This study examines the age at which children reach adult levels of cognitive advertising competences. In a computer-assisted survey of 294 children (8–12 years) and 198 adults (18–30 years), we investigate at what age children reach adult levels of (1) advertising recognition, and (2) understanding of advertising’s selling and persuasive intent. Our findings show that around the age of 9–10, most children have reached an adult level of advertising recognition. However, at age 12, children have still not acquired an adult-like understanding of advertising’s selling and persuasive intent. Finally, children’s understanding of the selling intent of advertising develops before their understanding of its persuasive intent.

KEYWORDS adults; advertising literacy; children; cognitive advertising competences; television advertising

Ever since children were recognized as a consumer market, the topic of advertising and children has been the subject of considerable debate (Kunkel et al., 2004). Critics of child-directed advertising, such as policy makers, parents, and consumer advocates, assume that children are less able to defend themselves against advertising than adults because they lack the cognitive skills to understand the nature and intent of advertising (see Bandyopadhyay, Kindra, & Sharp, 2001; Kunkel et al., 2004). These critics are concerned about the appropriateness and fairness of advertising targeted at young children. However, proponents of advertising, such as manufacturers and marketers of child products, hold a contrary view. They often claim that children are skilled consumers who are capable of critically processing commercial messages (see Bandyopadhyay et al., 2001).

Inspired by this public debate, academic research on children and advertising has often focused on the development of children’s cognitive advertising competences (see John, 1999; Kunkel et al., 2004; Livingstone & Helsper, 2006). It is generally assumed that such competences determine children’s susceptibility to advertising effects (Brucks, Armstrong, & Goldberg, 1988; Gunter, Oates, & Blades, 2005; Robertson & Rossiter, 1974). Most studies have focused on two types of cognitive advertising competences: (1) recognition of advertising—that is, children’s ability to distinguish commercials from regular television programming based on perceptual features (Bandyopadhyay et al., 2001; Kunkel et al., 2004); and (2) understanding of advertising—that is, their ability to understand the intent of advertising (John, 1999; Martin, 1997).

To date, research has yielded a number of important insights about the development of cognitive advertising competences. First, they develop as children mature (Wright, Friestad, & Boush, 2005). As cognitive abilities increase during childhood, children...
are progressively able to recognize advertising and understand advertising’s intent. Second, the ability to recognize advertising develops at an earlier age than the ability to understand its intent. For instance, studies have shown that by the age of 5, about three quarters of children can recognize advertising based on perceptual features (e.g. Butter, Popovich, Stackhouse, & Garner, 1981; Levin, Petros, & Petrella, 1982; Stephens & Stutts, 1982), whereas only a minority understand the intent of advertising (e.g. Butter et al., 1981; Stephens & Stutts, 1982; Stutts, Vance, & Hundelson, 1981). By the age of 8, nearly all children are able to recognize advertising (e.g. Bijmolt, Claassen, & Brus, 1998; Stutts et al., 1981), and about three quarters understand its intent (e.g. Bever, Smith, Bengen, & Johnson, 1975; Rubin, 1974; Wilson & Weiss, 1992).

Most studies assume that children’s cognitive advertising competences fully develop between the ages of 8 and 12 years (see Gunter & Furnham, 1998; Valkenburg & Cantor, 2001). However, much of the evidence remains descriptive and does not permit meaningful interpretation of the observed levels of these competences. More specifically, most studies focus on the level of children’s recognition and understanding of advertising, but do not take a normative stance of what that level should be. It is the aim of the present study to fill this gap and to provide a benchmark for children’s level of cognitive advertising competences.

In their comprehensive review of the literature, Wright et al. (2005) have argued that most studies implicitly assume that children’s cognitive advertising competences develop gradually up to an adult level. Following this line of reasoning, such an adult level would represent a benchmark for children’s competences. Therefore, a starting point for research on children’s cognitive advertising competences should be to compare children’s and adults’ levels of these competences. Remarkably, there is a paucity of theorizing about adult understanding of advertising (Wright et al., 2005). In addition, the few theoretical models that can be found in the literature typically represent idealized levels of cognitive advertising competences, and have not addressed adults’ actual advertising understanding (Friestad & Wright, 1994; Roberts, 1983).

