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# The Interaction of Advertising and Evidence

JOHN DEIGHTON\*

Recent advertising research appears to neglect the role of evidence in persuasion. From work on confirmatory bias in the field of behavioral decision theory, this paper argues for an interaction between advertising and evidence on evaluations, and finds experimental support for the interaction. Implications are drawn for advertising testing and for hierarchy models of advertising effects.

This study explores a two-step model of advertising's influence or belief: an initial arousal of expectations, and a subsequent disposition to confirm. The model asserts that exposure to advertising, when it is successful, induces the consumer to entertain a hypothesis about the advertised product. The hypothesis is held tentatively, in recognition of its partisan source. The consumer may well hesitate to admit to belief in implications that flow from the hypothesis.

In the second step, evidence that bears on the hypothesis becomes available—for example, product experience or evidence recalled from memory. The consumer tests the hypothesis, employing heuristics that tend to favor its confirmation, so that confidence in its validity tends to increase. The consumer becomes more inclined to report the hypothesis and more likely to base future purchase decisions on it.

The model proposes, furthermore, that the effects at each step interact, so that the initial expectation is not a linear predictor of longer-term belief.

The effect of advertising on mental states like purchase intention or belief about product attributes is often treated as a direct consequence of exposure to advertising (e.g., Holbrook 1978; Mitchell and Olson 1981). Yet much of the effect may depend not on immediate acceptance of advertised propositions, but on a confirmatory diagnosis of product experience. If so, access to information that is perceived to be impartial is necessary before advertising's influence is entirely manifest. The implication is that for advertising claims which lend themselves to confirmation, we should look for effects of communication not only at

the time of exposure, but also later, after some experience with the product.

## DEFICIENCIES IN EXISTING MODELS

A large part of classical persuasion research has tended to view communicator and receiver in an adversarial relationship. It regards persuasion as a contest on a debatable topic, fought with simply structured verbal propositions and decided by verbal, not behavioral accession. Examples of this tradition are message learning (Hovland, Janis, and Kelley 1953), social judgment research (Sherif, Sherif, and Nebergall 1965), work on the integration of information (Anderson 1971; McGuire 1960; Wyer 1974), and the various cognitive consistency theories (Festinger 1957; Heider 1958; Osgood and Tannenbaum 1955).

The broad mass of persuasion that goes on in everyday life under the influence of advertising seems quite different. The advertiser is not so much adversary as tempter, offering propositions which are both plausible and attractive in their implications. The propositions are often ambiguous ("Coke is It!") or effective ("Oh What a Feeling! Toyota") and rarely contradict existing beliefs directly. The topics are hardly debating forum material. On the contrary, advertising is often used to influence unimportant choices among barely discriminable alternatives. Furthermore, behavioral accession to advertising may precede—or even occur without—verbal or attitudinal acceptance (Krugman 1965; Ray and Sawyer 1971; Sawyer 1971; Silk and Vavra 1974).

Finally, and in most conspicuous contrast to the classical paradigm, the reception of advertising is often interwoven with experience. The typical Coke advertising audience has tasted Coke before and expects to do so again. While the classical persuader seeks only to change some pre-behavioral mental state, many advertisers have the opportunity to affect

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ex post facto interpretations of the consumption experience as much as expectations of what it will offer.

Despite these differences, advertising research has borrowed heavily from the classical tradition. Much recent research into advertising's effects is conducted within the framework of the contemporary inheritors of the classical framework—Fishbein and Ajzen's (1975) expectancy–value model and Greenwald's (1968) cognitive response model. This paper argues that these frameworks may yield misleading conclusions because they neglect one specific characteristic of advertising in natural settings: the opportunity to acquire and interpret experiences from sources less partisan than the advertiser.

Consider as illustration two recent studies that found that factual message content had more influence on affect than had evaluative content. (Edell and Staelin 1983;<sup>1</sup> Holbrook 1978). This result is inconsistent with much of contemporary advertising practice. Before concluding that advertising should be more factual, we might consider whether the way in which advertising's effect was simulated in the studies was valid. In both studies, subjects were exposed to communications, asked to give their thoughts aloud, given a distracting task, and then asked to give ratings of their beliefs and affect in response to the subject of the communication—namely, a new brand in a familiar product category.

A possibly material difference between this sequence of events and the phenomenon it sought to replicate is that all knowledge of the product came from the communication. That being so, it is plausible that subjects rated factual descriptions more favorably than evaluative descriptions simply because they felt they knew more about them. They may have hesitated to express liking for products described in less factual terms because they were offered less evidence for their impressions.

