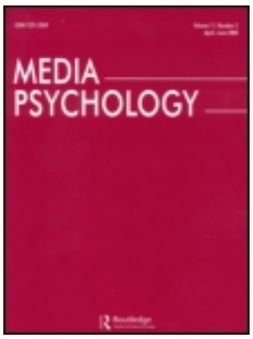

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Esther Rozendaal, Suzanna J. Opree & Moniek Buijzen

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Development and Validation of a Survey Instrument to Measure Children's Advertising Literacy

ESTHER ROZENDAAL
Behavioural Science Institute, Radboud University Nijmegen, Nijmegen, The Netherlands

SUZANNA J. OPREE
Amsterdam School of Communication Research, University of Amsterdam, Amsterdam, The Netherlands

MONIEK BUIJZEN
Behavioural Science Institute, Radboud University Nijmegen, Nijmegen, The Netherlands

The aim of this study was to develop and validate a survey measurement instrument for children's advertising literacy. Based on the multidimensional conceptualization of advertising literacy by Rozendaal, Lapierre, Van Reijmersdal, and Buijzen (2011), 39 items were created to measure two dimensions of advertising literacy (i.e., conceptual and attitudinal advertising literacy) and their 9 underlying components (i.e., recognition of advertising, understanding selling intent, recognition of advertising's source, perception of intended audience, understanding persuasive intent, understanding persuasive tactics, understanding advertising's bias, skepticism toward advertising, and disliking of advertising). The survey was administered to 1,026 8- to 12-year-olds in the first wave and 519 in the second wave. Structural equation modeling revealed that the Advertising Literacy Scale for children consists of two separate and unrelated subscales: the Conceptual Advertising Literacy Scale (CALS-c) and the Attitudinal Advertising Literacy Scale for children (AALS-c). Both scales performed well in terms of test–retest reliability and construct validity. In addition to the full-length scale, shortened versions were created. Specific directions for future advertising literacy research are discussed as well.

Address correspondence to Esther Rozendaal, Behavioural Science Institute, Radboud University Nijmegen, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands. E-mail: e.rozendaal@maw.ru.nl

Children today are faced with a media environment that has become increasingly saturated by advertising (Buijzen, van Reijmersdal, & Owen, 2010; Calvert, 2008; Schor, 2005). The commercial world offers them important opportunities in terms of entertainment, education, and cultural experience, but there are also significant concerns about the undesired consequences for their well-being, including materialistic attitudes and unhealthy eating behaviors (Moore, 2007). In addition, child advocates and scholars have long expressed concerns about the appropriateness and fairness of advertising targeted at children. The primary concern is that children, until they reach adolescence, are less able to view advertising in a critical light and, therefore, are more susceptible to its persuasive influence (see Kunkel et al., 2004). The long-held reasoning behind this notion is that children's advertising literacy (i.e., advertising-related skills, such as understanding advertising's commercial intent) has yet to fully mature.

Although there is a growing body of research investigating the development of children's advertising literacy and its role in their susceptibility to advertising, the results are far from unequivocal. For instance, empirical studies focusing on the development of advertising literacy have yielded inconsistent results regarding the age at which children understand the intent of advertising (cf. Rozendaal, Buijzen, & Valkenburg, 2010). Moreover, survey and experimental studies investigating the relationship between children's advertising literacy and their susceptibility to advertising effects have produced mixed results as well (for an overview, see Rozendaal, Lapierre, van Reijmersdal, & Buijzen, 2011). Some studies found a negative relationship between understanding advertising's intent and advertised product desire (Robertson & Rossiter, 1974), whereas other studies did not yield an empirical relationship (Chernin, 2007; Mallinckrodt & Mizerski, 2007; Ross et al., 1984). These inconsistencies might lie in the fact that these studies have used different conceptual and operational definitions of advertising literacy. In order to investigate these matters accurately, a uniform definition and good measurement instrument for children's advertising literacy is crucial.

The aim of this study is, therefore, to develop a reliable and valid instrument to measure children's advertising literacy. The basis for this scale is the multidimensional conceptualization of advertising literacy recently introduced in this journal by Rozendaal, Lapierre, et al. (2011). In their review of research on children's advertising literacy, Rozendaal, Lapierre, et al. (2011) observed that existing conceptualizations of advertising literacy primarily entail conceptual knowledge of advertising (i.e., the ability to recognize and understand advertising messages). However, based on insights from persuasion processing theories (Eagly & Chaiken, 1993; Meyers-Levy & Malaviya, 1999; Petty & Cacioppo, 1996), they argued that because most contemporary advertising appeals to children on an affective level, children are expected to primarily process advertising under conditions of low elaboration (see Buijzen et al., 2010; Harris, Brownell, & Bargh, 2009; Nairn

& Fine, 2008). Consequently, children are unlikely to use their conceptual knowledge of advertising to critically evaluate the advertisements with which they are confronted . Moreover, Rozendaal, Lapierre, et al. stated that insights on psychological development suggest that children's ability to use their conceptual advertising knowledge as a critical defense will be further limited by their immature cognitive abilities (see John, 1999; Moses & Baldwin, 2005; Roedder, 1981).

Based on this line of reasoning, Rozendaal, Lapierre, et al. (2011) stressed the need to extend the prevailing one-dimensional conceptualization of advertising literacy (i.e., conceptual knowledge of advertising, which is referred to as *conceptual advertising literacy*) with two extra dimensions: *attitudinal advertising literacy*, which includes low-effort, attitudinal mechanisms that can function as a defense under conditions of low elaboration, and *advertising literacy performance*, which takes into account the actual use of conceptual advertising knowledge when confronted with advertising. Hence, Rozendaal, Lapierre, et al. proposed a new three-dimensional conceptualization of advertising literacy, with each dimension including several components.

The first dimension, conceptual advertising literacy (i.e., the ability to recognize and understand advertising messages), entails seven components that were based on several existing conceptualizations of advertising literacy (for an overview, see Wright, Friestad, & Boush, 2005). Although these conceptual models nearly all focus on different types of knowledge, they all assume that conceptual advertising literacy develops from very simple to more complex and abstract types of knowledge:

1) recognition of advertising—differentiating advertising from other media content like television programs and editorial Web content;
2) understanding selling intent—understanding that advertising tries to sell products;
3) recognition of advertising's source—understanding who pays for advertising messages;
4) perception of intended audience—understanding the concept of audience targeting and segmentation;
5) understanding persuasive intent—understanding that advertising attempts to influence consumers' behavior by changing their mental states, for instance, their attitudes and cognitions about a product;
6) understanding persuasive tactics—understanding that advertisers use specific tactics to change consumers' attitudes, cognitions, and behaviors; and
7) understanding of advertising's bias—being aware of discrepancies between the advertised and the actual product.

The second dimension, attitudinal advertising literacy (i.e., having a critical attitude toward advertising), consists of two components (D'Alessio, Laghi, & Baiocco, 2009; Derbaix & Pecheux, 2003):

8) skepticism toward advertising—the tendency toward disbelief of advertising; and
9) disliking of advertising—a general negative attitude toward advertising.

Finally, the third dimension, advertising literacy performance (i.e., the ability to actually use the conceptual advertising knowledge when confronted with advertising), comprises two components (Brucks, Armstrong, & Goldberg, 1988; Rozendaal, Buijzen, & Valkenburg, 2012):

10) retrieval of advertising literacy—the ability to retrieve relevant advertising-related knowledge from memory while processing an advertising message; and
11) application of advertising literacy—the ability to apply advertising-related knowledge to an advertising message while processing the message.

