Children's Understanding of the Intent of Advertising: A Meta-Analysis

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The author conducts a meta-analysis investigating the extent to which children understand the intent of advertising. The results show several study characteristics that have contributed to variance in results of prior research efforts. The author uses these results to develop suggestions for further research and implications for public policymaking.

The average child in the United States sees more than 30,000 television commercials a year for various types of products (Condry, Bence, and Scheibe 1988). In addition, the percentage of commercials for toys and games during children's programming has more than tripled since the late 1970s (Condry, Bence, and Scheibe 1988). Given the amount of advertising targeted at children, the concern about the effects of advertising on children is alive and well. For example, the Children's Television Act (14 U.S.C. §303), passed by Congress in 1990, reinstated a ban on program-length commercials and issued a policy that a related advertisement must be separated from the start or close of a toy-based program by some portion of an unrelated program. In August, 1996, a mandate from Washington stipulated that broadcasters adhere to the Children's Television Act of 1990 by providing three hours of educational programming each week (Eggerston 1996). Most recently, the Food and Drug Administration's (FDA) restriction of cigarette advertising directed at youths has fueled a heated debate.

Given this continuing concern, over the past three decades in the marketing, advertising, communications, and developmental literature, researchers have assessed the effects of advertising on children. This effort continues today. For example, researchers have produced empirical evidence of cigarette advertising's effect on children and/or its relation to their smoking behavior (e.g., Mizerski 1995; Pechmann and Rameshwar 1994; Pollay et al. 1996). Other areas recently investigated include the effects of retrieval cues on children's memory and brand evaluations (Macklin 1994) and adolescents' skepticism toward advertising (Boush, Fristad, and Rose 1994).

This concern about the effects of advertising on children has two components: social and political. The social concern involves consumers', particularly parents', beliefs that advertising affects children detrimentally. For example, Hite and Eck (1987) find that consumers view children's advertising as manipulative, promoting materialism, stifling creativity, and disrupting parent-child relationships. This social concern also has involved the formation of public interest groups with the intent of protecting children from advertising. For example, in 1978, Action for Children's Television (ACT) petitioned the Federal Communications Commission (FCC) to ban all television advertising directed to children.

The political concern stems from the criticisms and actions of consumers and public interest groups and has resulted in both self-regulation by television networks and governmental regulation of children's advertising. One particular question is whether and to what extent children understand the intent of advertising (i.e., Do children know what commercials are and what they are trying to do?). The public policy issue relevant to children's understanding of ad intent is fairness. "Are young children, who possess only limited capabilities for evaluating commercial persuasion, fair targets for advertising?" (Kunkel and Roberts 1991, p. 58)? From a legal perspective, if children are unaware of the persuasive intent of advertising, all advertisements aimed at them are, by definition, unfair and/or misleading. In turn, it has been proposed that children who do not understand the intent of advertising are influenced more easily by advertising, expressing greater beliefs in commercial content and making more purchase requests than children with a greater understanding of advertising intent (Adler et al. 1977).

Thus, this research stream is important given its value in expressing social values as well as affecting past and future public policy efforts by regulators, such as the FCC and the Federal Trade Commission (FTC), to protect children from advertising. In particular, when factors influencing the relationship between age and understanding of advertising intent are understood more clearly, policymakers will be better able to establish guidelines for the regulation of children's advertising (or, more basically, whether any guidelines are needed at all).

The Research Question

The purpose of this meta-analysis is to examine the literature that has investigated the extent to which children understand the intent of advertising. Specifically, those studies that address the questions "What is a commercial?" and "Why is a commercial on television/What is a commercial trying to do?" are the focus of this meta-analysis. This area of study was selected purposefully to serve as a starting point for meta-analyses of research on children and advertising. Given the diversity and number of studies that have...
addressed the relationship of advertising to other variables, this area represents a small proportion of studies in the literature. For example, 21 articles (with 23 effect sizes) met the criteria for inclusion in this meta-analysis.

Most studies have found a positive relationship between age and understanding of ad intent. That is, as children get older, they understand better the intent of advertising. However, though this appears to be an unambiguous finding, it is not clear what factors influence the strength of this relationship. Specifically, this meta-analysis addresses the following questions:

1. Do the studies assessing the understanding of ad intent in children share a common effect size (i.e., are they homogeneous)? If not, what study characteristics moderate or account for the variance in effect sizes across studies?
2. What do the results of the meta-analysis suggest for researchers and public policymakers?

After a brief review of the literature, I describe the method. Then, I present the results, including a series of analyses involving study characteristics that act as moderators of the relationship between age and understanding of ad intent. Finally, I provide a discussion of the findings and directions for further research and public policymaking.

**Literature Review**

**Children and Advertising**

The research literature on children and advertising is extensive: Over the past two decades, academic researchers have attempted to determine what effects advertising has on children. The research on children and advertising can be classified into two primary categories, each with several subcategories (Young 1990):

1. Cognitive processes activated as a result of watching and listening to advertising
   a. attention to advertisements
   b. ability to distinguish between advertising and programs
   c. understanding of ad intent
   d. interpretation of advertising content
   e. memory for advertisements (recognition and recall, awareness of advertisements)
   f. other processes involved (cognitive mediators)
2. What the child does with the information processed
   a. effect on knowledge, attitudes, and values
   b. effect on other people (e.g., parents)
   c. effect on choice/consumption behavior or other types of behavior (e.g., antisocial behavior)

Given the proliferation of research in this area, reviews of the literature have been made throughout the past two decades (e.g., Adler et al. 1980; McNeal 1987; Young 1990). These reviews are summaries of the literature, perhaps using vote-counting methods to draw conclusions as to what has been done and what should be done next. However, as Young (1990, p. 39) writes,

The research literature on children and television advertising should not be regarded as a series of detached experimental investigations, each one painstakingly getting one step nearer the goal of truth. Progress has been fitful and centered on particular problem areas. There is much empirical work and dangerously little theory and this has led to some muddled thinking and conceptual confusion during the years when most of the research was published.

