DEBORAH L. ROEDDER, BRIAN STERNTHAL, and BOBBY J. CALDER

The authors examine the conditions under which children are likely to make attitude-consistent choices in response to a television commercial. Two experiments show that children’s age and the demands of the choice task are determinants of attitude-behavior consistency. These findings are discussed in terms of children’s decision-making abilities and the more general issue of how attitudes are related to behavior.

Attitude-Behavior Consistency in Children’s Responses to Television Advertising

The continuing controversy over television advertising to children has stimulated a large body of research (Adler et al. 1980). In an attempt to assess the fairness of advertising to children, researchers have examined children’s processing of television advertising. The results of this inquiry suggest that young children have certain limitations in their processing abilities. Younger children are less able to discriminate between commercials and programs, are less aware of advertising’s persuasive intent, and pay more attention to commercials than older children (Blatt, Spencer, and Ward 1972; Robertson and Rossiter 1974; Ward, Levinson, and Wackman 1972; Ward, Reale, and Levinson 1972; Ward, Wackman, and Wartella 1977). The available evidence also indicates that children can be persuaded by advertising and that advertising exposure can affect product choice (Galst and White 1976; Goldberg and Gorn 1974, 1978; Robertson and Rossiter 1976).

This research provides a starting point for assessing the impact of television advertising on children. It demonstrates that children may change their attitudes and behavior as a consequence of commercial information, and that there are age-related differences in information processing. We contend, however, that a major issue has been neglected in previous research. The issue is how attitudes induced by commercials affect the decisions children make when choosing among alternative products. This issue is of considerable theoretical and practical interest because of the possibility that attitudes produced by commercial information could cause children to act inconsistently with other attitudes they hold.

As an illustration of this possibility, consider a situation in which a child sees a commercial for a product. Suppose the child forms a positive attitude toward that product and in fact chooses that product when faced with a set of alternatives. One might view this situation as an instance of attitude-consistent behavior, but it may not be so simple. Suppose further that the child holds an even more positive attitude toward one of the other products in the choice set, but has not recently viewed a commercial for that product. The choice in this case actually reflects behavior that is inconsistent with previously held attitudes. Our hypothesis is that commercials can cause just this sort of inconsistency. The potential impact of advertising is not only to persuade children but possibly to make them act inconsistently with attitudes they held previously.

In our study, we introduce a paradigm that is amenable to investigating the process underlying children’s reactions to television advertising in the context of making a decision among alternatives. Younger and older children were exposed to a television commercial for a new product. Then they indicated their attitude toward the advertised product and made a choice between the

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advertised product and several nonadvertised alternatives from the same product category. Children’s processing of advertising information and their utilization of this information in decision making are assessed by examining attitude-behavior consistency. Consistency occurs to the extent that children form an attitude toward the advertised product, compare their attitudes toward the advertised product and the other alternatives, and select the alternative toward which they are most favorable.

The paradigm thus provides an opportunity to investigate children’s responses to advertising in a decision-making framework by examining attitude-behavior consistency. For such inquiry to be meaningful, however, the researcher must identify situations in which consistency and inconsistency are likely to occur. The cognitive development literature is instructive. Many studies indicate that children’s judgments are affected by age-related cognitive skills and the demands of the decision task itself (see Brown 1975 for a general review). It may be hypothesized that younger children are capable of forming an attitude toward the advertised product because the advertising message is simple, and because judgment immediately follows exposure to the message (see Austin, Ruble, and Trabasso 1977). Whether these attitudes are consistent with behavior depends on the complexity of the decision task. There is reason to believe that requiring a choice among several products is a complicated task that may exceed the younger child’s cognitive skills. Children age 10 or younger have been shown to have problems in accessing previously stored information (Kobasigawa 1977) and in making comparative judgments (Case 1978; Wartella et al. 1979). Thus, rather than comparing alternatives and choosing the one toward which they are most favorable, younger children may rely on their attitude toward the advertised product as a basis for choice. Attitude-behavior inconsistency would emerge because young children would select the advertised product, despite a more favorable but unconsidered attitude toward some nonadvertised alternative.

Older children are expected to be less susceptible to making attitude-inconsistent choices. Children age 11 and older are capable of processing the advertising message as a basis for forming an attitude toward the product advertised. They also appear to have the ability to engage in the comparison of alternatives, which is necessary for consistency (Case 1978; Kobasigawa 1977; Wartella et al. 1979). Presumably, however, certain tasks exceed even older children’s cognitive abilities.

Two experiments were conducted to examine these hypotheses. Experiment I tested the prediction that younger children will show greater attitude-behavior inconsistency than older children. Experiment II extended this inquiry by examining the conditions under which this outcome is likely to occur. According to our theorizing, younger and older children would exhibit attitude-behavior consistency when the demands of the behavioral decision task are within their capabilities and inconsistency when task demands exceed their abilities.

Support for the contention that age-related cognitive abilities and the demands of the decision task affect attitude-behavior consistency would have several important implications. Such evidence would further understanding of the process underlying children’s use of television advertising in making decisions. This knowledge would be useful in designing strategies to enhance children’s decision-making capabilities. Also, as we discuss subsequently, it would contribute to an understanding of the more general issue of when behavior can be predicted accurately from attitudes.

EXPERIMENT I

The purpose of Experiment I was to demonstrate that age differences can affect attitude-behavior consistency. Younger children were expected to exhibit less consistency than their older counterparts in choosing among several product alternatives after exposure to television advertising for one of the products. This outcome was anticipated because younger children would rely on their attitude toward the advertised product in making a choice whereas older children would compare the choice alternatives and select that alternative they favored most.

