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# Do children's cognitive advertising defenses reduce their desire for advertised products?

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## *Abstract*

*In both the academic and societal debates, it is widely assumed that cognitive advertising defenses can reduce children's susceptibility to advertising effects. Empirical evidence supporting this crucial assumption is however missing. It is precisely this gap that the present study aims to fill. In a survey of 296 children (aged 8–12 years), we investigate whether children's cognitive defenses (i. e., advertising recognition and understanding of its selling and persuasive intent) reduce the relationship between the amount of television advertising they are exposed to and their desire for advertised product categories. Interaction analysis in regression shows that of all the cognitive defense variables, only understanding advertising's persuasive intent was effective in reducing the impact of advertising exposure on children's advertised product desire. However, this only applies to the older children in the sample (ages 10–12). For the younger children, understanding the persuasive intent even increased the impact of advertising.*

*Keywords: advertising effects, advertising literacy, children, cognitive advertising defenses*

## **Introduction**

It is widely assumed that children are more susceptible to the persuasive influence of advertising than teenagers and adults (see Kunkel et al., 2004). The premise underlying this assumption is that as children's advertising-related knowledge and understanding have yet to fully mature, they are less able to defend themselves against persuasive advertising messages. Traditionally, most child and advertising theories assume that the first defense against advertising is a cognitive one and, therefore, knowledge of advertising can function as a filter when processing advertising messages. In this view, children who have acquired the necessary knowledge should be less susceptible to the persuasive influence of ad-

vertising. Accordingly, children's advertising-related knowledge and understanding are often referred to as *cognitive defenses* against advertising (Brucks, Armstrong, and Goldberg, 1988; Gunter, Oates, and Blades, 2005; Kunkel et al., 2004; Livingstone and Helsper, 2006; Rossiter and Robertson, 1974).

The cognitive defense view not only dominates the academic debate about children and advertising, but has also significantly shaped the agenda of the societal debate. Consumer advocates, parents, and policy makers are concerned that because children have yet to develop the necessary cognitive advertising defenses, child-directed advertising is inherently unfair (see Bandyopadhyay, Kindra, and Sharp, 2001; Kunkel et al., 2004) and may lead to an increased risk of undesired consequences, including materialistic attitudes, parent-child conflict, and childhood obesity (Buijzen and Valkenburg, 2003a; 2003b; Moore, 2007). Based on these concerns, many western societies have implemented policies that either protect children from advertising by advertising restrictions or increase their cognitive defenses through advertising education programs (Gunter et al., 2005).

Although the cognitive defense view is widely adopted in both the academic and societal debates, there are valid reasons to challenge it. More specifically, it is questionable whether advertising-related knowledge and understanding are sufficient to resist the persuasive appeal of advertising – that is, the child and advertising literature does not provide us with any convincing evidence in support of the cognitive defense view.

In the literature, two lines of empirical research prevail: While one strand focuses on the development of children's cognitive advertising defenses, the other concentrates on the effects of advertising on children (for reviews see John, 1999; Martin, 1997; Kunkel, 2001; Kunkel et al., 2004; Young, 1990). Although each of these approaches has been extensively studied, the two are rarely been combined (cf., Kunkel et al., 2004; Livingstone and Helsper, 2006). This is rather remarkable: Only by linking these two research approaches can we come to any definite conclusions on the role of cognitive defenses in children's susceptibility to advertising effects. Moreover, the few studies on advertising effects that did include a cognitive defense measure showed mixed results. For example, Robertson and Rossiter (1974) found a negative correlational relation between understanding advertising's intent and desire for advertised products; whereas the findings of other studies did not yield any evidence in support of an empirical relation (Mallinckrodt and Mizerski, 2007; Ross, Campbell, Wright, Huston, Rice, and Turk, 1984).