It is important to empirically investigate the level of adult-like advertising competences, because it is unlikely that all adults have perfect or ideal advertising understanding. Unfortunately, empirical investigations of adult-level cognitive advertising competences are completely missing (Wright et al., 2005). In this study we investigate and compare recognition of advertising and understanding of advertising’s intent in a child sample (8–12 years) and an adult sample (18–30 years). This benchmark comparison enables us to draw conclusions about the age at which children reach adult levels of cognitive advertising competences. Because research on children and advertising originates from the concern that children are more vulnerable to advertising effects than adults are (Bandyopadhyay et al., 2001; Kunkel et al., 2004), the comparison between children and adults is central to research investigating the developmental progression in children’s advertising competences (Wright et al., 2005).

**Theory and Research on Children’s Cognitive Advertising Competences**

No univocal conceptualization of cognitive advertising competences can be found in the literature. Although several theoretical models (Friestad & Wright, 1994; John, 1999; Moses & Baldwin, 2005; Roberts, 1983) provide insight into advertising-related knowledge
and skills that children must acquire, they nearly all focus on different possible elements of these competences. However, it is generally assumed that advertising understanding develops from very simple to more complex and abstract competences. In addition, most models agree that the ability to distinguish between advertising and programs and the ability to understand advertising’s intent are the two most basic and first-developed advertising competences. This presumably explains why empirical research has mainly focused on these two critical advertising competences.

Research into children’s cognitive advertising competences relies heavily on frameworks established by developmental psychologists. The changes children undergo in cognitive and social maturation are thought to explain many of the changes observed in their cognitive advertising competences as they grow older (Gunter et al., 2005). Most studies have been inspired by Piaget’s (1929) theory of cognitive development, although other theoretical approaches have also been used, including information-processing theory (Roedder, 1981), Selman’s (1980) framework of social perspective taking, and, more recently, the theory of mind paradigm (Moses & Baldwin, 2005; Wellman, 1990). All these approaches identify a positive effect of age on the development of children’s ability to recognize advertising and programs as well as their ability to understand advertising’s intent.

**Recognition of Advertising**

Recognition of advertising is generally defined as the ability to distinguish commercial content from regular television programming (Gunter & Furnham, 1998; Ward, Wackman, & Wartella, 1977; Young, 1990). Based on most developmental theories, children should start to develop the ability to distinguish commercials and programs around the age of 3, primarily based on perceptual features, and by 7 most children should have mastered this ability.

To our knowledge seven academic studies have investigated children’s recognition of advertising (Bijmolt et al., 1998; Butter et al., 1981; Gaines & Esserman, 1981; Levin et al., 1982; Palmer & McDowell, 1979; Stephens & Stutts, 1982; Stutts et al., 1981). A common technique used to measure the ability to recognize advertising, is showing children a television program and asking them to indicate when a commercial comes on (e.g. Bijmolt et al., 1998; Butter et al., 1981; Gaines & Esserman, 1981). The empirical evidence from these studies, which all focused on children of 8 years and younger, is reasonably consistent. They all indicate that the majority of 8-year-olds can distinguish commercials and programs correctly. For example, Bijmolt et al. (1998) found that 90 per cent of 5- to 8-year-olds recognized the transition from a television program to a commercial, and vice versa. In addition, a study by Gaines and Esserman (1981) showed that the majority of the 4- to 8-year-olds could distinguish commercials from television programs.

However, although most scholars agree that the majority of children are able to recognize the difference between advertising and programs by the age of 8, the question remains when children have reached an adult level of advertising recognition. By comparing children’s and adults’ levels of advertising recognition, we investigate the following research question:

RQ1: At what age do children reach an adult level of advertising recognition?
Understanding Advertising Intent

Two different types of advertising intent have been distinguished: selling and persuasive intent (Kunkel et al., 2004; Young, 1990). The selling intent of advertising is defined as the advertiser’s attempt to influence consumers’ behavior directly, namely to induce them to buy a product (Moses & Baldwin, 2005; Wilson & Weiss, 1992). Persuasive intent is defined somewhat more broadly, as the advertiser’s attempt to influence consumer behavior indirectly, by changing their mental state, for instance their desires and beliefs about a product (Moses & Baldwin, 2005). It is generally assumed that children start to develop an understanding of the selling and persuasive intent of advertising from the age of 8 (Kunkel et al., 2004). In addition, from a theory of mind perspective, children are expected to understand selling intent at an earlier age than persuasive intent. According to Moses and Baldwin it is easier for children to understand that advertisers try to change their behavior (i.e. selling intent) than to understand that they try to change their mental states (i.e. persuasive intent).