DEVELOPMENT OF THE ADVERTISING LITERACY SCALE FOR CHILDREN (ALS-C)

In the present study, the theoretical conceptualization of Rozendaal, Lapierre, et al. (2011) is used to develop and validate a survey measurement instrument for children's advertising literacy. The aim is to create a scale that can be used to measure the concept of advertising literacy as a whole or one or more of its underlying dimensions and components separately. Although all three dimensions are equally important, the scale will focus on the conceptual and attitudinal dimension only. We choose to do so because these dimensions differ from the performance dimension in that they vary in level of abstraction. Specifically, conceptual and attitudinal advertising literacy are general concepts that entail a general understanding of and attitude toward advertising, while advertising literacy performance is a more specific concept that includes the retrieval and application of general conceptual and attitudinal advertising literacy to a specific advertising message.

Although surveys are suitable for measuring the conceptual and attitudinal dimension of advertising literacy, we consider them less appropriate for measuring the more specific concept of advertising literacy performance. In order to measure the ability to retrieve and apply general advertising knowledge and attitudes while processing an advertising message other measurement techniques, such as thought verbalization (e.g., think aloud and thought listing), are required (Rozendaal et al., 2012). Despite its failure to measure the concept directly, however, the scale provided in this study can be of great value for research on advertising literacy performance. For such research, insight into children's levels of conceptual and attitudinal advertising literacy is crucial because these levels may function as important moderating variables in this process. After all, children will only be able to

activate and apply their conceptual and attitudinal advertising literacy to a specific advertising message once they have acquired a certain level of that literacy.

Thus, the scale to be developed, which we refer to as the Advertising Literacy Scale for children (ALS-c), contains two dimensions (i.e., conceptual and attitudinal advertising literacy) which together include nine underlying components (as itemized in the preceding paragraphs). The ALS-c targets children aged 8 to 12 years because it is generally assumed that children in this age group undergo important developmental changes in sociocognitive and information processing capabilities that positively affect the development of advertising literacy (Buijzen et al., 2010; John, 1999; Moses & Baldwin, 2005; Roedder, 1981).

Developmental theories (e.g., Piaget, 1929; Selman, 1980; Wellman, 1990) indicate that around the age of 8, children become increasingly more capable of perspective taking and contingent thought. It is around this age that children develop a basic understanding of advertising's selling intent and critical advertising attitudes (e.g., Robertson & Rossiter, 1974; Rozendaal et al., 2010; Wilson & Weiss, 1992). Around the age of 10, children become capable of abstract thought and reasoning and acquire an understanding of second-order mental states (e.g., the insight that advertisers attempt to change one's mental state). It is not before children enter this phase that they develop an understanding of the persuasive nature of advertising (e.g., understanding of advertising's persuasive intent and bias; e.g., Carter, Patterson, Donovan, Ewing, & Roberts, 2011; Oates, Blades, & Gunter, 2002; Rozendaal, Buijzen, & Valkenburg, 2011).

Early studies investigating 8- to 12-year-old children's advertising literacy have done so simply by asking them why commercials are shown on television (e.g., Butter, Popovich, Stackhouse, & Garner, 1981; Donohue, Meyer, & Henke, 1978; Robertson & 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 (Gunter, 1981; Macklin, 1983). Taking into account 8 to 12 year olds' language and memory retrieval capabilities, we, therefore, develop a self-administered survey instrument in which participants can choose from a number of predefined response options. This task is cognitively less demanding for children (Rozendaal et al., 2010).

Validation of the ALS-c

To test whether the nine advertising literacy components indeed measure the dimensions of conceptual and attitudinal advertising literacy, we created a 39-item version of the ALS-c. To validate the ALS-c, we will test its assumed structure using structural equation modeling (see Figure 1). If the model depicted in Figure 1 has a good fit to the data, the number of items per

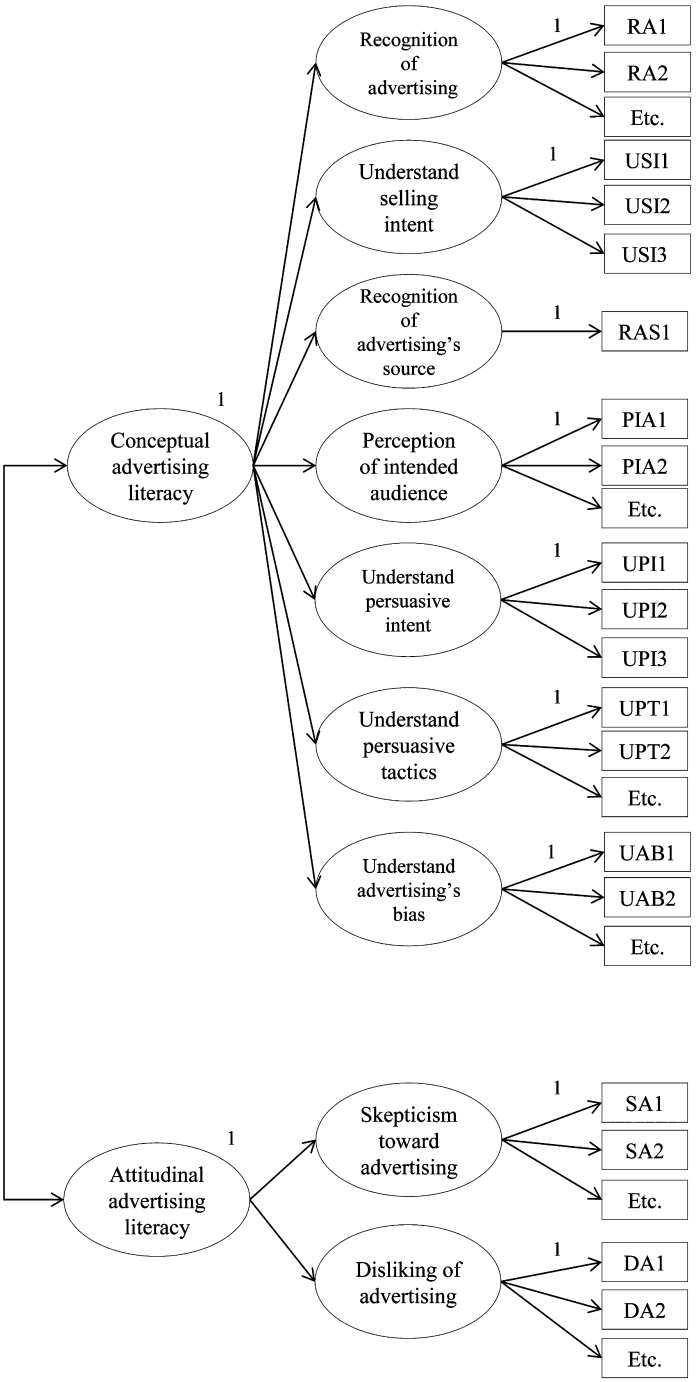

FIGURE 1 Conceptual model. The left and middle show the latent variables for the second-order constructs and first-order factors, respectively. The right shows the manifest indicators (items are listed in Table A1 in the Appendix).

component may be reduced (Noar, 2003). This is preferable when working with children because they have a limited attention span. Fewer items will reduce the response burden on children. Therefore, we also test two reduced versions: one with 25 items and one with 17 items. These scales, respectively, include three items and two items per dimension, with the exception of recognition of advertising's source which is measured with one item. We will assess the test–retest reliability and construct validity of the three different versions of the ALS-c. These analyses need to indicate whether or not the full-length and the shortened versions of the ALS-c are reliable and valid measures for children's advertising literacy.