It has been suggested that any advertising directed at children is in fact "bad" because it exploits their vulnerability (Adler et al. 1980). The question of whether children understand the intent of advertising centers on the notion that children progress from a state of vulnerability to sophistication in skills and abilities (Young 1990). Congruent with this notion, a positive relationship generally has been found between age and understanding of ad intent. Whereas on the surface this conclusion appears unambiguous, a review of the literature exposes major conceptual or methodological differences among the studies. Thus, the studies are coded with respect to these differences with the intent to clear some of the "muddled thinking and conceptual confusion" in this literature.

**The Relationship Between Age and Understanding of Ad Intent: Potential Moderator Effects**

**Measurement of Understanding of Ad Intent**

Measurement of children's understanding of the intent of advertising has been primarily through verbal assessments, including personal interviews (e.g., Macklin 1983) and written questionnaires (Boush, Friestad, and Rose 1994). In the 1970s, almost all of the studies that examined children's understanding of ad intent were personal interview assessments (for a review of these studies, see Macklin 1987). The idea that children are able to articulate their understanding of ad intent, however, has been questioned. For example, Macklin (1987) proposes that this task may be too difficult for children and that the conclusion that children do not understand ad intent is problematic. Thus, several studies have assessed the understanding of ad intent through non-verbal tasks (Donohue, Henke, and Donohue 1980; Kunkel 1988; Macklin 1985, 1987). These tasks include having children point at pictures to demonstrate their understanding of ad intent (Donohue, Henke, and Donohue 1980; Kunkel 1988; Macklin 1987) or enact the behavior that the product spokesperson desired (Macklin 1987).

**Type of Intent Assessed**

In the literature, the informational function of advertising has been distinguished from the persuasive function (e.g., Macklin 1987; Roberts 1982). The informational function of advertising is simply showing products that are available in the store (Macklin 1987). The persuasive function, conversely, requires understanding of four additional attributes: (1) that the source has other perspectives, hence other interests, than those of the receiver; (2) that the source intends to persuade; (3) that persuasive messages are, by definition, biased; and (4) that biased messages demand different interpretation strategies than do primarily informational messages (Macklin 1987; Roberts 1982). Similarly, Robertson and Rossetter (1974) distinguish between two types of attributional intent: assistive (e.g., "commercials tell you about things") and persuasive (e.g., "commercials try to make you buy things"). Blosser and Roberts (1985) further distinguish between five types of intent—to inform, to teach, to entertain, to sell, and to persuade.
Although more specific distinctions between the five types of intent discussed by Blosser and Roberts (1985) may be important, the literature has not taken these differences into consideration. For example, unlike Blosser and Roberts (1985), most studies seem to equate “selling” intent with “persuasive” intent. In addition, with the exception of two studies (Macklin 1985; Robertson and Rossiter 1974), the literature has not assessed empirically the differences between informational/assistive intent and persuasive/selling intent and/or focused on one of these types. Therefore, of primary concern in the meta-analysis is the commonly used distinction between persuasive/selling intent and informational/assistive intent.

**Type of Ad Exposure**

In the literature, measurement of children’s understanding of the intent of advertising has occurred in the context of various research designs. Surveys or interview formats, for example, have been used (e.g., Ward, Wackman, and Wartella 1975, 1977). In this type of research design, subjects are interviewed and asked general questions about their understanding of ad intent (e.g., “What are commercials for?” “Why do they have commercials on television?”) and are not exposed to commercials and/or programming.

When the assessment of the understanding of ad intent has occurred in conjunction with other research objectives (e.g., assessment of the degree to which children can distinguish between commercials and programming), measurement of understanding of ad intent has generally occurred after the subjects have been exposed to a series of commercials only or commercials and other types of programming. For example, Rubin (1974) assesses understanding of ad intent in addition to other factors, such as recall of specific commercial elements. In this study, subjects were exposed to one of two types of commercials prior to questioning.

In other cases, commercials were embedded in other types of programming. For example, Stutts, Vance, and Hudelson (1981) conduct an experiment in which children were exposed to one of three video segments containing a cartoon and commercial, with segments differing as to type of separator device between the cartoon and commercial. After the experiment, the subjects were asked general questions with respect to their understanding of ad intent. Blosser and Roberts (1985) expose subjects to different versions of videotapes containing news, an educational spot, a commercial, and a public service announcement and then ask them general questions with respect to understanding of ad intent.

It is possible that the type of ad exposure (i.e., “no ad,” “ad only,” or “ad mixed”—advertisements and other types of programming) may moderate the strength of the relationship between age and understanding of ad intent. For example, subjects may be better able to articulate the intent of advertising after exposure to an advertisement versus no exposure to an advertisement. Merely viewing an advertisement, especially in an unrealistic setting where no (or few) distractions occur, may “cue” subjects to the advertisement’s informative and/or persuasive/selling intent.

**Publication Year**

Beginning in 1974, policies were established to protect children from advertising. Since then, the regulation of children’s advertising in the United States has seen several major changes (for a comprehensive review, see Wilson and Weiss 1992). Specifically, in 1974, a policy was issued by the FCC that limited the amount of advertising during children’s television programming to 9.5 minutes per hour on weekends and 12 minutes per hour on weekdays. These limits, according to the FCC, “struck a balance between the needs of children, who were judged uniquely susceptible to commercial influence, and the needs of broadcasters, who were dependent upon advertising revenue to maintain the children’s program offerings” (Kunkel and Roberts 1991, p. 61). In addition, that policy called for broadcasters to separate program content from commercial messages targeted toward children by prohibiting program-length commercials (programs that promote products within the body of the story) and host selling (the use of the same characters in commercials as are featured in adjacent programming). “Bumpers” also were required during all children’s programming, which separated programming and commercials with five-second segments, such as “And now a word from our sponsor.”