The present study therefore aims to expand on the child and advertising research literature by unraveling the theoretical relationship between

children's cognitive advertising defenses and their susceptibility to advertising effects and investigating it systematically. More specifically, in a survey of children 8 to 12 years old, we investigate whether their cognitive advertising defenses reduce the relationship between the amount of television advertising they are exposed to and their desire for frequently advertised product categories. Product desire is an important effect of advertising because it is a necessary condition for behavioral advertising effects, such as product purchase or requests to parents. Several correlational and experimental studies investigating the effects of television advertising on children have demonstrated that exposure to advertising increased children's desire for advertised products (e. g., Gorn and Goldberg, 1982; Robertson and Rossiter, 1976) and the number of their purchase requests (for a review, see Buijzen and Valkenburg, 2003a). Before introducing the specific question guiding our research, we first further clarify the concept of cognitive defenses and then discuss how these defenses could be theoretically related to children's susceptibility to advertising.

### *Children's cognitive defenses against advertising*

While several theoretical models of advertising processes (Friestad and Wright, 1994; John, 1999; Moses and Baldwin, 2005; Roberts, 1983) have focused on children's cognitive defenses, no univocal conceptualization can be found in the literature. However, most views share the assumption that cognitive advertising defenses encompass multiple skills, which are accumulated during childhood (Gunter et al., 2005; Wright, Friestad, and Boush, 2005). Although the various views identify different types of skills, they all agree that the most fundamental cognitive defenses are: (a) *recognition of advertising* – children's ability to distinguish commercials from regular television programming based on perceptual features (Bandyopadhyay et al., 2001; Kunkel et al., 2004) and (b) *understanding of advertising* – their ability to understand the intent of advertising (John, 1999; Martin, 1997).

Both recognition and understanding of advertising have been demonstrated to develop significantly during childhood. For example, it has been shown that prior to age five, children have difficulty distinguishing commercials from television programs and thus view advertising primarily as entertainment (Bijmolt, Claassen, and Brus, 1998; Macklin, 1987; Oates, Blades, and Gunter, 2002). Around the age of eight, however, the majority of children are able to recognize the difference between advertising and programs and also begin to understand the intent of advertising (Kunkel et al., 2004).

Two different types of advertising intent have been distinguished: selling and persuasive intent (Kunkel et al., 2004; Young, 1990). The selling intent of advertising is defined as the advertiser's attempt to influence consumers' behavior directly, namely, to persuade them to purchase a product (Moses and Baldwin, 2005; Willson and Weiss, 1992). Persuasive intent is defined as the advertiser's attempt to influence consumer behavior indirectly by changing their mental state, such as concerning their desires and beliefs about a product (Moses and Baldwin, 2005).

Rozendaal, Buijzen, and Valkenburg (2008) have shown that children develop the understanding of the persuasive intent of advertising noticeably later than the understanding of its selling intent. Although children show an increasing understanding of the selling intent of advertising from the age of eight on, their understanding of persuasive intent only shows a significant increase at about age ten. This finding supported Moses and Baldwin's (2005) assumption that understanding of persuasive intent requires a higher developmental level than understanding of selling intent, because it includes the insight that advertising attempts to change one's mental state. Moses and Baldwin (2005) refer to this finding as an understanding of second-order mental states.

The cognitive defense view assumes that children who have acquired cognitive advertising defenses will use them to critically process advertising messages. More specifically, advertising recognition and understanding will enable children to generate critical thoughts and counterarguments in opposition to the persuasive arguments in advertising – or will even make them ignore advertising – which, in turn, renders them less susceptible to its persuasive influence (Brucks et al., 1988; Friestad and Wright, 1994; Wright, 1973).

Although this line of reasoning may sound plausible, there are nevertheless important theoretical reasons to question the cognitive defense view. First, it has been suggested that even when children possess the necessary cognitive defenses, they may fail to actually use these while they are watching advertising (Brucks et al, 1988; John, 1999; Moses and Baldwin, 2005). John (1999) has argued that up to the age of 12, children may not be fully able to spontaneously retrieve and apply advertising-related knowledge and understanding. Second, adult advertising theories have suggested that advertising effectiveness is not only determined by cognitive responses, but also, and perhaps more importantly, by affective responses to a message (Brown and Stayman, 1992). In other words, while a child may possess the necessary cognitive defenses, it can still be swayed by an attractive commercial.

