

ORIGINAL ARTICLE

Think-Aloud Process Superior to Thought-Listing in Increasing Children's Critical Processing of Advertising

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This study develops and tests a model of children's critical processing of advertising. Within this model, 2 paths to reduced advertising susceptibility (i.e., attitude toward the advertised brand) were hypothesized: a cognitive path and an affective path. The secondary aim was to compare these paths for different thought verbalization processes: think-aloud and thought-listing. The model was tested on a sample of 8- to 12-year-old children (N = 163). Structural equation modeling revealed that, for children in the think-aloud group, both cognitive and affective paths were successful in reducing advertising susceptibility. However, for children in the thought-listing group, only the affective path was successful. These findings suggest that the think-aloud process increased children's motivation and ability to critically process advertising messages.

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Children's advertising susceptibility has long been the subject of academic and societal debate. Within this debate, it is generally assumed that knowledge of the intent and tactics of advertising can reduce advertising's effect on children. Accordingly, such knowledge is often seen as a defense against advertising (Brucks, Armstrong, & Goldberg, 1988; Friestad & Wright, 1994; Livingstone & Helsper, 2006; Rossiter & Robertson, 1974). However, the child and advertising literature does not provide convincing evidence that an understanding of the intent and tactics of advertising actually decreases children's susceptibility to its effects (e.g., Chernin, 2007; Mallinckrodt & Mizerski, 2007; Rozendaal, Buijzen, & Valkenburg, 2009). This lack of evidence suggests that children do not use their advertising knowledge to critically process the ads they encounter.

Although an extensive body of research has focused on the age at which children possess knowledge of the intent and tactics of advertising (see John, 1999; Kunkel Wilcox, Cantor, Palmer, Linn, & Dowrick, 2004; Rozendaal, Buijzen, & Valkenburg, 2010, 2011), insights on children's ability to *use* (i.e., retrieve and apply) this knowledge to critically process an advertising message while being exposed to it are

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still scarce. To our knowledge, only Brucks et al. (1988) have explicitly investigated this crucial skill. They examined 9- to 10-year-old children's thoughts while watching television commercials and found that children generated critical thoughts about the commercials (e.g., "This ad tricks people" and "Ads don't tell the truth") only when given a cue to retrieve their knowledge of advertising from memory. This is in line with developmental and information processing theories (John, 1999; Moses & Baldwin, 2005; Roedder, 1981) suggesting that children between the ages of 8 and 12 years are still developing the cognitive abilities to retrieve and apply previously stored knowledge spontaneously and, instead, are able to do so only when triggered by a cue.

Although the critical thoughts produced by the children in Brucks et al.'s (1988) study revealed an effort to defend against advertising's persuasive appeal, the authors did not investigate the effectiveness of these efforts in reducing children's susceptibility to advertising's effects. The aim of this study, therefore, is to establish the role of children's critical thoughts in their susceptibility to advertising effects. Specifically, we investigate whether 8- to 12-year-old children produce critical thoughts during exposure to a television advertisement and, in turn, whether these critical thoughts lead to a reduced attitude toward the advertised brand. We focus on brand attitude as an indicator of advertising susceptibility as this is considered one of the most important predictors of the behavioral outcomes of advertising exposure, such as purchase intent and consumption (see Brown & Stayman, 1992; Phelps & Hoy, 1996). By investigating the link between children's critical thoughts and advertising effects, this study provides important insights into children's ability to defend against the persuasive appeal of advertising.

The secondary aim of this study is to explore the extent to which two different thought verbalization processes (i.e., thought-listing and think-aloud) yield similar results. Thought-listing requires participants to *retrospectively* provide verbal reports of the thoughts they experienced while performing a specific task (e.g., viewing a commercial), and think-aloud requires participants to verbalize their thoughts while *simultaneously* performing the task. There are important mechanistic differences between thought-listing and think-aloud, which may affect children's critical processing of advertising. For instance, prior research in the field of child psychopathology has revealed that while children were able to engage in the thought-listing and think-aloud processes, the type and amount of thoughts produced differed for each process (Lodge, Tripp, & Harte, 2000). In addition, the methodological literature suggests that thought-listing and think-aloud can differentially affect the ongoing cognitive process, which may potentially change the outcome of the process (Ericsson & Simon, 1993; Shapiro, 1994; Van Someren, Barnard, & Sandberg, 1994). For example, Russo, Johnson, and Stephens (1989) found that participants who engaged in the think-aloud process while performing a problem-solving task (e.g., anagram) performed less accurate than participants who engaged in the thought-listing process. Therefore, in this study, we explore whether thought-listing and think-aloud differentially affect (a) the type and amount of thoughts that children report and (b) the way they process a television advertisement.

A conceptual model of children's critical processing of advertising

The primary aim of this study is to investigate the role of children's critical thoughts in reducing their susceptibility to advertising. For this purpose, we provide a conceptual model that explains how children's critical thoughts while watching television advertising may reduce their advertising susceptibility, defined as attitude toward the advertised brand. The adult persuasion literature shows that thoughts that are evoked during advertising exposure play an important role in the formation of brand attitudes. However, it has been demonstrated that ad-evoked thoughts do not influence the attitude toward the advertised brand directly, but indirectly through the attitude toward the advertisement (e.g., Batra & Ray, 1986; Brown & Stayman, 1992; Homer, 2006; MacKenzie, Lutz, & Belch, 1986; Wright, 1980). In other words, the impact of ad-evoked thoughts on brand attitude is mediated by the attitude toward the advertisement. We believe that these insights are relevant not only for explaining how thoughts that arise during advertising exposure can establish persuasion but also for understanding how these thoughts can play a role in defending against it. In this study, we therefore draw on these insights to anticipate that the critical thoughts children have while viewing television advertising will reduce their brand attitude by decreasing their attitude toward the advertisement.

In both the adult and child persuasion literature, attitude toward the ad is thought to have a cognitive component and an affective component (Burton & Lichtenstein, 1988; Celuch & Slama, 1995; D'Alessio, Laghi, & Baiocco, 2009; Derbaix & Pecheux, 2003). The cognitive component is often defined as beliefs of an advertisement and the affective component as liking of an advertisement. On the basis of this two component attitude model, we anticipate that there are two paths from children's critical thoughts to reduced brand attitudes: a cognitive path and an affective path, mediated by the cognitive and affective components of the attitude toward the ad, respectively. The model is presented in Figure 1. The cognitive path is represented by arrows 1a, 1b, and 1c, and the affective path by arrows 2a and 2b. We will elaborate on both paths below.

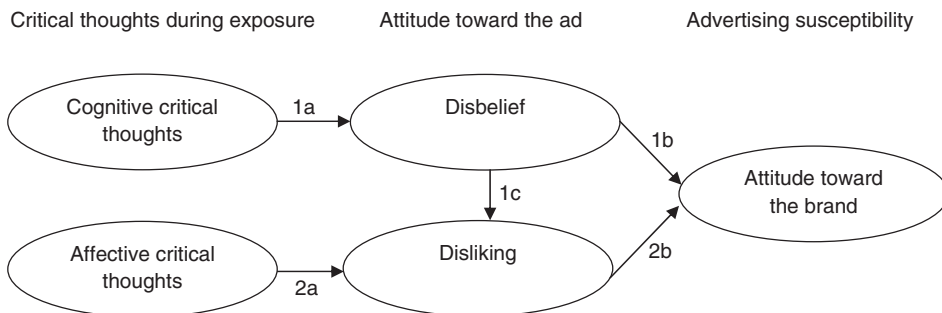


Figure 1 Conceptual model of children's critical processing of advertising.

Cognitive path to reduced advertising susceptibility

The cognitive path incorporates the impact of children's cognitive critical thoughts on their attitude toward the advertised brand. Cognitive critical thoughts include any critical thoughts occurring while processing advertising that are based on cognition. Such thoughts require children to utilize prior knowledge, in that they must retrieve pre-existing knowledge from memory and apply this to the content of the advertising message (Brucks et al., 1988; Friestad & Wright, 1994, Wright, 1973). For example, when exposed to an advertisement, children may use their advertising knowledge to construct thoughts that explicitly express an awareness and understanding of its intent and persuasive tactics (e.g., "they want children to ask their parents for this doll") or that are negative toward the advertisement (e.g., "ads don't tell the truth").