The test–retest reliability of a scale refers to its precision in measuring respondents' scores over time. High test–retest reliability indicates low variability and, thus, high precision. The construct validity of a scale refers to the degree to which the scale actually measures the construct that it is intended to measure (DeVellis, 2003; Noar, 2003). The three different versions of the ALS-c should be correlated to each other, as well as to other variables known to be related to advertising literacy. In this case, we estimated the correlations between the three versions of the ALS-c with the following four variables: age, active parental advertising mediation, advertised product desire, and advertising resistance strategies.

Age is expected to relate positively to the conceptual and attitudinal dimensions of advertising literacy. As indicated earlier, the changes children undergo in cognitive and social maturation are thought to explain many of the changes observed in their advertising literacy as they grow older (Buijzen et al., 2010; John, 1999; Moses & Baldwin, 2005; Roedder, 1981). Most studies on advertising literacy have been inspired by developmental theories such as Piaget's (1929) theory of cognitive development, although other theoretical approaches such as Selman's (1980) framework of social perspective taking, and the theory of mind paradigm (see Moses & Baldwin 2005; Wellman, 1990) have been used as well. In general, all these approaches identify a positive effect of age on the development of children's advertising literacy.

Active parental advertising mediation, which includes making deliberate comments and judgments about television commercials and actively explaining the nature and selling intent of advertising (Buijzen & Valkenburg, 2005), is expected to relate positively to the conceptual and attitudinal dimension of advertising literacy. Children usually watch television in a family context that is largely provided by their parents. This family context not only impacts how children use the medium, but also how literate children become as television viewers (Dorr, 1986; Gunter & Furnham, 1998). Parental mediation theory posits that parents utilize different interpersonal communication strategies in their attempts to mediate the effects of the media in their children's lives, one of them being active mediation (Clark, 2011). Previous studies have shown that parent's active mediation practices indeed increase children's

advertising literacy, including their understanding of advertising (Bijmolt, Claassen, & Brus, 1998; Wiman, 1983) and their skepticism toward it (Wiman, 1983).

Advertised product desire is expected to relate negatively to the attitudinal dimension, but not to the conceptual dimension of advertising literacy. Studies investigating the link between children's conceptual advertising literacy and their advertised product desire did not provide strong evidence in support of such a relationship (for an overview, see Rozendaal, Lapierre, et al., 2011). An explanation for this is that, due to the affect-based nature of contemporary advertising (Page & Brewster, 2007, 2009; Wicks, Warren, Fosu, & Wicks, 2009) and their immature sociocognitive skills (see Moses & Baldwin, 2005), children primarily process advertising on a low elaborative and affective level. Persuasion processing theories (Eagly & Chaiken, 1993; Meyers-Levy & Malaviya, 1999; Petty & Cacioppo, 1996) suggest that as a consequence children are unlikely to activate and use their conceptual advertising knowledge to critically evaluate an advertisement and the advertised product (see Buijzen et al., 2010; Harris et al., 2009; Nairn & Fine, 2008).

On the other hand, we expect attitudinal advertising literacy to be related with advertised product desire, because it includes low-effort, attitudinal mechanisms that can function as a defense under conditions of low elaboration (Rozendaal, Lapierre, et al., 2011). More specifically, general critical attitudes toward advertising (e.g., skepticism and disliking of advertising) can automatically generate negative affect when processing a specific advertisement which, in turn, is transferred to the advertisement and advertised brand or product (Lutz, 1985; McKenzie & Lutz, 1989; Zuwerink & Devine, 1996).

Finally, we expect resistance strategies to relate positively to the attitudinal dimension of advertising literacy, but—again—not to its cognitive dimension. Although the persuasion knowledge model of Friestad and Wright (1994) suggests that people who have a better understanding of advertising's intent and persuasive tactics will engage in certain strategies to resist influence attempts, we expect once again that due to advertising's affective nature and children's immature cognitive abilities, children will process advertising messages under conditions of low elaboration and, consequently, conceptual advertising knowledge will remain inactivated and resistance strategies will not be triggered (see Buijzen et al., 2010; Harris et al., 2009; Nairn & Fine, 2008). In addition, we expect resistance strategies to relate positively to attitudinal advertising literacy, because children who hold critical attitudes toward advertising may experience more negative feelings when confronted with a specific advertisement, which may function as a cue that automatically triggers certain resistance strategies (Rozendaal et al., 2012).

In sum, to examine the construct validity of the ALS-c we tested the following hypotheses:

H1: Age is positively related to the conceptual and attitudinal dimensions of advertising literacy.
H2: Active parental advertising mediation is positively related to the conceptual and attitudinal dimension of advertising literacy.
H3: Advertised product desire is negatively related to the attitudinal dimension but not to the conceptual dimension of advertising literacy.
H4: Resistance strategies are positively related to the attitudinal dimension but not to the conceptual dimension of advertising literacy.

METHOD

Sample

The data for this study were collected by means of an online panel survey conducted by a large research company in the Netherlands. The research company contacted parents with children in the range between 8 and 12 years old. The parents were informed about the subject of the study, television and advertising, and its set-up. To measure the scale's test–retest reliability (DeVellis, 2003), each child filled out the same survey twice with a 1-month interval, once in September 2012 and once in October 2012. Anonymity was guaranteed and families could stop their participation at any time they wished. Each survey took about 15–20 minutes to complete. All parents received a link to the survey, which they could pass on to their children if they would allow them to participate.

Like their parents, all children were notified that the study would be about television and advertising and that they could stop participation at any time they wished. A total of 1,026 children between the ages of 8 and 12 participated in the first wave of the survey, 519 of whom also participated in the second wave of the survey. With structural equation modeling, the ratio between the sample size and the number of free parameters needed to be 5 to 1 (see Kenny, 2012). Because the theoretical model in Figure 1 contains 87 free parameters, we calculated that we needed at least 435 participants. We asked the research company to close the survey once a longitudinal sample of 500 was achieved (115% of the target number, *N*).

Because some of our items contain video and audio content, we made sure that the children were able to view the video content and listen to the audio content by showing them a test video. In the first wave 941 children and in the second wave 480 children gave the correct answers to questions about the video and audio content of the test video. The children who gave incorrect answers to the test questions were removed from the sample. Furthermore, for each child that filled out the survey twice, we checked whether their demographics matched over time. If the demographics did not match, the child was removed from the sample because this could indicate

that a sibling filled out one of the surveys instead. Our final sample consisted of 905 children for the first wave (52.8% boys; $M_{age} = 9.97$, $SD = 1.30$) and 439 children for the second wave (54.7% boys; $M_{age} = 10.00$, $SD = 1.33$).