This tendency to study message effects independent of the effect of “harder” evidence would be legitimate if the two did not interact. If the effects were additive, experience could be discounted as a constant factor in a comparative test of two messages. The psychological assumptions of cognitive response and expectancy–value theories give no reason to expect such interaction. Fishbein and Ajzen (1975) are reasonably explicit on this point: for example, the particular method by which a belief is formed—whether descriptive, inferential, or observational—is not asserted to mediate the role the belief will play in subsequent formation of attitude.

<sup>1</sup> More precisely, Edell and Staelin (1983) showed that factual (objective in their terms) advertising produced a more favorable cognitive structure than evaluative (subjective) advertising, except when the advertising contained an unframed illustration. In the latter condition, subjects appeared to be distracted from processing the communication, and no consistent differences between objective and subjective advertising were reported.

However, another research stream, sometimes termed behavioral decision research (Slovic, Fischhoff, and Lichtenstein 1977), offers a theoretical basis for arguing that message and evidence might interact. This research predicts a confirmatory bias; that is, that expectations induce inferences biased toward confirmation. If messages differ in their propensity to accrue confirmatory experience and induce bias, then messages may differentially mediate the interpretation of evidence. For example, evaluative messages may be more prone to confirmation than factual messages, and so may interact more with evidence than do factual assertions, despite the weaker main effect that the two studies found. Or it may be (as Nisbett and Ross 1980 speculate) that a vivid message lingers in memory and is more available for confirmation than a more pallid form. It is possible that repetition affects the opportunity to accrue confirmation in a similar way.

The goal of this research, however, is not to identify the factors facilitating the interaction, but simply to test for its existence. The marketing literature has not reported a purely cognitively based experience  $\times$  advertising effect. While some conceptualizations of the advertising influence process do propose a role for experience (see Smith and Swinyard 1983 for a recent instance), when bias is asserted it is usually ascribed to motivation—i.e., to a drive to reduce cognitive dissonance (Anderson 1973; Cardozo 1965; Olshavsky and Miller 1972).

The difficulty with this perspective is that it assumes—but rarely demonstrates—that disconfirmation in fact arouses dissonance. For dissonance to occur, Festinger (1957) required (1) a firm conviction, (2) public commitment, (3) the possibility of unequivocal disconfirmation, and (4) the occurrence of disconfirmation. It is doubtful whether these conditions are met in consumption contexts in which inconsequential expectations are induced by a communication, no public or private commitment is made to the truth of the expectations, and rather equivocal evidence is then offered. While cognitive dissonance theory's predictions of the uses to which consumers put evidence are similar to those of the information processing bias model, its assumptions are not as easily met.

## MODEL AND EVIDENCE FOR AN ADVERTISING–EVIDENCE INTERACTION

This study explores the proposition that persuasion by advertising occurs in two steps. First, advertising arouses an expectation, which is weak because the partisan nature of the source is recognized. Second, the subject tends to confirm the expectations upon exposure to more objective information (such as evidence or product experience). Further, it is proposed that the effects at each step interact.

A study by Darley and Gross (1983) supports the idea that communications of dubious value may nevertheless influence judgment by provoking confirmatory tendencies in the processing of subsequent evidence. In this study, subjects were shown a videotape of a young child in one of two settings—either an urban, low-income environment or a middle-class, suburban one. Half of the subjects completed an evaluation of the child's academic skill and achievement levels at this point. The others were then shown a videotape that presented inconsistent and relatively uninformative performance test results, ostensibly the work of the child. The second group of subjects then completed an evaluation of the child.

Darley and Gross found that the videotape (which arguably functions like a stereotype-evoking advertisement) had no effect on evaluation of the child's skill and achievement levels when the subjects were not also shown performance test results. When they did receive the latter, however, there was a significant tendency for subjects who saw the child in the lower-income setting to evaluate her as lower in skill and achievement than did subjects who saw her in the middle-class setting. Subjects appeared to interpret the performance test results as confirming a stereotype that they were not willing to admit to holding. Their inferences revealed the presence of an expectation so weak or so socially unacceptable that direct questioning would not disclose it.