We anticipate that the path from cognitive critical thoughts to reduced brand attitude will be mediated by the cognitive component of attitude toward the advertisement, that is, the beliefs children have about an advertisement. However, because the focus of our model is to explain how critical thoughts can inhibit the ad-induced formation of brand attitude rather than enhance it (as is the case in the persuasion literature), we use the opposite construct of belief to conceptualize the cognitive component of ad attitude. That is, in our model the cognitive component of attitude toward the ad is conceptualized as children's disbelief of the advertisement. We hypothesize:

- H1: Cognitive critical thoughts lead to increased disbelief of the advertisement (path 1a), which in turn decreases the attitude toward the advertised brand (path 1b).

Affective path to reduced advertising susceptibility

The affective path includes the impact of children's affective critical thoughts on their attitude toward the advertised brand. Affective critical thoughts include thoughts occurring while processing advertising that express negative effect toward the advertisement, the advertised product or brand, or toward advertising in general. Typical examples include "yuck!," "this is stupid!," and "I don't like this" (Brucks et al., 1981; Jacks & Cameron, 2003; Zuwerink & Devine, 1996). We anticipate that the path from affective critical thoughts to brand attitudes will be mediated by the affective component of attitude toward the advertisement, that is, children's liking of an advertisement (D'Alessio, Laghi, & Baiocco, 2009; Derbaix & Pecheux, 2003). Because the focus of our model is on inhibiting rather than enhancing the formation of brand attitudes, we use the opposite construct of liking to conceptualize the affective component of ad attitude. That is, in our model, the affective component of attitude toward the ad is conceptualized as children's disliking of the advertisement. We hypothesize:

- H2: Affective critical thoughts lead to increased disliking of the advertisement (path 2a), which in turn decreases the attitude toward the advertised brand (path 2b).

Finally, the child persuasion literature shows that children who disbelieve the advertisement will like it less (Buijzen, 2007). Therefore, we hypothesize:

H3: Disbelief of the advertisement leads to increased disliking of the advertisement (path 1c).

Comparing thought verbalization processes

The secondary aim of this study is to compare two different thought-verbalization processes (i.e., thought-listing and think-aloud). *Thought-listing* (e.g., Cacioppo & Petty, 1981; Ericsson & Simon, 1993; Shapiro, 1994; Wright, 1973) requires participants to retrospectively provide verbal or written reports of the thoughts they experienced during advertising exposure. An important disadvantage of thought-listing is that it may be difficult for individuals to accurately remember the thoughts experienced while performing a task (e.g., processing a television advertisement). Retrospection implies that information must be retrieved from long-term memory and then verbalized, which may be particularly difficult for 8- to 12-year-old children. As a consequence, children may fail to report thoughts they had while viewing the advertisement or may report false memories, whereby thoughts that did *not* actually appear are retrieved as if they did (Van Someren et al., 1994).

In the *think-aloud*, thought verbalization process (e.g., Ericsson & Simon, 1993; Genest & Turk, 1981; Shapiro, 1994) participants are asked to verbalize their thoughts while simultaneously performing a specific task. Compared to thought-listing, this technique has the advantage of providing an ongoing record of thoughts and thus reduces potential memory bias. However, because think-aloud is a concurrent technique, it may interfere with the ongoing cognitive process (e.g., processing a commercial). That is, prompting participants to report what they are thinking may introduce additional cues in working memory. This may lead to the retrieval of information from long-term memory (which otherwise would remain inactive) which may push current information out of working memory, disturbing and potentially changing the process (Van Someren et al., 1994).

In conclusion, there are important mechanistic differences between the thought-listing and think-aloud processes that may influence (a) the type and amount of the thoughts that children report and (b) the way they process an advertisement, which, in turn, may lead to different outcomes. Prior research in the field of child psychopathology revealed that think-aloud yielded more thoughts than thought-listing (Lodge et al., 2000). More specifically, it was found that think-aloud may increase children's access to their thoughts, resulting in a greater number of thoughts. On the basis of this earlier literature, we hypothesize:

H4: Think-aloud elicits more cognitive and affective critical thoughts than thought-listing.

In addition, it is suggested that think-aloud affects the ongoing cognitive process thereby potentially changing the outcome of that process (Ericsson & Simon, 1993; Shapiro, 1994; Van Someren et al., 1994). For this study, this would imply that instructions to encourage children to think-aloud while viewing an advertisement may function as a cue to increase their motivation and ability to allocate greater

cognitive resources to the three subprocesses involved in advertising processing (cf., Buijzen, Van Reijmersdal, & Owen, 2010; Lang, 2000): (1) *encoding* the advertisement into working memory (i.e., the part of the brain where currently active information resides), (2) *retrieval* of relevant information (e.g., knowledge of advertising's intent and persuasive tactics) from long-term memory into working memory, and (3) *application* of retrieved information to the encoded content of the advertisement, resulting in new associations between concepts, which are then stored in long-term memory.

This cueing effect may particularly apply to children between the ages of 8 and 12 years. Developmental and information processing theories suggest that children in this age group are still developing the cognitive abilities to retrieve and apply previously stored knowledge spontaneously, and that they are able to do so only when triggered by a cue (John, 1999; Moses & Baldwin, 2005; Roedder, 1981). This assumption was confirmed by Brucks et al. (1988) who found that 9- to 10-year-old children only generated critical thoughts while watching television commercials when given a cue to retrieve their advertising knowledge from memory. On the basis of these insights, we expect that prompts to think-aloud can function as a cue that triggers children's critical processing of an advertisement. Therefore, we will investigate the potentially moderating role of thought verbalization process (i.e., thought-listing vs. think-aloud) in the relation between children's critical thoughts and their advertised brand attitude as specified in our conceptual model. We hypothesize:

H5: Thought verbalization process moderates the relation between cognitive and affective critical thoughts and the attitude toward the advertised brand, such that the relation will be stronger for children in the think-aloud than in the thought-listing group.

Method

Participants

A total of 163 children between the ages of 8 and 12 participated in the study (8–9 years: $n = 81$; 11–12 years: $n = 82$). The children were recruited from six elementary schools in different urban and suburban areas in the Netherlands. In previous Dutch studies, this recruitment procedure has been shown to result in a varied sample in terms of socioeconomic and cultural backgrounds (Buijzen, Schuurman, & Bomhof, 2008; Buijzen & Valkenburg, 2003). The sample consisted of 82 boys (50%) and 81 girls (50%).

Materials

We compiled a short video filming including a fragment of the Dutch teen television series *Spangas*, followed by a program–commercial separator, a television commercial for a doll named *Baby Sofie*, and a commercial for *Lays* chips. The television series *Spangas* was selected because it targets children in the age of 9–13 years, which corresponds with the age group under investigation in this study, and is very popular

among both boys and girls. The program is about a group of secondary school students and how they deal with bullying, falling in love, and “surviving” school. To render the viewing situation as natural as possible, we included a program-commercial separator that is typically used on the television channel broadcasting *Spangas*. However, given the limited cognitive resources and attention span in children, we used a short program length time to maintain their attention throughout the entire research session which took about 30 minutes. The program fragment was 40 seconds in length, the program-commercial separator was 7 seconds, and the commercials were 20 seconds each.

In this study, we focused on children's reactions toward the commercial for *Lays*, which means that all variables were only measured for this commercial. We selected this commercial as our stimulus commercial for four reasons: (a) potato chips are a product category that is frequently advertised on children's television channels, (b) children's involvement with the advertised product category is relatively high (i.e., most children like potato chips), (c) the commercial was gender neutral, and (d) the commercial targeted children in the age group under investigation. The *Lays* commercial was videotaped from a children's television channel (i.e., Nickelodeon) and showed a boy and a girl in a fantasy landscape having a good time playing with the freebies (the so-called *flippos*) that could be found in the *Lays* chips bags. The commercial ended with the two children holding *Lays* chips bags in their hands.

Before viewing the *Lays* commercial, children were shown a *Baby Sofie* commercial. We selected this commercial for two reasons: (a) dolls are a product category that is frequently advertised on children's television channels and (b) we expected this commercial to easily evoke thoughts among both boys (because they think it is girlish) and girls (because they are involved with the product category) so they would become used to accessing their thoughts before they being exposed to the stimulus commercial (i.e., *Lays* commercial). Because showing a female-targeted commercial before the *Lays* commercial may potentially cause gender differences in children's reactions to the latter commercial, we included gender as a between-subject factor in our analyses.