Measures

ALS-c. Our full-length ALS-c consisted of 39 items, which are listed in the Appendix, Table A1. Some of the items were reversed (see Table A1) so that higher scores indicate a higher level of advertising literacy. The scale included two dimensions (conceptual and attitudinal advertising literacy) and nine underlying components which are outlined below. To minimize demand and learning effects, the underlying components of the conceptual dimension of advertising literacy were measured in a predefined order starting from the most basic to the more sophisticated types of advertising knowledge (see Table 1 for the order of questioning). When using the ALS-c, it is advised to follow this order. All items were based on existing measures, primarily drawn from previous studies by Rozendaal and colleagues (Rozendaal et al., 2010; Rozendaal, Buijzen, et al., 2011; Rozendaal et al., 2012).

TABLE 1 Descriptive Statistics, Test–Retest Reliability, and Content Validity of the Conceptual Advertising Literacy Subscale for Children (CALS-c)

	21 items	16 items	11 items
A—Internal consistency			
Wave 1 ($N = 905$)			
Cronbach's alpha	.62	.61	.51
Wave 2 ($N = 439$)			
Cronbach's alpha	.72	.65	.57
B—Test–retest reliability			
Correlation across waves ($N = 439$)	.65***	.60***	.56***
C—Construct validity			
Wave 1 ($N = 905$)			
Correlation with 21-item version	1	.94***	.87***
Correlation with 16-item version	.94***	1	.93***
Correlation with 11-item version	.87***	.93***	1
Age	.09**	.07*	.05
Active parental advertising mediation	.14***	.14***	.11***
Advertised product desire	.02	.04	.04
Resistance strategies	−.03	−.02	−.03
Wave 2 ($N = 439$)			
Correlation with 21-item version	1	.94***	.89***
Correlation with 16-item version	.94***	1	.94***
Correlation with 11-item version	.89***	.94***	1
Age	.11*	.08†	.06
Active parental advertising mediation	.25***	.26***	.21***
Advertised product desire	−.02	−.02	−.05
Resistance strategies	.03	.02	−.01

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Following Rozendaal et al. (2010), recognition of advertising (RA) was measured by presenting children with three television commercials (one for candy, one for chocolate spread, and one for home loans). Both child- and adult-directed commercials were included, because children are likely to be exposed to both types of commercials while watching television in real life as well. For each commercial, the children were asked whether they thought it was an advertisement on a scale ranging from (1) *yes, for sure* to (4) *no, certainly not*. To overcome the potential problem of response bias due to yea saying, the children were also presented with three fragments of television programs (a news item, a children's program, and a cartoon program) followed by the same question. All fragments were approximately 30 seconds in length and presented in random order. The measures for understanding selling intent (USI) and understanding persuasive intent (UPI) were also based on Rozendaal and colleagues (2010) and consisted of three items each. We asked children questions like "Are commercials on television there to make you buy the advertised product?" (i.e., selling intent) and "Are commercials on television there to make you think positively (happy thoughts) about the advertised products?" (i.e., persuasive intent) on a scale ranging from (1) *yes, for sure* to (4) *no, certainly not*.

To measure recognition of advertising's source (RAS), we followed the same procedure as van Reijmersdal, Rozendaal, and Buijzen (2012). It was explained to the children that creating television commercials costs money and they were then asked who they thought had paid for the creation of television commercials. They could choose from four response options: (1) "The television network that shows the commercial"; (2) "The people who created this questionnaire"; (3) "The companies that make the products in the commercial"; (4) "The actors in the commercial"; (5) "Otherwise, namely. . . ." The third response was coded as correct.

The measure for perception of intended audience (PIA) was inspired by Mallalieu, Palan, and Laczniak (2005). Children were presented with four television commercials directed at different audiences (one directed at children only, one directed at adults only, and two directed at children and adults). For each commercial, the children were asked for whom they thought the commercial was intended. Response categories were (1) *for children only*, (2) *for adults only*, (3) *for children and adults*, (4) *neither for children nor for adults*.

The measure for understanding of advertising's persuasive tactics (UPT) was based on Rozendaal, Buijzen, et al. (2011). Following Rozendaal, Buijzen, et al., six different persuasive tactics that are frequently used in child-directed advertising (i.e., ad repetition, product demonstration, peer popularity appeal, humor, celebrity endorsement, premiums) were included. For each of the six tactics, the children were asked what effect they think advertisers wish to elicit when using the tactic in an advertisement. They could respond by choosing one out of four different types of cognitive and

affective effects (i.e., to learn about the product, to recall the advertisement, to believe the advertisement, to like the advertisement and product). For example, in response to the question "Commercials are often repeated. Why do you think that is?," children were asked to indicate which of the four effects they thought was most intended by advertisers.

In order to determine children's level of understanding of persuasive tactics, we compared children's responses to the norm for correct understanding as defined by Rozendaal, Lapierre, et al. (2011). In order to establish a definition of what a correct understanding of advertising's persuasive tactics includes, Rozendaal, Lapierre, et al. surveyed a group of advertisers of children's products about their intentions with certain tactics in television advertisements. Specifically, a total of 34 advertisers of children's products were asked to rank order several effects for each of the six tactics. Table 2 shows the mean ranking of intended cognitive and affective effects for each tactic, as perceived by the advertisers. In this study, these advertisers' views on the intended effects of advertising's persuasive tactics were used as a norm for correct understanding.

TABLE 2 Descriptive Statistics, Test–Retest Reliability, and Content Validity of the Attitudinal Advertising Literacy Subscale for Children (AALS-c)

	16 items	9 items	6 items
A—Internal consistency			
Wave 1 ($N = 905$)			
Cronbach's alpha	.86	.85	.78
Wave 2 ($N = 439$)			
Cronbach's alpha	.87	.87	.81
B—Test–retest reliability			
Correlation across waves ($N = 439$)	.71***	.71***	.54***
C—Construct validity			
Wave 1 ($N = 905$)			
Correlation with 16-item version	1	.95***	.93***
Correlation with 9-item version	.95***	1	.97***
Correlation with 6-item version	.93***	.97***	1
Age	.18***	.18***	.17***
Active parental advertising mediation	.22***	.25***	.22***
Advertised product desire	−.21***	−.19***	−.19***
Resistance strategies	.41***	.39***	.36***
Wave 2 ($N = 439$)			
Correlation with 16-item version	1	.96***	.93***
Correlation with 9-item version	.96***	1	.97***
Correlation with 6-item version	.93***	.97***	1
Age	.22***	.21***	.21***
Active parental advertising mediation	.29***	.31***	.30***
Advertised product desire	−.22***	−.20***	−.21***
Resistance strategies	.45***	.45***	.41***

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

Following Rozendaal, Lapierre, et al. (2011), we constructed a scale for understanding of advertisers' tactics by comparing children's answers with advertisers' ranking of intended effects (as presented in Table A2). We focused on the effect children believed was the most intended by advertisers (i.e., their first-ranked effect). For each tactic, a score was created varying from 1 to 4, by which a higher score reflected a better understanding of advertising tactics. If children chose the effect that was most intended by advertisers (a first-place-effect in Table A2), they scored a 4. If they chose a second-place-effect, they scored a 3, for a third-place-effect a 2, and for a fourth-place-effect (least intended effect) a 1. For example, if respondents chose "recall" as the intended effect for the use of ad repetition, their score was 4. If respondents chose "learn" their score was 3, if they chose "like" their score was 2, and if they chose "believe" their score was 1. A total mean score was computed by averaging the scores on all six tactics.

