investigate the differences in influence of traditional television advertising, new hybrid advertising formats and integrated marketing communications (the combination of different commercial formats to convey the message). Advertising effects are typically studied using measures of cognitive (e.g. recall, recognition), affective (e.g. attitude towards the advertised brand, brand preference) and behavioral (e.g. purchase intention, brand choice) responses (De Pelsmacker et al. 2013). Previous research has shown that the different nature of hybrid advertising and traditional advertising elicits different cognitive, affective and behavioral responses (e.g., Waiguny & Terlutter 2011; Walsh et al. 2008).

Cognitive effects are determined by individuals' limited information processing capabilities (Kahneman 1973). Different media contexts and advertising formats require different investment of cognitive efforts on behalf of the consumer. With regard to cognitive efforts, playing an advergame is more demanding than passive exposure to (televised) audiovisual content. Playing an advergame requires users to invest cognitive resources to process the ongoing gameplay and anticipate in-game developments (Grigorovici & Constantin 2004; Grodal 2000; Lee & Faber 2007). Although previous studies show that placing brands in advergames has beneficial effects on brand recall (Cauberghe & De Pelsmacker 2010; Nelson 2002; Yang et al. 2006), the effect is unlikely to be as strong as for traditional advertising. While advergames mainly direct the

attention toward playing the game, television advertisements draw the attention to a single strong brand message supported by audiovisual elements (Maher et al. 2006). As illustrated by Nelson et al. (2006) these distinct processing styles (active vs. passive) result in diverging memory effects. Their study showed that brand recall was significantly higher among subjects who watched the advergaming being played than among subjects who actively played the advergaming. On a similar account, the scant research that makes an explicit comparison between television advertising and advergaming shows that passively processed television ads leads to better recall of the advertised brand than the actively played advergaming (Waiguny & Terlutter 2011; Walsh et al. 2008). Furthermore, the interactive and engaging character of advergaming induces telepresence, a psychological response that can negatively affect recall for the brand. This effect has been evidenced across several studies. In the context of a racing game, Grigorovici and Constantin (2004) found that telepresence negatively impacted brand recall for brands that were placed throughout the game. A similar effect was found in the study of Schneider and Cornwell (2005). While the authors hypothesized a positive effect of game induced flow on brand recall, they observed the exact opposite. Because of the higher cognitive load and engaging character of advergaming, we expect that exposure to an advergaming will yield lower brand recall than exposure to a television ad.

Next to a traditional television advertisement and an advergaming, the present study also includes a branded televised trailer and a combination of the trailer and the advergaming. Trailers are a hybrid form of advertising that blend programme content (for instance, a cartoon character) and commercial content (in this case, refer children to a branded website and encourage them to play the advergaming (Balasubramanian 1994)). Trailers are often appended to branded television content and are hard to distinguish from this content (Andronikidis & Lambrianidou 2010). Similar to a television ad, a trailer does not involve active participation. As such, the processing of a trailer is likely to require the same amount of cognitive resources as watching the television commercial. However, contrary to a television advertisement, a trailer does not explicitly promote the advertised brand and does not contain conspicuous brand identifications. As such, it is likely to have a lower impact on brand recognition than television advertising. The same logic applies to the combination of watching a trailer and playing an advergaming of the same brand. Both are hybrid advertising formats that do not explicitly focus on a commercial message, but integrate it subtly into media content. Therefore, we expect:

H1: Exposure to a television advertisement leads to higher brand recall than playing an advergaming, watching a branded trailer and the combination of watching a trailer and playing an advergaming.

Consumers' affective and behavioral responses to advertising may also vary across advertising formats. It has been argued in previous research that advergaming produce more effective persuasion effects than traditional advertising because they engage children with interactive animated imagery of the brand (Mallinckrodt & Mazerski 2007; Pavlou & Stewart 2000). Previous studies show that children find advergaming fun and exciting (Waiguny et al. 2012; Waiguny & Terlutter 2011). According to the affect transfer theory, these positive feelings can be carried over to the situation and other stimuli, i.e. the advertised brand (Kim et al. 1998). As opposed to watching television commercials, playing an advergaming is an activating and pleasant experience that is more likely to produce favourable responses towards the advertised brand (i.e. attitude towards the brand and brand preference) than watching a television ad (Waiguny & Terlutter 2011).

In the present study, we also investigate how combining two hybrid advertising techniques (a trailer and an advergaming) impacts children's brand responses. Combining these two techniques may enhance brand responses in several ways. First, subjects are exposed to two different hybrid advertising techniques. Consequently, they are repeatedly confronted with marketing communication stimuli for the same brand. According to the two-factor theory, repeated exposure to an unfamiliar stimulus prompts positive habituation toward that stimulus as familiarity and comfort with the stimulus increases. Yet, as the number of exposures mounts further, the second factor, tedium, exerts a negative influence on affective response as familiarity gives way to boredom. Presumably, the overall favourableness of affective response at a given level of repetition reflects the net effect of these two factors, with positive habituation exerting a positive influence on affective response, while tedium has a negative influence (Nordhielm 2002). Single exposure to both the trailer and the advergaming might thus result in positive repetition effects because of first phase habituation. Even if the advertising stimuli in the trailer and the advergaming are not processed consciously, repeated exposure may still have a positive impact on brand evaluations through the mere-exposure effect (Cacioppo & Petty 1979). This theory does not predict anything about wear-in or wear-out effects of advertising repetition. However, it can

explain positive habituation in the absence of conscious processing (De Pelsmacker et al. 2013; Nordhielm 2002; Zajonc 1968).

