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The Effects of Advertising on Children and Adolescents: A Meta-Analysis

Roger Desmond
University of Hartford

Rod Carveth
Marywood University

The power of advertising to elicit consumer behavior in children and adolescents is the second most investigated problem in the literature on communication and behavior. Second only to the links between TV viewing and aggression in terms of the volume of published research, advertising effects occupy research professionals in communication, medicine, psychology, marketing, economics, nursing, and a number of other disciplines. However, there is no consensus among researchers regarding the role of advertising in children's consumer behavior.

Despite this lack of consensus among scholars, strong claims for powerful advertising effects are common. For example, one analysis suggested the potent effects of advertising in this manner: "Collectively, these studies provide compelling evidence that cigarette advertisements are seen by adolescents and that they respond to the advertiser's intent. Some health experts therefore, now believe that cigarette advertising is causally linked to smoking behavior" (Fischer, Schwartz, Richards, Goldstein, & Rojas, 1991, p. 3146). Another, more direct statement of causality (based on correlational data, however) asserted: "Tobacco marketing campaigns between 1988 and 1997 are responsible for 6 million adolescents experimenting with cigarettes. Of those, 2.6 million kids took their first puffs as a result of the Joe Camel campaign; another 1.4 million tried smoking because of the Marlboro campaign" (Thorpe, 1998).

In the popular press, a major role for advertising in various domains of child and adolescent socialization is commonly claimed. Such claims for robust advertising effects extend from the recent concerns about smoking, drinking, and drug use to a pronounced acceptance of advertising as a force that elicits greater consumer demand for all products, including toys, snack foods, and athletic equipment (Amaral, 1998).

Even though the debate about advertising effects on children and adolescents continues in the academic community, the press, politicians, and many of the therapeutic community are more vocal in their certainty of the power of advertising than are those who conduct research.

REVIEW OF THE LITERATURE

A variety of research reviews have appeared in the literature at several moments in history. Early reviews typically concluded that advertising generates moderate to strong effects on young TV viewers (Sheikh, Prasad, & Rao, 1974; Feshbach, Dillman & Jordan, 1979; Rossiter, 1977). The two aspects of child susceptibility most frequently addressed are (a) the outcomes of advertising on children's attitudes and behavior and (b) comprehension of commercials (i.e., do children understand the persuasive intent of commercials and can they distinguish them from programs?). These early reviews generally concluded that children younger than ages 7 or 8 experience difficulty identifying commercials and are therefore more susceptible to advertising appeals than are adults. Another recurring finding in the early reviews is that advertising elicits product requests by young children. A number of studies included in the reviews suggested a high degree of parental yielding to product requests, especially if parents were not product users (e.g., breakfast cereals).

As research on advertising and children became more frequent and more sophisticated in the 1980s and 1990s, literature reviews became more qualified and narrower in scope than they had been previously. In a review of advertising effects literature from the 1980s, Van Evra (1998, p. 97) stated: "Even when they are able to discern differences between programs and ads, however, young children still show very limited knowledge of the commercials and their purpose." She also found that 8- to 14-year-olds are more susceptible to celebrity endorsements than are their older counterparts, especially when celebrities are used in live action commercials. As is the case with the majority of literature reviews in this area, the paraphrased general conclusion is that advertising has powerful effects on the consumer behavior of young children and adolescents. These effects are powerful because (a) commercials directed to children use powerful multimedia techniques to attract attention, (b) children have less ability to discriminate between commercials and programs than do adults, and (c) children have not developed

adult cynicism about advertising, nor do they possess the critical viewing skills that adults gain by experience.

Unnikrishnan and Bajpai (1996) presented a review of advertising and children studies from several nations and used the review to design an 8-month study of how television would affect a large sample of Indian children and adolescents aged 3 to 15. Their conclusion from reviewing relevant literature and from a qualitative and quantitative study of 730 research participants was summarized as, "Our experience with these children strongly indicates that their innocence and lack of defenses against the influence of advertising make them particularly easy prey" (p. 164). Throughout the study, many similar pronouncements of strong effects are found, but evidence for them came from personal interviews of an introspective nature.