One might argue that these theoretical objections to the cognitive defense view relate to common sense perceptions. After all, the cognitive defense view would imply that adults, who presumably are able to recog-

nize advertising and understand its intent, are resistant to persuasive advertising messages. However, most adults will readily admit they can be seduced by advertising, even when they are aware of the nature and intent of the persuasive message. Moreover, the vast sums of money involved in the advertising industry might also be an indication that advertising can influence adult purchasing behavior.

As the extant empirical literature has yet to reach any definite conclusions about the role of cognitive defenses in children's desire for advertised products, this study will examine the cognitive defense view. We investigate the following research question:

*Research question:* Do children's cognitive advertising defenses (i.e., advertising recognition, understanding selling intent, and understanding persuasive intent) reduce the relationship between the amount of advertising they are exposed to and their desire for advertised product categories, and does this relationship vary among different age groups?

## **Method**

### *Participants*

The results of this study are part of a large-scale survey study on children's cognitive advertising defenses, conducted in 2007 (Rozendaal, Buijzen and Valkenburg, 2008). A total of 296 children between the ages of 8 and 12 participated in the study ( $M = 10.07$ ,  $SD = 1.24$ ). The children were recruited from three elementary schools located in different parts of the Netherlands, covering pupils with various socio-economic and cultural backgrounds. The sample consisted of 155 boys (52.4%) and 141 girls (47.6%).

### *Procedure*

Prior to the implementation of the survey, institutional approval, parental consent, and children's informed consent were obtained. Children were notified that the study would be about television and advertising and that they could stop participating at any time they wished. A female researcher brought the children to the school's computer room in groups of 4 to 6. After a short introduction, the researcher instructed the children to put on headphones and begin the computer-assisted online survey. We opted for computer assisted survey mode over more traditional modes of surveying, as this method is particularly suited to children in this age range (Borgers, De Leeuw, and Hox, 2000) and allows for the inclusion of audio-visual material.

In the survey, several questions on children's advertising exposure, their advertised product desire, and the extent to which their parents

engage in advertising-related communication were asked. Children also watched child-directed television commercials and fragments of television programs. After each commercial or program fragment, children were presented with a question measuring their recognition of advertising. For each commercial, participants were asked to additionally answer a question measuring their understanding of its selling and persuasive intent. All commercial and program fragments were 20 to 30 seconds long and had been videotaped from three children's television channels one and a half years prior to the survey. After completing the survey, which took about 15 to 25 minutes, the children were rewarded.

### *Measurement*

*Advertising exposure.* Following procedures from earlier studies, advertising exposure was measured by presenting children with the titles of six popular television programs broadcasted prime-time on both public and commercial television channels during the data collection period. Programs were selected to appeal to both boys and girls, and to children of different ages. Moreover, based on advertising broadcast data provided by Nielsen Media Research (November/December, 2006), programs were selected that were surrounded by a relatively high amount of advertising. Children were asked how often they had seen each program; response options were 1 (*never*), 2 (*sometimes*), 3 (*often*), or 4 (*very often*). Combining advertising broadcast data with children's program viewing frequency has been argued to be an accurate method to assess children's advertising exposure (Buijzen, 2009; Desrochers and Holt, 2007; Slater, 2004). The total score of children's advertising exposure was calculated by averaging the scores on the six programs (Cronbach's  $\alpha = .54$ , range = 1–4,  $M = 2.62$ ,  $SD = .53$ ).

*Advertised product desire.* To measure advertised product desire, children were presented with a list of seven product categories (toys, food, DVD's, computer games, ringtones, magazines, amusement parks) and were asked to indicate on the same 4-point scale the frequency with which they have desired the product category when they saw it advertised in a commercial. We selected product categories that were frequently advertised before, during, or after the selected television programs. This selection was based on the Nielsen data. A total score of advertised product desire was constructed by averaging the scores on the seven items ( $\alpha = .69$ , range = 1–4,  $M = 3.01$ ,  $SD = .49$ ).