As a trailer and an advergame are complementary, there might also be a positive IMC effect at play. The IMC principle was originally conceived as the coordination of marketing communication messages across different channels (Schultz 1992). Since then, IMC has been debated from a general strategic management viewpoint and as a theoretical principle (Madhavaram et al. 2005). Although some authors question the clarity of its conceptualization and its economic value (e.g., Cornelissen & Lock 2000), there is support for the IMC principle from both a theoretical and an empirical angle. As Laurie and Mortimer (2011) note, IMC is perceived as having an impact at a number of different levels of an organization, but its ultimate stage is proposed to be at a corporate or strategy level where its impact is felt right across the organization. The stages that lead up to this point are described in various forms by various writers, but they generally start at the tactical level involving the co-ordination of promotional elements. The present study is situated on this tactical level and focuses on the outcomes of IMC implementation in terms of advertising effectiveness. With regard to these outcomes, IMC theory predicts that combining different complementary and consistent marketing communication tools to communicate integrated consonant messages can create a synergistic effect which enhances persuasion (Naik & Raman 2003; Schultz & Kitchen 1997). There are several studies that empirically validate this theoretical proposition. Naik and Raman (2003), for example, constructed a dynamic autoregressive model based on real market data to estimate the synergistic effect of integrated multimedia communications, and found that it significantly improves brand equity. Similarly, a study by Reid (2005) pointed to a strong effect of IMC process implementation on brand outcomes such as brand awareness and customer satisfaction. Following the theoretical notions and empirical findings discussed above, we hypothesize that:

H2a: Playing an advergame and the combination of watching a trailer and playing an advergame leads to a more positive attitude towards the brand than exposure to only a television advertisement or only a branded trailer.

The ultimate goal of advertisers is to place their brand into the consideration set of the consumer and to influence brand choice. If advertisers succeed in eliciting a positive response, their brand is more likely to be selected above other available alternatives (Auty & Lewis 2004). Brand choice is generally thought to follow an attitudinal evaluation of available alternatives

(Fishbein & Ajzen 1974). However, research has shown that when confronted with the choice between two or more similar branded products, consumers discriminate between the available brands based on ad induced responses, even when no grounded attitude has been formed (Biehal et al. 1992). As brand choice can also be directly influenced by ad responses, it is important to assess this relationship apart from brand attitudes. As we explained above, we expect affective reactions to vary across the different advertising formats. Following this reasoning we expect that:

H2b: Playing an advergame and the combination of watching a trailer and playing an advergame leads to a higher brand choice than exposure to a television advertisement or a branded trailer.

The success of hybrid advertising techniques lies partly in the implicit way in which they communicate commercial messages (Balasubramanian 1994). Contrary to traditional advertising formats, the advertisement is embedded in entertaining media content (e.g. an advergame, a television programme, a movie). Because of its integrated nature, hybrid advertising does not directly and overtly disclose its commercial nature. Persuasion through hybrid advertising techniques often operates implicitly, without conscious brand recognition (Van Reijmersdal et al. 2007). The subtle nature of hybrid advertising makes it more difficult for consumers to recognize the source behind the message, and to discern its persuasive intention. This is evidenced by the experiment of Tutaj and Van Reijmersdal (2012). Their investigation of online advertising formats showed that both recognition of the format and knowledge of the persuasive intent were higher for the more explicit banner ads than for sponsorship messages that were integrated in editorial content. Friestad and Wright (1994) have conceptualized the content, structure, and usage of everyday knowledge on persuasion in their Persuasion Knowledge Model (PKM). The PKM provides insights into how individuals gradually develop a set of different types of persuasion-related knowledge and skills to cope effectively with marketers' attempts to persuade them (Friestad & Wright 2005; Wright et al. 2005). According to the PKM, agent knowledge (i.e. knowledge about the brand or firm behind the persuasive attempt) and persuasion knowledge (i.e. knowledge of advertising and marketing tactics used to persuade) are critical determinants of consumers' responses towards persuasive attempts. When consumers recognize the source behind persuasive communication, their persuasion knowledge may be activated. This implies that the consumer recognizes an agent's action as a persuasion tactic, which can affect what happens in

the remainder of the persuasion episode. As argued by Waiguny et al. (2012), persuasion knowledge is often domain- or tactic-specific. Tactic-specific persuasion knowledge refers to identification of a specific brand or commercial content within a given ad context (e.g., advergames). Given the different context of hybrid advertising formats relative to traditional advertising, it is important to investigate if children are able to understand that hybrid advertising formats convey promotional information. The present study examines two hybrid advertising formats: an advergame and a trailer. What differentiates these formats from traditional advertising, is that they are more involving, exciting and fun. As shown by Mallinckrodt and Mazerski (2007), the entertaining character of these formats masks the persuasive intent behind the message or advergame. Considering these findings, we expect that:

H3: Hybrid advertising formats (i.e. the advergame, the trailer and their combination) will lead to lower persuasion knowledge than traditional television advertising.