Next, inspired by Bever, Smith, Bengen, and Johnson (1975), a measure for understanding advertising's bias (UAB) was created including five items reflecting an awareness of discrepancies between the advertised and the actual product. We asked children questions like "How often do you think television commercials only tell good things about the advertised products?" and "How often do you think that what you see in television commercials is like things are in reality?" Response categories were (1) *never*, (2) *sometimes*, (3) *often*, and (4) *very often*.

Finally, the measures for skepticism toward advertising (SA) and disliking of advertising (DA) were based on Rozendaal et al. (2012) and included five and six items respectively. For example, we asked children "How often do you think television commercials tell the truth?" (i.e., skepticism toward advertising) and "How often do you think television commercials are stupid?" (i.e., disliking of advertising). The answer categories for all items were (1) *never*, (2) *sometimes*, (3) *often*, and (4) *very often*.

Active parental advertising mediation. Parental advertising mediation was measured with the 5-item scale of Buijzen and Valkenburg (2005). The answer categories for all items were (1) *never*, (2) *sometimes*, (3) *often*, and (4) *very often*. We asked children questions like how often their parents told them "that advertising depicts products as better than they really are" and "that the purpose of advertising is to sell products" (wave 1: $\alpha = .81$, range 1.00–4.00, $M = 2.41$, $SD = 0.63$; wave 2: $\alpha = .87$, range 1.00–4.00, $M = 2.38$, $SD = 0.66$; $r_{\text{wave1-wave2}} = .65$).

Advertised product desire. Following Buijzen and Valkenburg (2003) and Opree, Buijzen, van Reijmersdal, and Valkenburg (2011, 2013), we measured advertised product desire as children's desire for heavily advertised product categories. With 10 separate questions children were asked to indicate how often they longed for the following product types, when seeing an advertisement for them: toys, computer games, game consoles, shoes, mobile phones, candy, potato chips, soft drinks, hamburgers (McDonald's),

and desserts. Response categories were (1) *never*, (2) *sometimes*, (3) *often*, and (4) *very often* (wave 1: $\alpha = .84$, range 1.00–4.00, $M = 2.31$, $SD = 0.53$; wave 2: $\alpha = .86$, range 1.00–4.00, $M = 2.24$, $SD = 0.53$; $r_{\text{wave1-wave2}} = .77$).

Resistance strategies. The questions for resistance strategies were derived from the work of Jacks and Cameron (2003) who distinguished seven different strategies for persuasion: selective exposure (SE), counter arguing (CA), attitude bolstering (AB), negative affect (NA), assertions of confidence (AC), source derogation (SD), and social validation (SV). We measured each strategy with two items. We asked children what they usually do or think while viewing a television commercial. For example, we asked them how often they "ignore the commercial" (SE) and how often they had thoughts like "I don't agree with the things they say in the commercial" (CA), "my own opinion about the advertised products is more important than what they say about it in the commercial" (AB), "that commercial irritates me" (NA), "that commercial cannot change my opinion about the advertised products" (AC), "the company that has made the commercial cannot be trusted" (SD), and "other people share my opinion about this commercial" (SV). All questions had identical answer categories: (1) *never*, (2) *sometimes*, (3) *often*, and (4) *very often* (wave 1: $\alpha = .79$, range 1.00–4.00, $M = 1.98$, $SD = 0.42$; wave 2: $\alpha = .81$, range 1.00–4.00, $M = 1.96$, $SD = 0.44$; $r_{\text{wave1-wave2}} = .56$).

RESULTS

Testing the Conceptual Model

We tested the conceptual model presented in Figure 1 using structural equation modeling (AMOS 19.0). The fit of the theoretical model was evaluated using the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). Model fit is considered good when the CFI value exceeds .95 and the RMSEA value is lower than .05, and acceptable when the CFI value exceeds .90 and the RMSEA value is lower than .08 (Kline, 2005).

Model Building and Trimming

Fitting the model from Figure 1 led to a solution that was not admissible, because the variances of the disturbance terms for understanding selling intent and skepticism were negative. Because these variances were estimated to be close to zero (–.04 and –.01, respectively), they were set equal to zero in order to derive an admissible solution. An acceptable RMSEA value of .06 was obtained, yet the CFI value was only .70. Because of this low CFI value, post hoc analyses were conducted in order to re-specify the model. The modification indices were used as guidelines to decide which paths to add to the model.

Contrary to what was expected based on the theoretical conceptualization of Rozendaal, Lapierre, et al. (2011), the output suggested that the first-order construct understanding advertising bias was not an underlying construct of conceptual advertising literacy but of attitudinal advertising literacy. Modeling understanding advertising bias to be an underlying construct of attitudinal advertising literacy resulted in a drastic improvement in model fit: $\chi^2(df = 695, N = 905) = 2320.21, p < .001$, CFI = .80, RMSEA = .05. This indicates that, for children, understanding of advertising bias is an attitudinal rather than a knowledge construct.

The modification indices indicated that adding correlations between the errors of certain pairs of variables would result in an improved model fit. Adding correlated errors must be supported by a strong substantive or empirical rationale, such as a strong overlap in content between the corresponding items (Byrne, 2010). In our case, we added correlations between the errors between the following pairs of variables, because they are indicators for the same factors: SA2-SA4, DA1-DA2, DA1-DA3, DA2-DA3, UAB2-UAB3, and UAB3-UAB4 (see Table A1 in the Appendix for a full description of the abbreviated variable names). We also added correlations between the errors of USI1-UPI1, SA2-UAB2, and SA4-UAB2. Although the errors of USI1 and USP1 belong to different constructs, the content of these indicators show resemblance in that they both measure understanding of advertising intent (selling and persuasive intent respectively). The items SA2, SA4, and UAB2 may be related because they all use negative wording. Children are likely to respond differently to negatively phrased and to positively phrased questions (Borgers, 2003). With the correlations above added to the model, the CFI value became acceptable: $\chi^2(df = 686, N = 905) = 1493.75, p < .001$, CFI = .90, RMSEA = .04.

Given that model building resulted in an acceptable model fit, the final step in the post hoc analysis was to trim the model by removing any items without significant factor loadings. These were items PIA4 and UPT2. Removing these led to the following final model fit: $\chi^2(df = 613, N = 905) = 1392.78, p < .001$, CFI = .90, RMSEA = .04. The final model includes 37 items. In this model, the scores on the conceptual and attitudinal dimension of advertising literacy were only marginally positively correlated ($r = .075$ with $p = .073$). Consequently, in statistical analyses, the two dimensions of advertising literacy should be treated as two separate subscales: the Conceptual Advertising Literacy (CALS-c) and the Attitudinal Advertising Literacy (AALS-c) scale for children. The full-length CALS-c contains 21 items, the AALS-c 16 items.

Shortened Scale Versions

Based on the final model with 37 items, two shortened versions of the CALS-c and AALS-c were created. When working with children, using shorter

scales is preferable because this will lower the response burden on children (Borgers, 2003). To this end, each of the factors was shortened, except for recognition of advertising's source because this factor only had one indicator. For the remaining eight first-order factors, we, respectively, took the three and two items with the highest factor loadings. This resulted in a 16- and 11-item version of the CALS-c and a 9- and 6-item version of the AALS-c. For all these shortened versions, acceptable model fits were obtained: $\chi^2(df = 266, N = 905) = 570.63$, $p < .001$, CFI = .94, RMSEA = .04 for the model including the 16-item CALS-c and 9-item AALS-c, and $\chi^2(df = 111, N = 905) = 163.75$, $p < .001$, CFI = .98, RMSEA = .02 for model including the 11-item CALS-c and 6-item AALS-c.