In 1984, many of the FCC’s previous policies were reversed, driven by a shift in the U.S. government’s philosophy toward deregulation. The FCC argued that marketplace forces should determine the acceptable amount of commercial content during children’s programming. No longer was the amount of advertising during children’s programming limited or program-length commercials banned. However, the practice of host selling was still prohibited.

Then, in 1990, the Children’s Television Act was passed by Congress. The ban on program-length commercials was reinstated by the FCC, and a policy that a related advertisement must be separated from the start or close of a toy-based program by some portion of an unrelated program was issued. However, the definition of a program-length commercial was narrowed, which some have claimed is redundant with host selling, a tactic already prohibited by the FCC.

Given these changes in regulation, it is possible that the nature of children’s advertising, because it varied over several time periods, may affect the strength of the relationship between age and children’s understanding of ad intent. For example, program-length commercials, which were banned in 1990, may blur the distinction between commercials and programming and thus reduce children’s understanding of ad intent. Four time periods that correspond to changes in regulation of children’s advertising were examined in the meta-analysis: pre-1974, 1975–1984, 1985–1990, and 1991–present. Publication year thus served as a proxy for U.S. legislation enacted at the time of the study.

**Publication Type**

Meta-analysts generally are concerned with potential sources of bias that may exist in a body of literature. One type of bias that has received considerable attention from meta-analysts is publication bias (for a discussion of publication bias, see Begg 1994). Most commonly, publication bias is conceptualized as selective publication. That is, the decision to publish research is influenced by the results of the study, and those studies producing statistically significant results are more likely to be published. To test for the presence of publication bias in the literature on children’s understanding of ad intent, the type of publication was
included as a potential moderator by examining two types of publications: published journal articles and books/edited books. The books/edited books category represents an underrepresented research literature format and thus may be subject to publication bias.

Method

Identification of Articles

A computerized search on Psychlit was conducted, covering the published literature from 1972 to the present. The Business Periodicals Index (BPI), which covers published literature from 1984 to the present, was also searched. The keywords used in these searches were “advertising” and “children.” Issue-by-issue searches of conference proceedings, including Advances in Consumer Research, Developments in Marketing Science, and Enhancing Knowledge Development in Marketing, also were conducted. In addition, extensive reference lists by McNeal (1987) and Young (1990) were consulted, as was McNeal’s (1991) published bibliography of research conducted on advertising and children. Reference lists of articles included in the meta-analysis and related articles also were searched. Finally, an active researcher in the area was contacted but had no unpublished data relevant to the research question.

Sample of Studies and Selection Criteria

To be included in the meta-analysis, a study needed to provide a correlation between age/grade and understanding of ad intent or enough information that a correlation could be calculated. Three studies (Donohue, Meyer, and Henke 1978; Sanft 1986; Wiman 1983) were excluded because the samples of children used were aggregated into one age group. Other studies (Bever et al. 1975; Blatt, Spencer, and Ward 1972; Paget, Kritt, and Bergemann 1984) were excluded because a correlation coefficient could not be calculated from the information provided in the article. For example, Blatt, Spencer, and Ward (1972) report their findings as “conceptual categories” (i.e., examples from transcripts of children’s interview responses) rather than numeric summaries by age group. Some studies found in the literature search contain data published elsewhere (Christenson 1982; Rossiter and Robertson 1975, 1976; Ward, Reale, and Levinson 1972; Ward and Wackman 1973; Ward, Wackman, and Wartella 1975). To avoid data dependency, none of these studies was included in the meta-analysis.

The studies included in the meta-analysis also were required to assess understanding of either the persuasive/selling intent or the informational/assistive intent of advertising. In one study that measured separately each type of intent (Robertson and Rossiter 1974), data were provided for both assistive and persuasive intent, and an effect size was calculated for each. In all analyses except those involving the type of intent as a moderator, the effect size for persuasive intent from this study was used. In the analyses assessing whether type of intent was a moderator, the effect size for assistive intent was used to increase the number of studies in that category from two to three (though the majority of the studies [n = 20] were still in the persuasive/selling intent category).

In another study (Blosser and Roberts 1985), children’s understanding of persuasive/selling intent was reported separately as well as in combination. The data provided for persuasive/selling intent combined were used for calculating an effect size, because this was consistent with other studies in the meta-analysis that had not reported those separately.

In summary, 33 articles from journals, books, or dissertations were identified for potential inclusion in the meta-analysis. Twelve of these studies were excluded because of data duplication, aggregation of samples into one age group, or an inability to calculate a correlation coefficient from the information provided. Thus, 21 articles from journals, books, or dissertations were included in the meta-analysis. Two of these articles (Macklin 1985, 1987) included two studies, yielding a total of 23 reports from separate study samples.

Coding of Studies

Each study that met the selection criteria was coded for the potential moderator effects discussed previously. In addition, each study was coded for gender, race, nationality, and socioeconomic status of the subjects. In most studies, the subject pool was mixed with respect to these features, and data were aggregated; thus, using these features as potential moderator effects was not possible.

As was stated previously, publication year served as a proxy for U.S. legislation enacted at the time of publication. This procedure did not account for publication lag time; thus, those studies whose publication date was at or near “cutoff” years (e.g., Blosser and Roberts 1985) were inspected for actual data collection times. No indication of the time of data collection was given in any study except for Ward, Wackman, and Wartella’s (1977), which specified the year of data collection as 1973. Hence, this study was included in the pre-1974 group of studies. Young’s (1987) study was eliminated from the analyses for publication year because it involved British children. A list of included studies and their relevant codes are presented in Table 1.

Calculation of Effect Sizes

For each study that provided sufficient data, an effect size in the form of $r$ (the zero-order Pearson product-moment correlation coefficient) was computed (Hedges and Olkin 1985). This effect size represents an estimate of the underlying common population correlation coefficient between age and understanding of ad intent and is easily interpretable and scale-free.