The second goal of the present study is to investigate the role of children's knowledge of advertising and the persuasive intent behind different advertising formats in their responses to different formats. It is generally assumed that children's advertising literacy, knowledge and understanding of commercial communication moderates their response to it (Livingstone & Helsper 2006; Roozendaal et al. 2008). If children develop a higher level of knowledge about the persuasive tactics employed in a commercial message, they are likely to be better equipped to respond to persuasive attempts in a reasoned manner (Kunkel et al. 2004)). Friestad and Wright (1994) state that when consumers conceive an agent's action as a persuasion tactic, a 'change of meaning' occurs. Consumers may disengage from the ongoing interaction with the message and start analyzing the persuasive attempt. At this point, consumers may start to assess the effectiveness and appropriateness of the agent's tactics. Subsequently, the outcome of this assessment may be used to refine the consumer's attitude towards the agent (i.e. the marketer).

A second outcome of the activation of persuasion knowledge consists of a general detachment effect. The consumer's recognition of the tactic may disrupt the ongoing experience of engaging in the persuasive attempt. When persuasion knowledge is activated, it can disrupt the comprehension and elaboration of topic-related information such as statements and images (Friestad & Wright 1994). If the intentions, goals or motives of the advertiser are evaluated negatively, consumers can react skeptically to the persuasive intent. In turn, this can have negative consequences for the attitude towards the advertised brand. Activation of persuasion

knowledge usually entails suspicion about the marketer's ulterior motives, skepticism toward advertising claims, and perceptions of agents as deceptive or manipulative. Suspicion of agents' hidden motives or manipulative intent leads to resistance to persuasion, resulting in less favorable brand attitudes (Campbell & Kirmani 2000). However, activation of persuasion knowledge does not necessarily lead to negative brand responses. As shown by Wei et al. (2008), the negative effect of the activation of persuasion knowledge on brand evaluations depends on the perceived ethicality or appropriateness of the advertiser's tactic.

Research on how persuasion knowledge impacts consumers' brand responses exhibits mixed findings. In the context of advergames, studies by Mallinckrodt and Mazerski (2007) and, more recently, by Van Reijmersdal et al. (2012) show that the activation of persuasion knowledge does not impact children's brand evaluations. Opposite results are reported by both Waiguny et al. (2012) and An and Stern (2011), who found that activating persuasion knowledge may mitigate the persuasive effects of advergames. These findings corroborate results of studies using traditional advertising vehicles such as print and television (e.g., Rozendaal et al. 2009). As literature is mostly in accordance with the latter view, we expect that:

H4: The activation of persuasion knowledge by advertising formats leads to a significantly less favourable attitude towards the brand.

Method

Procedure and Sample

We set up a between-subject experiment consisting of four different experimental treatments. Our sample consisted of 125 children recruited from five different elementary schools in Flanders (Belgium). Children ranged between 11 and 14 years of age ($M = 11.98$, $SD = .43$). We have selected this particular age range because it has been under-researched. Most studies focus on children between 4 and 10 years old, assuming that this is the most vulnerable target group for advertisers. This logic is informed by the developmental psychological paradigm that predicts that advertising literacy develops together with the child's cognitive abilities (Eagle 2007; John 1999). Recent studies are questioning this view, as they find that older children (8-12 years old) are not necessarily better equipped to deal with the persuasive effects of covert marketing communications (Rozendaal et al. 2009; Rozendaal et al. 2011). This necessitates more research into this age group. Before the experiment, the parents or guardians of each child

agreed to let their child participate by means of signing a consent form. The participating schools also signed an ethical approval form in which they consented to the participation of their pupils in the experiment. The experimental manipulation consisted of exposure to four different types of advertising formats for Unilever's ice-cream brand Ola. The fifth treatment served as a control group, and was not exposed to any advertising stimuli. All 125 children were randomly assigned to one of these four treatments, resulting in subsamples of equal size per condition ($n = 25$; cfr. Table 1).

The stimuli used were all existing commercial materials for the Ola brand. In order to exclude biasing effects of peripheral message elements that are not inherent to the advertising technique itself, the stimuli are all taken from the same campaign. This means that the imagery and artwork (e.g., the animated characters and their environment) of the stimuli all represent the same theme. The first experimental treatment was a 30-second trailer in which a fictitious cartoon character (Mr. Freeze) encouraged the children to visit the website (www.olakids.be) to play an advergaming. Children sat in front of a television set and watched the trailer. The children of the second group were individually put in front of a computer to play the Ola advergaming. The goal of the advergaming was to navigate a character sitting on a popsicle through a range of slopes and collect as many Ola popsicles as possible. It took children about two minutes to complete the game. In the third group, children first saw the trailer and then played the advergaming, which accounted for 2 minutes and 30 seconds of exposure time. This combined treatment was included to test the effects of IMC. Lastly, the fourth group was shown a traditional television advertisement (30 seconds) for Ola, which included the same imagery and animated character as the advergaming and the trailer. As aforementioned, our control group was not exposed to any form of advertising messages.

