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Results from Experiment 1 reveal that consumers highly involved in processing an advertisement are likely to make invalid inferences from *incomplete-comparison* claims at the time of processing and, hence, be deceived. Less involved consumers may be induced to complete such claims at the time of measurement, which makes it appear that they also were deceived by the advertisement. Experiment 2 then demonstrates that deception depends on the processing demands of the advertising claim. Only less involved consumers are deceived by *inconspicuous-qualification* claims, which require detailed processing of the advertisement for non-deception. The author discusses the implications of these findings for advertisers and public policy.

Consumer Involvement and Deception from Implied Advertising Claims

Inference making, or going beyond what is directly stated in the text and drawing other meanings, is a natural part of text comprehension (Harris 1981). Previous research on inference making from advertisements has demonstrated that readers of advertisements routinely make inferences and then believe these to have been directly stated in the advertisement (Harris, Dubitsky, and Bruno 1983; Russo, Metcalf, and Stephens 1981). Boundary conditions must be established to better understand the inference making process (cf. Harris et al. 1993; McKoon and Ratcliff 1989). My research, therefore, goes beyond the demonstration of inference making from advertisements to study the conditions under which invalid inferences are drawn by consumers at the time of processing the advertisement.

I examine *involvement* as a potential moderator of the generation of deceptive inferences from advertisements. Previous research on deceptive advertising has studied the potential for deceptiveness of different types of implication claims (cf. Armstrong, Gurol, and Russ 1980; Burke et al. 1988; Olson and Dover 1978). For example, Burke and colleagues (1988) studied two types of claims in advertisements for pain relievers—the expansion implication (strongly positive, but somewhat ambiguous claims, such as "Complete relief from pain") and the inconspicuous-qualification implication (parenthetical qualifying information used to limit the scope of the expansion claim). They found that both types of claims resulted in higher levels of false beliefs than the truth or a no information condition. The *inconspicuous qualification* (IQ) was found to result in lower levels of false belief than the expansion claim. This could be because of an aggregation of beliefs across subjects, some of whom processed the qualification and, therefore, did not hold false beliefs. Thus, not all consumers may be deceived by these types of claims.

Research in the area of persuasion suggests that consumers will process message arguments in advertisements in detail and will draw complex, effortful inferences only if they are motivated and able to do so (Petty and Cacioppo 1986). One variable shown to affect consumers' motivation to process advertisements is their level of involvement with the advertisement or product category. I, therefore, examine under different involvement conditions the deceptiveness of advertisement implications previously found to be deceptive. I also examine the time at which invalid inferences are drawn from advertisements. If invalid inferences about the brand are shown to be drawn at the time of processing the advertisement, then the advertisement can be held responsible for false beliefs and can, hence, be ruled deceptive. If research cannot establish that invalid inferences were drawn at the time of processing, then advertisers could argue that false beliefs were caused by sources other than the advertisement. For example, a question about a pain reliever such as "Do you believe that Brand X provides superior pain relief to Brand Y?" used to test whether a claim is deceptive, may prompt the respondent to make the stated inference

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and, thus show that he or she was deceived. The respondent may not have been deceived in the absence of the question.

I address the issues discussed previously in two experiments. The first experiment examines involvement and time of invalid inference generation. The second experiment further explores involvement, deception, and purchase intentions. In the subsequent section, I develop and test hypotheses relating involvement to the time at which potentially invalid inferences are drawn from *incomplete-comparison* advertising claims. I then examine deception from advertising claims that differ in their processing demands. Finally, I discuss the implications of this research for advertisers and public policy.

EXPERIMENT 1

Importance of the Time of Inference Making

False beliefs about the advertised brand may be caused by three sources other than the advertisement: (1) questions about brand beliefs that make the advertising claim salient and, therefore, prompt such beliefs, (2) extrinsic sources, such as brand usage, word-of-mouth, or generalized beliefs about the product class as a whole, that cause false beliefs even before advertisement exposure, and (3) factors in the environment (e.g., store display) that make the advertising claim salient and prompt such beliefs after advertisement exposure. The advertisement is not deceptive if the measurement process induces deception (Case 1), but may be deceptive in the other two cases because the advertisement may interact with other variables to cause deception. For example, in Case 2, an advertisement may exploit prior beliefs based on extrinsic sources by reinforcing such beliefs (Russo et al. 1981); and in Case 3, a store display may make an advertising claim salient and induce inference making on the basis of the advertisement.