Fourth graders (age 9) and eighth graders (age 13) participated in the study. These age groups are likely to have comparable ability in processing advertising information but differ in their ability to compare alternatives. Support for the expectation of processing equivalence is important if the age differences in attitude-behavior consistency are to be attributed to differences in comparative skills.

The second independent variable manipulated subjects’ attitude toward a fictitious new candy product. Two versions of a commercial were used for this purpose. To minimize the possibility that treatment differences in attitude would be due to unique product information, both versions of the commercial presented identical attribute information about the product. They differed only in that in one condition the central character refused to share the advertised candy equally with a friend, whereas in the other condition the character ultimately did share the candy equally. Because children have internalized a sharing norm, showing the violation of this norm was expected to be interpreted as evidence that the candy was particularly good (favorable attitude condition). In contrast, acceding to the sharing norm was expected to produce a less favorable attitude toward the advertised product (less favorable attitude condition). Thus the first version was expected to produce a more favorable attitude toward the candy than the second version, even though the factual information presented would be held constant.

Several considerations guided the selection of the attitude favorableness manipulation. One reason for its inclusion was to provide a strong test for our assertion that younger children have the capability of processing the advertising message and forming an attitude toward the product advocated. If only a single commercial had been
used, evidence for this assertion would have involved demonstrating that younger and older children did not differ in their attitude toward the advertised product. Such evidence would be open to alternative explanation. For example, one might argue that neither younger or older children relied on message information as a basis for their attitudes. Varying the favorableness of the message advocacy enables us to detect whether children form attitudes by processing message information. If they do, they should manifest a more positive attitude toward the advertised product in the favorable condition than in the less favorable condition.

There was a second reason for manipulating favorableness toward the advertised product. Our hypothesis is that younger children’s attitude-behavior inconsistency can occur because they rely primarily on communication information as a basis for choice rather than on a comparison of their attitudes toward various choice alternatives. Support for this hypothesis could be obtained by means of a single message. For example, younger children would exhibit inconsistency if they selected the advertised product despite a more favorable attitude toward some other choice alternative. However, such evidence could be interpreted plausibly in terms of younger children’s preference for the novel product shown in the commercial as well as in terms of a limitation in their ability to compare alternatives. Including two levels of attitude favorableness enables us to distinguish between these hypotheses. Specifically, if younger children’s choices were guided by product novelty, the manipulation of attitude favorableness should not affect the extent to which they select the advertised alternative. In both conditions, choice of the advertised alternative should be substantial, given its novelty. If this outcome were not obtained, the novelty hypothesis would be implausible.

Our study thus involved a 2 × 2 factorial design, including two age levels and two levels of attitude favorableness. Children indicated their attitude toward a variety of products, which included the products that would be offered later as a prize. Then they viewed the commercial and were asked to indicate their attitude toward the product advertised. Two additional measures pertaining to the advertising were administered. They were intended to detect whether subjects correctly perceived the information that distinguished the two versions of the commercial and whether they made the inference intended by this information. Choice behavior then was assessed by asking subjects to choose a prize from among four products, one of which was the product they had seen advertised.

Attitude-behavior consistency was assessed in two ways. One was a between-subjects procedure whereby the effects of the attitude favorableness manipulation on children’s attitudes and behavior were examined. Note, however, that the observation of the same treatment effects on both of the dependent measures would not constitute evidence for consistency. For example, the fact that in the favorable attitude condition subjects exhibited a more favorable attitude toward the advertised product and selected it more often than subjects in the less favorable attitude condition would not necessarily imply consistency. Consistency would occur if children’s attitudes toward the chosen product were more favorable than their attitudes toward the other alternatives. The second approach to assessing attitude-behavior consistency was a within-subjects analysis. For this purpose, the correlation between subjects’ attitudes and behavior was examined in each of the four experimental treatments. Regardless of whether the within-subjects or between-subjects approach was used to assess consistency, we anticipated younger children’s behavior would be less attitudinally consistent than that of older children.

Method

Subjects. Fifty-six elementary school children were recruited to participate in the study. Twenty-four were fourth grade children (age mean = 9.5, S.D. = .5) and 32 were eighth graders (age mean = 13.5, S.D. = .5). Fifty-eight percent of the fourth graders and 53% of the eighth graders were boys. Six to nine children participated in each experimental session.

Procedure. Children participating in the study were seated at desks in the experimental room. The desks were arranged so that the children could not see each other. Initially, participants were given several practice trials to ensure they understood how to use the dependent variable rating scales. Next, they completed a series of scaled questions about their food likes and dislikes. Included in these questions were ones pertaining to products that would be offered later as a prize. The experimenter then told the children:

... we want to find out how much you think you would like a new product coming out. The product isn’t ours. We don’t work for the people making it. So, it won’t bother us if you say you wouldn’t like it. We just want to know what kids like you think of this kind of product. We’re going to show you a TV ad for the product so you can make up your mind about the product. This is the way you would probably find out about it when it comes out anyway. All you have to do is watch the commercial like you would at home. Then I’ll ask you how much you think you would like the product.

Research participants then viewed one of the two commercials projected on a TV monitor. These commercials provided information intended to induce a favorable or unfavorable attitude toward the advertised product. After viewing the commercial, the children were administered the dependent measures.