Evidence that expectations induce a confirmatory tendency in inference has been reported in a number of settings (Bruner and Potter 1964; Chapman and Chapman 1969; Gilovich 1981; Lord, Ross, and Lepper 1979; Snyder and Swann 1978). The effect has been attributed to many information processing characteristics, including encoding in and retrieval from memory (Hastie 1981), strategies for analysis (Wason 1960), errors in analysis (Ward and Jenkins 1965), and a tendency to generate situational attributions for unexpected bad outcomes, dispositional attributions for unexpected good outcomes, and few if any attributions for expected outcomes (Bettman and Weitz 1983; Wong and Weiner 1981).

## HYPOTHESIS

The hypothesis under investigation is that advertising induces the inferences that consumers draw from evidence to be more confirmatory than they would have been in the absence of advertising. Here "confirmatory" means that inferences from evidence in the presence of relevant advertising are more consistent with propositions asserted or implied by the advertising than can be explained by the simple addition of the advertising and evidence main effects. That is, confirmatory bias is indicated by an interaction between advertising and evidence.

The alternative hypothesis is that, while there may be main effects on inference for advertising and/or evidence, there is no interaction effect.

Conceptually, the distinction between advertising and evidence does not lie in the potential to be informative—and therefore to serve as an objective basis for belief revision: both may be informative in this sense. The distinction is that advertising is understood by the recipient to be partisan, while evidence is understood to be a dispassionate (if not random) sampling from the domain of reality.

## THE EXPERIMENT

The experiment exposed subjects to advertising which asserted that Ford was trying harder to improve the quality of its automobiles. It studied the effect of this advertising on the inferences consumers drew from evidence of the reliability of new cars. Two independent, two-level factors—advertising and evidence—were manipulated in a  $2 \times 2$  experimental design with pre- and post-measures of the dependent variable.

*Subjects.* The subjects were 40 women aged between 25 and 40, recruited through a social group that was paid for its role. All were owners of cars and licensed drivers.

*Instructions.* Subjects arrived for the experiment in groups of 10. They were each handed a questionnaire into which were bound all the instructions and stimulus materials that were used in the task. The questionnaire defined "reliability" as the size of a car's repair bills. Subjects were asked to rate the reliability of cars manufactured by Chrysler, Volkswagen, Ford, Datsun, General Motors, and Toyota on a five-point scale (the "first" estimate). The next pages of the questionnaire exposed them to one of four experimental conditions, after which they rated the six manufacturers on a format identical to that used at the start of the interview (the "second" estimate).

*Independent Variables.* Essentially, this experiment observed the change in expectations about the reliability of Ford automobiles under three influences. One was advertising that made assertions directly or peripherally relevant to this issue. The second was data that constituted evidence of this relation. The four experimental conditions were obtained by crossing advertising and evidence. The third independent variable was a within-subject factor, i.e., the manufacturer of the car being rated.

*Advertising.* Advertising was either present or absent. In the "present" condition, subjects saw color reproductions of two recent print advertisements for Ford cars that employed the slogan "Quality is Job 1." They also saw advertising by two other U.S. durable goods manufacturers employing a "quality"

TABLE 1

## SUMMARY OF EVIDENCE OF MODEL RELIABILITY

| Model            | Percentage red | Model              | Percentage red |
|------------------|----------------|--------------------|----------------|
| Mazda 626        | 93             | Volkswagen Rabbit  | 28             |
| Oldsmobile 88    | 92             | Audi Fox           | 26             |
| Plymouth Champ   | 87             | Oldsmobile Cutlass | 24             |
| Subaru 4WD       | 84             | Datsun 710         | 21             |
| Pontiac Catalina | 83             | Dodge Aspen        | 18             |
| Honda Accord     | 83             | Plymouth Volare    | 14             |
| BMW 320i         | 77             | Chevrolet Monza    | 0              |
| Ford Fiesta      | 66             | Fiat Brava         | 0              |

NOTE: A model's reliability is indexed by the proportion of red ink to black in its table. The actual evidence from which this summary table is derived was presented to subjects not in rank order but in alphabetical order.

theme: Frigidaire ("Here today, here tomorrow") and Whirlpool ("We still believe in promises").

**Evidence.** Evidence was either present or absent. In the "present" condition, subjects saw extracts from *Consumer Reports'* "Frequency-of-Repair Records, 1976–1981" for 16 models of car. The data for each car comprised a rating on a 1–5 scale of frequency of repair for each of up to six years past, for each of 17 potential problem areas, as well as overall trouble and cost indices for each car. The data appeared in the table as pictorial symbols: red circle or semicircle, clear circle, and black semicircle or circle. The evidence was voluminous. Subjects saw 19 data points for 16 car models for each of up to six years. In the time the subjects gave to examining the evidence, little more than a rough impression of its value could have been gained.