Test–Retest Reliability and Construct Validity

We used IBM SPSS Statistics 19 to assess the test–retest reliability and construct validity of the two advertising literacy subscales. The means and standard deviations of the separate items are presented in Table A3. Because their possible range of values varied, the item scores were standardized in order to create the scores for the subscales. The scores for conceptual advertising literacy were computed by taking the mean score over the standardized items of the first six factors (i.e., recognition of advertising to understanding of persuasive tactics). The scores for attitudinal advertising literacy were computed by taking the mean score over the standardized items of the last three factors (i.e., understanding advertising's bias to disliking of advertising).

The A parts of Tables 1 and 2 provide the Cronbach's alphas of the three versions of the conceptual and attitudinal advertising literacy subscales. The Cronbach's alphas for the scales indicated that the 21- and 16-item versions of the CALS-c have acceptable internal consistency (i.e., $\alpha_{\text{wave1-wave2}} > .60$; Nunnally & Bernstein, 1994), however, the 11-item version was less reliable ($\alpha_{\text{wave1}} = .51$; $\alpha_{\text{wave2}} = .57$). All three versions of the AALS-c showed high internal consistency (i.e., $\alpha_{\text{wave1-wave2}} > .80$).

The test–retest reliability was assessed using Pearson correlation coefficients. The B parts of Tables 1 and 2 provide the correlation coefficients between wave 1 and wave 2 scores of the three versions of the conceptual and attitudinal advertising literacy subscales Generally, coefficients between .10 and .29 are considered small, correlations between .30 and .49 medium, and between .50 and 1.0 large in size (Cohen, 1988). The test–retest correlations for the 21-item, 16-item, and 11-item versions of the CALS-c were, respectively, .65, .60, and .56, all significant at $p < .001$. The test–retest correlations for the 16-item, 9-item, and 6-item versions of the AALS-c were, respectively, .71, .71, and .54, all significant at $p < .001$. Thus, all correlations were large in size, implying excellent test–retest reliability for all three versions of the two subscales. Both the CALS-c and the AALS-c scales yielded consistent scores over time.

Construct validity was also assessed with Pearson correlation coefficients. These are provided in the C parts of Tables 1 and 2. First, we expected to find positive correlations between scores on the three versions of the conceptual and attitudinal advertising literacy subscales. Such positive correlations were indeed found. For wave 1, the correlations between the different scale versions varied from .87 to .94 for the CALS-c and from .93 to .95 for the AALS-c. For wave 2, the correlations varied from .89 to .94 for the CALS-c and .93 to .97 for the AALS-c. All correlations were significant at $p < .001$. The strong correlations between scale versions indicate high construct validity. The three versions of the CALS-c and the AALS-c resulted in similar estimates of children's advertising literacy.

Second, we expected both conceptual and attitudinal advertising literacy to correlate positively with age and active parental advertising mediation. In addition, we expected conceptual advertising literacy to be uncorrelated and attitudinal advertising literacy to be negatively correlated to advertised product desire and positively correlated to resistance strategies. If the patterns in the data match these expectations, this indicates high construct validity. The construct validity of the 21- and 16-item versions of the CALS-c was high, because—as expected—they related positively to age and active parental mediation and did not relate to advertised product desire and resistance strategies. The construct validity of the 11-item version of the CALS-c, however, was slightly lower, because no significant correlation with age was found. The 16-, 9-, and 6-item versions of the AALS-c all performed high on construct validity, because—as expected—they related positively to age, active parental mediation, and resistance strategies, and related negatively to advertised product desire. Children's scores on the two longest versions of the CALS-c and the three versions of the AALS-c are significantly correlated to constructs known to be associated to advertising literacy.

DISCUSSION

The aim of this study was to provide a reliable and valid scale to measure children's advertising literacy. Such a measurement instrument is needed to investigate the general development of advertising literacy in children and to study the role of advertising literacy in children's susceptibility to advertising. Based on the multidimensional conceptualization of advertising literacy recently introduced by Rozendaal, Lapierre, et al. (2011) in *Media Psychology*, we created the 37-item ALS-c. Structural equation modeling revealed that the two underlying dimensions of the advertising literacy scale form separate and unrelated subscales: the 21-item CALS-c and the 16-item AALS-c. Shorter scale versions were also created, with 16 items for the CALS-c and 9 items for the AALS-c, which performed well in terms of test–retest reliability and construct validity.

Suggestions for Future Advertising Literacy Research

With the development of the ALS-c, we aimed to stimulate further research on children's advertising literacy and to provide a foundation on which future research can build. The scale can be used in different ways. Researchers can use (a) the full set of items in order to study children's conceptual and attitudinal advertising literacy, (b) the full set of CALS-c items in order to study the conceptual dimension of advertising literacy, (c) the full set of AALS-c items to study the attitudinal dimension of advertising literacy, or (d) a particular set of items to study one or more of the underlying components of conceptual (e.g., understanding advertising's persuasive tactics) and attitudinal (e.g., skepticism toward advertising) advertising literacy. We propose six specific directions for future research.

First, it is widely assumed that advertising literacy can make children less susceptible to advertising effects (see Kunkel et al., 2004; Livingstone & Helsper, 2006). However, empirical research has not yet provided convincing evidence for this view (see Rozendaal et al., 2012). This might be explained by the fact that, until now, a reliable and valid instrument to measure children's advertising literacy was missing. Another explanation might be that conceptual advertising literacy (i.e., focus on conceptual knowledge of advertising) is not effective in reducing children's susceptibility to advertising effects (Rozendaal, Lapierre, et al., 2011). As we argued before, due to the affect-based nature of contemporary advertising (Page & Brewster, 2007, 2009; Wicks et al., 2009) and their immature sociocognitive skills (see Moses & Baldwin, 2005), children primarily process advertising on a low elaborative and affective level. Consequently, they are unlikely to activate and use their conceptual advertising knowledge as a critical advertising defense (i.e., advertising literacy performance; see Buijzen et al., 2010; Harris et al., 2009; Nairn & Fine, 2008). Therefore, children might need attitudinal advertising literacy (e.g., general critical attitudes toward advertising), which includes low-effort, attitudinal mechanisms that can be effective in reducing children's advertising susceptibility under conditions of low elaboration (Buijzen, 2007; Robertson & Rossiter, 1974; Rozendaal et al., 2010). The present study accounts for this notion by providing a reliable and valid measurement instrument focusing on both the conceptual (i.e., CALS-c) and the attitudinal (i.e., AALS-c) dimensions of advertising literacy. Researchers could use this instrument to systematically investigate the relation between children's conceptual and attitudinal advertising literacy and their susceptibility to advertising effects.

Second, it has been argued that conceptual advertising literacy can be successful in reducing children's susceptibility to advertising when they are triggered to utilize this literacy (Brucks et al., 1988; Roedder, 1981). The few studies on this topic have indeed shown that children can be stimulated to activate and use their conceptual advertising literacy (i.e., advertising

literacy performance) by the presence of an external cue, such as fact-based (e.g., "This commercial is made to sell that toy") and thought-stimulating comments (e.g., "What are you thinking right now?") provided during advertising exposure (Buijzen, 2007; Rozendaal et al., 2012). Future research could extend this line of research on children's advertising literacy performance by further investigating the conditions under which children will activate their conceptual advertising literacy and use it as a defense against advertising's persuasive appeal. In this research, the CALS-c could be used to measure children's level of conceptual advertising literacy, which may function as an important moderating variable in this process.