Independent variables. The favorableness of subjects’ attitudes toward the advertised product was varied by exposing children to one of two 45-second color television commercials developed for this purpose. The commercials were of high quality and professional actors were used. The commercials advertised a fictitious new product called Choco-nuts. The video and audio parts of these
commercials are described in Table 1. At the outset of the commercial a puppet called the Choco-nut introduced himself and the main character, a boy named Larry. The puppet was used to stimulate interest in the commercial and to make salient Larry’s actions. Also common to the commercials was Larry’s description of Choco-nuts’ attributes and his feelings about the product. The commercials differed in their presentation of Larry’s willingness to share Choco-nuts equally with a second boy. In the favorable attitude condition, Larry did not share equally, justifying this behavior by reiterating his liking for Choco-nuts. This failure to accede to the sharing norm provided evidence, independent of any product information, that Choco-nuts was very good. In the less favorable attitude condition, Larry initially refused to share Choco-nuts equally, but relented when reminded to share equally by the puppet. This commercial was expected to yield a less favorable attitude toward Choco-nuts because Larry’s willingness to share the product implied that it was not particularly good.

The second independent variable was the child’s age. Fourth and eighth graders were recruited because those groups are likely to differ in their ability to consider information about alternatives. A wider age range was avoided to minimize the chances that the commercial content and execution would have widely different meaning to younger and older children.

**Dependent variables.** Subjects initially responded to a pretest questionnaire. They were asked to indicate eating likes and dislikes for seven products on the 5-point facial scale shown in Figure 1. Three of the products evaluated were ones that would be offered as a prize at the end of the study.

Once the children had viewed one of the TV commercials for Choco-nuts, they were administered a series of scaled rating questions measuring their attitudes toward that product. Factor analysis revealed that three items tapped subjects’ affect toward the product. For two of these items, “How much would you like Choco-nuts?” and “How much would you like the taste of Choco-nuts?”, responses were measured on 5-point facial scales. The response to the third item, “Choco-nuts taste so good, you won’t want to share them,” was measured on a 4-point yes-no scale. Responses on these items were standardized to achieve equal variances and were summed to compose an index called ATTITUDE. A Cronbach

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1 The 4-point yes-no scale enabled subjects to choose between two levels of affirmation and two levels of negation. To indicate affirmation of a statement, subjects chose between a “yes” in capital letters and a “yes” in lowercase letters. Selecting the capitalized “yes” indicated greater affirmation of a statement than selecting the lowercase “yes.” Similarly, subjects could choose between a capitalized “no” and a lowercase “no.” Selection of the capitalized “no” indicated greater negation of the statement than choice of the lowercase “no.”

2 The status of the ATTITUDE dependent measure as a derived variable is denoted by its capitalization.

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### Table 1

**CHOCO-NUTS COMMERCIAL**

<table>
<thead>
<tr>
<th>Video</th>
<th>Audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open on two-shot of Muppet-type hand puppet called “The Choco-nut” in limbo set with eight-year-old boy. They are at table with product before them and a glass container. In BG to screen right is boy of the same age sitting on stool. Cut to CU of Larry as he holds up Choco-nuts package.</td>
<td>Puppet: Hi, there! I’m the Choco-nut and this is my friend, Larry.</td>
</tr>
<tr>
<td>MCU of Larry with candy. Cut to wider shot to see Larry and puppet, other boy in BG who starts to move to table on cue: “But be careful,” puppet hands Larry two equal size glasses.</td>
<td>Larry: And this is my favorite new candy! They’re called Choco-nuts. They’re a really big peanut, covered with a whole lot of rich milk chocolate . . . and then covered with a thin candy shell so they are not messy. There are other candies like this, but Choco-nuts have <strong>more</strong> chocolate and <strong>bigger</strong> peanuts. That’s why I like Choco-nuts best! Each package has just enough Choco-nuts for you.</td>
</tr>
</tbody>
</table>

**In favorable-attitude condition add:**

- He pours small amount into one glass, remainder for himself.
- Second boy holds up glass, looking at uneven share. Puppet nods as Larry speaks.

**In less favorable-attitude condition add:**

- He pours small amount into one glass, remainder for himself. Boy looks at uneven division. Puppet reacts. Larry pours more into other glass making them even. Puppet nods approvingly.
- Boy: Hey, that’s not even.
- Puppet: No, it isn’t. You should share evenly.
- Larry: Sorry, I forgot . . . cause they’re my favorite . . . with bigger peanuts and **more** chocolate!
α statistic indicated that this index was reliable (α = .70).

Two additional items were included among the questions pertaining to Choco-nuts: “How much would you like the number of pieces of Choco-nuts you get?” and “How much would you like the size of each piece of Choco-nuts?” Responses to both were assessed on 5-point facial scales. These measures were viewed as nonequivalent because they should not be sensitive to the attitude favorableness manipulations. Both commercials were carefully designed to include the same stimulus information about the number of pieces and size of Choco-nuts. The nonequivalent measures thus provide a statistical test of demand character. Treatment differences on these measures would indicate that factors other than the attitudinal differences created by the stimulus commercial were contributing to subjects’ responses.

Two measures were included to determine the extent to which commercial information was processed. To check the accuracy of their perceptions, children were asked to indicate whether Larry “did not share his candy equally with his friend” (correct for the favorable attitude condition), “did not share his candy equally until the puppet told him to do so” (correct for the less favorable attitude condition), or “did share his candy equally with his friend.” To determine whether subjects interpreted the sharing behavior in the manner intended, they were required to indicate the reason for the sharing behavior Larry exhibited. They selected one of the following reasons for Larry’s sharing (nonsharing) behavior: “Larry is nice (selfish),” “Choco-nuts taste (don’t taste) very good,” “the puppet told (no one told) Larry to share,” or “everybody should share (you don’t have to share) with friends.” If the inductions were successful, Larry’s sharing behavior should be attributed to qualities of Choco-nuts in the favorable attitude condition but not in the less favorable attitude condition.