- Insert Table 1 here -

Before conducting the experiment, children were given a short introduction to instruct them on how to fill out the four-point graphic 'smiley' scales and what each point on the scale signified. This was done using simple examples, such as 'What do I mark when I absolutely love swimming?' and 'What do I mark when I just enjoy swimming?'. The children were divided into small groups of four to five children, and each group was separately taken to a room where they were given the experimental treatment. Subsequently, the children were individually administered a survey. After the treatment, every child was separately taken to a freezer in a

different room, where they were allowed to pick one popsicle. They were taken there individually to avoid their choice being influenced by that of others. The freezer contained three brands of rocket shaped popsicles: a generic store brand (Carrefour), a competitive brand (Ijsboerke) and the test brand (Ola). The children's choice was registered. Our control group was asked to fill in a brief version of the survey and was also taken to the freezer to select a popsicle.

Measures

The survey measured the children's aided recall using funnel questioning (Oates et al. 2001). Each child was asked a series of seven yes/no questions about the content of the advertising format to which they were exposed. Each new question was more specific than the previous one (e.g.: 'What did you see?', 'Were there things you recognized?', 'Did you see a popsicle?', ...). When a child correctly identified the Ola brand, the series was stopped and the number of 'prompts' was registered. A low number of prompts indicated good brand recall, whereas a high number of prompts indicated more difficult brand recall. Persuasion knowledge was measured using two variables: correct identification of the source behind the commercial stimulus (1) and of the persuasive intent (2). Both variables were measured using an open question: 'Who do you think made this movie/game?' for source identification and 'What is the purpose of this movie/game?' for the identification of persuasive intent. Children who identified both the source and the persuasive intent were coded '1'; children who failed to identify source and/or persuasive intent were coded '0'. In order to avoid mutual influence (i.e., inflation of the persuasion knowledge measure by the recall measure, or vice versa), recall was measured at the very beginning of the questionnaire (1st question), while persuasion knowledge was gauged at the very end of the questionnaire (last question).

The attitude towards the brand was measured on a three-item scale, based on Sengupta and Johar (2002), for each of the three brands available as a reward after the experiment (i.e. 'I like ...', '... popsicles taste good' and '... popsicles are fun'). The reliability analysis resulted in a Cronbach's Alpha of .605, which indicated acceptable internal consistency (Janssens et al. 2008). This allowed us to calculate a summated scale. As mentioned above, the attitude towards the brand was measured using four-point smiley scales. In literature it is argued that four-point scales offer the maximum level of differentiation when working with children (Rossiter 1977). Moreover, children may have a tendency to opt for the neutral mid-point as a way of not paying

attention to the question (Hota et al. 2010). In the control group we only registered attitude toward the brand and brand choice. As a way of controlling for existing brand attitudes, the mean attitude toward the brand of the control group was subtracted from the scores of the subjects in the experimental treatments (cfr. Dens et al. 2012). While subtracting a constant from the treatment effects does not impact statistical analyses, the difference measure does more accurately represent the effect of each experimental treatment. This difference measure was used in subsequent analyses.

Results

Before testing our hypotheses, we performed a check for gender differences in the composition of the groups and the responses to the dependent variables. This analysis shows that the gender distribution does differ across treatments ($X^2(4) = 19.805, p = .001$). With regard to the dependent variables, however, we only found a significant difference in the mean number of prompts required until correct recall of the brand. On average, boys needed fewer hints ($M = 5.24$) than girls ($M = 5.99, t(114) = -2.151, p = .040$). There are no significant differences between boys and girls on any of the other dependent variables ($p > .05$). When added as a covariate, gender does not impact the results of any of our analyses. Based on literature there is no reason to expect gender differences in any of the employed dependent measures. Therefore, we have chosen not to include gender as a covariate in the reported analyses.

Hypothesis 1

A one-way analysis of variance (ANOVA) was conducted to test whether the different experimental treatments had an effect on children's ability to recall the advertised brand. The number of prompts needed before correct identification of the brand was used as the dependent measure for recall. Only children who were eventually able to identify the test brand were included in the analysis ($N = 92$). There is a significant difference between the experimental groups in the mean number of prompts required before correct recall ($F(3, 91) = 3.400, p = .021$). Bonferroni post-hoc pairwise comparison tests indicated that the average number of prompts needed by children in the advergame condition ($M = 6.61, SD = 0.839$) was significantly higher than that of children in the traditional television advertisement condition ($M = 5.00, SD = 2.236, p = .016$). Other pairwise comparisons were insignificant ($p > .050$). An overview of the means, standard deviations and cell sizes is provided in Table 2. Hypothesis 1, stating that exposure to

the TV ad would engender significantly higher recall than all other treatments, is thus only partially supported.