Objectively, the data ranged from evidence of high reliability to low, with a single Ford data point in the middle of the range. With reliability indexed by the proportion of red ink to black ink in each model's table, Table 1 summarizes the data.

**Manufacturer.** Manufacturer was a six-level within-subject independent variable in the experiment. Subjects were asked to make judgments about six manufacturers (Chrysler, Ford, General Motors, Volkswagen, Datsun, and Toyota).

**Dependent Variable.** The dependent measure was the difference between the subject's second estimate of a manufacturer's reliability and the first estimate—i.e., the shift in belief that followed exposure to an experimental condition.

**Experimental Design.** The between-subjects design crossed both levels of advertising with both levels of evidence. The within-subjects design comprised the six levels of manufacturers.

## RESULTS

Under the principal hypothesis, advertising, evidence, and manufacturer will interact. Advertising influences the estimate of Ford's reliability whenever evidence is present, by influencing the interpretation of the evidence. This latter influence will inflate the estimate of Ford's reliability and deflate the estimate of other cars' reliability by more than the evidence alone would have done. Under the alternative hypothesis, the interpretation of evidence is unaffected by advertising. Therefore the prediction is for no triple interaction.

The result of the repeated measured ANOVA is given in Table 2. The hypothesized triple interaction is found: the effect of evidence is mediated by advertising, and differentially across manufacturers. The effect is significant at the  $p = 0.05$  level after both the Greenhouse–Geiser and Huynh–Feldt modifications to degrees of freedom are made to adjust for insensitivity in the classical test.

To test whether the subject of the advertising, Ford, was in fact the source of the significant interaction between beliefs about Ford and the other five manufacturers, an orthogonal contrast was constructed to compare responses to the Ford level of the manufacturer factor with the pooled responses to all other levels. Again, the hypothesized triple interaction was present at significant levels (see Table 3). These results are illustrated graphically in the Figure.

Thus the notion that advertising's effect on a belief can be captured by a simple post-exposure measure of belief is not supported in this test. Advertising's post-exposure effect on belief in Ford's reliability in this test was nonsignificant, while its effect when mediated by exposure to evidence was strongly significant. The hypothesis that this result is simply the additive effect of evidence and advertising is also not supported here. While evidence alone weakened beliefs about Ford's reliability, the same evidence in the context of advertising strengthened the belief.

The result supports the hypothesis of a bias to confirm. That is, the inferential value of the evidence on Ford's reliability depends on whether or not the subject has been induced by advertising to hold an expectation. The strong claim of bias can be made here because, at least for the Ford cell, the expectation change induced subjects to reverse the direction of their inference. While a Bayesian model can account for an inference shift, it can not account for a reversal of the polarity of a belief as extreme as the one obtained for the Ford cell.

## DISCUSSION

Studies in the tradition of expectancy–value theory (Fishbein and Ajzen 1975) and cognitive response

**TABLE 2**  
EFFECT OF ADVERTISING, EVIDENCE, AND MANUFACTURER ON SHIFT IN BELIEF

| Source of variation                                 | Sum of squares | Degrees of freedom | Mean square | F-statistic | Significance |
|-----------------------------------------------------|----------------|--------------------|-------------|-------------|--------------|
| <b>Between subjects:</b>                            |                |                    |             |             |              |
| Grand mean                                          | 0.704          | 1, 36              | 0.704       | 2.51        | n.s.         |
| Advertising                                         | 0.104          | 1, 36              | 0.104       | 0.37        | n.s.         |
| Evidence                                            | 0.204          | 1, 36              | 0.204       | 0.73        | n.s.         |
| Advertising $\times$ evidence                       | 0.038          | 1, 36              | 0.038       | 0.13        | n.s.         |
| Between-subjects error                              | 10.117         | 36                 | 0.281       |             | n.s.         |
| <b>Within subjects:</b>                             |                |                    |             |             |              |
| Manufacturer                                        | 2.671          | 5, 180             | 0.534       | 1.71        | 0.14         |
| Greenhouse-Geiser adjustment                        |                | 3.6, 127.8         |             |             | 0.16         |
| Manufacturer $\times$ advertising                   | 4.971          | 5, 180             | 0.994       | 3.17        | 0.01         |
| Greenhouse-Gieser adjustment                        |                | 3.6, 127.8         |             |             | 0.02         |
| Manufacturer $\times$ evidence                      | 1.871          | 5, 180             | 0.374       | 1.19        | n.s.         |
| Manufacturer $\times$ advertising $\times$ evidence | 3.938          | 5, 180             | 0.788       | 2.51        | 0.03         |
| Greenhouse-Geiser adjustment                        |                | 3.6, 127.8         |             |             | 0.05         |
| Within-subjects error                               | 56.383         |                    | 0.313       |             |              |

NOTE: The dependent variable is the difference between the second rating of car reliability and the first rating.