Finally, research participants were told that one of them would win a prize for participating in the study. They were asked to choose among the four prizes listed and told they would receive that prize if their name was drawn in a lottery. The prizes, which were described as being of equal monetary value, included fig newtons, M&M chocolate-coated candy, chocolate chip cookies, and Choco-nuts. The prize each child selected constituted the choice behavior dependent variable.

The prize alternatives were selected to help us detect the process by which a behavioral choice was made. In a pretest, M&Ms and chocolate chip cookies were found to be so highly favored that they were likely to be preferred to Choco-nuts even in the favorable attitude condition. Thus, if children compared their attitudes toward the choice alternatives and selected the alternative they preferred, Choco-nuts would be selected infrequently regardless of the attitude favorableness condition to which the children were exposed. In contrast, if children relied only on their attitude toward Choco-nuts in making a choice, they would select Choco-nuts as the prize more often in the favorable attitude condition than in the less favorable attitude condition. This behavior would be at-
tituitionally inconsistent in that in both attitude favorableness conditions an alternative other than Choco-nuts would be preferred.

Results

Because our predictions were based on the contention that both younger and older children would be capable of processing the information presented in the commercial, we first attempted to establish age equivalence in children’s attitudinal processing of the commercial. Subsequent analyses focused on attitude-behavior consistency.

Attitudinal age equivalence. The effects of the commercials on children’s attitudinal responses were examined first. Analysis of the treatment means listed in Table 2 indicates that the ATTITUDE index for Choco-nuts is significantly more favorable for children in the favorable attitude condition than for those in the less favorable attitude condition \(F(1,54) = 5.89, p < .02\). This outcome emerges for both fourth and eighth graders \((F < 1)\). The age \( \times \) attitude favorableness interaction is not significant \((F < 1)\). Moreover, the finding that the commercials did not affect the nonequivalent measures (“How much would you like the number of pieces of Choco-nuts you get?” \(F(1,54) = 1.08, p = .30\); “How much would you like the size of each piece of Choco-nuts?” \(F < 1\)) indicates that demand characteristics are unlikely to be a plausible explanation for the treatment effect on ATTITUDE.

Analysis of children’s perceptions of the main character’s sharing behavior and their inferences about this behavior also supports the absence of age differences in attitudinal processing (all \(Z’s < 1\)). All children learned the behavior depicted in the commercials. In the favorable attitude condition, 95.3% of subjects correctly stated that Larry did not share Choco-nuts equally with a friend. In the less favorable attitude condition, 98.9% correctly indicated that Larry did not share equally until the puppet told him to share. Most children also interpreted the sharing behavior they saw in the commercial in the way intended. Of those in the favorable attitude condition, 75.9% viewed Larry’s failure to share as indicating something favorable about Choco-nuts. All subjects in the less favorable attitude condition interpreted Larry’s sharing behavior to be due to some factor unrelated to Choco-nuts.

Between-subjects analysis. The between-subjects analysis of attitude-behavior consistency involved two steps. First, the effect of the attitude favorableness treatments on fourth and eighth graders’ attitudes and behavior was examined. Both fourth and eighth graders exhibited the same attitude change as a function of the commercial manipulation. However, the effects of this manipulation on the choice of a prize differed. Fourth graders in the favorable attitude condition exhibited greater preference for Choco-nuts as a prize than did fourth graders in the less favorable attitude condition (66.7% versus 9.1%, \(Z = 2.88, p < .01\)). In contrast, no treatment differences in eighth graders’ behavior were observed (25% versus 14.3%, \(Z = .82, p > .20\)).

From the preceding data, younger children might appear to be more consistent than older children. For younger children, the experimental manipulation had the same effect on attitude and behavior, whereas for older children only attitudes were affected by the treatments. However, valid inferences about consistency cannot be based solely on the pattern of attitude and choice behavior change. Additional analysis is required to examine children’s attitude toward the advertised alternative in relation to other choice alternatives. Older children may be consistent if some nonadvertised choice alternative were evaluated more favorably than Choco-nuts despite the manipulation’s enhancing effect on their attitudes toward Choco-nuts. Likewise, younger children would be inconsistent if their choice of Choco-nuts were affected by the treat-

<table>
<thead>
<tr>
<th></th>
<th>Fourth grade</th>
<th>Eighth grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Favorable attitude</td>
<td>Less favorable attitude</td>
</tr>
<tr>
<td>ATTITUDE</td>
<td>.67 (2.54)</td>
<td>-1.16 (2.23)</td>
</tr>
<tr>
<td>Choice alternatives evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choco-nuts</td>
<td>3.50 (.90)</td>
<td>3.08 (.90)</td>
</tr>
<tr>
<td>M&amp;Ms</td>
<td>4.42 (.79)</td>
<td>4.08 (1.50)</td>
</tr>
<tr>
<td>Chocolate chip cookies</td>
<td>4.42 (.79)</td>
<td>4.50 (.67)</td>
</tr>
<tr>
<td>Fig newtons</td>
<td>3.25 (1.36)</td>
<td>2.67 (1.50)</td>
</tr>
<tr>
<td>Cell size</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: Parentheses enclose standard deviations.
ment despite a more favorable attitude toward a non-advertised alternative.

To explore these possibilities, children's attitudes toward the advertised and nonadvertised alternatives were compared for the single item that was available for all four choice alternatives (see Figure 1). A Neuman-Keuls test indicated that, as expected, children rated chocolate chip cookies and M&Ms more favorably than Choco-nuts in both the favorable attitude and less favorable attitude conditions. Moreover, fourth and eighth graders did not differ in their attitudes toward these choice alternatives (all F's < 1; see Table 2 for means and standard deviations). These data imply that for children in both age groups to be consistent, they should choose an alternative other than Choco-nuts as their prize. The absence of an effect on choice behavior implies consistency.