In Experiment 1, I control for the first and second source of false beliefs by using a direct measure of the time of inference making. This measure reveals whether inferences were made during advertisement processing and retrieved from memory at the point of questioning or whether they were computed at the time of testing in response to the question. If it is found that inferences were made or reinforced during advertisement processing, then there is sufficient evidence to show that the advertisement is deceptive.

Time of Inference Making from Incomplete Comparisons (ICs)

Identification of the time at which inferences are made is especially important for advertising claims that require the consumer to go beyond what is stated in the advertisement, because consumers may or may not generate the inference at the time of processing the advertisement. One such claim is the incomplete-comparison implication, which uses comparisons for effect without naming a referent (Shimp 1975). For example, advertisements claiming "This brand is better" without mentioning the brands with which the advertised brand is being compared, and/or the attribute on which the comparison is being made, use the incomplete-comparison implication.

Advertisers may use ICs for three reasons. First, they do not want to make an outright false claim (e.g., this compact-disc [CD] player sounds better than all other CD players on the market). Second, as research on the generation effect shows, when consumers expend the effort to complete the claim, an open-ended implied advertising claim is likely to be more memorable than an explicitly stated claim (Slamecka and Graf 1978). Third, evaluations based on internally generated claims are likely to be more favorable and accessible to consumers than those based on explicitly stated claims, especially under high involvement conditions (Kardes 1988a; Sawyer and Howard 1991). ICs are also important from a public policy standpoint because consumers may internally generate potentially false completions to the claim.

In the only study to examine the deceptiveness of ICs, Shimp (1978) tested three advertisements using this type of claim—two for deodorants and one for a car. Each contained one IC (e.g., Mennen E goes on warmer and drier) embedded in the advertisement. Shimp tested what subjects believed the advertisement conveyed by asking them to (1) indicate their agreement with completed incomplete-comparison statements on a 5-point Likert scale or (2) assign a total of 10 points between different closure alternatives including the option "other." The scales themselves may have made the claim salient and induced subjects to infer a potentially deceptive completion, when, in fact, this completion may not have been inferred at the time of reading the advertisement. In other words, the advertising claim may not be deceptive in the absence of such a reactive question (cf. Feldman and Lynch 1988; Kardes 1988a). Hence, Shimp's (1978, p. 27) conclusion that ICs "elicit multiple plausible interpretations, some of which (or perhaps all of which) are potentially misleading" is open to the alternative explanation of reactivity to closed-ended belief questions.

Did the scales induce all subjects in Shimp's experiment to complete the IC, or did some subjects complete it at the time of processing the advertisement? Previous research in the areas of persuasion and inference making suggests that subjects who were motivated to process the advertising claims may have completed the IC at the time of processing the advertisement, whereas less motivated subjects may have been induced to do so by the scales.

Involvement and Time of Inference Making

On the basis of research in persuasion, text comprehension, and social psychology, we propose that readers will infer completions to the IC at the time of processing the advertisement only if they process the advertisement elaborately. The Elaboration Likelihood Model (ELM) of persuasion (Petty and Cacioppo 1986) suggests that given the ability, consumers under high involvement will process ICs and infer completions, whereas low involvement consumers will not. Consumers under low involvement are more likely to look for peripheral cues in the advertisement that would enable them to form judgments with less effort. Because the IC is ambiguous, low involvement consumers are likely to ignore it, or to encode it as a positive cue, without expending the cognitive effort necessary to complete the claim at the time of processing.

Research in text comprehension also supports this proposition. Most models of reading comprehension suggest that readers construct meanings from presented text (cf. van Dijk and Kintsch 1983). *Logical inferences,* defined as those in-

ferences that are necessary for comprehension, have been reliably shown to be constructed by readers (e.g., O'Brien, Duffy, and Myers 1987). ICs are a type of *pragmatic implication* (Harris 1977) requiring elaborate inference making. Elaborate inferences are not necessary for comprehension, but rather expand on explicitly stated information. Such inferences tend not to be made, are partially made, or are made on-line under certain constraining conditions (McKoon and Ratcliff 1989). In support of my proposition, research has identified the reader's level of motivation or involvement as one such constraining condition (O'Brien et al. 1988).

In addition, research in social psychology suggests that inferences about a person's traits are made at the time of encoding sentences about a target person only under certain conditions (Newman and Uleman 1989). Goals such as forming an impression of another person have been found to make trait inferences more likely (Bassili and Smith 1986). Regarding text comprehension, which is the focus of this article, readers who are involved in processing the advertisement are likely to have the goal of forming an impression of the advertised brand (Beattie and Mitchell 1985). Hence, involved readers are more likely than less involved readers to draw inferences from ICs at the time of processing.