In the literature, remarkably little has been theorized about the age at which children reach an adult level of understanding of advertising’s selling and persuasive intent. Despite this, some researchers assume that children have an adult-like understanding of advertising’s selling and persuasive intent by the age of 12 (Gunter et al., 2005; Valkenburg & Cantor, 2001). Gunter et al. (2005) based their assumption on Piaget’s argument that children of this age are able to think about problems in a similar way to adults and to reason and learn from experience.

As yet, empirical studies have not provided us with definite insights either. Over 30 studies have examined children’s understanding of advertising’s intent (for reviews see John, 1999; Martin, 1997). However, these studies have yielded inconsistent results regarding the age at which children understand the intent of advertising. A possible explanation might lie in the conceptual treatment of selling and persuasive intent. Although many different terms have been used when referring to advertising’s intent (e.g. selling intent, persuasive intent, commercial intent), most studies actually investigated children’s understanding of its selling intent (e.g. Paget, Kritt, & Bergemann, 1984; Robertson & Rossiter, 1974). These studies showed high levels of understanding. For instance, Robertson and Rossiter (1974) showed that 99 per cent of 10- and 11-year-olds and 87 per cent of 8- and 9-year-olds understood advertising’s selling intent.

In contrast, the few studies that have measured children’s more sophisticated understanding of advertising’s persuasive intent reported considerably lower percentages (Blosser & Roberts, 1985; Donohue, Meyer, & Henke, 1978; Oates, Blades, & Gunter, 2002). For example, Oates et al. (2002) found that only 36 per cent of 10-year-olds and 25 per cent of 8-year-olds could articulate the persuasive intent of advertising after exposure to a commercial message. This is in line with Moses and Baldwin’s (2005) assumption that it is easier for children to understand that advertisers try to change their behavior (i.e. selling intent) than to understand that they try to change their mental states (i.e. persuasive intent). However, neither the studies investigating selling intent, nor the ones studying persuasive intent have answered the question of when children have reached an adult level of advertising understanding.

In the present study we therefore investigate both types of advertising understanding and compare children’s and adults’ levels of understanding advertising’s selling and persuasive intent. We define understanding of selling intent as understanding
that a commercial wants the viewer to buy a product, and understanding of persuasive intent as understanding that a commercial wants to change someone’s attitude toward the advertised product. We investigate the following research question:

RQ2: At what age do children reach adult levels of understanding of advertising’s selling and persuasive intent?

Method

Participants and Procedures

Children. A total of 294 children between the ages of 8 and 12 participated in the study. The children were recruited from three 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 155 boys (52.7 per cent) and 139 girls (47.3 per cent). The children were grouped into four age groups: 8–9 years (Grade 3; 24.1 per cent), 9–10 years (Grade 4; 26.5 per cent), 10–11 years (Grade 5; 24.5 per cent), and 11–12 years (Grade 6; 24.8 per cent).

Prior to the implementation of the survey, institutional approval, parental consent, and children’s informed consent were obtained. Children were notified that the study would be about television and advertising and that they could stop participating at any time they wished. A female researcher brought the children to the school’s computer room in groups of four to six. After a short introduction, she instructed the children to put on a headphone and start the computer-assisted online survey. We preferred a computer-assisted survey mode to more traditional modes of surveying, because this method is particularly appropriate for children in this age range (Borgers, de Leeuw, & Hox, 2000) and it allowed us to include audiovisual material.

In the survey, participants watched child-directed television commercials and fragments of television programs. After each commercial or program fragment, participants were presented with a question measuring their recognition of advertising. In addition, for each commercial, participants were asked to answer two questions measuring their understanding of its selling and persuasive intent. All commercial and program fragments were 20 to 30 seconds long and had been videotaped from three children’s television channels one and a half years prior to the survey. After completing the survey, which took about 15 to 25 minutes, the children were given a present.