- Place Table 2 about here -

Hypotheses 2a and 2b

To test differences in brand attitude for Ola between the experimental treatments, a second one-way ANOVA was performed. This analysis showed that the different experimental treatments did not produce significant differences in brand attitude ($F(3, 99) = 2.053, p = .112$). Bonferroni post-hoc pairwise comparison tests showed no significant differences either ($p > .050$). An overview of the means, standard deviations and cell sizes is provided in Table 3. Hypothesis 2a, predicting a significantly more positive attitude towards the brand in the advergaming and combined treatments, is not supported.

- Place Table 3 about here -

Differences in brand choice between the treatments were analyzed using chi-square analyses. The relationship between the experimental treatment and brand choice was not statistically significant ($\chi^2(6) = 10.078, p = .260$). Further pairwise comparisons using two-by-two contingency tables did not produce significant results ($p > .050$). Table 4 provides an overview of the examined proportions. Hypothesis 2b, predicting significantly higher brand choice in the advergaming and combined treatments, is not supported. In addition the pairwise differences in brand choice between the experimental treatment groups were analyzed by means of two-sample Z-tests. None of the observed between group differences were statistically significant ($p > .05$).

- Place Table 4 about here -

Hypothesis 3

We expected that a traditional television ad would cause greater persuasion knowledge than hybrid advertising formats (i.e. trailer, advergaming, and their combination). To test H3, we performed a binary logistic regression analysis. We recoded the variable containing information on membership of the experimental conditions into 3 ($k - 1$) dummy variables using indicator coding, with the 'television ad' condition as the reference category. As illustrated by Table 5 none of the calculated simple slope coefficients were statistically significant. Although two out of

three beta-coefficients were negative, and thus partly confirmed the hypothesized directionality, we have to reject H3.

- Place Table 5 about here -

Hypothesis 4

We investigated whether persuasion knowledge moderated the effect of the experimental treatments on brand attitude. A 4 (experimental treatments) x 2 (persuasion knowledge, yes/no) full-factorial one-way ANOVA was performed using the attitude towards the test brand (Ola) as the dependent variable. The experimental treatment ($F(3, 99) = 2.693, p = .051$) and persuasion knowledge ($F(1, 99) = 0.077, p = .552$) exerted no significant main effects on brand attitude. The interaction between both independent variables was also insignificant ($F(3, 99) = 2.088, p = .107$). Simple-effects tests were conducted to compare children with and without persuasion knowledge within each of the individual experimental treatments. These analyses indicated that children without persuasion knowledge develop a significantly more positive attitude towards the brand ($M = 3.722, SD = 0.328$) than children with persuasion knowledge ($M = 3.246, SD = 0.665, F(1, 99) = 5.030, p = .027$) when a combination of an introductory trailer followed by playing the advergaming was used (Fig. 1). H4 is partially supported.

- Place Figure 1 about here -

Discussion

The present study investigated the impact of traditional versus more novel hybrid and integrated advertising techniques on young teens (11-14 years old). We addressed three gaps in recent academic literature on this subject. First, contemporary research on children's responses to commercial messages has largely ignored new hybrid and integrated forms of commercial communication by focusing on more traditional forms of advertising (Buijzen & Valkenburg 2000; Ferguson et al. 2011; Oates et al. 2001). Moreover, the scant research that is available (e.g., Waiguny & Terlutter 2011) neglects the complexity of today's advertising environment by not investigating the impact of different hybrid advertising formats, and how they interact. Children are confronted with an expanding amount of message formats through a host of channels. New digital media, such as commercial websites targeted at children, often blur the boundaries between information, entertainment and commercial content (Grigorovici & Constantin 2004). Whereas children may have the skills to browse and effectively use these new media, there is

concern that they may uncritically trust the commercial communications they encounter and fail to identify the often covert persuasive intent (Buckingham et al. 2005; Livingstone 2002).

Second, researchers have paid considerable attention to the youngest children (4-10 years old), as from a developmental psychological point of view these children are most vulnerable to persuasive attempts (John 1999; Roedder 1981). More recent studies, however, question the widely held belief that younger children are more influenced by advertising than older children (Ali et al. 2009). Roozendaal et al. (2008) demonstrated that even though children around 8-12 years old show a decent understanding of advertising intent, this understanding is still not on a par with adult levels. In their study of preschoolers' persuasion knowledge development, McAlister and Cornwell (2009) did not establish a significant correlation between the children's age and the level of persuasion knowledge. This also indicates that persuasion knowledge does not linearly progress with age related cognitive developments. Despite the accumulating evidence against the developmental paradigm (Livingstone & Helsper 2006; Nairn & Fine 2008; Roozendaal et al. 2008), further research into the older age categories is scarce.

Third, although the moderating role of advertising literacy on children's reactions to commercial messages has been well studied (Livingstone & Helsper 2006; Roozendaal et al. 2009), few studies consider the moderating effect of the more comprehensive and operational concept of persuasion knowledge (Friestad & Wright 1994; Roozendaal et al. 2008). Based on the PKM, we examined both children's understanding of the persuasive intent and their knowledge of the source behind the commercial communication to which they were exposed.