Three of the studies in the meta-analysis provided the correlation between age and understanding of ad intent either in the article itself (Faber, Perloff, and Hawkins 1982; Macklin 1987) or through personal contact with the authors (Boush, Friezstj, and Rose 1994). Meyer, Donohue, and Henke (1978) provided correlations between age and understanding for three specific questions that assessed understanding of intent. I averaged these three correlations to derive one effect size. For studies in which a $2 \times 2$ table of results was presented or derived from percentages reported in the text of the article (Christenson 1980; Gaines and Esserman 1981), I calculated a chi-square (with one degree of freedom) and converted it to $r$ by a conversion formula provided by Rosenthal (1991, p. 19). One study (Budder et al. 1981) provided chi-squares with one degree of freedom relevant to two questions that assessed understanding of ad intent. For this meta-analysis, each chi-square was converted directly to $r$, and these two $r$'s were then averaged to
Table 1. Coded Characteristics of Included Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Measurement of Intent</th>
<th>Type of Intent Assessed</th>
<th>Type of Ad Exposure</th>
<th>Publication Year</th>
<th>Publication Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macklin (1985)—Study 1</td>
<td>Nonverbal</td>
<td>Persuasive/selling</td>
<td>Ad only</td>
<td>1985–1990</td>
<td>Journal article</td>
</tr>
<tr>
<td>Macklin (1985)—Study 2</td>
<td>Nonverbal</td>
<td>Persuasive/selling</td>
<td>Ad only</td>
<td>1985–1990</td>
<td>Journal article</td>
</tr>
<tr>
<td>Macklin (1987)—Study 1</td>
<td>Nonverbal</td>
<td>Informational/assistance</td>
<td>Ad only</td>
<td>1985–1990</td>
<td>Journal article</td>
</tr>
<tr>
<td>Robertson and Rossiter (1974)</td>
<td>Verbal</td>
<td>Informational/assistance</td>
<td>No ad</td>
<td>Pre-1974</td>
<td>Journal article</td>
</tr>
<tr>
<td>Rubin (1974)</td>
<td>Verbal</td>
<td>Persuasive/selling</td>
<td>Ad only</td>
<td>Pre-1974</td>
<td>Journal article</td>
</tr>
</tbody>
</table>

*Christenson (1980) was published in *Communication Research* in 1982, so it was categorized as a journal article.

derive one effect size. In one study (Kunkel 1988), means and standard deviations for younger and older subjects were provided, so I calculated a Hedge’s g and then converted it to r by a formula provided by Rosenthal (1991, p. 24).

For the other studies included in the meta-analysis, r was calculated by correlating age and grade level with understanding of ad intent. A spreadsheet was used to enter frequencies of age and grade level and understanding of intent reported in each study and to calculate a correlation coefficient between the two variables. In some studies, understanding of ad intent was reported in low, medium, and high levels (e.g., Ward, Wackman, and Wartella 1977). In others, understanding of ad intent was recorded merely as success (understanding of intent exhibited) or not success (understanding of intent not exhibited). For example, Stephens and Stutts (1982) provided percentages of three-, four-, and five-year-olds who correctly and incorrectly responded when asked, “Why are commercials on TV?”

In some studies in which understanding of ad intent was measured through verbal responses, a series of questions was used. For example, Blosser and Roberts (1985) asked subjects three questions to ascertain intent: “What is a commercial?” “Why are they on TV?” “What do they do?” In that study, responses to the questions were pooled and coded, and percentages were then reported for those who correctly articulated intent. In other studies that measured intent through a series of questions, percentages were reported for correct/incorrect responses to each question (e.g., Stutts, Vance, and Hudleson 1981). When percentages were reported for each question, I calculated correlations for each and then calculated an average of the correlations for use in the meta-analysis, Ward, Wackman, and Wartella (1977) provide a correlation of .66 between grade and intent. However, this value cannot be confirmed through spreadsheet calculations. Thus, I calculated an average correlation of the three questions designed to measure ad intent and used it in the meta-analysis.

In the experimental studies (Kunkel 1988, Stutts, Vance, and Hudleson 1981; Wilson and Weiss 1992), no effect on understanding of intent was found for treatments nor did age interact with treatments. Thus, deriving an effect size was not problematic.

In all studies but two, sample sizes were reported clearly. However, in Meyer, Donohue, and Henke’s (1978) study, sample sizes varied across three questions measuring understanding of ad intent and were not reported for each. Thus, a sample size of 177 was used in the meta-analysis, a conservative estimate derived from information provided in the article. Similarly, in Robertson and Rossiter’s (1974) study, a conservative estimate of sample size was derived and used in the meta-analysis (n = 274), because sample sizes varied across several variables of interest in that study.

In Table 2, I list the studies included in the meta-analysis along with the method of measurement of understanding of ad intent, correlations between age and intent, average correlations between age and intent, and sample sizes for each. Before averages were calculated, each r was transformed to a Fisher’s z (Rosenthal 1991, p. 21). Fisher’s z values are provided in parentheses after each correlation.