Procedure

Before data collection, institutional approval and parental and child informed consent were obtained. Children were informed that the study was about television and advertising, and that they could stop participating at any time. None of the children refused to participate. Children were randomly assigned to one of two thought-verbalization process groups: think-aloud ($n = 82$) or thought-listing ($n = 81$) and were interviewed individually in a quiet room in their school by a female interviewer. The groups did not differ by grade, $\chi^2(1, N = 163) = 0.01, p = .94$. However, they did differ by gender $\chi^2(1, N = 163) = 3.83, p < .05$, with the think-aloud group containing more boys ($n = 48$) than girls ($n = 34$) and the thought-listing group more girls ($n = 47$) than boys ($n = 34$).

Instructions were identical for the think-aloud and thought-listing group except for the timing of thought verbalization. In both groups, the exact same wording was used, we only varied the verb tense ("What were you thinking" for thought-listing vs. "What are you thinking?" for think-aloud). Therefore, any differences in the results can only be attributed to the cueing during advertising exposure.

Think-aloud

At the beginning of the session, the interviewer informed the children that she was very interested in their thoughts when they are watching television. The children then engaged in a short task to familiarize themselves with the process of think-aloud (Eveland & Dunwoody, 2000; Lodge et al., 2000). Subsequently, they were shown the video compilation on the interviewer's notebook. Before viewing, the interviewer instructed the children to report aloud everything that they were thinking while watching the entire video compilation. Children who remained silent for 5 seconds during viewing were given a standard prompt: "What are you thinking right now?" (cf., Lodge et al., 2000).

Thought-listing

Similar to the think-aloud procedure, the interviewer began the session by informing the children that she was very interested in their thoughts when they are watching television. The children then engaged in a short task to familiarize themselves with the process of thought-listing (Eveland & Dunwoody, 2001; Lodge et al., 2000). Subsequently, they were exposed to the video compilation on the interviewer's notebook. Before viewing, the interviewer instructed the children that after watching the entire video compilation they would be asked to report everything that they were thinking while watching the video. Following viewing, the children were asked: "Can you tell me everything you were thinking while you were watching the video?" Standard prompts were provided if the children failed to respond within 5 seconds ("Were you thinking anything?" If the child gave an affirmative answer the interviewer asked "What were you thinking?" Lodge et al., 2000).

Immediately following the think-aloud or thought-listing interview, all children were asked to complete a questionnaire in which several questions were asked about the *Lays* commercial. These questions established the children's disbelief and disliking of the commercial and their attitude toward the brand. All children were given a small present for their participation.

Coding of thoughts

Initially, we grouped children's verbalizations into segments representing "thoughts" by defining meaningful units (cf. Blackwell, Galassi, Galassi, & Watson, 1985; Lodge et al., 2000; Van Someren et al., 1994). Meaningful units refer to verbalizations containing one line of reasoning, one specific argument, or statement. Then, we developed a coding scheme that could be used to categorize these thoughts. On the basis of earlier studies (e.g., Brucks et al., 1988; Zuwerink & Devine, 1996), four

initial coding dimensions were developed. The four dimensions were (a) relevance of thought (i.e., relevant or irrelevant), (b) origin of thought (i.e., message-originated or recipient-generated), (c) nature of thought (i.e., cognitive or affective), and (d) polarity of thought (i.e., positive, negative, or neutral). In addition, to assess children's explicit use of their knowledge of advertising's intent and persuasive tactics a fifth coding dimension was added (e) advertising understanding (i.e., understanding or no understanding). Categories within each coding dimension were mutually exclusive. Only statements that were relevant and recipient-generated were further coded for analysis. The 163 children produced 268 relevant thoughts while viewing the *Lays* chips commercial. Of these thoughts, 218 (81.3%) were classified as recipient-generated. Definitions of the categories and examples of statements within each coding dimension can be found in Table 1.

All thoughts were coded by two independent judges and intercoder reliability was calculated using Cohen's Kappa (1960). Kappas indicated substantial intercoder agreement (Landis & Koch, 1977) as follows: 0.68 for relevance of thought, 0.77 for origin of thought, 0.80 for nature of thought, 0.74 for polarity of thought, and 0.67 for advertising understanding. A third judge coded independently all thoughts on which the first two judges disagreed, and discrepancies were resolved via three-way discussion.

Measures

Cognitive critical thoughts

Following earlier work on cognitive responses (e.g., Brucks et al., 1981; Jacks & Cameron, 2003; Shapiro, 1994; Zuwerink & Devine, 1996), a measure for cognitive critical thoughts was created by totaling all negative cognitive thoughts (i.e., cognitive thoughts that were negative in polarity plus thoughts that expressed an understanding of advertising) and then subtracting all positive cognitive thoughts. On average, the children produced a total of 0.22 negative cognitive thoughts (range = 0–3; $SD = 0.61$). The children did not produce any positive cognitive thoughts. This resulted in an averaged total of 0.22 *cognitive critical thoughts* (range = 0–3; $SD = 0.61$). Note that a positive value indicates that children on average produced more negative than positive cognitive thoughts. Mean numbers of cognitive critical thoughts are reported in Table 2.

Affective critical thoughts

The affective critical thoughts measure was created by totaling all relevant, recipient-generated, negative affective thoughts and subtracting all relevant, recipient-generated, positive affective thoughts (Zuwerink & Devine, 1996). On average, the children produced a total of 0.30 negative affective thoughts (range = 0–4; $SD = 0.62$) and 0.20 positive affective thoughts (range = 0–2; $SD = 0.52$). This resulted in an averaged total of 0.10 *affective critical thoughts* (range = –2 to 4; $SD = 0.84$). Again, a positive value indicates that children on average produced more negative than positive affective thoughts. Mean numbers of affective critical thoughts are reported in Table 2.

Table 1 Definitions and Examples of Coding Categories

Category	Definition/Example
Relevance of thought	
Relevant	Thoughts related to the commercial, product class, advertised product/brand, or advertising in general (e.g., "I like potato chips").
Irrelevant	Thoughts unrelated to the commercial, product class, advertised product/brand, or advertising in general (e.g., "My sister is very sweet").
Origin of thought	
Message-originated	Restatement or paraphrase of verbal or pictorial content of the commercial. Little or no use of prior knowledge (e.g., "A boy and girl are playing together").
Recipient-generated	Reactions to, qualifications of, or illustrations of the content of the commercial. Uses some memory of the commercial and/or prior knowledge (e.g., "Those kids look a bit silly").
Nature of thought	
Cognitive	Thoughts that express pertinent beliefs about the commercial, product class, advertised product/brand, or advertising in general (e.g., "Potato chips are unhealthy").
Affective	Thoughts that express pure affect toward the product, ad, communicator, or other relevant object or issue (e.g., "Stupid!").
Polarity of thought	
Positive	Favorable thoughts (e.g., "I like this commercial").
Negative	Unfavorable thoughts (e.g., "I do not like this commercial").
Neutral	Thoughts that are neither favorable nor unfavorable (e.g., "Now a commercial comes on").
Advertising understanding	
Understanding	Thoughts that explicitly express an understanding of advertising's intent and/or persuasive tactics used (e.g., "They want kids to ask their parents to buy potato chips for them").
No understanding	Thoughts that do not explicitly express an understanding of advertising's intent and/or persuasive tactics used (e.g., "I always feel annoyed when a commercial comes on").