Eighth graders thus exhibited attitude-behavior consistency. As shown in Figure 2, they selected the less favored Choco-nuts infrequently in both the favorable and less favorable conditions. Fourth graders were less consistent. Their incidence of selecting Choco-nuts was greater in the favorable attitude condition, despite a more favorable attitude toward other alternatives in both experimental treatments.

Within-subjects analysis. Attitude-behavior consistency also can be examined on a within-subjects basis. For this purpose, choice behavior was classified into two categories to reflect whether subjects chose Choco-nuts or one of the other alternatives. Product attitudes were classified similarly to indicate whether a subject preferred Choco-nuts or one of the other alternatives. Thus subjects could exhibit consistency by indicating a preference for Choco-nuts and selecting it or by specifying a preference for one of the other alternatives and selecting it.

The data are reported in Table 3. Eighth grade children exhibited a high degree of consistency in both the favorable attitude and less favorable attitude conditions (Z < 1). In contrast, the consistency of fourth graders was affected by the attitude treatment (Z = 2.63, p < .01). Fourth graders were as consistent as eighth graders in the less favorable attitude condition (Z < 1) but were less consistent than eighth graders in the favorable attitude condition (Z = 2.22, p = .03). These findings are consistent with those obtained from the between-subjects analysis. Younger children exhibited less attitude-behavior consistency than older children when exposed to the commercial inducing favorable attitudes toward the advertised product.

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3 The p-values shown have been corrected for a rise in the error rate due to multiple comparisons.

4 Fourth graders' high degree of consistency in the unfavorable attitude condition most likely reflects the insensitivity of the consistency measure in this condition. Consistency is probably high because the acts of evaluating any of the three nonadvertised alternatives most highly and choosing any of the three nonadvertised alternatives as a prize are defined as consistent. Thus evaluating one nonadvertised alternative most highly and choosing another nonadvertised alternative are interpreted as consistent.

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Figure 2
ATTITUDE AND BEHAVIOR RESPONSES CATEGORIZED BY EXPERIMENTAL TREATMENTS

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Table 3
PROPORTION OF SUBJECTS EXHIBITING ATTITUDE-BEHAVIOR CONSISTENCY CATEGORIZED BY TREATMENTS, EXPERIMENT I

<table>
<thead>
<tr>
<th></th>
<th>Commercial</th>
<th>Fourth grade (%)</th>
<th>Eighth grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorable attitude</td>
<td>42</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Less favorable attitude</td>
<td>92</td>
<td>87</td>
<td></td>
</tr>
</tbody>
</table>

Discussion
The results of Experiment I demonstrate developmental differences in attitude-behavior consistency after children are exposed to television advertising and suggest that such differences may be due to younger children’s limitations in cognitive skills. Both fourth and eighth graders exhibit the ability to perceive the communicated information correctly and to draw the intended inferences. Their attitudinal evaluations of the advertised product are the same. However, in the behavioral context of choosing an alternative, developmental differences are observed. Older children appear to consider their attitudes toward the various alternatives and to select the preferred alternative regardless of advertising. Because their attitude is less favorable toward Choco-nuts than it is toward other alternatives, in both of the attitude treatments, they infrequently choose Choco-nuts. In contrast, younger children appear to base their choice on their evaluation of the advertised product and not on a comparison of choice alternatives. Thus, they choose the advertised alternative when exposed to advertising producing a favorable attitude toward it and reject Choco-nuts when advertising produces a less favorable attitude toward it.

EXPERIMENT II
The results of Experiment I were interpreted as evidence for the fact that the demands of the decision task affect attitude-behavior consistency. Our assumption was that choosing among four alternatives produced greater inconsistency in younger children than in their older counterparts because the demands of this task exceeded the cognitive abilities of only the younger children. Several rival explanations can be offered for our data.

One explanation is that younger children’s attitude-behavior inconsistency is due to their choice of the novel product. If this explanation were valid, younger children would have selected Choco-nuts with equal frequency in both favorableness conditions, but this outcome was not obtained. Another rival explanation for our data is that younger children’s inconsistency is due to the procedure used to assess consistency. Specifically, children’s attitudes toward the nonadvertised alternatives were determined at a different time and under different conditions than their attitude toward the advertised product. At the time of choice, children changed their attitudes toward the nonadvertised alternatives so as to be consistent with their choice. Although this effect may have occurred, it does not explain why older children exhibited greater consistency than younger children.

A third rival explanation is not readily refuted by the data in Experiment I. The contention is that there are developmental differences in risk aversion. Younger children were not willing to risk selecting a new product unless it looked very good to them. Older children were generally less willing to gamble and select the new product. To assess whether risk or comparison skills offers the superior explanation requires further research. The risk hypothesis would not be a plausible rival explanation if attitude-behavior consistency could be shown to be sensitive to the demands of the decision task.

We examined this issue in Experiment II by manipulating the cognitive demands imposed by the decision task. Our hypothesis was that when the task demands are within the cognitive abilities of younger and older children, both age groups exhibit a high degree of attitude-behavior consistency. In contrast, when task demands exceed the abilities of younger and older children, both age groups exhibit inconsistency.