Empirical support for this proposition derives from research in marketing that has concluded that inferences from missing information are made only under certain conditions (Dick, Chakravarti, and Biehal 1990; Simmons and Lynch 1991). For example, research has shown that people are more likely to complete ambiguous cropped objects in advertisements under high involvement conditions than under low involvement conditions (Peracchio and Meyers-Levy 1994). Research on *omitted conclusions* in advertising (Kardes 1988a; Sawyer and Howard 1991; Stayman and Kardes 1992) has found that such conclusions are more likely to be generated spontaneously (i.e., at the time of processing the advertisement) when a subject's involvement or need for cognition is high. Omitted conclusions refer to claims in which two claims in an advertisement logically imply a third claim that is left unstated in the advertisement. Omitted conclusions are, therefore, a type of logical implication in which the conclusion is necessarily implied by preceding claims. Yet, prior research has found that only highly involved consumers infer the conclusion. To be completed, an IC requires more elaborative processing than an omitted conclusion because the reader is required to draw conclusions that are neither explicitly stated nor logically implied. I, therefore, expect that only involved consumers will complete ICs at the time of processing the advertisement. However, providing low involvement consumers with a completion to an IC may induce them to complete the claim using the provided response (e.g., Shimp 1978) and, therefore, be deceived by the advertisement.

Development of Operational Hypothesis

The time taken by subjects to state whether a certain false completed claim is true of the brand can be used to test the previous proposition (cf. Kardes 1988a; Stayman and Kardes 1992). The use of response times is based on the crucial distinction between retrieval and computational processes (Lichtenstein and Srull 1985). If subjects make an inference from ICs at the time of processing the advertisement, then they can simply retrieve their inference to answer a later question about the inferred claim. However, if subjects have not made such an inference at the time of processing, a later question may prompt them to compute the inference on the spot. Research has shown that the process of retrieving an inference and providing an answer to a question is faster than the process of computing an inference and providing an answer to the same question (Camp, Lachman, and Lachman 1980). Hence, I expect response times to a question concerning the inference to be faster when the inference was made at the time of processing the advertisement and is simply being retrieved from memory than when the inference is computed in response to a question.

Two conditions under which a True/False response to a false completed claim can be retrieved from memory are (1) when the false completion has already been inferred at the time of processing the advertisement; and (2) when the false completion was externally presented to subjects. Hence, I expect that involved subjects who were previously exposed to the IC and who generated the same false completion as that used in the presented claim, should take the *same amount of time* to respond that the false claim is true as involved subjects who were previously exposed to the completed claim. This is because the claim can be *retrieved* from the subjects' memory in both cases. Alternatively, based on the finding that effortfully processed information is more likely to be retrieved from memory than less effortfully processed information (Kardes 1988a; Tyler et al. 1979), involved subjects exposed to the IC may take *less time* to respond that the false claim is true than involved subjects exposed to a completed false claim. Note that both the alternate operational hypotheses presented are predicated on the proposition that subjects under high involvement conditions complete ICs at the time of processing the advertisement.

On the other hand, less involved consumers are not expected to expend the cognitive effort to complete the IC at the time of processing the advertisement. Therefore, less involved consumers exposed to the IC, who appear to have made the invalid inference (i.e., respond that the false completed claim is true), are posited to *compute* these inferences in response to the True/False question. Low involvement subjects previously exposed to the IC should, therefore, take *more time* to respond that the false completed claim is true than the low involvement subjects exposed to the completed claim, who can retrieve the claim from memory to answer the True/False question.

Method

Overview. A 2 × 2 between-subjects experimental design with two types of claims (ICs and complete comparison claims, referred to as *false assertions* [FAs][1]) and two levels of involvement (high and low) was used to test the proposition. Sixty-five students participated in the experiment for partial course credit.

[1]As an anonymous reviewer pointed out, the claims used as FAs in this article are simply complete comparison claims and cannot be false because the brand is fictitious. Such complete comparison claims in advertisements are false if the brand does not live up to the "better than" claim. Complete comparisons that are false can be used as controls to test for deception from ICs in the real world.

Stimulus advertisement. Based on a pretest using 28 subjects, which revealed that subjects were familiar with CD players (M = 5.14 on a 7-point scale), and because of the use of CD players in prior research on inference making (Kardes 1988a; Stayman and Kardes 1992), this category was chosen as the target product category. An advertisement for a hypothetical CD player called CD 2001 was used to control for prior brand beliefs from extrinsic sources. Sound quality was selected as the target attribute because it is of central importance in a CD player. The headline of the advertisement stated "CD 2001," and ten features were each listed on a separate line with the sound quality claim first. Other claims included features such as number of disc changers, number of tracks that could be programmed, and auto-space function.