Disbelief of the commercial

To measure disbelief of the *Lays* chips commercial, Obermiller and Spangenberg's (1998) ad skepticism scale was adapted for use with children. The scale contained seven items reflecting children's tendency toward disbelief in advertising (e.g., Do you think the *Lays* chips commercial tells the truth?; Do you think you can believe the *Lays* chips commercial?). Response options were 1 (*no, certainly not*), 2 (*no, I don't think so*), 3 (*yes, I think so*), and 4 (*yes, for sure*). A total scale for disbelief was

Table 2 Distribution of the Mean Number of Cognitive and Affective Critical Thoughts

Number of Critical Thoughts	Think-Aloud		Thought-Listing	
	Frequency	%	Frequency	%
Cognitive critical thoughts				
0	67	82	73	90
1	8	10	5	6
2	6	7	1	1
3	1	1	2	3
Affective critical thoughts				
-2	6	7	1	1
-1	5	6	9	11
0	49	60	58	72
1	15	18	13	16
2	5	6	0	0
3	1	1	0	0
4	1	1	0	0

Note: Both the cognitive and the affective critical thoughts measures were created by totaling all negative thoughts and subtracting all positive thoughts. Note that a positive value indicates that children on average produced more negative than positive thoughts and vice versa.

constructed by reversing and then averaging the scores on the seven items ($\alpha = 0.77$; range = 1–4; $M = 2.73$, $SD = 0.47$).

Disliking of the commercial

To measure disliking of the commercial, children were asked to indicate on a 4-point scale how much they liked the *Lays* commercial (i.e., Do you like the *Lays* commercial?; Do you think the *Lays* commercial is funny?; Do you think the *Lays* commercial is boring?; Do you think the *Lays* commercial is beautiful?; Do you think the *Lays* commercial is stupid?) using five items based on Derbaix and Pecheux's (2003) and D'Alessio et al.'s (2009) attitude toward television advertising scales. These scales are particularly suited to and validated with children aged 8–12 years. Response options were 1 (*no, not at all*), 2 (*no, not really*), 3 (*yes, a little bit*), and 4 (*yes, very much*). A total scale was constructed by reversing and then averaging the scores on the five items ($\alpha = 0.85$; range = 1–4; $M = 2.68$, $SD = 0.70$).

Attitude toward the brand

To measure brand attitude, children were asked to indicate on a 4-point scale how much they liked *Lays* chips (e.g., Do you like *Lays* chips?; Do you think *Lays* chips are great?), using six items based on Pecheux and Derbaix's (1999) brand attitude scale. This scale is particularly suited to and validated with children aged 8–12. Response options were 1 (*no, not at all*), 2 (*no, not really*), 3 (*yes, a little bit*), and 4 (*yes, very much*). A total scale was constructed by averaging scores on the six items ($\alpha = 0.71$; range = 1–4; $M = 2.49$, $SD = 0.48$).

Results

Multivariate analysis of variance

Before testing the conceptual model, we first explored whether two different thought verbalization processes affected children’s cognitive and affective critical thoughts as hypothesized in H4. If this hypothesis was confirmed, this would imply that we should incorporate thought verbalization process as a predictor in the model to be tested in the structural equation analysis. Therefore, we conducted a multivariate analysis of variance (general linear model, GLM) with thought verbalization process as between-subject factor (thought-listing vs. think-aloud) and cognitive critical thoughts, affective critical thoughts, disbelief, disliking, and attitude toward the brand as the dependent variables. In addition, we also included gender and age (8–9 and 11–12 years olds) as between-subject factors. Results of the GLM analysis are included in Table 3.

We found no main effects for thought verbalization on either cognitive critical thoughts, $F(1, 163) = 1.96, p = .16, \eta^2 = 0.01$, or affective critical thoughts, $F(1, 163) = 2.32, p = .13, \eta^2 = 0.01$; therefore, H4 was rejected and we did not include thought verbalization process as a predictor in the structural equation modeling analyses. However, the GLM analysis did yield a main effect for thought-verbalization process on disbelief, $F(1, 163) = 5.19, p < .05, \eta^2 = 0.03$, disliking, $F(1, 163) = 12.76, p < .001, \eta^2 = 0.08$, and attitude toward the brand,

Table 3 Multivariate Effects for Thought Verbalization Process and Age

	Thought Verbalization Process		<i>F</i> (1, 163)	η^2
	Thought-Listing (<i>n</i> = 81) <i>M</i> (<i>SD</i>)	Think-Aloud (<i>n</i> = 82) <i>M</i> (<i>SD</i>)		
Cognitive critical thoughts	0.16 (0.56)	0.28 (0.65)	1.96	0.01
Affective critical thoughts	0.02 (.57)	0.18 (1.03)	2.32	0.01
Disbelief	2.17 (0.48)	2.35 (0.44)	5.19*	0.03
Disliking	2.52 (0.64)	2.85 (0.72)	12.76***	0.08
Attitude toward the brand	2.59 (0.44)	2.39 (0.50)	8.69**	0.05

	Age		<i>F</i> (1, 163)	η^2
	8–9 years (<i>n</i> = 81) <i>M</i> (<i>SD</i>)	11–12 years (<i>n</i> = 82) <i>M</i> (<i>SD</i>)		
Cognitive critical thoughts	0.09 (0.36)	0.35 (0.76)	10.01***	0.06
Affective critical thoughts	–0.15 (0.78)	0.35 (0.82)	14.88**	0.09
Disbelief	2.20 (0.44)	2.32 (0.49)	3.13	0.02
Disliking	2.33 (0.58)	3.02 (0.63)	56.28***	0.27
Attitude toward the brand	2.47 (0.48)	2.51 (0.49)	0.23	<0.01

* $p < .05$. ** $p < .01$. *** $p < .001$.

$F(1, 163) = 8.69, p < .01, \eta^2 = 0.05$. This may imply that the thought verbalization process influences the relation between cognitive and affective thoughts and the attitude toward the advertised brand (H5). This pattern was further tested in the structural equation analysis.

The GLM analysis yielded no main effects of gender on any of the dependent variables. For age, a main effect was found on cognitive critical thoughts, $F(1, 163) = 5.19, p < .05, \eta^2 = 0.032$, affective critical thoughts, $F(1, 163) = 5.19, p < .05, \eta^2 = 0.032$, and disliking, $F(1, 163) = 5.19, p < .05, \eta^2 = 0.032$. Therefore, we controlled for age differences in the main analyses. Finally, the multivariate analysis of variance did not yield any interaction effect between thought verbalization process, gender, and age.

In sum, on the basis of the results of the GLM analysis, for the structural equation modeling analyses testing the conceptual model, we decided (a) not to include thought verbalization process as a predictor of cognitive and affective critical thoughts, (b) to test for the moderating effect of thought verbalization process, and (c) to test for age differences.

Structural equation modeling analyses

The hypothesized paths between children's cognitive and affective critical thoughts and their brand attitude were investigated using the structural equation modeling program AMOS 17 (Arbuckle, 2008). The structural equation analysis was based on two independent variables (cognitive critical thoughts and affective critical thoughts), two mediating variables (disbelief and disliking), and one dependent variable (attitude toward the advertised brand). To investigate our hypotheses, we proceeded in three steps. First, we tested the conceptual model as depicted in Figure 1 (H1, H2, and H3). Second, we investigated the moderating influence of thought verbalization process on the relationship between cognitive and affective critical thoughts and attitude toward the advertised brand by testing whether the overall model would differ for children in the thought-listing and think-aloud groups (H5). And third, we tested for age differences. To indicate the fit between the data and the specified model, three model fit indices were used: the χ^2 -test, the comparative fit index (CFI), and the root mean square error of approximation index (RMSEA). A good model fit is indicated by a non-significant χ^2 , a CFI value of 0.95 or more, and an RMSEA value of 0.05 or less, with p -close $> .05$. Further, CFI values between 0.90 and 0.95 and RMSEA values between 0.05 and 0.08 indicate acceptable model fit (Browne & Cudeck, 1992; Byrne, 2001).

Testing the conceptual model

The conceptual model fits the data well, $\chi^2(4, N = 163) = 8.57, p = .07$; CFI = 0.95; RMSEA = 0.08 with p -close .19. The observed model is presented in Figure 2. All five causal paths specified in the conceptual model were found to be statistically significant; indicating that H1, H2, and H3 could be accepted. These five paths represented the relations between (a) cognitive critical thoughts and disbelief ($\beta = 0.23, B = 0.18, SE = 0.06, p < .01$), (b) affective critical thoughts and disliking ($\beta = 0.34, B = 0.28,$

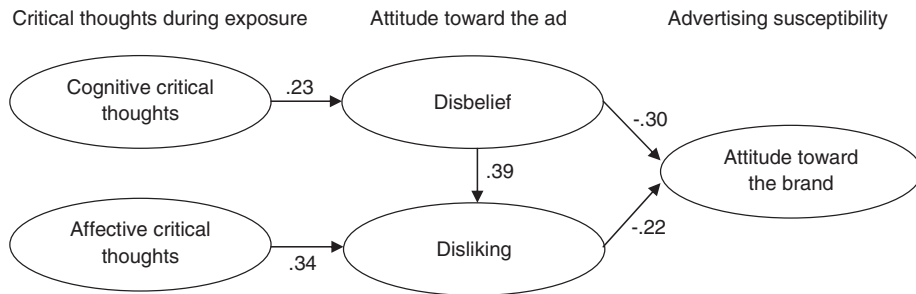


Figure 2 Structural equation model of children's critical processing of advertising. Coefficients represent standardized beta weights, all significant at least at $p < .01$.