To estimate a mean effect size (a common correlation coefficient) among the studies in the meta-analysis, each r was transformed to z and a weighted average of the studies (z̄) was calculated. Individual study effects were weighted by an estimate of the inverse of the variance (N – 3) to give
## Table 2. Included Studies and Their Effect Sizes

<table>
<thead>
<tr>
<th>Study</th>
<th>Measurement of Understanding of Ad Intent</th>
<th>Correlation Between Age and Intent(^a)</th>
<th>Average Correlation Between Age and Intent(^a)</th>
<th>N</th>
</tr>
</thead>
</table>
| Blosser and Roberts (1985)         | What is a commercial? Why are they on TV?  
                                    | What do they do?\(^{bc}\)  
                                    | Child commercial  
                                    | .59 (.68)  
                                    | .56 (.64)  
                                    | 90  |
|                                   | Adult commercial  
                                    | .54 (.60)  
                                    |                                                  |                                               |    |
| Boush, Friested, and Rose (1994)   | 12 pairwise comparisons of four different tactics and three different effects  
                                    | .10\(^{eh}\) (.10)  
                                    |                                                  | 427  |
| Butter et al. (1981)               | What is a commercial?  
                                    | .23 (.23)  
                                    | .22 (.23)  
                                    | 80   |
|                                   | Why do they have commercials on TV?  
                                    | .22 (.22)  
                                    |                                                  |                                               |    |
| Christenson (1980)                 | What is a commercial? Why do they have commercials on TV? What do commercials try to do?\(^{b}\)  
                                    | .74 (.95)  
                                    |                                                  | 30\(^d\)  |
| Donohue, Henke, and Donohue (1980) | Nonverbal task: Point to what Toucan Sam wants you to do.  
                                    | .18 (.18)  
                                    |                                                  | 97   |
| Faber, Perloff, and Hawkins (1982) | What is a TV commercial? Why are commercials on TV? What do commercials try to do?  
                                    | .25\(^c\) (.26)  
                                    |                                                  | 67   |
| Gaines and Esserman (1981)         | What is a commercial for? Why is it on TV?\(^{b}\)  
                                    | .25 (.25)  
                                    |                                                  | 104  |
                                    | .17 (.18)  
                                    |                                                  | 152  |
| Macklin (1983)                     | Today we are going to see some TV commercials—what do you think we are going to see? If somebody asked you what a TV commercial is, what would you tell them? What is a TV commercial?\(^{b}\)  
                                    | .37 (.39)  
                                    |                                                  | 35   |
| Macklin (1985)—Study 1             | Nonverbal task: Select a picture.  
                                    | .15 (.15)  
                                    |                                                  | 30   |
| Macklin (1985)—Study 2             | Nonverbal task: Select a picture.  
                                    | .08 (.08)  
                                    |                                                  | 30   |
| Macklin (1987)—Study 1             | Nonverbal task: Select a picture.  
                                    | .28\(^e\) (.29)  
                                    |                                                  | 120  |
                                    | .49\(^e\) (.53)  
                                    |                                                  | 45   |
| Meyer, Donohue, and Henke (1978)   | What is a TV commercial? Why are they shown on TV? What do they try to do?  
                                    | .45\(^e\) (.49)  
                                    | .44 (.47)  
                                    | 177  |
| Robertson and Rossiter (1974)       | Open-ended questions adapted from Ward (1972)  
                                    | Attribution of persuasive intent  
                                    | .47\(^f\) (.51)  
                                    | 274  |
|                                    | Attribution of assistive intent  
                                    | .02 (.02)  
                                    |                                                  |                                               |    |
| Rubin (1974)                       | Understanding of commercial purpose  
                                    | .52 (.58)  
                                    | .43 (.45)  
                                    | 72   |
|                                    | Understanding of what is to be wanted  
                                    | .32 (.33)  
                                    |                                                  |                                               |    |
| Stephens and Stutts (1982)         | Why are commercials on TV?  
                                    | .33 (.34)  
                                    |                                                  | 104  |
| Stutts, Vance, and Hudleson (1981)  | Do you know what a commercial is? Will you tell me what you think a commercial is? Why are commercials on TV?  
                                    | .14 (.14)  
                                    | .44 (.48)  
                                    | 108  |
| Ward (1972)                        | What is a TV commercial? Why are commercials shown on TV?  
                                    | .48 (.52)  
                                    | .47 (.51)  
                                    | 64   |
more precise estimates greater weight (Hedges and Olkin 1985, p. 231).

Homogeneity of Effect Size Test

Homogeneity of effect size was tested as suggested by Hedges and Olkin (1985, p. 235). This involves calculating

\[ Q = \sum (n_i - 3)(\bar{z}_i - \bar{z})^2, \]

where \( \bar{z} \) is the mean of the weighted \( z \)-transformed correlations. The \( Q \) statistic has an approximate chi-square distribution with \( k - 1 \) degrees of freedom, where \( k \) is the number of studies included in the analysis. A nonsignificant \( Q \) statistic indicates homogeneity of effect size. If homogeneity is not achieved, combining estimates of effect size across studies is misleading, because the studies do not share a common underlying effect size (Hedges 1986, p. 383). In addition, nonhomogeneity of effect size suggests the potential presence of moderator variables.

Results

For 23 study effects, a cumulative N of 2934 and an estimate of \( r \) of .37 (with a 95% confidence interval of .34 to .40) resulted from the meta-analysis. However, homogeneity across all 23 studies was not achieved (\( Q = 112.36, p < .001 \)). For the analyses for publication year, one study (Young 1987) was eliminated from the total pool of studies, because the subjects used were British children; therefore, the study did not have relevance (because publication year served as a proxy for U.S. legislation enacted at the time of the study). Homogeneity across the remaining 22 studies was not achieved (\( Q = 111.68, p < .001 \), cumulative \( n = 2811 \)).

Because homogeneity of effect size was not achieved in the entire set of studies, moderator analyses were undertaken for each potential study effect described previously (measurement of understanding of ad intent, type of intent assessed, type of ad exposure, publication year, and publication type). The studies were categorized according to each potential study effect and tested for homogeneity within each subgroup (\( Q_w \)). For example, the set of studies that used verbal assessments of intent was tested to determine whether those studies share a common effect size; a separate test of the homogeneity of the set of studies that used nonverbal assessments was conducted. Consistent with previous meta-analyses (e.g., Brown and Peterson 1993; Brown and Stayman 1992) and recommendations of methodologists (e.g., Hedges 1986; Hedges and Olkin 1985), studies were deleted in the meta-analysis if homogeneity still was not achieved after subgrouping the studies. The study with the largest weighted deviation from the mean effect size was eliminated, the mean effect size recalculated, and the homogeneity test repeated (Hedges and Olkin 1985, p. 256). This process was conducted until homogeneity was achieved in each subgroup. Then, tests were conducted to assess whether significant differences among mean effect sizes for the subgroups exist (\( Q_b \)). The results of the moderator analyses are presented in Table 3.