Manipulations. Claim: The incomplete-comparison sound quality claim used in the experiment was "CD 2001: sound quality is better." The FA was "CD 2001: sound quality is better than most other CD players." The selection of the completion was based on a pre-test ($n = 28$) that revealed two frequently used completions generated in response to ICs regarding sound quality—"all other CD players" (7 subjects) and "some/most CD players" (6 subjects). The completion "most other CD players" (a subset of "all other CD players") was selected as the inferred completion to be tested because the claim that the advertised CD player sounds better than "all other CD players" may not be credible.

Involvement: High involvement subjects were told that they were among a small and select group chosen to participate in the study and that their individual responses were very important. They were also told that the purpose of the experiment was to evaluate a new CD player that would soon be available in their city and that, for a limited time, the CD player would be available at half-price to respondents (cf. Petty and Cacioppo 1983). Finally, these subjects were told that their names would be entered into a lottery, and that one of them would win this or any selected CD player as a free gift.

Subjects in the low involvement condition were told that they were among a large number of respondents participating in the study and that their responses would be pooled with those of many others. They were also told that the purpose of the experiment was to measure consumers' opinions regarding a CD player that was in the preliminary stages of development and that this new CD player would not be available in their city.

Procedure. A personal computer was used to present all stimuli and instructions and collect responses. Subjects first saw the cover story that included the involvement manipulation. Then, depending on the condition to which they were assigned, subjects saw the advertisement containing the IC or the FA. Next, subjects responded to the following involvement manipulation check questions anchored at –4 and +4:

- "Would you say that while reading the product description you
  1. were not interested—were very interested,
  2. were not absorbed—were very absorbed, and
  3. skimmed the advertisement quickly—read the advertisement thoroughly."
- "Would you say that you found the product description of CD 2001
  1. unimportant—important,
  2. irrelevant—of concern to you,
  3. worthless—valuable,
  4. boring—interesting, and
  5. uninvolving—involving."

Then, subjects were asked to place their index fingers over the keys labelled "Yes" (/ key) and "No" (z key) on the keyboard and respond to whether the statements presented on the screen were true as quickly and accurately as possible. Practice sentences were included, and the statement "Press the Yes key as quickly as possible" was embedded among them. The last statement was the target claim: "CD 2001: sound quality is better than most other CD players," and subjects responded to whether the statement was true about the brand. Response times were automatically recorded by the computer. Subjects were then asked whether they had certain beliefs regarding the brand, and they responded to each belief statement on a 7-point scale with "1" labeled "Definitely False" and "7" labeled "Definitely True." The same target claim as that used for the response time measure was used for this brand belief measure, and it was embedded among eight other statements about the brand. Finally, subjects answered questions about claim importance, product usage, perceived familiarity with CD players (1 = not at all familiar; 7 = very familiar), personal information, and interest in the experiment.

Dependent measures. The main dependent variable was response time to the statement "CD 2001: sound quality is better than most other CD players." As Fazio (1990) notes, response time data tend to exhibit high variability, and there are many sources of noise in the data. In accordance with previous research (cf. Stayman and Kardes 1992), four procedures were used to reduce the noise. First, subjects were instructed that both speed and accuracy of responses were very important for the purposes of the study. This was expected to lead all subjects to use more uniform decision criteria and remain attentive through the experiment. Second, subjects were provided with practice trials to familiarize them with the task. Third, baseline latencies were assessed to account for individual differences in speed of response using response times to the statement "Press the 'Yes' key," and these response times were used as a covariate in the analyses. Fourth, response times were collected to dichotomous Yes/No responses rather than to scaled belief questions in which decisions on the exact response to the scale could contaminate response times.

Results

Manipulation check. The eight manipulation check questions were averaged to form an index of involvement (Cronbach's alpha = .80) and revealed differential levels of involvement in the two groups (Ms: low = .83; high = 1.39, $F_{1,63} = 4.12$, $p < .05$, $\eta^2 = .06$). The mean level of familiarity was 4.88 and was not significantly different in the two involvement conditions ($p > .3$).

Hypothesis. To test the hypothesis, a 2 × 2 analysis of covariance was run with response times to the statement "CD 2001: sound quality is better than most other CD players" as the dependent variable, involvement and claim type as independent variables, and response time to "Press the yes key"

as the covariate. As required (Keppel 1991), the covariate was not significantly affected by claim type, involvement condition, or their interaction (p's > .4). Only subjects who made the invalid inference (i.e., 57 subjects who responded "Yes") were retained for the analysis. Seven of the 8 subjects who said "No" were distributed between the two incomplete-comparison conditions, and the remaining subject was in the high involvement false-assertion condition.