Adults. In addition, a total of 198 undergraduate students from a large Dutch university with students from various socioeconomic and cultural backgrounds participated in the study to provide an adult benchmark. The adult sample consisted of 76 male (38.4 per cent) and 122 female (61.6 per cent) students, and the mean age was 21.7 years ($SD = 4.83$). We selected university students for two reasons. First, they represent a generation of adults that have grown up in a similar commercial media environment as today’s children, and second they are expected to have sufficient understanding of advertising and therefore represent an accurate benchmark. The students completed an online version of the questionnaire, tapping the recognition and understanding of advertising described earlier. In the accompanying e-mail, the topic of the questionnaire was shortly introduced and instructions were provided.
Measures

Recognition of advertising. To measure the ability to recognize advertising, child and adult participants were presented with three television commercials aimed at children (one for toy products and two for food products). To overcome the potential problem of response bias due to yeah-saying, we also presented the participants with three fragments of television programs aimed at children (one animated and two nonanimated). For each commercial and program fragment, the participants were asked the following question: “Is this a commercial?” Response options were 1 = “yes” and 0 = “no.” Two scales were constructed: first, a scale for recognition of advertising, calculating participant’s total mean scores over the three commercial fragments (Cronbach’s $\alpha = .46$; range $= 0–3$; $M = 2.85$; $SD = 0.45$); and second, a scale for recognition of programs, calculating the total mean score over these three fragments ($\alpha = .43$; range $= 0–3$; $M = 2.70$; $SD = 0.61$).

Understanding advertising’s intent. Most earlier studies measuring advertising intent have assessed children’s understanding of advertising intent simply by asking them why commercials are shown on television (e.g. Butter et al., 1981; Donohue et al., 1978; Robertson & 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). Therefore, a number of studies have used a less cognitively demanding technique, for instance by using multiple-choice questions (Bijmolt et al., 1998; Donohue, Henke, & Donohue, 1980; Macklin, 1985, 1987). These studies have noted considerably younger ages at which children understand advertising’s selling and persuasive intent. It must be noted, however, that most of these studies have failed to consider chance effects, and may therefore have overestimated children’s level of advertising understanding (Gunter et al., 2005).

In the present study, we have attempted to overcome the weaknesses of earlier studies and to optimize measurement of children’s understanding of advertising intent in four ways. First, we exposed them to actual commercials in order to cue their advertising-related knowledge (Martin, 1997; Roedder, 1981). Second, we used a relatively simple recognition technique, by asking children to choose from a number of predefined response options. Third, we reduced chance effects by combining the responses to three different commercials. And fourth, we solved the issue of response bias due to yeah-saying by controlling for several bogus questions.

Participants were presented with three television commercials aimed at children. For each commercial, they were asked whether the commercial tried to make them buy the product (i.e. selling intent: “Does this commercial want you to buy product name?”) and make them like the product (i.e. persuasive intent: “Does this commercial want you to like product name?”); response options were 1 = “yes,” and 0 = “no.” Two scales were constructed: first, a scale for understanding of selling intent, calculating participant’s total mean score over the three commercial fragments ($\alpha = .64$; range $= 0–3$; $M = 2.67$, $SD = 0.71$); and second, a scale for understanding of persuasive intent, constructed in the same way ($\alpha = .63$; range $= 0–3$; $M = 2.28$, $SD = 0.95$). To overcome the potential problem of response bias due to yeah-saying, the participants were also asked a bogus question for each commercial (i.e. “Does this commercial want to teach you how to adhere stickers?”, “Does this commercial want to teach you how you can make things fly?”, and “Does this commercial want to tell you that it is nice to play outside?”). A scale was
constructed by calculating children’s total mean score over the three bogus questions \((\alpha = .49; \text{range } = 0–3; M = 2.65; SD = 0.67)\).

**Results**

The first aim of this study was to investigate at what age children reach adult levels of advertising recognition (RQ1). To investigate this, we conducted a univariate analysis of covariance (GLM) with age group (8–9 years vs. 9–10 years vs. 10–11 years vs. 11–12 years vs. adults) as a between-subjects factor. Recognition of advertising was entered as the dependent variable and recognition of programs as a covariate. This analysis yielded an effect for age on recognition of advertising, \(F(4, 492) = 6.10, p < .001\). To make the GLM results more meaningful, we have presented the mean scores as percentages of correct responses in Table 1. Post hoc LSD tests showed that only 8- to 9-year-old and 9- to 10-year-old children scored significantly lower than adults on advertising recognition. The older children did not differ significantly from adults.