Although both selective and comprehensive reviews of research literature may contribute to a greater understanding of advertising effects, both of these traditional approaches pose limitations for policy analysts. In the scientific debates about the dangers of second-hand cigarette smoke, policy was made on the basis of 33 studies, only 17 of which showed a positive and significant relationship between second-hand tobacco smoke and lung diseases. Two studies found negative relationships and in the remaining investigations, the $p > .05$ significance level was abandoned in favor of a $p > .10$ level. Nevertheless, partisan research analysts pronounced a clear causal relationship, and the conclusion became canon. In fact, in July 1998, federal judge William Osteen threw out the findings of the Environmental Protection Agency (EPA) study, citing: "EPA's study selection is disturbing. First, there is evidence in the record supporting the accusation that EPA 'cherry picked' its data. Second, EPA's excluding nearly half of the available studies directly conflicts with EPA's purported purpose for analyzing the epidemiological studies and conflicts with EPA's Risk Assessment Guidelines." (Federal Ruling, 1998; U.S. Environmental Protection Agency, 1992).

THE META-ANALYSIS

The most effective research technique for assessing the size of an effect in an area in which considerable social scientific research has been conducted is meta-analysis, the measurement of effect sizes across a large body of investigations. The procedure also permits the investigator to determine whether those effect sizes are homogeneous or variable across studies. Meta-analysis reduces potential bias from time periods that may indicate shifts in effects in the population, that is, if television industry policies over time render children more or less susceptible to advertising effects, the investigation of time period as a moderator variable should reveal the bias.

A search of the advertising effects literature yielded one published meta-analysis of an important aspect of advertising effects, children's understanding of the

informative and *persuasive intent* of television advertising (Martin, 1997). The author analyzed 23 published articles that met data-reporting criteria for inclusion and found an effect size of $r = .37$ between advertising exposure and understanding advertising intent, which has long been used as a proxy for other advertising effects in the research tradition. Because homogeneity across studies was not found, a search for possible moderator variables was conducted. A significant moderator effect was found for *year of publication*, in that studies published before 1984 had a much larger effect size than those published after that year (from an average of .40 to .17), indicating an increase in children's understanding of intent in more recent investigations. The author suggested that regulatory shifts in industry policy were responsible for the shift, including the elimination of host selling, elimination of program-length commercials, and after a brief period of deregulation from 1984 to 1990, the introduction of the Children's Television Act of 1990, which reinforced the ban on program-length commercials and reduced total nonprogram time in the hours most frequently watched by children.

In the present study, we sought to investigate the effect sizes of studies published after 1984 that were designed to investigate the more direct dimensions of advertising: comprehension of advertising by children and adolescents, attitude toward advertised products, and changes in consumer behavior elicited by advertising. Even though vast numbers of advertising studies were published in the 1970s and early 1980s, we chose to examine more recent studies because of (a) the regulatory shifts described by Martin's (1997) analysis; (b) the increased methodological sophistication of more recent research, using multivariate designs and dependent measures other than perception of intent; and (c) the enormous organized media education efforts by a number of public and private agencies in recent years designed to increase children's critical evaluation of advertising.

Research Questions

In this meta-analysis we addressed the following questions:

Do studies assessing the persuasive effects of advertising among children and adolescents demonstrate a large effect size?

Do the studies share a common effect size; that is, are they homogeneous? If not, what study characteristics (moderators) account for the variance in effect size across studies?

Methodology

Literature Search

The literature search was conducted using a variety of electronic databases deemed relevant for the investigation (*Communication Abstracts*, ERIC, PsycLIT, SocInfo, Nexis, and EBSCOhost). Studies included had to contain some measure

of advertising exposure (either experimentally controlled or by self-report) and some measure of effect (attitudes toward the brand, product selection, etc.). Tables 11.1, 11.2, and 11.3 contain a list of studies included in this analysis.

Studies were excluded if they focused on issues about the content of the ads or policy implications of advertising and children or did not include a specific and/or consistent measure of advertising exposure. For example, DiFranza et al.'s 1991 study of the recognition of Joe Camel was excluded, because there was no comparative measure of advertising exposure. Additionally, Robertson et al.'s 1989 study of advertising effects across cultures was excluded, because the measure of advertising exposure was not consistent (television exposure within each culture was used as a measure of advertising exposure; the number of ads and even type of ads vary across the four cultures studied).