*Recognition of advertising.* To measure the ability to recognize advertising, children were presented with three child-directed television commer-

cial and three fragments of children's television programs. For each commercial and program fragment, they were asked to indicate if they were watching a commercial ("Is this a commercial?"). Response options were 1 (*yes*) and 0 (*no*). A total score for recognition of advertising was constructed by first reversing the scores for program fragments and then calculating children's total mean score over the six commercials and program fragments ( $\alpha = .47$ , range = 0–6;  $M = 5.50$ ;  $SD = 0.87$ ).

*Understanding advertising's intent.* Most earlier studies measuring advertising intent have assessed children's understanding of advertising intent simply by asking them why commercials are shown on television (e. g., Butter et al., 1981; Donohue et al., 1978; Robertson and Rossiter, 1974). However, some scholars have raised the concern that such open-ended questions may underestimate children's understanding, given their limited language and memory retrieval abilities (Macklin, 1983). Therefore, a number of studies have used less cognitively-demanding techniques, such as using multiple-choice questions (Bijmolt et al., 1998; Donohue et al., 1980; Macklin, 1985, 1987). These studies have noted considerably higher levels of understanding advertising's selling and persuasive intent. It must however be noted that most of these studies have failed to consider chance effects and may therefore have overestimated children's level of advertising understanding (Gunter et al., 2005).

In the present study, we have attempted to overcome the weaknesses of earlier studies by optimizing the measurement of children's understanding of advertising intent in three ways. First, we exposed children to actual commercials in order to cue their advertising-related knowledge (Martin, 1997; Roedder, 1981). Second, we used a relatively simple recognition technique of asking children to choose from a number of pre-defined response options. Third, we reduced chance effects by combining the responses to three different commercials.

To measure understanding of advertising's selling and persuasive intent, children were presented with the same three child-directed television commercials. For each commercial, they were asked to indicate if the commercial tried to make them buy the product (i. e., selling intent: "Does this commercial want you to buy *product name*?") and make them like the product (i. e., persuasive intent: "Does this commercial want you to like *product name*?"); response options were 1 (*yes*); and 0 (*no*). Two scales were constructed: a scale for understanding of selling intent, calculating participant's total mean score over the three commercial fragments ( $\alpha = .60$ ; range = 0–3;  $M = 2.47$ ,  $SD = .86$ ); and a second scale for understanding of persuasive intent, constructed in the same way ( $\alpha = .54$ ; range = 0–3;  $M = 1.88$ ,  $SD = 1.01$ ).

*Parental advertising mediation.* Finally, we included parental advertising mediation as a control variable, because this has been shown to play an important role in modifying children's advertising responses (Buijzen and Valkenburg, 2005; Prasad, Rao, and Sheikh, 1978; Wiman, 1983). To measure the extent to which parents engage in advertising mediation, a measurement instrument was adopted from earlier advertising mediation research (Buijzen and Valkenburg, 2005). The scale consisted of five items; response options were 1 (*never*), 2 (*sometimes*), 3 (*often*), or 4 (*very often*). Examples of questions were "How often do your parents tell you that the purpose of advertising is to sell products?" and "How often do your parents tell you that advertising does not always tell the truth?" A total score for parental advertising mediation was constructed by averaging the scores on the five items ( $\alpha = .73$ ,  $M = 2.21$ ,  $SD = .66$ ).

## **Results**

The aim of this study was to examine whether children's cognitive advertising defenses reduce the effect of advertising exposure on their desire for advertised products (RQ1) and how this varied for children in different age groups. In other words, we aimed to investigate whether children's level of advertising recognition and understanding interacted with the relationship between advertising exposure and desire for advertised products. Before conducting the interaction analysis, we first performed a power analysis (Faul, Erdfelder, Lang, and Buchner, 2007). The analysis showed that the power to detect a medium effect size ( $f^2 = .20$ ) was very high, above 0.99, which means that we had a large enough sample size to detect effects of practical importance. We then tested the direct relationship between children's advertising exposure and their advertised product desire in a regression analysis. As anticipated, the analysis yielded a significant and positive relation ( $\beta = .32$ ,  $B = .29$ ;  $SE = .05$ ,  $p < .001$ .) Children's advertising exposure explained 10% of the variance in their desire for advertised products,  $F(1, 294) = 33.01$ ,  $p < .001$ . This size of effect is comparable to what was found in studies on the relationship between advertising exposure and children's purchase requests (Buijzen and Valkenburg, 2003a).