Our second aim was to examine at what age children reach adult levels of understanding advertising’s selling and persuasive intent (RQ2). To do so, a multivariate analysis of covariance (GLM) was conducted with age group as a between-subjects factor and participant’s scores on the bogus question scale as covariate. Understanding of persuasive intent and understanding of selling intent were entered as dependent variables. The analysis yielded an effect for age on understanding of both selling intent, \(F(4, 492) = 22.63, p < .001\), and persuasive intent, \(F(4, 492) = 39.77, p < .001\). The percentages of correct responses of both variables in the different age groups are shown in Table 2. Post hoc LSD tests analysis yielded no significant differences among children in different age groups for understanding selling intent. However, all children scored significantly lower than adults. The post hoc analysis for understanding of persuasive intent showed that this understanding was significantly lower among 8- to 9-year-olds, 9- to 10-year-olds, and 10- to 11-year-olds than among 11- to 12-year-olds and the adult sample. Finally, all children, including the 11- to 12-year-olds, scored significantly lower on understanding persuasive intent than the adults did.1

**Discussion**

This study was the first to provide a benchmark for children’s cognitive advertising competences. We contributed to the existing body of knowledge on children and advertising by investigating and comparing children’s and adults’ recognition and understanding of advertising. In addition, this study improved on earlier research by optimizing conceptual as well as methodological approaches. More specifically,

| TABLE 1 | Child and adult levels of advertising recognition. |
|-----------------|-----------------|-----------------|-----------------|-----------------|
|                | Grade 3       | Grade 4       | Grade 5       | Grade 6       | Adults         |
| Grade (8–9 years) | (9–10 years) | (10–11 years) | (11–12 years) | (%)            | (%)            |
| Recognition of advertising | 90.1\textsuperscript{a} | 92.7\textsuperscript{a} | 95.8\textsuperscript{a,b} | 95.9\textsuperscript{a,b} | 97.0\textsuperscript{b} |

Note: Cell values indicate the percentage of correct responses within each age group. Row values with different superscripts differ significantly at least at \(p < .05\).
we explicitly distinguished advertising’s selling from advertising’s persuasive intent, and our research measures took into account the language and memory retrieval capacities of 8- to 12-year-old children.

The first aim of our study was to investigate at what age children reach adult levels of advertising recognition. It is widely assumed that children have fully developed this skill at 8 years of age. However, although our results showed that the majority of the 8- to 9-year-old children could recognize advertising, they had still not acquired an adult-like recognition of advertising. Only from the age 10 or 11 was children’s level of advertising recognition comparable to the adult level.

Our second aim was to examine at what age children reach adult-like understanding of advertising’s selling and persuasive intent. Our results demonstrated that even at 12 years of age, children had still not acquired an adult level of understanding of advertising’s selling and persuasive intent. This finding is remarkable, because it is widely assumed that by that age they have reached an adult level of understanding (Gunter & Furnham, 1998; Valkenburg & Cantor, 2001). However, although our findings agree with earlier research that the majority of the 12-year-olds understand the selling and persuasive intent of advertising (e.g. Blosser & Roberts, 1985; Robertson & Rossiter, 1974; Ward, 1972), our results show that by that age they have still not acquired an adult-like understanding of advertising’s selling and persuasive intent.

An explanation for these findings might be that 12-year-old children may still lack some cognitive abilities and, as a consequence, their cognitive advertising competences have not yet fully developed. As Moses and Baldwin (2005) suggested, children in this age group may be conceptually competent (in this case, able to recognize and understand advertising) and yet fail to apply these concepts in practice. In addition, children may have a lower level of cognitive advertising competences than adults because they are less experienced consumers (Friestad & Wright, 1994).

The results also showed that children develop the understanding of the persuasive intent of advertising noticeably later than the understanding of advertising’s selling intent. Although children show a growing understanding of the selling intent of advertising as from the age of 8, their understanding of persuasive intent only shows a significant increase at an age of 11 or 12. This finding is in line with Moses and Baldwin (2005), who theorized that understanding of persuasive intent requires a higher developmental level than understanding of selling intent. Understanding persuasive intent is conceptually more complex than understanding selling intent, because it includes the insight that advertising attempts to change one’s mental state, which is referred to by Moses and Baldwin as an understanding of second-order mental states.