Statistical Analysis

The statistical analysis involves three basic sets: (a) conversion to a common metric, (b) averaging the estimates, and (c) examining the degree of variability in the data set. In this meta-analysis we used the metric of the correlation coefficient because of the ease of statistical manipulation and interpretation of information. The individual effects were averaged using a procedure that weighted the study by size of the sample. The procedures used in this analysis are those outlined by Hunter and Schmidt (2004). Studies were grouped into three cate-

TABLE 11.1
Studies

| <i>Authors</i> | <i>Sample Size</i> | <i>Correlation</i> |
|------------------------------------|--------------------|--------------------|
| Austin & Freeman (1997) | 137 | .156 |
| Austin & Mieli (1994) | 154 | .070 |
| Boush, Friestad, & Rose (1994) | 426 | .304 |
| Brand & Greenberg (1994) | 827 | .089 |
| Gorn & Florsheim (1985) | 70 | .200 |
| Gorn & Goldberg (1987) | 228 | .111 |
| Lee & Browne (1995) | 161 | .393 |
| Martin (1997) (Study 1) | 40 | .233 |
| Martin (1997) (Study 2) | 40 | .427 |
| Martin & Gentry (1997) | 268 | .152 |
| Martin & Kennedy (1993) | 144 | .111 |
| Meier (1991) | 1085 | .179 |
| Pechmann & Ratneshwar (1994) | 304 | .134 |
| Phelps & Hoy (1996) | 111 | .122 |
| Silverman, Jaccard, & Burke (1988) | 56 | .197 |
| Wyllie & Zhang (1998) | 500 | .130 |

TABLE 11.2
Comprehension Studies

| <i>Authors</i> | <i>Sample Size</i> | <i>Correlation</i> |
|---|--------------------|--------------------|
| Austin & Johnson (1997) | 225 | .156 |
| Collins (1990) | 266 | .101 |
| Fischer et al. (1991) | 229 | .105 |
| Goldberg (1990) | 483 | .202 |
| Grube & Wallack (1994) | 468 | .233 |
| Macklin (1987) (Study 1) | 40 | .109 |
| Macklin (1987) (Study 2) | 40 | .042 |
| Prasad & Smith (1994) | 95 | .055 |
| Slater, Rouner, Beauvais, Van Leuven, & Rodriguez (1996) | 408 | .174 |
| Wilson & Weiss (1992) | 94 | .134 |

TABLE 11.3
Product Selection (Behavior) Studies

| <i>Authors</i> | <i>Sample Size</i> | <i>Correlation</i> |
|--|--------------------|--------------------|
| Butter, Weikel, Otto, Wright, & Deinzer (1991) (Study 1) | 115 | .088 |
| Butter et al. (1991) (Study 2) | 234 | .128 |
| Connelly & Caswell (1994) | 500 | .363 |
| Dawson, Jeffrey, & Walsh (1988) | 80 | .327 |
| Goldberg (1990) | 483 | .169 |
| Gorn & Goldberg (1987) | 228 | .112 |
| Slater et al. (1996) | 157 | .174 |
| While et al. (1996) | 833 | .020 |

gories: (a) advertising effects on comprehension, (b) advertising effects on attitudes, and (c) advertising effects on product consumption.

Results

Advertising Effects on Attitudes

The results indicate that exposure to advertising affects attitudes toward brands and ads (average $r = .153$, $k = 16$, $N = 4,551$). An analysis of the variability demonstrates that the observed average effects is based on a sample of correlations that is heterogeneous [$\chi^2(15, N = 4,551) = 32.92$, $p < .05$]. This result indicates the probable existence of a moderator variable.

Further examination indicated that two studies (Austin & Freeman, 1997; Lee & Browne, 1995) utilized exclusively African-American samples. Deleting these two studies from our sample resulted in an average $r = .140$ ($k = 14$, $N = 4,253$). Confidence intervals for attitudes are $.039 < r < .249$. A test of significant differences between the African-American samples versus the others revealed a significant difference, $Z = 3.74$, $p < .001$. The revised analysis of variability shows that the observed average effects is based on a sample of correlations that is homogeneous [$\chi^2(13, N = 4,253) = 19.49$, $p > .05$]. Thus, race is a possible moderator variable in the relationship of advertising exposure to brand/advertising-related attitudes.

Advertising Effects on Comprehension

The results indicate that exposure to advertising improves comprehension of brands advertised (average $r = .175$, $k = 10$, $N = 2,431$). Confidence intervals for comprehension are $.051 < r < .229$. An analysis of the variability demonstrates that the observed average effects is based on a sample of correlations that is homogeneous ($\chi^2(9, N = 2,431) = 7.42$, *ns*). Consequently, no moderator variable appears to be present.