In accordance with Waiguny and Terlutter (2011) we found that children who were exposed to an advergame needed significantly more help recalling the brand in the persuasive message than children who saw a traditional television ad. This might be because the focus of advergames is on actively engaging with the content (An & Stern 2011; Cauberghe & De Pelsmacker 2010), rather than on passive exposure to brand identifiers. In fact, whilst playing the advergame, the player's attention is divided between multiple tasks that compete for a limited amount of capacity in working memory (Grodal 2000). According to the limited capacity model of attention (Kahneman 1973), our capacity to process information is limited and divided into capacity dedicated to the primary task and spare capacity that is left for performing secondary tasks. The more capacity is depleted for the primary task, the less capacity becomes available to perform secondary tasks (An & Stern 2011). Playing an advergame is the primary task for game

players, while processing brand integrations is a secondary task (Grigorovici & Constantin 2004). The evoked presence in the game and its interactivity might thus interfere with memory for the integrated brands (Grigorovici & Constantin 2004; Liu & Shrum 2002).

The affective and behavioural effects we found counter the expectations derived from existing literature. Since playing an advergame is an enjoyable experience, a feeling of being present in the advergame can produce a positive mood (Nelson et al. 2006). Affect-transfer theory predicts that these positive feelings can transfer to other elements and stimuli in the subject's environment, such as the advertised brand (Coulter 1998). The advertising techniques tested in the study did not have a different effect on the formation of attitude towards the test brand. A possible explanation for this lies with the limited exposure time to the advergame. Our study allowed children to play the advergame only once, which accounted for about two minutes of playtime. This was done to avoid potential confounding effects of differences in the duration of the exposure across treatments. Mallinckrodt and Mazerski (2007), for example, allowed children to play the advergame at least twice, which equaled around five minutes of play time. Another study by An and Stern (2011) let children play the advergame for 10 minutes. Prolonged exposure to the advergame and the possibility to play the game again and improve on the previous result may lead to higher levels of engagement and entertainment, which are subsequently transferred onto the integrated brand. In the case of a prolonged advergaming treatment, respondents are also likely to be more frequently exposed to implicit brand stimuli. This fosters a further learning effect that promotes positive habituation to the brand, resulting in more positive brand responses (Nordhielm 2002). Due to the mere exposure effect, prolonged and repeated exposure can also yield more positive brand outcomes when the brand stimuli are not consciously processed.

A second explanation relates to the activation of persuasion knowledge across the experimental conditions. We expected that the traditional ad would yield higher persuasion knowledge than the hybrid formats. Activation of persuasion knowledge may encourage more critical scrutiny of the message, which can negatively reflect on brand evaluations (An & Stern 2011; Campbell & Kirmani 2000; Rozendaal et al. 2009). This logic reinforced our hypothesized assumption that hybrid advertising formats cause higher affective responses than a traditional television ad. Unexpectedly, our test of the impact of advertising format on persuasion knowledge produced a non-significant outcome. Persuasion knowledge activation did not vary

across our hybrid formats and the television ad, meaning that the impact of negative counter-argumentation on the mean brand attitude was similar in all conditions.

Ceiling effects might also partially explain the lack of significant results. Our study used existing marketing communication stimuli for a well-known brand of popsicles (Ola). As the head teachers of the participating schools only granted us a single session to conduct our experiment, we could not test for prior attitudes in advance. A pre-exposure brand attitude measure was not included in the experimental procedure to avoid priming the subjects with the brand.

However, we did find that persuasion knowledge partially moderates children's affective responses to the different advertising formats. Children without persuasion knowledge developed a significantly more positive attitude towards the brand when they were shown a trailer followed by playing the advergaming than children who did evidence persuasion knowledge. These results are partially in accordance with the findings of Waiguny and Terlutter (2011). Their experiment contrasted children's responses towards a television advertisement against their responses to an advergaming. This study found a general negative impact of persuasion knowledge activation on brand responses when children were exposed to the television ad, but not when they played the advergaming. In our study, persuasion knowledge neither moderated children's responses to television advertising, nor to the advergaming. We only observed a moderating effect in the combined condition (a trailer followed by an advergaming), which is consistent with the literature on IMC (Schultz & Kitchen 1997). Carefully designed integration between different forms of marketing communications may lead to a seamless communication process that has beneficial effects on consumers' responses towards the brand (De Pelsmacker et al. 2013). The trailer depicts a brand related character from an advertiser-funded programme that encourages children to play the advergaming. This logical sequence of aligned marketing communication techniques engenders a reinforced effect in terms of advertising effectiveness in children who are less knowledgeable about the nature of advertising than in those who are more aware of these techniques. People with persuasion knowledge are found to be more resilient to such persuasive efforts. Our study evidenced that persuasion knowledge can play a crucial role in mitigating the persuasive effects of exposure to integrated marketing communications which is in accordance with expectations derived from the PKM (Friestad & Wright 1994) and findings from existing studies that use this model as a theoretical framework (An & Stern 2011; Rozendaal et al. 2009;

Waiguny & Terlutter 2011). However, it is also important to note that several recent studies that examined the role of persuasion knowledge activation on children's responses to advergames contradict this view. Both Van Reijmersdal et al. (2012) and Mallinckrodt and Mazerski (2007) did not establish a significant effect of persuasion knowledge activation on children's brand responses. The reason for this anomaly in study findings may lie with the divergent nature of the advergames that are used across different studies. Some advergames might employ more subtle persuasion tactics than others. Identifying the persuasive intentions behind these advergames would require a more advanced level of persuasion knowledge. It is possible that the measures used to gauge persuasion knowledge do not capture this degree of complexity, thus overestimating respondents' persuasion knowledge.