In all subgroups, except informational/assistive intent as a type of intent, homogeneity was achieved by eliminating one or several outliers. In the meta-analysis, the amount of data eliminated ranged from 10.9% to 42.9%. There are differing opinions as to the amount of data that should be deleted to achieve homogeneity (see Hedges and Olkin 1985, p. 250). However, when outliers were eliminated, the results of the between-group homogeneity tests did not change, so deletion of studies did not change the conclusions drawn from testing for between-group differences. For example, the mean effect size for studies using verbal assessments was significantly greater than the mean effect size for studies using nonverbal assessment before as well as
Table 3. Moderator-Level Effect Sizes

<table>
<thead>
<tr>
<th>Variable and Class</th>
<th>Between-Classes Effect (Q_B)</th>
<th>Number of Studies</th>
<th>Cumulative n</th>
<th>Mean Weighted Effect Size (r)*</th>
<th>95% CI for r</th>
<th>Homogeneity Within Class (Q_W)</th>
<th>Studies Deleted to Achieve Homogeneity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement of ad intent</td>
<td>13.35***</td>
<td>14</td>
<td>1456</td>
<td>.40 (.40)</td>
<td>.36 .45</td>
<td>20.97</td>
<td>Boush, Friestad, and Rose (1994)</td>
</tr>
<tr>
<td>verbal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Christenson (1980)</td>
</tr>
<tr>
<td>Type of intent assessed</td>
<td>10.53**</td>
<td>15</td>
<td>1337</td>
<td>.32 (.36)</td>
<td>.27 .36</td>
<td>18.81</td>
<td>Boush, Friestad, and Rose (1994)</td>
</tr>
<tr>
<td>persuasive/selling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Blosser and Roberts (1985)</td>
</tr>
<tr>
<td>informational/assistive</td>
<td>3</td>
<td>439</td>
<td>.14</td>
<td>.05 .24</td>
<td></td>
<td>12.58**</td>
<td>Ward, Wackman, and Wartella (1977)</td>
</tr>
<tr>
<td>Zuckerman and Gianinno (1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>none</td>
</tr>
<tr>
<td>Type of ad exposure</td>
<td>7.50*</td>
<td>7</td>
<td>820</td>
<td>.39 (.38)</td>
<td>.33 .45</td>
<td>8.80</td>
<td>Boush, Friestad, and Rose (1994)</td>
</tr>
<tr>
<td>none</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ward, Wackman, and Wartella (1977)</td>
</tr>
<tr>
<td>ad only</td>
<td>6</td>
<td>394</td>
<td>.29</td>
<td>.19 .38</td>
<td></td>
<td>7.10</td>
<td>none</td>
</tr>
<tr>
<td>ad mixed</td>
<td>5</td>
<td>460</td>
<td>.45 (.39)</td>
<td>.37 .52</td>
<td></td>
<td>7.58</td>
<td>Christenson (1980)</td>
</tr>
<tr>
<td>Publication year</td>
<td>72.96***</td>
<td>4</td>
<td>957</td>
<td>.51</td>
<td>.46 .56</td>
<td>3.52</td>
<td>none</td>
</tr>
<tr>
<td>pre-1974</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Christenson (1980)</td>
</tr>
<tr>
<td>1991-present</td>
<td>1</td>
<td>427</td>
<td>.10 (.15)</td>
<td>.01 .19</td>
<td></td>
<td>NA</td>
<td>Wilson and Weiss (1992)</td>
</tr>
<tr>
<td>Publication type</td>
<td>23.21***</td>
<td>15</td>
<td>1397</td>
<td>.37 (.32)</td>
<td>.32 .41</td>
<td>20.35</td>
<td>Boush, Friestad, and Rose (1994)</td>
</tr>
<tr>
<td>journal article</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Blosser and Roberts (1985)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Young (1987)</td>
</tr>
</tbody>
</table>

*aThe mean weight effect size (r) represents the mean corrected correlation for the reduced homogeneous set of study effects. The mean corrected correlation for all studies is given in parentheses in cases in which studies were deleted to achieve homogeneity.

*Significant at p < .05.
**Significant at p < .01.
***Significant at p < .001.
after outliers were deleted. In all cases, a significant difference was found between moderator-level effect sizes.

**Measurement of Understanding of Ad Intent**

A significant difference was found between the effect size for verbal assessment ($r = .40$) and the effect size for nonverbal assessment of understanding of ad intent ($r = .23$). Given the basis for arguing for nonverbal assessment (i.e., that verbal assessments may be particularly difficult for young children), it is not surprising to find the effect size for nonverbal studies lower than that of verbal studies. This is likely due to the higher demonstration of understanding of ad intent in younger children when using nonverbal assessments (compared with verbal assessments); thus, understanding across ages would be more stable (hence a lower correlation).

**Type of Intent Assessed**

A significant difference was found between the effect size for persuasive/selling intent ($r = .32$) and the effect size for informational/assistive intent ($r = .14$). The lower correlation for informational/assistive intent may be due to more consistent levels of understanding of informational/assistive intent across ages of children surveyed. As Robertson and Rossiter (1974, p. 17) write, “Persuasive intent, as would be clearly surmised, is a higher order of attributional sophistication and is dependent upon maturational development and, by implication, cumulative exposure to television commercials.” However, as stated previously, homogeneity was not achieved in the set of studies that assessed informational/assistive intent (Macklin 1987; Robertson and Rossiter 1974). These individual effect sizes were .28 (Macklin 1987), .49 (Macklin 1987), and .02 (Robertson and Rossiter 1974).