Advertising Effects on Product Selection (Behavior)

The results here indicate that exposure to advertising leads to greater selection of the product advertised (average $r = .154$, $k = 8$, $N = 2,630$). An analysis of the variability demonstrates that the observed average effects is based on a sample of correlations that is heterogeneous ($\chi^2(7, N = 2,630) = 41.35$, $p < .0001$). This result indicates the presence of a probable moderator variable.

Further examination indicated that two studies (Connelly & Caswell, 1994; While, Kelly, & Huang, 1996) utilized exclusively international samples. Deleting these two studies from our sample resulted in an average $r = .155$ ($k = 6$, $N = 1,297$). The revised analysis of variability shows that the observed average effects is based on a sample of correlations that is homogeneous ($\chi^2(5, N = 1,297) = 3.81$, *ns*). Confidence intervals for behavior are $.025 < r < .285$. Thus, country of origin of the sample is a possible moderator variable in the relationship of advertising exposure to product selection behavior.

Summary of Results

Overall, the results here indicate that advertising exposure results in more positive associations with the brands advertised, increases brand comprehension, and leads young consumers to select the products advertised. However, these effects are small, representing 1.96%, 3.06%, and 2.40% of the variance explained, respectively. Hence, the concern of critics of an all-powerful effect of advertising on children and adolescents appears to be unwarranted.

In addition, the discovery of two moderator variables in our analyses (race and country of origin of the sample) suggests that researchers in the area of advertising and children consider the influence of these two variables. For example, research has consistently indicated that African-American children and adolescents watch more television than children from other demographic groups and thus have more consistent exposure to advertising. In addition, income and race have been shown to have a consistent relationship to one another, so not only are African-American children more likely to be exposed to television advertising but they are also less likely to have other sources of diversion (e.g., magazines or computers) in their homes to lessen the influence of such advertising.

In terms of international samples, researchers may need to beware of how the results in other countries compare with those in the United States. The number and types of ads allowed, as well as the prevalence of certain advertising formats over others, may mean that comparing the effects of advertising with U.S. samples to the effects of advertising with international samples may be comparing apples to oranges.

Discussion

The relatively low correlation coefficient indicates that advertising has a statistically significant, but practically insignificant, effect on children's brand comprehension, attitudes, and purchase behavior. This finding flies in the face of research on exposure to media, which indicates that the average 18-year-old has already watched 22,000 hours of television (significantly more than the 12,000 hours spent in school), including 350,000 commercials. Our findings suggest that advertising is less powerful than its critics fear. One reason that advertising lacks the perceived power of its critics is that consumers understand its purpose: persuasion. They know that sellers compose advertising messages to sell products, and they understand that those messages will inevitably emphasize the positive aspects of the product. As a result, they do not trust advertising. Even second graders understand that the goal of advertising is to sell a product, and by ages 11 or 12, children are as skeptical of advertising as are adults. Whether directed to children or adults, advertising is not subtly manipulating defenseless consumers. Rather, it is battling to overcome entrenched skepticism. Consumers, of course, also have sources of information other than advertising, such as news media and opinion leaders (including young peers).

In the past decade, media education inspired by a loose knit but effective media literacy movement across the United States has demonstrated that when children are educated about advertising, they become more critical consumers of its content (Kubey, 1998). School districts, religious organizations, and even the HBO network, with its "Buy Me That" series, have had a demonstrable impact on consumer socialization, and the results of this study offer more support for the efficacy of consumer education.

The moderator variable of race was a surprising but not unprecedented result. Several studies have found that black children are less critical of television advertising than are white children and that they are less able to perceive the persuasive intent of TV commercials (Donohue, 1975; Condry, 1989). The analysis of the race moderator in this investigation simply shows that black children are more variable as a group in their comprehension of advertising than are their white counterparts.

The moderator variable of international citizenship was another unexpected result. The best strategy for future research and for policy recommendations is to avoid cross-national samples in advertising research in light of possible differences in scheduling, commercial placement, and other differences that mitigate comparison.

Finally, today's children and adolescents are exposed to more advertising from more sources than they were in the 1970s and 1980s. Children now are born into a universe that includes cable and satellite TV, the Internet, and other new media. Thus, the impact of any specific ad (as was typical of protocols used in earlier studies) may be reduced.

Attacks on advertising will probably remain a part of the political landscape. The target is highly visible, and 70% of consumers are skeptical about it to begin with. Blaming advertising for what ails us is therefore likely to remain a recurring theme. Regulating advertising may do little to correct the problem, but it can demonstrate concern for the issue.

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