To investigate the interaction effect, we used a two-way interaction design in regression analysis (cf. Aiken and West, 1991). This design involved a regression equation, with children's desire for advertised products as the dependent variable. Following the procedure as described by Aiken and West, 16 predictors were entered: the independent variable (advertising exposure), the interaction variables (advertising recognition, understanding selling intent, understanding persuasive intent, and age), the two-way product terms of the independent and interaction variables

Table 1. *Interaction analysis of the relation between advertising exposure and advertised product desire.*

	Advertised product desire		
	$\beta$	<i>B</i>	<i>SE</i>
Advertising exposure	.30***	.28	.06
Age	.05	.02	.02
Age * advertising exposure	-.08	-.06	.05
Advertising recognition	.06	.04	.04
Advertising recognition * advertising exposure	.02	.02	.09
Advertising recognition * age	-.03	-.01	.04
Advertising recognition * advertising exposure * age	-.07	-.06	.06
Understanding selling intent	.00	.00	.04
Understanding selling intent * advertising exposure	-.03	-.04	.08
Understanding selling intent * age	.14	.06	.03
Understanding selling intent * advertising exposure * age	-.05	-.04	.06
Understanding persuasive intent	.07	.04	.03
Understanding persuasive intent * advertising exposure	.07	.06	.06
Understanding persuasive intent * age	.01	.01	.03
Understanding persuasive intent * advertising exposure * age	-.14*	-.10	.05
Parental advertising mediation	-.11*	-.08	.04
$R^2 = .17$			
$F(16, 279) = 3.53^{***}$			

\* $p < .05$ ; \*\*\* $p < .001$ .

(advertising recognition \* advertising exposure, understanding selling intent \* advertising exposure, understanding persuasive intent \* advertising exposure, age \* advertising exposure, advertising recognition \* age, understanding selling intent \* age, and understanding persuasive intent \* age), and the control variable (parental advertising mediation). A significant regression coefficient for one of the two-way product terms would indicate that the relationship between advertising exposure and advertised product desire is indeed affected by a cognitive defense variable.

To investigate whether age would moderate the effectiveness of different mediation strategies, three-way product terms were entered for age (advertising recognition \* advertising exposure \* age, understanding selling intent \* advertising exposure \* age, and understanding persuasive intent \* advertising exposure \* age). A significant regression coefficient for one of the three-way product terms would indicate that the relationship between advertising exposure and advertised product desire is indeed affected by a cognitive defense variable and by age.

Results of the interaction analyses are reported in Table 1. The predictors are grouped by cognitive advertising defense. As predicted, the rela-

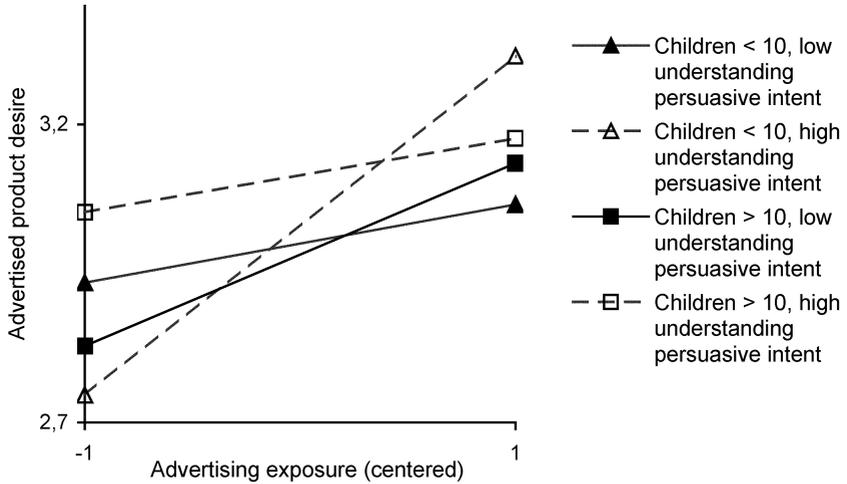


Figure 1. Relation between children's exposure to advertising and their advertised product desire as conditional on their understanding of persuasive intent – interaction plot.