**Type of Ad Exposure**

A significant between-class effect was found with respect to the type of advertising exposure before measurement of understanding of ad intent. The effect sizes for “no ad” exposure ($r = .39$) and “ad mixed” exposure ($r = .45$) are higher than the effect size for “ad only” exposure ($r = .29$). This suggests that confusion may occur when a child sees an advertisement in isolation, because it does not enable him or her to distinguish between programming and commercials and thus to articulate or demonstrate understanding of ad intent. Five of the six studies in the “ad only” category, however, were also studies that used nonverbal assessments of understanding of ad intent. This may explain partially the relatively low correlation for this group of studies.

**Publication Year**

A significant between-class effect was found with respect to publication year. The effect size for pre-1974 studies ($r = .51$) is higher than the effect sizes for 1975–1984 studies ($r = .30$), 1985–1990 studies ($r = .24$), and 1991–present studies ($r = .10$). This suggests that policies established to protect children from advertising, beginning in 1974, have been successful in enhancing children’s understanding of ad intent. That is, perhaps the understanding of ad intent has been enhanced in younger children, and thus understanding across ages is more stable (hence a lower correlation).

**Publication Type**

Finally, a significant difference was found between the effect sizes for publication type. The effect size for books/edited books ($r = .55$) is much higher than the effect size for published journal articles ($r = .37$). No apparent reason for the variance in effect sizes exists. For assessment of the existence of publication bias, the statistical significance of each effect size was examined (i.e., Is the effect size significantly different from zero?). Both effect sizes are significantly different from zero ($p < .001$; using a test described by Hedges and Olkin 1985, p. 231). Thus, it seems that publication bias is limited in this body of literature; the reason for the more frequent publication of journal articles than unpublished work (i.e., books and edited books) is not the statistical significance of their findings, because both types of work have produced such findings.

**Discussion**

The first purpose of this meta-analysis is to determine whether studies assessing the understanding of ad intent in children share a common effect size. Given the results, the second purpose of this meta-analysis is to provide guidance for future efforts by researchers and public policymakers.

The results suggest that these studies are not variant with respect to effect size. Although the relationship is generally positive, the strength of relationship varies across studies, and thus drawing conclusions from the entire set of studies is problematic. Several study characteristics were examined and found to moderate the relationship between age and understanding of ad intent. Differences in methods across the studies led to much of the variance in results of studies assessing the relationship between age and understanding of ad intent.

First, the results suggest that nonverbal assessments may be more appropriate for young children than verbal assessments. A lower correlation for nonverbal assessments suggests that understanding of ad intent is more stable across age levels. Nonverbal measures seem to disclose understanding of ad intent that was previously undetected because of children’s inability to verbalize that understanding. Second, the results suggest that the distinction between types of intent is an important one. Understanding of the informational/assistive intention of advertising entails comprehension of the notion that “commercials tell you about things.” However, understanding of the persuasive/selling intent of advertising is more sophisticated and entails comprehension of the notion that “commercials try to make you buy things.” Third, the results of the meta-analysis suggest that the type of exposure before measurement of understanding of ad intent (“ad only,” “ad mixed,” and “no ad”) affects the level of understanding displayed by children. For example, confusion may occur when a child sees an advertisement in isolation, thus decreasing his or her understanding of ad intent. Fourth, the results with respect to publication year appear to be beneficial for the advocates of regulation of children’s advertising. Fifth, researchers in this area should feel comfortable that publication bias does not seem to exist in this body of literature.

**Guidance for Researchers**

Several issues should be considered by researchers who engage in future efforts in this area. Specifically, some of
the moderating variables used in this meta-analysis should be manipulated directly in future experimentation. For example, further research should manipulate the type of exposure ("ad only," "ad mixed," and "no ad") to clarify its relationship with age and understanding of ad intent. Researchers also should note that an important issue here is external validity. The "ad mixed" condition, in which children are exposed to cartoons, commercials, and separator devices between the cartoon and commercial, seems most consistent with the current legislation, the Children’s Television Act of 1990.

In addition, future experimentation should measure both informational/assistive and persuasive/selling intent. For example, the conceptual and methodological difference between these two types of intent is not clear. Conceptually, these types of intent seem to fall on a continuum from low levels of understanding (the informational/assistive function) to higher levels of understanding (the persuasive/selling function). However, the literature (and, consequently, this meta-analysis) has not treated them consistently as such. For example, Roberts (1982) argues that these functions are distinct and that the perspective a child is able to take determines his or her level of understanding of ad intent. Specifically, if a child is able to take the buyer’s perspective, then he or she will understand that advertising’s function is to show products that are available to buy. Conversely, if a child is able to take the seller’s perspective, then he or she will understand that advertising’s function is to persuade the audience in order for the advertisers to profit (for a discussion of these perspectives, see Macklin 1987). Thus, further research should determine whether the types of intent are independent of each other (i.e., whether understanding of each type of intent develops simultaneously and/or at the same rate) or whether an understanding of informational/assistive intent is subsumed by a higher level of understanding of persuasive/selling intent.