Implications for Consumer Policy

Against the background of the PKM (Friestad & Wright 1994), our findings are of special significance to policy makers and advertisers. First, even though children are becoming very adept at using both traditional (e.g. television) and new digital media (e.g. internet browsing, tablet computers for e-learning at school), a substantial number of children (37% of our subjects) were not able to identify the source and the persuasive intent behind a commercial message. Recognition of the source and understanding of the persuasive intent are necessary prerequisites to deal effectively with marketing communication messages (Wright et al. 2005). Children that do not possess this knowledge cannot develop or use cognitive defense strategies (e.g. counter arguing) that allow them to cope with marketplace persuasion.

As noted by Van Reijmersdal et al. (2012), in order to establish a fair and healthy media environment, children need to be aware of how and when they are being targeted as consumers. In order to achieve this, policy makers and developers of educational programmes should be better informed on what triggers persuasion knowledge. One way in which persuasion knowledge can become active is by disclosing to the consumer that brands are integrated in a certain media production or game. Research has shown that when ulterior motives are accessible (i.e. when the persuasive intent is revealed), persuasion knowledge is more likely to be activated (Campbell & Kirmani 2000). In 2007, the European Union instigated the 'Audiovisual Media Services Directive' which included regulatory guidelines to make sure that product placement in television programmes is visibly disclosed. Several countries have adapted their media legislation

accordingly. For example, in Belgium and The Netherlands, product placement is visually disclosed by means of a logo before every programme block that contains brand integrations. As proven by An and Stern (2011), such regulations can also prove effective in an online context. Their study showed that disclosing persuasive content by means of ad breaks helps mitigate the persuasive effects of an advergame. Nonetheless, self-regulatory policy to encourage the disclosure of advertising on websites and in online content is currently missing (Moore & Rideout 2007). In order to further inform future consumer policy measures in this direction, research should ascertain how persuasive content is best disclosed in different media, and to different audiences.

Our study involved children aged around 12 years. From a developmental psychological point of view, it is striking that a substantial proportion (37%) of these children did not recognize the persuasive intent or the source behind commercial messages, across a host of media channels. This supports a recent trend in literature to move beyond the developmental framework that uses age as a main indicator of advancing persuasion knowledge (Rozendaal et al. 2009; Rozendaal et al. 2011). Policy makers should be aware of the fact that young teens' persuasion knowledge is still not equivalent to that of adults'. Efforts to design educational programmes to help children gain a more comprehensive insight into marketplace persuasion and advertising across different media should thus not exclusively focus on younger children (6 to 10 years old) but also on older children (10 to 14 years old).

Moreover, this persuasion knowledge is important, since it shapes responses to integrated marketing communication efforts. Our results showed that when an integrated communications mix is used, the brand attitude of older children with little knowledge of persuasive methods that are used in advertising can be influenced more strongly than that of children who have developed persuasion knowledge. Children's media usage is diversifying, which implies that they are confronted with advertising messages across many channels (Roberts & Foehr 2008). Advertisers respond to this evolution by targeting children through a multi-channel marketing communication strategy. When their communications over the different media are well-aligned and deliver a consistent message, this can create more positive brand responses. To children with lower levels of persuasion knowledge, this can lead to reinforcement of potentially unwanted advertising effects. Future consumer policy making decisions and educational programme developments should consider these IMC effects. Like advertisers do when designing their persuasive

messages, facilitators of educational programmes should better graft their instructional games and lectures on to the myriad of media children of different ages use and, more importantly, how they use and process them. As argued by Wright (2002), research needs to identify factors that catalyze children's acquisition and activation of persuasion knowledge. Current educational programmes instruct children on how to identify and cope with particular persuasive techniques. However, children's media choices are shifting, and the lines between different media are blurring (Moore & Rideout 2007). To deepen their persuasion knowledge it might be beneficial to confront children with the fact that individual marketing communication messages across different channels can be part of an integrated campaign. This might help children recognize these practices in real life, and help them to effectively cope with them.

Limitations and Suggestions for Further Research

The present study had a number of limitations which should be considered in future research. First, our sample was rather limited in size and contained only Flemish Belgian children. Whether the effects found in this study can be generalized across different countries and cultures remains to be investigated.