tionship between children's advertising exposure and their advertised product desire remained significant. As can be seen in the table, the two-way product terms were all nonsignificant. The analysis did however yield a significant three-way interaction for understanding persuasive intent and age. In order to more thoroughly understand what this significant interaction means, the interaction effect was plotted and probed (cf. Preacher, Curran, and Bauwer, 2006).

The interaction plot in Figure 1 illustrates the relationship between children's advertising exposure and their desire for advertised products as conditional on (1) understanding persuasive intent and (2) age. The broken regression lines indicate the relationships between advertising exposure and advertised product desire for children with high levels of understanding persuasive intent; the solid lines indicate the same relationship for children with low levels of understanding persuasive intent. Furthermore, triangles mark relationships for children younger than 10 (*M* age = 1 *SD*, cf. Aiken and West, 1991); squares indicate relationships for children age 10 and older. The slopes of the lines indicate the direction and strength of the relations.

As can be seen in the figure, understanding persuasive intent interacted with advertising exposure among both the younger and the older children, albeit in an opposite direction. This means that among the older children, the relationship between advertising exposure and product desire was weaker for children with a high level of understand-

ing than for children with a low level of understanding of persuasive intent. Among the younger children however, this relationship was *stronger* for children with a high understanding of persuasive intent. In other words, understanding the persuasive intent of advertising was only effective in reducing the relationship between advertising exposure and desire for advertised products for the older children in the sample (ages 10–12). Among the younger children, understanding advertising's persuasive intent even strengthened the exposure-product desire relationship.

## **Discussion**

This study aimed to examine the widely held assumption that cognitive advertising defenses reduce children's susceptibility to advertising effects. The study yielded three important findings: First, children's recognition of advertising and their understanding of its selling intent did not make them less susceptible to the persuasive influence of advertising. More specifically, recognition of advertising and understanding its selling intent were not effective in reducing the relationship between advertising exposure and the desire for advertised products. Second, understanding the persuasive intent of advertising did reduce the relation between advertising exposure and children's desire for advertised products, however only among the older children in the sample (ages 10–12). Third, for the younger children, understanding advertising's persuasive intent had a reverse effect: It increased the exposure-product desire relationship. In other words, young children with a better understanding of persuasive intent were more susceptible to advertising's persuasive influence. From this we can conclude that the role of cognitive defenses in children's susceptibility to the persuasive influence of advertising depends on (1) the type of cognitive defense and (2) the age of the child.

Our first finding showed that recognition of advertising and understanding advertising's persuasive intent did not reduce the impact of advertising exposure on children's desire for advertised products. In order to explain this finding, one must consider that in order to defend themselves against advertising, children might need more sophisticated cognitive advertising defenses. As the results of our study indicate, children may need the more sophisticated understanding that advertising attempts to change their mental state (i. e., persuasive intent). Other sophisticated cognitive advertising defenses, such as skepticism toward advertising and insights into its persuasive tactics and appeals, may play important roles as well. Future research could extend this study by examining these more sophisticated cognitive advertising defenses.

Our second finding showed that understanding the persuasive intent of advertising was only effective in reducing the relationship between

advertising exposure and desire for advertised products among children age 10 and older. A possible explanation for this finding is that children younger than 10 are not yet capable of using their cognitive advertising defenses. In order to do so, children should be able to retrieve previously obtained advertising-related information while processing advertising messages. According to Lang's (2000) limited capacity model of mediated message processing, the process of retrieving previously obtained information during viewing is constrained by cognitive resource availability. For children younger than 10 years, processing a television commercial may require more cognitive resources than they have available to allocate to the task. As a result, children may allocate all their resources to the task of processing the commercial, meaning that insufficient cognitive resources remain to actually retrieve and apply their advertising-related knowledge.