The selection of task demand operationalizations was based on both theoretical and practical considerations. In a theoretical context, multiple operationalizations of task demand were used to increase construct validity. Moreover, operationalizations were sampled from the range of task demands. The experiment thus should be able to detect circumstances in which (1) both younger and older children demonstrate a high degree of attitude-behavior consistency, (2) younger children are less consistent than older children, and (3) both younger and older children are inconsistent. In a practical context, the operationalizations were selected to be representative of children’s everyday choice situations.

One independent variable that conforms to these criteria for operationalizing task demand is the number of alternatives in the choice set. Variation in the number of choice alternatives was selected because there is evidence that the greater the number of alternatives to be considered in making a choice, the greater the cognitive demands imposed by the decision task (Baron, Lawson, and Siegel 1975). This variable was introduced in the context of showing children the version of the Choco-nuts commercial that induced favorable attitudes in Experiment I (i.e., the favorable attitude condition). After viewing the commercial, the children were asked to make a choice from among several products, including the advertised product. The number of alternatives was varied by having children choose from a set of four products or a set of nine products. The choice alternatives were constructed so that the products rated most highly in a pretest (M&Ms and Choco-nuts) were included in both sets. The remaining products were those children rated less favorably.
Particular consideration was given to selecting a choice set that would facilitate our detection of the comparative skills of younger children. Because younger children did not exhibit these skills when faced with the four-product choice set in Experiment I, we reasoned that one of the product sets in Experiment II should present a choice situation that was less difficult for young children. Two possibilities were considered. One was to reduce the number of alternatives below that used in Experiment I. This idea was rejected because we believed a choice between two or three products would not reflect accurately the use of comparative skills and would restrict the range of children's behavioral responses. The other possibility was to maintain the same total number of alternatives used in Experiment I but to reduce the number of highly favored alternatives from the two used in Experiment I (chocolate chip cookies and M&Ms) to one (M&Ms). This approach was adopted in the hope that increasing the disparity in the favorableness of the four alternatives would serve to reduce the demands of the decision task so that comparison among alternatives would be within the capability of younger children. Consequently, no age differences in attitude-behavior consistency would emerge in the four-alternatives condition. Age differences were expected in the nine-alternatives condition, because the demands of the decision task were likely to exceed the abilities of only the younger children.

The other operationalization of task demand used in Experiment II was the vividness of presentation of the choice alternatives. To manipulate vividness, we asked the children to make their choice either from a list of product names provided on a questionnaire (i.e., nonvivid display) or from the same product list after viewing a visual display of the actual products (vivid display). In contrast to the manipulation of the number of alternative choices, which causes variation in task demand by virtue of the breadth of objects that must be compared, the vividness manipulation causes variation in task demand by varying the depth of consideration given to each alternative. Specifically, the greater the vividness of a stimulus presentation, the greater should be the number of information units stored in memory (Kieras 1978; Nisbett and Ross 1980). Thus we anticipated that the vivid display would impose greater task demands than the nonvivid display, limit alternative comparison, and reduce attitude-behavior consistency. Moreover, we expected that older children would be just as inconsistent as younger children when confronted with a choice among nine vividly displayed alternatives. In this situation, the cognitive demands were expected to be so extreme as to exceed the comparative skills of both age groups.

**Method**

**Subjects.** One hundred twenty-six elementary school children were recruited to participate in the study. Sixty-two were third grade children (age mean = 7.87, S.D. = .34) and 64 were seventh grade children (age mean = 11.95, S.D. = .28). Forty-eight percent of the third graders and 41% of the seventh graders were boys. Seven or eight children participated in each experimental session.

**Procedure.** Participants first were given several practice trials to ensure they understood how to use the dependent variable rating scales. Next, they completed a series of scaled questions about their food likes and dislikes. The products rated were ones that would be offered later as a prize. Each product was rated on three 5-point facial scales composed of the following items: “How much do you like ___?”, “How much do you like the taste of ___?”, “How much would you like to have ___ instead of other snacks?” The experimenter then delivered the same instructions to the children as those given in Experiment I. Subjects were told to watch the commercial and to evaluate the product advertised.

All subjects were shown the same commercial as was shown in the favorable attitude condition in Experiment I. Whereas two commercials were used in Experiment I to examine developmental differences in attitude-behavior consistency on a between-subjects basis, one commercial was sufficient to assess the effect of task demands and age on consistency. The favorable attitude commercial was selected because it had induced more frequent choice of the advertised alternative than the less favorable attitude commercial, thus reducing the possibility that range restriction would constrain variation in behavioral response.

After viewing the commercial, children evaluated the advertised product on the same rating scales as those used for other products. Subjects then were allowed to choose a prize from among several alternatives described as being of equal monetary value. Children were asked to choose five packages of any product listed. They were told they could select any combination of products that added to a total of five packages, and thus were allowed to choose multiple packages of a particular product. In the four-alternatives condition, subjects chose from M&Ms, Choco-nuts, raisins, and fig newtons. In the nine-alternatives condition, children were given five additional alternatives: lemon-filled cookies, apple-flavored caramels, strawberry yogurt candy, bread sticks, and carrot sticks. Subjects in the vivid display condition made their choices after viewing a display of the alternatives, which were mounted on a 3' × 3' display board. The product packages displayed were of comparable size. A special package for Choco-nuts was created by a design firm. The other products were presented in the packages used to market them commercially or in professional-looking packages designed by the authors. Subjects in the non-

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5Third and seventh graders were recruited rather than the fourth and eighth graders used in Experiment I because of the limitation in availability of children from the latter grades. Theoretically, third and fourth graders should respond comparably, as should seventh and eighth graders.
Table 4
PROPORTION OF SUBJECTS EXHIBITING ATTITUDE-BEHAVIOR CONSISTENCY CATEGORIZED BY TREATMENTS, EXPERIMENT II