$SE = 0.06$, $p < .001$), (c) disbelief and disliking ($\beta = 0.39$, $B = 0.56$, $SE = 0.10$, $p < .001$), (d) disbelief and brand attitude ($\beta = -0.30$, $B = -0.30$, $SE = 0.08$, $p < .001$), and (e) disliking and brand attitude ($\beta = -0.22$, $B = -0.15$, $SE = 0.05$, $p < .01$). The model explained 19% of the variance in brand attitude.

Testing the moderating effect of thought verbalization process

To investigate whether the paths to reduced advertising susceptibility differed according to the thought verbalization process (think-aloud vs. thought-listing), a multigroup analysis was conducted (Byrne, 2001). Evidence for differences between two groups is found when the unconstrained model (i.e., parameters are free to differ across both groups) demonstrates a better fit than the constrained model (i.e., parameters are equal across both groups). A chi-square difference test checks for significant differences between the two models. Our chi-square difference test, $\chi^2_{\text{change}}(5, N = 163) = 10.26$, $p = .06$, revealed that the unconstrained model, $\chi^2(8, N = 163) = 7.13$, $p = .52$; CFI = 1.00; RMSEA = 0.00 with p -close .76, provided a better fit than the constrained model, $\chi^2(13, N = 163) = 17.39$, $p = .18$; CFI = 0.946; RMSEA = 0.05 with p -close .50. This suggests that the model did not fit children in the thought-listing and think-aloud groups equally well.

To ascertain which structural paths differed for the two groups, we analyzed the invariance of each structural path separately, while retaining the specified equality constraints of previously established invariant parameters (i.e., the measurement weights; Byrne, 2001). Two structural paths differed significantly between the groups: (a) the path from cognitive critical thoughts to disbelief and (b) the path from disbelief to brand attitude, $\chi^2_{\text{change}}(2, N = 163) = 9.54$, $p < .01$. The observed models for think-aloud and thought-listing are presented in Figure 3. For children in the think-aloud group, cognitive critical thoughts increased their disbelief of the commercial ($\beta = 0.38$, $B = 0.26$, $SE = 0.07$, $z = 3.713$, $p < .001$) which, in turn, decreased their brand attitude ($\beta = -0.43$, $B = -0.48$, $SE = 0.11$, $z = -4.420$, $p < .001$). However, for children in the thought-listing group, cognitive critical thoughts had no impact on their disbelief of the commercial ($\beta = 0.03$, $B = 0.02$, $SE = 0.10$, $z = 0.245$, ns). Moreover, disbelief did not decrease significantly their brand attitude ($\beta = -0.14$,

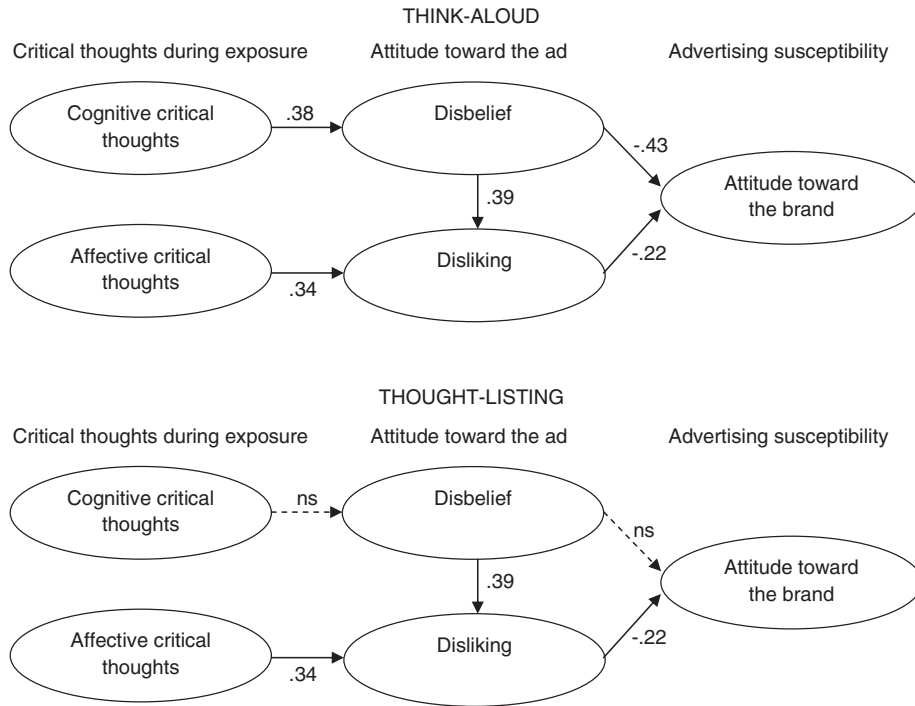


Figure 3 Structural equation model of the moderating effect of thought verbalization process (think-aloud and thought-listing) on children's critical processing of advertising. Coefficients represent standardized beta weights, all significant at least at $p < .01$.

$B = -0.13$, $SE = 0.10$, $z = -1.290$, ns). This indicates that thought verbalization process only has a moderating effect on the cognitive path in our model. Therefore, H5 could be partially accepted.

Testing for age differences

To investigate whether our model held for younger (8–9 years) and older (11–12 years) children, we performed a multigroup analysis with age as the grouping variable. A chi-square difference test, $\chi^2_{\text{change}}(5, N = 163) = 2.70$, $p = \text{ns}$, revealed that the unconstrained model, $\chi^2(8, N = 163) = 8.92$, $p = .35$; CFI = 0.99; RMSEA = 0.03 with p -close .62, did not provide a better fit than the constrained model, $\chi^2(13, N = 163) = 11.62$, $p = .56$; CFI = 1.00; RMSEA = 0.00 with p -close .84. This indicates that the model found for the whole sample applied to younger as well as older children.

Discussion

The aim of this study was to examine how 8- to 12-year-old children's critical thoughts during exposure to television advertising can reduce their susceptibility to

advertising's effects. We developed and tested a model explaining how cognitive and affective critical thoughts reduce children's attitude toward the advertised brand, by enhancing disbelief and disliking of the commercial. In addition, we compared the paths to reduced advertising susceptibility for two thought verbalization processes: think-aloud and thought-listing.

Our findings showed that the think-aloud and thought-listing processes did not vary in the number of cognitive and affective critical thoughts children produced. However, the two thought verbalization processes did differ in their effectiveness in reducing children's susceptibility to advertising. Specifically, for children in the think-aloud group both the cognitive and affective paths were successful in reducing susceptibility. This means that children's cognitive critical thoughts increased their disbelief of the commercial, which, in turn, reduced their attitude toward the advertised brand (i.e., cognitive path). Additionally, children's affective critical thoughts reduced their liking of the commercial, which, in turn, reduced their attitude toward the advertised brand (i.e., affective path). However, for children in the thought-listing group, the affective path only turned out to be effective. This indicates that, in accordance with our expectations, each thought verbalization process differentially affected children's processing of the commercial.