**TABLE 3**  
CONTRAST OF FORD WITH ALL OTHER LEVELS OF THE MANUFACTURER FACTOR

| Source of variation                             | Sum of squares | Degrees of freedom | Mean square | F-statistic | Significance |
|-------------------------------------------------|----------------|--------------------|-------------|-------------|--------------|
| Contrast effect                                 | 1.541          | 1, 36              | 1.541       | 4.96        | 0.03         |
| Contrast $\times$ advertising                   | 2.901          | 1, 36              | 2.901       | 9.34        | 0.004        |
| Contrast $\times$ evidence                      | 0.521          | 1, 36              | 0.521       | 1.68        | 0.20         |
| Contrast $\times$ advertising $\times$ evidence | 1.688          | 1, 36              | 1.688       | 5.43        | 0.03         |

NOTE: The dependent variable is the same as that in Table 1. The source of variation is within subjects.

(Petty, Ostrom, and Brock 1981) frame the process of persuasion so as to exclude evidence effects. This study tests a model of persuasion that explicitly introduces evidence as a factor which interacts with advertising.

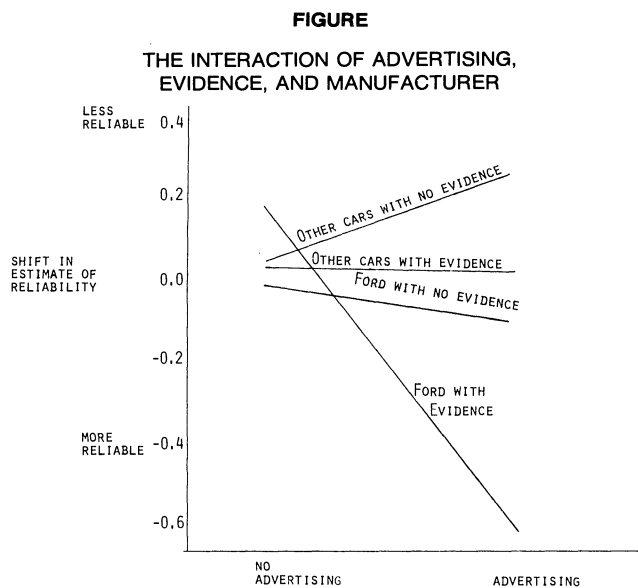
This model conceives of the consumer as a naïve and fallible investigator seeking a tolerable understanding of the markets in which s/he must deal. Advertising is a source of hypotheses which, if adopted, shape the conduct of inquiry and bias its outcome in favor of confirmation. For mundane and inconsequential product choices, the consumer may adopt an hypothesis on such slight grounds that s/he would be reluctant to acknowledge its role to others. In such cases, the effect of advertising is revealed more clearly in the subsequent interpretation of evidence (particularly experience) than in attitude change at the time of exposure to advertising.

While the result of this study is consistent with the model's predictions, the study is not an exhaustive test of the model. In particular, it still remains to be

established explicitly that advertised claims function as hypotheses, and that the adopt-conceal-test-reveal chain is truly the source of the observed interaction.

The model's conceptual limits and the contingencies that influence its operation need also to be defined. In the experiment, evidence was chosen to be ambiguous. By locating the Ford datum at the midpoint of the evidence range, the experiment called for a judgment rather like the half-full/half-empty dilemma: a small shift in interpretation of the datum had a larger implication for the judgment.

Would the interaction have been found with much stronger or weaker evidence? The model makes no prediction, but the literature on consumer satisfaction (e.g., Oliver 1980; Olson and Dover 1979) suggests not. In particular, Anderson (1973) demonstrated an assimilation (confirmation) opinion response to weakly disconfirmatory experience and a contrast (disconfirmation) response to strongly disconfirmatory experience. Cohen and Goldberg (1970), using a convincingly unobtrusive measure, found that subjects would reverse



choices when strong or weak prior expectations were strongly disconfirmed, but not when strong priors were weakly disconfirmed.