<table>
<thead>
<tr>
<th>Display</th>
<th>Choice set</th>
<th>Third grade (%)</th>
<th>Seventh grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonvivid</td>
<td>Four</td>
<td>93.8</td>
<td>87.5</td>
</tr>
<tr>
<td></td>
<td>Nine</td>
<td>37.5</td>
<td>93.8</td>
</tr>
<tr>
<td>Vivid</td>
<td>Four</td>
<td>66.7</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td>Nine</td>
<td>33.3</td>
<td>56.2</td>
</tr>
</tbody>
</table>

The consistency of children’s product ratings and choices constituted the dependent measure. The measure of choice consistency was constructed in the following manner. First, children’s product ratings were examined to determine their most preferred product. Ratings were obtained by summing each child’s responses on the three items that pertained to each product (α > .60 for all scales). The choice alternative with the highest rating was considered to be the subject’s first preference. Next, children’s choices were examined. The product receiving the most mentions, as determined by the number of packages a child selected, was regarded as the child’s preference. In the case of ties, both products were noted as the subject’s preference. Children were then classified as consistent if their preference obtained from product ratings was the same as the one indicated by their choices. Subjects were classified as inconsistent if they chose a product other than the one they had rated most highly.

Results
The proportions of subjects classified as consistent are categorized by independent variables in Table 4. To determine the treatment effects on attitude-behavior consistency, we analyzed the proportions data by MULTIQUAL. This analysis indicates that all three main effects are significant. Older children exhibited greater attitude-behavior consistency on average than younger children ($\chi^2$diff (1) = 6.43, $p < .02$). Subjects in the nonvivid display condition were, on average, more consistent than subjects in the vivid display condition ($\chi^2$diff (1) = 5.91, $p < .05$). Subjects in the four-alternatives condition were more consistent than subjects in the nine-alternatives condition ($\chi^2$diff (1) = 10.66, $p < .01$). The age × number of alternatives interaction also is significant ($\chi^2$diff (1) = 3.73, $p = .05$). Older children had greater consistency in the nine-alternatives condition, but there was no age effect in the four-alternatives condition. This finding is qualified by the marginally significant three-way age × alternatives × vividness of display interaction shown in Figure 3 ($\chi^2$diff (1) = 3.09, $p = .08$). In the nonvivid display condition, older children were more

Figure 3
AGE × DISPLAY × ALTERNATIVES INTERACTION

**Figure 3**

**Nonvivid Display**

![Nonvivid Display Graph](image)

**Vivid Display**

![Vivid Display Graph](image)

*MULTIQUAL is a loglinear model for estimating effects by maximum likelihood procedures (Bock and Yates 1973). Logit transformations are applied to the proportions data. The transformed data then are entered as the dependent variable in analysis of variance models. These models can be constructed to include specific main effects and interactions of interest. Tests of model fit are provided by likelihood ratios (chi square statistics). The significance of single effects also is obtained by a likelihood ratio procedure. Here the difference in chi squares between alternative models that include and exclude the hypothesized effects are computed (Bock 1975).*
consistent than younger children when confronted by nine alternatives \((Z = 3.35, p < .01)\), but not when choice was among four alternatives \((Z < 1)\). In the vivid display condition, older and younger children did not differ in their consistency, whether four alternatives \((Z = 1.30, p = .10)\) or nine alternatives were being considered \((Z < 1)\).

**Discussion**

These results provide additional evidence implicating children's cognitive development and the demands imposed by the decision task as determinants of attitude-behavior consistency. Younger children apparently have the comparative skills necessary to be consistent when the task requires them to compare four alternatives toward which they have very different attitudes. Indeed, for this task, younger children showed about the same degree of attitude-behavior consistency as older children. In contrast, when younger children are faced with a choice among a large number of alternatives, they seem to be less able than older children to engage in alternative comparison and inconsistency results. Older children too can exhibit attitude-behavior inconsistency, especially when a large number of alternatives are presented vividly. Apparently the comparative skills of older children can be overtaxed when the decision task requires consideration of a large number of disparate objects for which the children are given a substantial amount of information (by showing them the actual products).

The data from Experiment II cannot be explained in terms of the rival explanations described previously. The suggestions were that older children may have demonstrated greater attitude-behavior consistency than younger children in Experiment I because of the measurement procedure used to determine attitudes toward the non-advertised alternatives, and because older children are more risk averse than younger children. These explanations do not account for the fact that young children exhibit a high degree of consistency in some instances and older children exhibit inconsistency in other situations. If any rival explanation were to be plausible, it would have to explain when attitude-behavior consistency would occur and when inconsistency would be manifested. No such explanation appears to be available.

**GENERAL DISCUSSION**

Our findings indicate that even young children can be effective decision makers. They are capable of forming attitudes on the basis of information presented in television commercials. Young children are also able to compare the information they have about various consumption alternatives and make attitudinally consistent choices. However, it is equally evident from our data that there is a limit to children's comparison skills. When the choice alternatives are similar, many in number, or require the processing of detailed information, younger children's comparison abilities may be overtaxed. The result is attitudinally inconsistent choices. Although older children have greater comparison skills than their younger counterparts, their skills too can be exceeded.

These observations suggest that deficits in children's comparative skills may be as prevalent as deficits children experience in processing advertising messages. Because of the importance of comparative skills in consumer decision making, at least two areas of research seem worthy of further investigation. One is the further theoretical examination of the source of children's comparative deficits. Children, particularly young children, may not have a well-developed repertoire of decision strategies with which to address complex choice situations. Or, perhaps children have strategies but can make effective use of them only when decision making involves objects which, through experience, have become represented by elaborate structures in memory. Objects such as mother, father, and sibling are likely to be in this category. Disentangling these alternative explanations is likely to involve decision tasks and dependent measures that are different from those used in our experiments (see Capon and Kuhn 1980; Wartella et al. 1979).