Role of cueing in cognitive critical processing mechanisms

An important finding of our study is that the cognitive path was only successful in reducing advertising susceptibility for children in the think-aloud group. An explanation for this finding is that prompting children to think-aloud while viewing the commercial may have functioned as a cue to increase their motivation and ability to allocate greater cognitive resources to the three subprocesses involved in advertising processing (cf., Buijzen et al., 2010; Lang, 2000; Roedder, 1981). Initially, prompting the children to think-aloud while watching the commercial may have increased their motivation to allocate more cognitive resources to *encoding* the commercial into working memory (Subprocess 1). In other words, the prompts may have lowered children's transportation into the commercial and, at the same time, stimulated their active and critical processing of its content. Likewise, prompts to think-aloud may have also increased children's ability to allocate more resources to *retrieval* of previously stored relevant knowledge (i.e., knowledge of advertising's intent and tactics) from long-term memory (Subprocess 2). In addition, the prompts may have increased the resources available for children to *apply* their retrieved knowledge to the commercial (Subprocess 3). That is, the prompts may have increased the children's ability to critically evaluate the content of the commercial in light of their retrieved knowledge of advertising's intent and tactics (i.e., produce cognitive critical thoughts). In turn, this may have resulted in new associations about the commercial (i.e., disbelief of the message) and the advertised brand (i.e., less favorable brand attitudes) which were then stored in long-term memory.

Although our results did indicate that children in the thought-listing group produced cognitive critical thoughts while watching the commercial, these thoughts

were not effective in reducing their advertising susceptibility. A possible explanation for this finding is that these children did not allocate sufficient cognitive resources to all three subprocesses involved in advertising processing. They may have had enough resources available to encode the commercial and to retrieve their advertising knowledge from memory (Subprocesses 1 and 2), but may have failed to successfully apply this retrieved knowledge to the content of the commercial. Thus, no new (less favorable) associations about the commercial and advertised brand were formed and stored in long-term memory (Subprocess 3). On the basis of this explanation, we could conclude that compared to thought-listing, the think-aloud process stimulated children to allocate more cognitive resources to the third subprocess (i.e., application). In other words, although the children were able to autonomously retrieve their previously stored knowledge of advertising's intent and tactics during commercial exposure, they were unable to successfully apply this retrieved knowledge as a critical defense unless triggered by a cue (i.e., prompted to think-aloud).

However, this conclusion should be interpreted with caution as an alternative explanation could be that children in the thought-listing group reported false memories (i.e., thoughts that did *not* actually appear while watching the commercial were retrieved as if they did). One disadvantage of the thought-listing process is that providing retrospective reports may be difficult for 8- to 12-year-old children. The children may have struggled to recollect their thoughts while viewing the commercial and reported their thoughts at the moment of questioning instead (i.e., *post hoc* rationalization and reconstruction; Van Someren et al., 1994). The prompts to report the thoughts they had while watching the video may have functioned as a cue which triggered the children to retrieve previously stored knowledge from memory (i.e., advertising knowledge and commercial information), which was then used to construct their responses. This may have given the false impression that children in the thought-listing group constructed as many critical thoughts as did children in the think-aloud group.

Following this logic, we could conclude that compared to thought-listing, think-aloud stimulated children to allocate more cognitive resources to the second (i.e., retrieval) and third subprocesses (i.e., application) involved in advertising processing. This suggests that the children were unable to retrieve and apply their knowledge of advertising's intent and tactics as a critical defense during advertising exposure, unless they were triggered by a cue (i.e., prompted to think-aloud). However, further research is needed to come to decisive conclusions.

Importance of affective critical processing mechanisms

A final and particularly relevant finding of our study is that the affective path was effective in reducing advertising susceptibility not only for children in the think-aloud group but also for children in the thought-listing group. One explanation for this is that children are less dependent upon information processing capacities (i.e., available cognitive resources) for affective critical thoughts to become a successful defense, as they may operate via less cognitively demanding mechanisms. That is, affective

critical thoughts generated during commercial processing are typically transferred automatically to the advertised brand in the absence of thoughtful consideration of the commercial content (i.e., affect transfer; MacKenzie & Lutz, 1989, Schwarz & Clore, 1983). From this, we can conclude that children engage in affective critical processing of television advertising even when their motivation and ability to process the message elaborately is relatively low.

This is an important finding because in naturalistic viewing environments, children are less likely to process television advertising on a high elaborate level and more likely to process the message on a less elaborate level. That is, instead of actively attending to and processing the things they see and hear in a television commercial, they engage in more mindless viewing behavior (Salomon, 1984). The findings of our study indicate that, under these circumstances, affective critical processing mechanisms (e.g., negative affect, disliking) can play a vital role in shaping how children respond to persuasive appeals.

Limitations

Several limitations of this study should be taken into account. First, it should be noted that the findings are based on only one stimulus (i.e., the *Lays* commercial) which may raise concerns about the external validity of the study (Wells & Windschitl, 1999). Therefore, there is a need to replicate this study across a range of different television commercials. Second, we did not include a control group in this study. It, therefore, remains unclear how children would feel about the advertised brand if they did not participate in any thought verbalization process. To fully understand and predict how different thought verbalization processes may affect children's processing of advertising and their susceptibility to its effects, future research should extend our study by systematically comparing the impact of the think-aloud and thought-listing processes with a control group in which no thought verbalization occurs.

Implications and suggestions for future research

Taken these limitations into account, this study yielded important insights on children's advertising susceptibility. We investigated children's critical thoughts while processing a television commercial and found that the effectiveness of cognitive and affective mechanisms in reducing susceptibility varied according to the thought-verbalization process children engaged in. We can thus conclude that the two thought-verbalization processes differentially affected the way the children processed the advertising message, with only the think-aloud process stimulating children's level of cognitive processing.

This finding has important methodological implications for future research investigating children's processing of advertising specifically, and also media more generally. When using think-aloud or thought-listing as a method of measuring children's thoughts during advertising or media exposure, one must account for the possible differences in the validity of the data that these methods produce. On the one hand, thought-listing may provide invalid data due to memory errors. It may be

difficult for children to accurately recollect their thoughts while viewing a commercial, which may lead to both incomplete and false reports. On the other hand, think-aloud may produce invalid data due to disturbances in cognitive processing. Our results indicated that prompting children to verbalize their thoughts while viewing a commercial increased their cognitive processing of the commercial. Although this disturbance effect turned out to be highly interesting for this study, further research should explore how we can measure accurately the thoughts children have during media exposure without influencing cognitive processing.

Our findings have important implications for the ongoing societal debate about children and advertising. In many Western societies, public and political attention is drawn increasingly toward methods of reducing children's advertising susceptibility, such as education programs aimed at increasing advertising knowledge and consumer skills. Earlier studies have demonstrated that such programs can successfully stimulate children's knowledge of advertising's intent and persuasive tactics (Brucks et al., 1988; Donohue, Henke, & Meyer, 1983; Feshbach, Feshbach, & Cohen, 1982; Hobbs & Frost, 2003; Roberts, Christenson, Gibson, Mooser, & Goldberg, 1980). However, research investigating the link between advertising knowledge and advertising's effects suggest that increased advertising knowledge does not necessarily enable children to defend themselves against advertising (for an overview see Rozendaal, Lapierre, Van Reijmersdal, & Buijzen, 2011).

It has been argued that knowledge of advertising's intent and persuasive tactics may be effective in reducing advertising susceptibility when children are triggered to utilize this knowledge (Brucks et al., 1988; Buijzen, 2007; Roedder, 1981). For instance, Buijzen (2007) found that children's intention to ask for the advertised products in television commercials was reduced when they were provided with fact-based comments during exposure. The present study showed that even a noninstructive intervention effectively reduced children's advertising susceptibility. This is in line with studies on media violence that showed that interventions aimed to reduce children's willingness to use aggression are only successful when the children participate in an activity that increases their level of cognitive processing (Byrne, 2009; Huesmann, Eron, Klein, Brice, & Fisher, 1983). This is of interest to parents and other caretakers who can provide comments about advertising while watching television with children (Boush, 2001; Buijzen & Valkenburg, 2005; Buijzen, Rozendaal, Moorman, & Tanis, 2008). Specifically, to help children defend against advertising, parents could encourage them to think about what they see and hear while watching television commercials.

Finally, our study showed that affective mechanisms can successfully reduce children's advertising susceptibility even when they are not motivated or able to process a commercial thoroughly (e.g., because of limited cognitive abilities). Therefore, one of the most important implications of this study is that interventions aimed at reducing children's advertising susceptibility should focus not only on stimulating cognitive defenses but also on increasing affective advertising defenses. For instance, education programs could explicitly question advertising's entertainment

value in order to install less favorable advertising attitudes. Prior studies on the effectiveness of media literacy interventions also indicate that such interventions are more successful when they are evaluative in nature (Byrne, 2009). Increasingly, many Western societies are encouraging the development of advertising intervention programs as a strategy to counteract advertising's influence. It is thus of great societal and political importance to understand what types of interventions (in terms of form and content) may be most beneficial in helping children to defend themselves against the persuasive appeal of advertising.