Third, the majority of earlier research on the effectiveness of advertising literacy has focused on the direct relation between one or more advertising literacy components and advertising effects (e.g., Mallinckrodt & Mizerski, 2007; Robertson & Rossiter, 1974; Ross et al., 1984). However, the mechanisms underlying this relation have received far less research attention. It is assumed that conceptual and attitudinal advertising literacy operate via different mechanisms (i.e., high vs. low elaboration; see Rozendaal, Lapierre, et al., 2011). Researchers could use the AALS-c and CALS-s to investigate this assumption and reveal if and how the different dimensions and components of advertising literacy can change the persuasion process in children.

Fourth, our study showed that the AALS-c and the CALS-c perform well in terms of reliability and empirical usefulness for 8 to 12 year olds. In future research, the population cross-validity, test–retest reliability, and construct validity of the full-length and shortened versions of the scale may be determined for other age groups as well. Here, the focus can be on both older children (i.e., adolescents) and adults. Administrating the scales to different age groups will allow us to gain insight into the general development of conceptual and attitudinal advertising literacy across the life span.

Fifth, the scales provided in this study include nine underlying components, which were all based on existing theoretical models and earlier empirical research. However, there might be other components that are relevant to the concept of advertising literacy which were not covered by these scales, such as knowledge of the economic model of advertising (e.g., the understanding that media systems across the globe rely on an advertiser support model). Future conceptual work could examine whether our scale can be extended by including this and other relevant components of advertising literacy.

Finally, the focus of our study was on advertising literacy regarding television commercials. During the past few years, important changes have taken place in children's commercial media environment. Although child-directed advertisers still focus most of their expenditures on traditional television advertising, they are rapidly adopting new advertising practices (e.g.,

branded websites, advergames, product placement, mobile advertising; see Calvert, 2008; Moore, 2004; Schor, 2005). These advertising practices are fundamentally different from traditional television advertising and pose new challenges for young people's advertising literacy. Future research could examine whether our scale can be adjusted in order to measure children's advertising literacy regarding new advertising practices.

Recommendations for Researchers

To conclude, some recommendations are proposed regarding the use of the CALS-c and AALS-c in future research. First, because the 21- and 16-item versions of the CALS-c performed equally well in terms of reliability and validity, researchers are recommended to use the 16-item version. Using a shorter scale will lower the response burden on children. For the same reason, because the 16- and 9-item scale version of the AALS-c performed equally well, using the 9-item version is recommended. The recommended scales are presented in the Appendix (Table A4).

Second, two of the CALS-s sub-measures require the use of video materials, including the advertising recognition and understanding advertising's intended audience measure. When using the advertising recognition measure, we recommend researchers to select three television commercials and three program fragments. When selecting these materials, it is important to note that: (a) the commercials used for validation of the scale were for two children's and one adult product, (b) the program fragments were for two children's and one adult program (e.g., news), and (c) all commercials and program fragments had the same length. When using the measure for understanding of advertising's intended audience, researchers are recommended to select four additional television commercials. When selecting these commercials, note that one of the commercials is directed at children only, one at adults only, and two at a general audience.

Finally, we recommend using the CALS-c and AALS-c for children above the age of 8 only. Because of developmental differences in communication and reading skills, younger children may have difficulty in understanding and choosing between the verbal response categories of the scale (Borgers, 2003), which could negatively affect the scale's reliability and validity.

By using the scales presented in this study, researchers can make an important contribution to the ongoing societal and political debate about children and advertising. In many Western societies, public and political attention is increasingly drawn toward methods of reducing children's susceptibility to advertising, including advertising education programs aimed at increasing children's advertising literacy. Insights into children's levels of conceptual and attitudinal advertising literacy are highly needed to inform the development and evaluation of such programs.

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APPENDIX

TABLE A1 Component and Item Overview for the Advertising Literacy Scale for Children

Components	Item—abbreviation and content	Response categories
1. Recognition of advertising (RA)	RA1 Is this a commercial? (R)[a] RA2 Is this a commercial? (R)[a] RA3 Is this a commercial? (R)[a] RA4 Is this a commercial? [a,b] RA5 Is this a commercial? [a,b,c] RA6 Is this a commercial? [a,b,c]	1 = *Yes, for sure* 2 = *Yes, I think so* 3 = *No, I don't think so* 4 = *No, certainly not*
2. Understanding selling intent (USI)	USI1 Are commercials on television there to make you buy the advertised products? (R)[a,b,c] USI2 Are commercials on television there to make you ask your parents to buy the advertised products? (R)[a,b,c] USI3 Are commercials on television there to make you buy the advertised products of your allowance? (R)[a,b]	1 = *Yes, for sure* 2 = *Yes, I think so* 3 = *No, I don't think so* 4 = *No, certainly not*
3. Recognition of advertising's source (RAS)	RAS1 Making a television commercial costs money. Who do you think pays for the making of television commercials? [a,b,c]	1 = "The television network that shows the commercial" 2 = "The people who created this questionnaire" 3 = "The companies that make the products in the commercial" 4 = "The actors in the commercial" 5 = "Otherwise, namely…"
4. Perception of intended audience (PIA)	PIA1 For whom is this commercial intended? [a,b] PIA2 For whom is this commercial intended? [a,b,c] PIA3 For whom is this commercial intended? [a,b,c] PIA4 For whom is this commercial intended?	1 = *For children only* 2 = *For adults only* 3 = *For children and adults* 4 = *Neither for children nor for adults*
5. Understanding persuasive intent (UPI)	UPI1 Are commercials on television there to make you want to have the advertised products? (R)[a,b] UPI2 Are commercials on television there to make you think positively (i.e., happy thoughts) about the advertised products? (R)[a,b,c] UPI3 Are commercials on television there to make you feel positively (i.e., happy feelings) about the advertised products? (R)[a,b,c]	1 = *Yes, for sure* 2 = *Yes, I think so* 3 = *No, I don't think so* 4 = *No, certainly not*
6. Understanding persuasive tactics (UPT)	UPT1 Commercials are often repeated. Why do you think that is? [a] UPT2 Commercials often show how products are working. Why do you think that is? UPT3 Commercials often show happy children who are playing together with the advertised products. Why do you think that is? [a,b,c] UPT4 Commercials are often funny. Why do you think that is? [a,b,c]	1 = "To help children learn about the product" 2 = "To get children to recall the ad" 3 = "To get children to believe what the ad says" 4 = "To make children like the ad"

(*Continued*)

TABLE A1 (*Continued*)