<table>
<thead>
<tr>
<th></th>
<th>Grade 3 (8–9 years)</th>
<th>Grade 4 (9–10 years)</th>
<th>Grade 5 (10–11 years)</th>
<th>Grade 6 (11–12 years)</th>
<th>Adults (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of selling intent</td>
<td>77.0a</td>
<td>83.3a</td>
<td>82.9a</td>
<td>84.9a</td>
<td>99.3b</td>
</tr>
<tr>
<td>Understanding of persuasive intent</td>
<td>59.6a</td>
<td>56.4a</td>
<td>62.5a</td>
<td>72.1b</td>
<td>96.0c</td>
</tr>
</tbody>
</table>

Note: Cell values indicate the percentage of correct responses within each age group. Row values with different superscripts differ significantly at least at $p < .05$.  

TABLE 2
Child and adult levels of understanding selling and persuasive intent of advertising.
Limitations

By comparing children’s cognitive advertising competences with an adult benchmark, our study yielded important insights into the developmental progression in children’s recognition and understanding of advertising. However, a number of limitations exist. First, due to differences in overall intellectual abilities, economic advantages, or exposure to college courses, university students are not representative of the general adult population. Consequently, this study may have overestimated adult levels of cognitive advertising competences. However, from all demographic groups university students probably most closely represent the idealized adult levels of cognitive advertising competences that are discussed in earlier literature. To come to generalizable conclusions, future research should compare children’s cognitive advertising competences with a representative adult sample.

Second, we focused on children’s recognition and understanding of advertising because these are considered the two basic cognitive advertising competences. However, Wright et al. (2005) have discussed other and more complex advertising competences, including insights into advertising tactics, skepticism, and consumer experience. Further research is needed to investigate whether the patterns observed for recognition and understanding of advertising also hold for other advertising competences.

Third, we operationalized understanding of persuasive intent as the understanding that a commercial wants to make the viewer like the advertised product. Although this operationalization describes an important element of understanding persuasive intent, it has been argued that this understanding also includes other persuasion-related elements, such as the understanding that persuasive messages are biased (Kunkel et al., 2004; Roberts, 1983; Robertson & Rossiter, 1974). In order to gain a thorough insight into children’s understanding of persuasive intent, future research should take into account all persuasion-related elements which in concert enable children to discern advertising’s persuasive intent.

Finally, although we have attempted to optimize existing research measures, our results may still be affected by the measurement used. In order to get an accurate picture of the development of children’s cognitive advertising competences, future research should use an integration of different research methods (Owen, Auty, Lewis, & Berridge, 2007).

Suggestions for Further Research

Finally, we propose three suggestions for further research. First, future research could investigate how our results hold for advertising in new media. We focused on television advertising, because television viewing still is children’s predominant leisure time activity (Roberts & Foehr, 2008) and most child-directed advertising expenditures focus on television advertising (Calvert, 2008). However, advertisers are rapidly adopting new advertising practices (e.g. branded websites, advergames), which are fundamentally different from traditional advertising and pose many new challenges for young people’s advertising processing. It is likely that children will have greater difficulty recognizing and understanding these new advertising practices.

Second, it still remains unclear at what particular age children do reach adult levels of understanding advertising’s selling and persuasive intent. Future research could extend this study by examining adolescents’ cognitive advertising competences and comparing these to an adult benchmark. And finally, there is another question that should be addressed in future research: does the difference in cognitive advertising competence level between
children and adults also mean that children are more susceptible to advertising effects? Although the relation between cognitive advertising competences and advertising effects is widely taken for granted, little research has investigated this relation (Livingstone & Helsper, 2006). Therefore, future research might test this assumption by exploring whether and how children's cognitive competences are related to their susceptibility to advertising effects.

In conclusion, our findings have yielded important theoretical and societal insights. The study contributes to our theoretical understanding, as comparing children's responses to an adult benchmark allows us to interpret the observed levels of cognitive competences. It also contributes to the public debate about children and advertising. Insights into children's levels of cognitive competences to advertising are needed to inform the ongoing debate on the fairness of advertising aimed at children. Based on our finding that children of 12 years and younger have still not acquired an adult level of cognitive competences, one might argue that advertising directed at these children is fundamentally unfair. This suggests that children constitute a unique group of consumers whose specific characteristics should be kept in mind when designing advertising directed to them.

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NOTE
1. To check whether the developmental patterns would differ for boys and girls, we also conducted both GLM analyses with gender as an extra between-subjects factor. This analysis yielded a significant main effect for gender, indicating that girls generally scored higher than boys on advertising recognition and understanding. However, the analyses did not yield an interaction effect for Age x Gender, indicating that the patterns observed in the main analyses held for boys as well as for girls.

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