The present experiment also does not address the question of whether the interaction effect would be found for all levels of initial expectation. Although there was some dispersion within the study of initial expectations about Ford's reliability, and the interaction occurred independently of that dispersion, the experiment dealt with a claim that was chosen deliberately to be not very contentious.

In sum, the evidence fits the model when the hypothesis is plausible and the evidence is ambiguous, and no claims beyond these limits are made. As argued at outset, these circumstances are found in many of the situations for which advertising is the preferred mode of promotion.

Persuasion experiments are vulnerable to demand contamination whenever the study's hypothesis predicts compliance with a persuasive communication, because the communication reveals the direction of the hypothesized compliance. This study is no exception. To reduce the plausibility of a demand explanation for the outcome, it is necessary to show that there was neither incentive nor much opportunity to comply.

With regard to incentive, the study took pains not to cue demand. The administrator of the experiment had no interaction with the subjects beyond handing out and retrieving a booklet. The subjects knew nothing of him as a person before the study, and did not expect to see him again after it. The task was directed entirely by written instruction from the booklet in which all instructions, stimuli, and questionnaires were bound.

As for opportunity, a number of precautions were

taken not to give away the hypothesis. The Ford ad was embedded in ads for other products. The Ford datum was shown with data on many other cars, and the Ford rating task was undertaken along with ratings of five other cars. Comments of respondents in debriefing suggest that the goal of the experiment was adequately obscured. When subjects were asked what they thought the purpose of the experiment had been, not one reported the hypothesis or anything resembling it. Subjects in the "advertising and evidence present" condition tended to answer "to see how much of the *Consumer Reports* information I could use," or "to find out which car we thought was the most reliable." One of the 10 said, "so we could see if the Ford advertisement was telling the truth," which seems precisely consistent with the hypothesis.

## IMPLICATIONS

This research offers an explanation for Krugman's (1965) assertion that attitude change may follow behavior change. He proposed that when involvement was low, advertising acted directly on behavior without the audience's intending to change its attitude or acknowledging that the advertising was influential. The effect was supposed to be gradual and facilitated by message repetition. The biased inference hypothesis accounts for Krugman's effect as a tendency to see experience as confirming the message of advertising that, before experience, had been only tentatively entertained.

Krugman offered no evidence of the effect, but some evidence is to be found in a program of research directed by Ray (1973). Ray and his coworkers measured the effect of advertising repetitions on recall of advertising content, attitude to the advertised brand, and intention to buy it. One experiment in this program (Sawyer 1971) found shifts in recall and intention without a shift in attitude, supporting Krugman's prediction. Silk and Vavra (1974) reported a similar result: in their research, advertising affected recall and favorite brand, but not brand attitude on a 16-item semantic differential scale.

If the biased inference hypothesis is offered to account for Ray's experimental results, it must refer to inference from evidence retrieved from memory, because none of the tests offered other evidence. Studies which report such an effect are to be found in Tesser (1976) and Tesser and Leone (1977). The finding of these studies was that merely thinking about a proposition would intensify attitudinal judgments if a strong schema existed to direct thought. Where no strong schema existed, thought would not polarize judgment.

A confirmatory bias interpretation of Tesser's "mere thinking" effect would explain it as the consequence of retrieval from memory of evidence that was biased in favor of the initial attitude. The operation of a

confirmatory bias on evidence from memory may thus be considered a plausible model to account for Krugman's hypothesis and the empirical results that support it.

Some disagreement exists regarding the importance of believability of advertising as an indicator of its effectiveness (Maloney 1963). The present research offers a more precise formulation of this issue. It suggests that the practice of evaluating the value of advertising by measuring the shift of beliefs on a range of items in a pre-/post-exposure experimental design is invalid, and hence that believability is not important in this sense. Yet it does not dispute that the inducing of expectations is a legitimate goal of advertising.

The problem is one of measurement. An expectation may be under-reported because the respondent hesitates to admit to it, or over-reported because the respondent wants to please the researcher. In such circumstances, one way to compare the true influence of alternative advertising executions may be to follow the design of this study and give the subjects the opportunity to engage in some form of inference, stimulated by evidence from an ostensibly nonpartisan source. This study suggests that a relative measure of persuasion will be the extent to which advertising influences the inference.

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