Components	Item—abbreviation and content	Response categories
6. Understanding persuasive tactics (UPT)	UPT5 Commercials often show a famous person or cartoon character. Why do you think that is? [a] UPT6 Commercials often promise a freebie when purchasing the advertised product. Why do you think that is? [a,b]	
7. Understanding advertising's bias (UAB)	UAB1 How often do you think television commercials are real? (R)[a,b,c] UAB2 How often do you think television commercials are fake? [a,b] UAB3 How often do you think television commercials only tell good things about the advertised products? (R)[a] UAB4 How often do you think television commercials only tell bad things about the advertised products? [a] UAB5 How often do you think that what you see in television commercials is like things are in reality? (R)[a,b,c]	1 = *Never* 2 = *Sometimes* 3 = *Often* 4 = *Very often*
8. Skepticism toward advertising (SA)	SA1 How often do you think television commercials are truthful? (R)[a,b,c] SA2 How often do you think television commercials tell things that are not true? [a] SA3 How often do you think television commercials tell the truth? (R)[a,b,c] SA4 How often do you think television commercials lie? [a] SA5 How often do you think you can believe television commercials? (R)[a,b]	1 = *Never* 2 = *Sometimes* 3 = *Often* 4 = *Very often*
9. Disliking of advertising (DA)	DA1 How often do you think television commercials are nice? (R)[a] DA2 How often do you think television commercials are funny? (R)[a] DA3 How often do you think television commercials are beautiful? (R)[a] DA4 How often do you think television commercials are boring? [a,b,c] DA5 How often do you think television commercials are stupid? [a,b,c] DA6 How often do you think television commercials are irritating? [a,b]	1 = *Never* 2 = *Sometimes* 3 = *Often* 4 = *Very often*

[a]Included in the full-length version of the CALS-c or AALS-c (no max. no. indicators per subscale).
[b]Included in the 16-item version of the CALS-c or the 9-item version of the AALS-c (max. 3 indicators per subscale).
[c]Included in 11-item version of the CALS-c or the 6-item version of the AALS-c (max. 2 indicators per subscale).

TABLE A2 Advertisers' Mean Ranking of Intended Effects for Each Advertiser Tactic

Ranking	Ad repetition	Product demonstration	Peer popularity	Humor	Celebrity endorsement	Premiums
1	Recall	Learn	Like	Like	Recall	Recall
2	Learn	Believe	Recall	Recall	Like	Like
3	Like	Recall	Believe	Learn	Believe	Learn
4	Believe	Like	Learn	Believe	Learn	Believe

Note. Adapted from Rozendaal, Buijzen, & Valkenburg (2011).

TABLE A3 Means and *SD*s of the Items of the Advertising Literacy Scale for Children

	Wave 1 ($N = 905$)		Wave 2 ($N = 439$)	
Item[a]	Mean	*SD*	Mean	*SD*
RA1	3.96	0.25	3.95	0.23
RA2	3.77	0.55	3.70	0.55
RA3	3.97	0.23	3.96	0.20
RA4	3.60	0.68	3.62	0.64
RA5	3.30	0.65	3.31	0.70
RA6	3.79	0.47	3.75	0.56
USI1	3.73	0.52	3.75	0.50
USI2	3.54	0.64	3.60	0.60
USI3	3.10	0.76	3.20	0.71
RAS1	0.83	0.37	0.85	0.36
PIA1	0.79	0.41	0.80	0.40
PIA2	0.84	0.37	0.86	0.34
PIA3	0.72	0.45	0.71	0.45
PIA4	0.95	0.22	0.95	0.21
UPI1	3.70	0.54	3.72	0.55
UPI2	3.34	0.68	3.49	0.59
UPI3	3.29	0.70	3.47	0.57
UPT1	3.54	0.97	3.51	0.99
UPT2	2.92	1.06	2.97	0.99
UPT3	2.97	1.03	3.00	1.02
UPT4	3.36	0.96	3.34	0.92
UPT5	3.08	0.75	3.07	0.85
UPT6	2.78	1.07	2.83	1.05
UAB1	2.93	0.59	2.83	0.50
UAB2	2.42	0.73	2.39	0.69
UAB3	2.22	0.82	2.26	0.80
UAB4	1.46	0.63	1.45	0.64
UAB5	2.97	0.58	2.93	0.48
SA1	2.91	0.54	2.89	0.52
SA2	2.31	0.70	2.31	0.73
SA3	2.87	0.53	2.87	0.50
SA4	2.27	0.73	2.24	0.72
SA5	2.91	0.55	2.89	0.51
DA1	2.90	0.51	2.85	0.49
DA2	2.89	0.47	2.87	0.45
DA3	3.08	0.52	3.01	0.47
DA4	2.72	0.74	2.63	0.76
DA5	2.63	0.74	2.54	0.74
DA6	2.67	0.82	2.55	0.79

[a]See Table A1 for the corresponding item content.

TABLE A4 Final 16-Item Conceptual Advertising Literacy Scale for Children (CALS-c)

Components	Items	Response categories
Recognition of advertising	1–3. Is this a commercial? (Note that this question should be asked for three different commercials.)	1 = *Yes, for sure* 2 = *Yes, I think so* 3 = *No, I don't think so* 4 = *No, certainly not*
Understanding selling intent	4. Are commercials on television there to make you buy the advertised products? (R) 5. Are commercials on television there to make you ask your parents to buy the advertised products? (R) 6. Are commercials on television there to make you buy the advertised products of your allowance? (R)	1 = *Yes, for sure* 2 = *Yes, I think so* 3 = *No, I don't think so* 4 = *No, certainly not*
Recognition of advertising's source	7. Making a television commercial costs money. Who do you think pays for the making of television commercials?	1 = "The television network that shows the commercial" 2 = "The people who created this questionnaire" 3 = "The companies that make the products in the commercial" 4 = "The actors in the commercial" 5 = "Otherwise, namely. . ."
Perception of intended audience	8–10. For whom is this commercial intended? (Note that this question should be asked for three different commercials.)	1 = *For children only* 2 = *For adults only* 3 = *For children and adults* 4 = *Neither for children nor for adults*
Understanding persuasive intent	11. Are commercials on television there to make you want to have the advertised products? (R) 12. Are commercials on television there to make you think positively (i.e., happy thoughts) about the advertised products? (R) 13. Are commercials on television there to make you feel positively (i.e., happy feelings) about the advertised products? (R)	1 = *Yes, for sure* 2 = *Yes, I think so* 3 = *No, I don't think so* 4 = *No, certainly not*
Understanding persuasive tactics	14. Commercials often show happy children who are playing together with the advertised products. Why do you think that is? 15. Commercials are often funny. Why do you think that is? 16. Commercials often promise a freebie when purchasing the advertised product. Why do you think that is?	1 = "To help children learn about the product" 2 = "To get children to recall the ad" 3 = "To get children to believe what the ad says" 4 = "To make children like the ad"

(*Continued*)

TABLE A4 Final 9-Item Attitudinal Advertising Literacy Scale for Children (AALS-c) (*Continued*)

Components	Items	Response categories
Understanding advertising's bias	1. How often do you think television commercials are real? (R) 2. How often do you think television commercials are fake? 3. How often do you think that what you see in television commercials is like things are in reality? (R)	1 = *Never* 2 = *Sometimes* 3 = *Often* 4 = *Very often*
Skepticism toward advertising	4. How often do you think television commercials are truthful? (R) 5. How often do you think television commercials tell the truth? (R) 6. How often do you think you can believe television commercials? (R)	1 = *Never* 2 = *Sometimes* 3 = *Often* 4 = *Very often*
Disliking of advertising	7. How often do you think television commercials are boring? 8. How often do you think television commercials are stupid? 9. How often do you think television commercials are irritating?	1 = *Never* 2 = *Sometimes* 3 = *Often* 4 = *Very often*