References

- Arbuckle, J. L. (2008). *Amos 17.0 [Computer software]*. Chicago, IL: SmallWaters.
- Batra, R., & Ray, M. (1986). Affective responses mediating acceptance of advertising. *Journal of Consumer Research*, *13*, 234–249.
- Blackwell, R. T., Galassi, J. P., Galassi, M. D., & Watson, T. E. (1985). Are cognitive assessment methods equal? A comparison of think aloud and thought listing. *Cognitive Therapy and Research*, *9*, 399–413.
- Boush, D. M. (2001). Mediating advertising effects. In J. Bryant, & J. A. Bryant (Eds.), *Television and the American family* (2nd ed., pp. 397–412). Mahwah, NJ: Erlbaum.
- Brown, S. P., & Stayman, D. M. (1992). Antecedents and consequences of attitude toward the ad: A meta-analysis. *Journal of Consumer Research*, *19*, 34–51.
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research*, *21*, 230–258.
- Brucks, M., Armstrong, G. M., & Goldberg, M. E. (1988). Children's use of cognitive defenses against television advertising: A cognitive response approach. *Journal of Consumer Research*, *14*, 471–482.
- Buijzen, M. (2007). Reducing children's susceptibility to commercials: Mechanisms of factual and evaluative advertising interventions. *Media Psychology*, *9*, 411–430.
- Buijzen, M., Rozendaal, E., Moorman, M., & Tanis, M. (2008). Parent vs. child reports of parental advertising mediation: Exploring the meaning of agreement. *Journal of Broadcasting & Electronic Media*, *52*, 509–525.
- Buijzen, M., Schuurman, J., & Bomhof, E. (2008). Associations between children's television advertising exposure and their food consumption patterns: A household diary-survey study. *Appetite*, *50*, 231–239.
- Buijzen, M., & Valkenburg, P. M. (2003). The unintended effects of advertising: A parent-child survey. *Communication Research*, *30*, 483–503.
- Buijzen, M., & Valkenburg, P. M. (2005). Parental mediation of undesired advertising effects. *Journal of Broadcasting and Electronic Media*, *49*, 153–164.
- Buijzen, M., Van Reijmersdal, E. A., & Owen, L. H. (2010). Introducing the PCMC model: An investigative framework for young people's processing of commercial media content. *Communication Theory*, *20*, 427–450.
- Burton, S., & Lichtenstein, D. R. (1988). The effect of ad claims and ad context on attitude toward the advertisement. *Journal of Advertising*, *17*, 3–11.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Erlbaum.

- Byrne, S. (2009). Media literacy interventions: What makes them boom or boomerang? *Communication Education*, *58*, 1–14.
- Cacioppo, J. T., & Petty, R. (1981). Social psychological procedures for cognitive response assessment: The thought-listing technique. In T. V. Merluzzi, C. R. Glass, & M. Genest (Eds.), *Cognitive assessment*. New York: Guilford Press.
- Celuch, K. G., & Slama, M. (1995). Cognitive and affective components of Aad in a low motivation processing set. *Psychology & Marketing*, *12*, 45–55.
- Chernin, A. (2007). The relationship between children's knowledge of persuasive intent and persuasion: The case of televised food marketing. PhD Dissertation, University of Pennsylvania (UMI Publication No. AAT 3292015).
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, *20*, 37–46.
- D'Alessio, M., Laghi, F., & Baiocco, R. (2009). Attitudes toward TV advertising: A measure for children. *Journal of Applied Developmental Psychology*, *30*, 409–418.
- Derbaix, C., & Pecheux, C. (2003). A new scale to assess children's attitude toward TV advertising. *Journal of Advertising Research*, *43*, 390–399.
- Donohue, T. R., Henke, L. L., & Meyer, T. P. (1983). Learning about television commercials: The impact of instructional units on children's perceptions of motive and intent. *Journal of Broadcasting*, *27*, 251–261.
- Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis: Verbal reports as data (revised ed.)*. Cambridge, MA: MIT Press.
- Eveland, W. P., & Dunwoody, S. (2000). User control and structural isomorphism or disorientation and cognitive load? Learning from the web versus print. *Communication Research*, *28*, 48–78.
- Feshbach, S., Feshbach, N. D., & Cohen, S. E. (1982). Enhancing children's discrimination in response to television advertising: The effects of psychoeducational training in two elementary school-age groups. *Developmental Review*, *2*, 385–403.
- Friestad, P. M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research*, *21*, 1–31.
- Genest, M., & Turk, D. C. (1981). Think-aloud approaches to cognitive assessment. In T. V. Merluzzi, C. R. Glass, & M. Genest (Eds.), *Cognitive assessment*. New York: Guilford.
- Huesmann, L. R., Eron, L. D., Klein, R., Brice, P., & Fisher, P. (1983). Mitigating the imitation of aggressive behaviors by changing children's attitudes about media violence. *Journal of Personality and Social Psychology*, *44*, 899–910.
- Hobbs, R., & Frost, R. (2003). Measuring the acquisition of media-literacy skills. *Reading Research Quarterly*, *38*, 330–355.
- Homer, P. M. (2006). Relationships among ad-induced affect, beliefs, and attitudes. *Journal of Advertising*, *35*, 35–51.
- Jacks, J. Z., & Cameron, K. A. (2003). Strategies for resisting persuasion. *Basic and Applied Social Psychology*, *25*, 145–161.
- John, D. R. (1999). Consumer socialization of children: A retrospective look at twenty-five years of research. *Journal of Consumer Research*, *26*, 183–213.
- Kunkel, D., Wilcox, B. L., Cantor, J., Palmer, E., Linn, S., & Dowrick, P. (2004). *Report of the APA task force on advertising and children*. Retrieved August 23, 2005, from the American Psychological Association Website: <http://www.apa.org/releases/childrenads.pdf>.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, *33*, 159–174.

- Lang, A. (2000). The limited capacity model of mediated message processing. *Journal of Communication*, *50*(1), 46–70.
- Livingstone, S., & Helsper, E. J. (2006). Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked research literatures in relation to obesity and food choice. *Journal of Communication*, *56*, 560–584.
- Lodge, J., Tripp, G., & Harte, D. K. (2000). Think-aloud, thought-listing, and video-mediated recall procedures in the assessment of children's self-talk. *Cognitive Therapy and Research*, *24*, 399–418.
- MacKenzie, S. B., & Lutz, R. J. (1989). An empirical examination of the structural antecedents of attitude toward the ad in an advertising pretest context. *Journal of Marketing*, *53*, 48–65.
- MacKenzie, S. B., Lutz, R. J., & Belch, G. E. (1986). The role of attitude toward the ad as a mediator of advertising effectiveness: A test of competing explanations. *Journal of Marketing Research*, *23*, 130–143.
- Mallinckrodt, V., & Mizerski, D. (2007). The effects of playing an advergame on young children's perceptions, preferences, and requests. *Journal of Advertising*, *36*, 87–100.
- Moses, L. J., & Baldwin, D. A. (2005). What can the study of cognitive development reveal about children's ability to appreciate and cope with advertising? *Journal of Public Policy & Marketing*, *24*, 186–201.
- Obermiller, C., & Spangenberg, E. (1998). Development of a scale to measure consumer skepticism toward advertising. *Journal of Consumer Psychology*, *7*, 159–186.
- Pecheux, C., & Derbaix, C. (1999). Children and attitude toward the brand: A new measurement scale. *Journal of Advertising Research*, *39*, 19–27.
- Phelps, J. E., & Hoy, M. G. (1996). The Aad-Ab-PI relationship in children: The impact of brand familiarity and measurement timing. *Psychology & Marketing*, *13*, 77–105.
- Roberts, D. F., Christenson, P., Gibson, W. A., Mooser, L., & Goldberg, M. E. (1980). Developing discriminating consumers. *Journal of Communication*, 94–105.
- Roedder, D. L. (1981). Age differences in children's responses to television advertising: An information-processing approach. *Journal of Consumer Research*, *8*, 144–153.
- Rossiter, J. R., & Robertson, T. S. (1974). Children's TV commercials: Testing the defenses. *Journal of Communication*, *24*, 137–144.
- Rozendaal, E., Buijzen, M., & Valkenburg, P. M. (2009). Do children's cognitive defenses reduce their desire for advertised products? *Communications: The European Journal of Communication Research*, *34*, 287–303.
- Rozendaal, E., Buijzen, M., & Valkenburg, P. M. (2010). Comparing children's and adults' cognitive advertising competences in the Netherlands. *Journal of Children and Media*, *4*, 77–89.
- Rozendaal, E., Buijzen, M., & Valkenburg, P. M. (2011). Children's understanding of advertisers' persuasive tactics. *International Journal of Advertising*, *30*(2), 329–350.
- Rozendaal, E., Lapierre, M. A., Van Reijmersdal, E. A., & Buijzen, M. (2011). Reconsidering advertising literacy as a defense against advertising effects. *Media Psychology*, *14*, 333–354.
- Russo, J. E., Johnson, E. J., & Stephens, D. L. (1989). The validity of verbal methods. *Memory and Cognition*, *17*, 759–769.
- Salomon, G. (1984). Television is "easy" and print is "tough": The differential investment of mental effort in learning as a function of perceptions and attributions. *Journal of Educational Psychology*, *76*, 647–658.