The second direction for further inquiry entails development of educational programs to enhance children's decision-making abilities. Although most current consumer education efforts focus on teaching children economic concepts and on understanding advertising (Heslop 1981), our findings suggest that educational programs might be extended to the context of decision making. Several methods might be used to encourage children to compare the knowledge they have about choice alternatives. Children might be taught specific decision strategies, how to use them, and the benefits of using strategies to compare alternatives. Such instruction would not only increase children's awareness of the processing task, but also give children a basis for processing information more methodically and thoroughly. A similar approach has proven useful in enhancing children's skills in areas other than decision making (Roedder 1981).

In pursuing further inquiry, researchers should devote attention to determining the applicability of current theorizing in natural settings. For example, it would be useful to know whether attitude-behavior consistency is affected by the introduction of other events between the time of advertising exposure and choice. Also of concern would be a determination of whether children could sustain the use of the decision-making strategies they had been taught or whether this learning would have only a temporary impact. By addressing such issues, researchers will gain a clearer understanding of the strategic value of current theorizing in practical applications.

Although children's responses to television advertising in a decision-making context is the focal concern in our inquiry, the results are relevant to the more general issue of predicting individuals' behavior from their attitudes. Recent theorizing and findings implicate information availability in explaining attitude-behavior consistency (Fazio and Zanna 1981). According to this view,
attitude-consistent choice will be observed when individuals have a well-defined set of associations pertaining to an object in memory. Consistent with this expectation is the finding that extensive experience with an attitudinal object enhances attitude-behavior consistency (Fazio and Zanna 1978). Presumably, experience enhances the likelihood that well-defined associations to an object will be available for rendering both attitudinal and behavioral judgments. Also congenial to the availability interpretation is the finding that high self-monitors manifest less attitude-behavior consistency than low self-monitors (e.g., Snyder and Swann 1976). High self-monitors are sensitive to situational cues. To the extent these cues differ when attitudinal and behavioral judgments are made, different information will be available and inconsistency may be observed. In contrast, because low self-monitors rely on internal states as a basis for judgment, situational cues are unlikely to affect judgment. Low self-monitors thus exhibit attitude-behavior consistency when internal states are well-defined by virtue of consistent past experience (Zanna, Olson, and Fazio 1980).

Our research extends the availability account by suggesting that individual differences and cognitive demands of the decision task interact to determine information availability and hence attitude-behavior consistency. Young children’s cognitive skills are such that they can access only a limited amount of information. They can process a communication such as the television commercial used in our research. Young children can also access and compare a small number of alternatives that differ markedly from each other. However, they do not have the requisite information available for making attitude-consistent choices when choice alternatives are similar or large in number. Similarly, older children exhibit attitude-behavior inconsistency when judicious choice requires the availability of detailed information about many alternatives.

On the basis of the preceding analysis, we echo Regan and Fazio’s (1977) conclusion that “the question facing researchers is, therefore, no longer whether an individual’s attitudes can be used to predict his overt behavior, but when.” Moreover, our analysis underscores the need to examine how attitudes affect behavior. Extant models that give predictive weight to other variables such as social norms or other attitudes (e.g., Fishbein and Ajzen 1975; Rokeach and Kliejunas 1972; Wicker 1969) contain little detailed theorizing as to how these variables actually affect consistency. In these models some sort of additive combination is simply assumed. In contrast, the notion of information availability provides a starting point for determining how attitudes affect behavior. It suggests two lines of research that are likely to be productive in predicting and explaining the attitude-behavior relationship. One line of research involves the adoption of an attitude measurement procedure implied by information availability. This approach would entail asking subjects to consider the relevant choice alternatives in stating their attitudes toward the object of interest. If attitudes were measured in this way, the same information should be available in rendering attitudinal judgments and making behavioral choices. Hence, consistency should be substantial. Some support for this expectation is found in Ajzen and Fishbein’s (1977) demonstration that a high degree of consistency is observed when attitudes and behavior are denoted identically in terms of target, action, and context.

The other line of research suggested by the information availability notion is theoretical. It would involve examining the impact of variables thought to affect information availability on attitude-behavior consistency. The prediction is that a high degree of consistency will occur when the same information is available for attitude and behavior judgments. Along these lines, for example, it is predicted that the inverse relationship between vividness of display and attitude-behavior consistency found in Experiment II would be eliminated by repeated presentation of the stimulus information. In effect, repetition may reduce the cognitive resources required to process stimulus data and thus enhance the likelihood of comparing relevant choice alternatives. Testing such predictions offers the hope of developing a theory of how attitudes enter into the information processing that results in behavior—a theory that would enable researchers to anticipate when attitude scores afford accurate predictions of behavior.

REFERENCES


**ERRATUM**

In the article, “A Quantitative Review of Research Design Effects on Response Rates to Questionnaires,” by Julie Yu and Harris Cooper (*JMR*, February 1983), the study by J. Scott Armstrong, “Monetary Incentives in Mail Surveys” (*Public Opinion Quarterly*, 39, 111–16), was inaccurately cited. Rather than being a “qualitative review,” his study was apparently one of the first “quantitative reviews” published in this area. In addition, rather than suggesting that promised incentives had no effect, Armstrong found a modest beneficial effect. (No test was made of statistical significance because of the small sample size.)