Furthermore, advertising effects, such as advertised product desire, are not only determined by cognitive responses to a message, but also by affective responses (Brown and Stayman, 1992; Nairn and Fine, 2008). Children's affective responses to advertising may play an important role in explaining advertising effectiveness, because children are, to a large extent, attending to and enjoying advertising as a form of entertainment (Derbaix and Bree, 1997; Moore and Lutz, 2000). Several content analyses have shown that commercials aimed at young children are designed to appeal to their emotions, such as fantasy, fun, and peer popularity (Buijzen and Valkenburg, 2002; Kunkel and Gantz, 1997; Roberts and Pettigrew, 2007). For the youngest children, affective responses may be a stronger predictor of advertising effects than their cognitive responses. Therefore, future research should focus on children's cognitive as well as affective responses to advertising and investigate which type of response best predicts advertising effects and how this varies by age.

Our third finding showed that for children under 10 years of age, understanding advertising's persuasive intent even increased the impact of advertising exposure on their desire for advertised products. A possible explanation for this counterintuitive finding is that children with higher levels of cognitive advertising defenses have a better developed advertising-related associative memory network. According to Lang's (2000) limited capacity model, this implies that the more children know about advertising, the easier it is to learn more about it. In other words, for children with higher levels of advertising-related knowledge, it may be easier to process the persuasive content of a commercial. Given the assumption that children younger than 10 do not yet use their cognitive defenses to think critically or generate counterarguments against advertising, this may result in stronger advertising effects (e. g., brand awareness, advertised product desire).

### *Limitations*

This was the first study that has examined the cognitive defense view explicitly and could be a starting point for future research in exploring the role of cognitive defenses. Several limitations do however deserve mention. First, it should be noted that the findings are based on correlational data. To come to definite conclusions about the causal direction of the observed relations, causal-correlational research is needed. Second, children's advertising exposure was measured by combining data on children's program viewing frequency with advertising broadcasting data. However, the fact that children have watched a program that is surrounded by many commercials does not necessarily mean that they have seen all or most of the commercials. Therefore, future research should extend this study by examining the relationship between children's cognitive defenses and their susceptibility to advertising effects in an experimental design in which advertising exposure is manipulated and desire for the advertised product is measured along with the cognitive defense variables.

### *Policy implications*

Taking these reservations into account, this study has important implications for the ongoing societal debate about children and advertising. As noted earlier, many western societies have implemented policies based on the cognitive defense view, including efforts to increase children's cognitive defenses through advertising education programs. Although earlier studies have demonstrated that advertising education can successfully stimulate cognitive defenses (Brucks et al., 1988; Donohue, Henke, and Meyer, 1983; Feshbach, Feshbach, and Cohen, 1982; Hobbs and Frost, 2003; Roberts et al., 1980), our findings suggest that these efforts do not necessarily enable children to defend themselves against advertising. This underscores the importance for policy makers to develop educational interventions based on scientific insights into children's processing of advertising and, as argued by Wright et al. (2005), the need to experimentally examine the effectiveness of such interventions.

It has been argued that cognitive advertising defenses could be effective when children are triggered to use these defenses, for instance by audiovisual cues that could activate children's stored advertising knowledge (Brucks et al., 1988; Buijzen, 2007; Roedder, 1981). However, there are many questions that remain about the effectiveness of cues in activating children's cognitive defenses in a natural context of advertising exposure. Future research might address this issue. Additional insight into the effectiveness of cues will assist policy makers in designing govern-

ment regulations requiring advertisers to insert cues that trigger children's cognitive defenses. As today's children grow up in a fundamentally commercialized media environment, it is of great theoretical and societal importance to examine whether and how cognitive advertising defenses can be successful in helping children to defend themselves against the persuasive influence of advertising.

### **Bionotes**

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### **Note**

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