- Schwarz, N., & Clore, G. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, **45**, 523–523.
- Shapiro, M. A. (1994). Think-aloud and thought-list procedures in investigating mental processes. In A. Lang (Ed.), *Measuring psychological responses to media messages* (pp. 1–14). Hillsdale, NJ: Erlbaum.
- Van Someren, M. W., Barnard, Y. F., & Sandberg, J. A. C. (1994). *The think-aloud method: A practical guide to modeling cognitive processes*. London: Academic Press.
- Wells, G. L., & Windschitl, P. D. (1999). Stimulus sampling and social psychological experimentation. *Personality and Social Psychology Bulletin*, **25**, 1115–1125.
- Wright, P. L. (1973). The cognitive processes mediating the acceptance of advertising. *Journal of Marketing Research*, **10**, 53–62.
- Wright, P. L. (1980). Message-evoked thoughts: Persuasion research using thought verbalizations. *Journal of Consumer Research*, **7**, 151–175.
- Zuwerink, J. R., & Devine, P. G. (1996). Attitude importance and resistance to persuasion: It's not just the thought that counts. *Journal of Personality and Social Psychology*, **70**, 931–944.

有声思考过程比思想罗列法更能够增加儿童对广告的批判性认知

【摘要：】

本研究旨在发展和测试一个儿童对广告的批判性处理的模型。在该模型中，我们假设了两条路径——认知和情感路径，来减少广告的易感性（即品牌态度）。我们通过两种不同的思想表达过程（即有声思考和思想罗列）对这两条路径进行比较。对 8-12 岁儿童（N= 163）进行的结构方程模型测试显示，对有声思考过程组中的儿童，认知和情感的路径都成功地减少广告的易感性。但是，对思想罗列组的儿童，只有情感路径有效。这些结果表明说出思想过程能够增加儿童批判性处理广告的动力和能力。

Il est mieux de penser à voix haute que de lister ses pensées pour accentuer le traitement critique de la publicité chez les enfants

L'objectif de cette étude était de développer et tester un modèle du traitement critique de la publicité chez les enfants. Dans ce modèle, deux chemins vers une réduction de la susceptibilité à la publicité (c.-à-d. l'attitude envers les marques) ont été supposés : un chemin cognitif et un chemin affectif. Ces chemins ont été comparés dans le cadre de deux différents processus de verbalisation de la pensée (penser à voix haute ou lister ses pensées). Le modèle a été testé auprès d'un échantillon d'enfants de 8 à 12 ans (N = 163). Une modélisation par équation structurelle a révélé que, pour les enfants du groupe « penser à voix haute », tant le chemin cognitif que le chemin affectif réussissaient à réduire la susceptibilité à la publicité. Toutefois, chez les enfants du groupe « lister ses pensées », seul le chemin affectif était efficace. Ces résultats suggèrent que penser à voix haute augmente la motivation des enfants et leur capacité à traiter la publicité d'un œil critique.

Mots clés : enfants, persuasion, traitement de la publicité, connaissances de la publicité, verbalisation de la pensée

Überlegenheit der Methode des Lauten Denkens gegenüber Thought-Listing hinsichtlich der Verbesserung der kritischen Verarbeitung von Werbung durch Kinder

Ziel der Studie war es, ein Modell zu entwickeln und zu testen, dass die kritische Verarbeitung von Werbung durch Kinder beschreibt. In diesem Modell werden zwei Pfade zur Reduktion der Empfänglichkeit für Werbung (z.B. Einstellung zur Werbung) postuliert: ein kognitiver und ein affektiver Pfad. Diese beiden Pfade werden hinsichtlich zweier verschiedener Gedankenverbalisierungsprozesse (Lautes Denken und Thought-Listing) verglichen. Das Modell wurde an einer Stichprobe von 8-12-Jährigen Kindern (N=163) getestet. Strukturgleichungsmodelle zeigten, dass für Kinder in der Gruppe des Lauten Denkens beide Pfade, sowohl der kognitive als auch der affektive Pfad, erfolgreich die Empfänglichkeit für Werbung reduzieren konnte. Für Kinder in der Thought-Listing-Gruppe war nur der affektive Pfad effektiv. Diese Ergebnisse deuten darauf hin, dass der Prozess des Lauten Denkens die Motivation und Fähigkeit der Kinder erhöht, Werbung kritisch zu verarbeiten.

Schlüsselbegriffe: Kinder, Persuasion, Verarbeitung von Werbung, Werbewissen, Verbalisierung von Gedanken

어린이들의 광고의 비판적 과정을 증가시키는데 있어 생각하면서 듣기보다 생각하면서 소리내기 과정의 우수성에 관한 연구

본 연구의 목적은 어린이들의 광고의 비판적 과정의 모델을 발전시키고 테스트하는데 있다. 이러한 모델내에서, 광고의 감수적 요인을 저하시키는 두가지 요소들이 가정되었는데, 그들은 인지적 그리고 정서적 경로이다. 이러한 경로들은 두가지 사고-소리화 과정 (사고하면서 소리내기와 생각하면서 듣기)을 위해 비교되었다. 본 모델은 8-12학년 학생 163명을 대상으로 실시되었다. 구조 방정식 모형은 생각하면서 소리내기 집단의 어린이들에게서는 인지적 그리고 정서적 경로들이 광고의 감수성을 감소시키는데 있어 성공적인 것으로 나타났다. 그러나 생각하면서 듣기 집단에서의 어린이들에게는 정서적 요소만이 효과적이었다. 이러한 발견들은 생각하면서 소리내는 과정이 광고를 비판적으로 보는데 있어 어린이들의 동기와 능력을 발전시킨다는 것을 보여주는 것이라고 할 수 있다.

El Proceso de Pensar en Voz Alta es Superior al Listado de Pensamiento en Incrementar el Procesamiento Crítico de la Publicidad en los Niños

El objeto de este estudio fue desarrollar y poner a prueba un modelo de procesamiento crítico de la publicidad en los niños. Dentro de este modelo, dos caminos para reducir la susceptibilidad a la publicidad (a saber, la actitud hacia las marcas) fueron hipotetizados: un sendero cognitivo y otro afectivo. Estos senderos fueron comparados con dos procesos de verbalización diferente (a saber, el pensar en voz alta y el listado de pensamiento). Este modelo fue puesto a prueba con una muestra de niños entre 8 a 12 años de edad (N = 163). El modelaje de la ecuación estructural reveló que, para los niños en el grupo de los que piensan en voz alta, ambos senderos el cognitivo y el afectivo fueron exitosos en la reducción de la susceptibilidad hacia la publicidad. No obstante, para los niños en el grupo de listado de pensamiento, el camino afectivo fue solamente efectivo. Estos hallazgos sugieren que el proceso de pensar en voz alta incrementó la motivación de los niños y la habilidad para procesar críticamente la publicidad.

Palabras Claves: niños, persuasión, procesamiento de publicidad, conocimiento de la publicidad, pensamiento-verbalización