Although the results of the meta-analysis suggest that nonverbal measures of intent may detect understanding in young children that verbal measures cannot, the development of reliable nonverbal measures should continue. Although some studies claim to measure the persuasive/selling intent through nonverbal measures (Donohue, Henke, and Donohue 1980; Macklin 1985), this is questioned by Macklin (1987), who argues that a nonverbal task of asking children to point to “what Toucan Sam wants you to do” may not assess understanding of the selling intent of advertising. Rather, Macklin (1987) suggests that this task may assess a child’s acceptance of advice from the product spokescharacter. In addition, Macklin (1985) finds dramatic differences in understanding of ad intent when the response alternatives are altered in a “point to the picture” task. Specifically, when a more difficult set of nonverbal measures is developed (i.e., a set with additional photo alternatives that illustrate the advertised product), children’s demonstration of understanding of ad intent is lower. Thus, further research should continue to develop nonverbal measures with the goals of determining whether these tasks are ascertaining informational/assistive intent, persuasive/selling intent, or some other type of information, and the extent to which the results are affected by the nature of the task. Developments in verbal assessments should continue as well. The multiple-item scale developed by Boush, Friestad, and Rose (1994), which accounts for different types of advertiser tactics and effects, deserves attention in further research. This scale represents a significantly different type of verbal measure than the personal interview assessments used previously.

Finally, this meta-analysis reveals several issues that largely have been ignored in the literature, which has severely limited our understanding of children’s development of understanding of ad intent. These issues include a need for assessing the effects of other methodological (e.g., the types of instructions given to children), social-psychological (e.g., interaction with parents and peers, degree and type of media exposure), and demographic (e.g., race, education levels of parents, presence of siblings) factors. For example, as Hite and Eck (1987) suggest, the relationship a child has with others, past experiences, and the consumer teaching orientation of parents may influence a child’s understanding of ad intent. Then, the results should include overall mean levels of understanding across age groups to assist public policymakers in determining whether all age cohorts are equally in need of protection.

Guidance for Public Policymakers

As was suggested previously, research assessing the extent to which children understand the intent of advertising is valuable given its value in affecting past and future public policy efforts designed to protect children from advertising. The issue at hand is fairness. Legally, advertising is considered unfair and/or misleading if the children at whom it is aimed are unaware of its intent. Thus, in the last two decades, public policy efforts have been made to ensure the fairness of advertising targeted at children. This meta-analysis identifies specific areas for public policymakers to address.

One issue relevant to public policy is whether types of intent (informational/assistive, persuasive/selling) are independent of each other. If they are, guidelines can be established with respect to specific claims made in advertising—claims may be required to aid in developing an understanding of persuasive intent in younger children.

A potentially encouraging sign for public policymakers is that effect sizes for more recent studies (versus pre-1974 work) are lower when publication year is used as a moderator. Although a conclusion cannot be drawn with certainty, this finding suggests that current efforts at regulation are successful. That is, perhaps understanding across age groups is more stable (hence a lower correlation), which suggests that younger children understand better the intent of advertising now than in previous years. Public policymakers must recognize, however, that several issues remain unanswered.

First, to what extent are the findings of the meta-analysis generalizable? The findings of this meta-analysis are limited to a narrow portion of the population with respect to race. The samples of subjects in the studies included in the meta-analysis were limited to either white (four of the 21 articles) or predominantly white (five of the 21 articles) subject samples. Only one article specified a sample of African-American children. Eleven of the 21 articles did not specify the race of the sample. Thus, the results of the meta-analysis should not be generalized to all races. This is a serious lim-
itation of this body of literature, because research has demonstrated different levels of understanding of ad intent between white and African-American children. For example, Meyer, Donohue, and Henke (1978) compare their findings to Ward’s (1972) and find that 56% of the African-American children in their study never showed any awareness of the intent of advertising, whereas 85% to 90% of the white children in Ward’s (1972) study had at least a minimal level of understanding. Donohue, Meyer, and Henke (1978) also find that 39% of their sample of African-American children had no understanding of ad intent, whereas 18.9% of their sample of white children had no understanding of ad intent. They therefore conclude (p. 57) that this is “disturbing in the sense that without the ability to understand the manipulative and biased approach taken by advertisers, millions of younger black children may well be vulnerable to the influence of commercials.... [T]hese same black children watch so much TV and so many commercials, far more than their white counterparts.”

Second, public policymakers should ask whether alternative explanations for these findings exist. The interpretation of the results with respect to publication year is not certain because it cannot be regarded as causal. That is, there is no assurance that the results of the meta-analysis are attributable to changes in legislation. These lower effect sizes for later time periods may indicate increased understanding due to other factors, such as increasing efforts by public school systems to educate children about advertising. Alternatively, this result may be a function of the fact that more recent studies have used more nonverbal assessments.

Third, public policymakers should recognize that the small number of recent studies assessing children’s understanding of ad intent represents a limitation. The most recent studies were published in 1992 (Wilson and Weiss 1992) and 1994 (Boush, Friestad, and Rose 1994). Because the Children’s Television Act represents a major change in how advertising is presented to children and was passed only two years prior to the publication of Wilson and Weiss (1992), our knowledge of the effectiveness of this act is severely lacking. It is hoped that this meta-analysis awakens public policymakers and researchers to the need for more work in this area, particularly work that integrates the moderators assessed in the meta-analysis and the suggestions made previously. This work then can be applied to answering a more basic question essential to public policymakers: How and in what ways should children be educated as to the intent of advertisers?

A Final Note

Finally, it is hoped that researchers will make efforts to conduct and accommodate future meta-analyses. As was the case here, the results of meta-analyses in other areas relevant to children and advertising will be important in guiding future research efforts and shaping public policy efforts. Accommodation for these efforts will be provided by researchers who report clearly information necessary for calculations of effect sizes and all pertinent aspects of their methodology when conducting primary research. The unanswered issues noted previously reinforce the need for future meta-analyses. In particular, using publication year as a moderator in meta-analyses that address related areas, such as children’s ability to distinguish between programming and commercials, would establish with more confidence its status as a moderator. Then policymakers would be better able to establish and/or revise guidelines for the regulation of children’s advertising. As Kunkel and Roberts (1991, p. 69) write, “research is indeed a necessary component in the policy-making process, at least in those instances in which its bearing is clear and direct.” I believe that these research findings in combination with those of future research efforts (both primary studies and meta-analyses) will have a clear and direct impact.

References


Children's Understanding of the Intent of Advertising


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