Second, the test brand (Ola) is the Belgian market leader in children's ice cream. Ola's market leadership implies there is a possibility of ceiling effects, which can explain the lack of significant differences in brand attitude between the experimental conditions. Established brand attitudes are not likely to change as forcefully as attitudes towards a lesser known brand (Johnson & Eagly 1989).

A potentially biasing factor is that the exposure time varied across the experimental treatments. For instance, the advergame treatment took 2 minutes, while exposure to the traditional television commercial took about 30 seconds. Although this difference is inherent to the nature of the stimuli, such a difference in exposure time could have influenced children's responses to the experimental stimuli (for example, in terms of brand recall). Future research should attempt to control for differences in exposure time, for example, by keeping the time constant.

Some considerations can be made regarding the measures we used. Research with young respondents should always consider their cognitive limitations and response abilities. Following recommendations from previous research (e.g., Hota et al. 2010; Rossiter 1977), we utilized

simplified measurement instruments: four-point scales with visual (smileys) instead of verbal anchors to signify the scale values. Also, our measurement of persuasion knowledge was rather limited. Although it captured two important components of children's understanding of persuasive communication, the employed nominal measures might not fully capture the concepts of agent and persuasion knowledge. These issues may be remedied by using multi-item measures that grasp these concepts to a greater extent (e.g., Tutaj & Van Reijmersdal 2012; Van Reijmersdal et al. 2012). Moreover, the mixed findings in extant literature on the impact of persuasion knowledge activation on brand responses raise questions on the reliability and generalizability of existing measures of persuasion knowledge. As discussed above, hybrid advertising messages can differ with respect to the tactics they employ. Current measures of persuasion knowledge might not capture all persuasive aspects of a hybrid message. Consequently, respondents that score high on the persuasion knowledge measure might still be persuaded by the message (e.g., Van Reijmersdal et al. 2012). Researchers that use these measures in future research should be aware of this, and undertake effort to tailor their persuasion knowledge measure according to the tactical complexity of the stimuli they use.

In this context, it is important to note that activation of persuasion knowledge does not necessarily induce a more skeptical appraisal of commercial content (Friestad & Wright 1994). If the interplay of source knowledge, topic knowledge and persuasion knowledge leads to a positive evaluation of the persuasive episode, than this process can also result in more positive affect towards the source (i.e., the advertising brand). When researchers are specifically interested in how skepticism may moderate responses toward advertising messages, the use of an ad-skepticism scale is advised (e.g., Obermiller & Spangenberg 1998) rather than a measure of persuasion knowledge.

Also, our study investigated the moderating role of persuasion knowledge in determining children's responses to traditional versus hybrid advertising forms. Persuasion knowledge can, however, also be treated as a dependent variable. Future research could further examine the mechanisms that trigger persuasion knowledge. By relating the persuasion knowledge construct to consumer, media and advertising factors (e.g. interactivity, degree and explicitness of ad exposure, consumer engagement), researchers can learn more about the workings of persuasion knowledge.

Moreover, future research should go beyond the age related predictions made from developmental psychology (John 1999), and study other potentially influential developmental characteristics of the child. For example, McAlister and Cornwell (2009) have shown that children's theory of mind (i.e. to understand that others have beliefs, desires, and intentions that are different from one's own) is a much stronger predictor of their persuasion knowledge than their age. They concluded that children must first be able to understand that another person's mental states differ from their own mental states to detect persuasive intent in advertising. These findings support the viewpoint of Wright (2002), who argued that persuasion knowledge is related to social intelligence. Such findings are useful in advancing understanding of how persuasion knowledge develops. In turn, this understanding is vital to developing more effective educational programmes and self-regulatory guidelines for media companies and institutions.

Finally, our study considered only a limited number of advertising formats. In reality, children are confronted with a broader array of hybrid and traditional advertising vehicles. Although it is probably impossible to capture the entire multimedia advertising environment in a single experiment, other media types and advertising techniques could be considered. For example, future research could focus on children's responses to brand placement practices in television shows, movies or music videos aimed at children.

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Appendix

Detailed breakdown of the different levels of persuasion knowledge for each experimental condition

		Trailer	Advergame	Trailer + Advergame	Tv Ad	Total (%)
Persuasive intent	No (%)	5 (20%)	6 (24%)	4 (16%)	3 (12%)	18 (18%)
	Yes (%)	20 (80%)	19 (76%)	21 (84%)	22 (88%)	82 (82%)
	Total	25 (25%)	25 (25%)	25 (25%)	25 (25%)	100 (100%)
Source recognition	No (%)	7 (28%)	9 (36%)	3 (12%)	5 (20%)	24 (24%)
	Yes (%)	18 (72%)	16 (64%)	22 (88%)	20 (80%)	76 (76%)
	Total	25 (25%)	25 (25%)	25 (25%)	25 (25%)	100 (100%)
Persuasion knowledge	Yes (%)	11 (44%)	12 (48%)	6 (24%)	8 (32%)	37 (37%)
	No (%)	14 (56%)	13 (52%)	19 (76%)	17 (68%)	63 (63%)
	Total	25 (25%)	25 (25%)	25 (25%)	25 (25%)	100 (100%)