Four subjects were dropped from the analysis because their response times on the dependent variable or the covariate were more than two standard deviations away from the mean. Two of these subjects were in the high involvement/false-assertion condition and one each in the high involvement/incomplete-comparison and low involvement/false-assertion condition. Hence, fifty-three subjects were retained for the analysis. Table 1 provides the adjusted mean response times and beliefs in the different conditions.

The covariate was found to be significant ($F_{1,48} = 6.96$, $p < .05$) and the interaction between involvement and claim type also was significant ($F_{1,48} = 4.58$, $p < .05$). Follow-up contrasts revealed that, as expected, under high involvement, subjects exposed to the two claims did not take significantly different times to respond to the question (adjusted Ms: IC = 3.86 seconds [$n = 15$], FA = 4.38 seconds [$n = 12$]; $t_{48} = .65$, $p = .53$). However, under low involvement, subjects in the incomplete-comparison condition took longer to respond than subjects in the false-assertion condition (adjusted Ms: IC = 5.21 seconds [$n = 13$] and FA = 3.26 seconds [$n = 13$]; $t_{48} = 2.37$, $p < .05$). Contrasts between the adjusted mean response times in the incomplete-comparison condition also reveal that, as expected, subjects in the high involvement condition responded faster than subjects in the low involvement condition. The difference between the two means approaches significance ($t_{48} = 1.71$, $p < .10$). Subjects in the low and high involvement conditions did not take significantly different times to respond in the false-assertion condition ($t_{48} = 1.34$, $p = .19$). This non-significant difference rules out the possibility that high involvement subjects were generally faster to respond than low involvement subjects.

The contrasts between response times in the incomplete-comparison and false-assertion conditions may suggest that high involvement subjects, but not low involvement subjects, are potentially more likely to make invalid inferences from ICs at the time of processing the advertisement and are, therefore, likely to be deceived. In contrast, traditionally used brand belief measures make it appear that subjects under high, as well as low involvement, were deceived by the IC. When these subjects' responses to the closed-ended 7-point scale measuring brand beliefs were analyzed, no significant differences were found between mean beliefs in the incomplete-comparison and false-assertion conditions under high and low involvement, respectively (Ms IC = 5.67, FA = 5.33, $p = .64$; Ms IC = 6.23, FA = 5.54; $p = .28$).[2]

Discussion

Two findings emerge from Experiment 1. First, consumers who are motivated to complete ICs are likely to infer such completions *at the time of processing the advertisement*. These involved consumers will be deceived if the inference drawn at this time is not accurate with respect to the brand. Because the invalid inference was made at the time of processing, their deception can be attributed to the advertisement, and the advertisement may be ruled deceptive. Second, consumers who are not motivated to process the advertisement are less likely to make inferences from ICs at the time of processing the advertisement, but may be induced to make such inferences at a later point in time, such as when they are asked questions about their brand beliefs. The two statements to which they were exposed—(1) the statement to which they responded Yes/No and (2) the statement to which they provided a response on the belief scale—may have made the incomplete-comparison claim salient and, thus, induced low involvement subjects to make a false inference and respond positively to the target statement. Thus, belief questions may themselves induce false beliefs and result in deception.

It is also possible that less involved consumers are slower to make inferences from ICs than involved consumers. Perhaps less involved consumers make inferences on the basis of the advertisement at some point after exposure to it, even in the absence of a belief question. In this connection, it is important to note that response times are diagnostic of deception only when invalid inferences are found to have been made at the time of processing. Interpretation of response times, which reveal that inferences were not made at the time of processing the advertisement (e.g., in the low involvement condition), but were induced by a belief question, is less clear. In such cases, deception may occur even in the absence of a belief question. Consumers may generate an invalid inference at a later point in time (e.g., during purchase) on the basis of the information in the advertisement, and the advertisement could, therefore, cause deception over time. Hence, response times are a *sufficient but not necessary* measure of deception.

Table 1
EXPERIMENT 1: RESPONSE TIMES AND BRAND BELIEFS

	CLAIM TYPE	
	FA	*IC*
Adjusted Mean Response Times		
High involvement	4.38[a]	3.86[a]
Low involvement	3.26[a]	5.21[b]
Brand Beliefs		
High involvement	5.33[a]	5.67[a]
Low involvement	5.54[a]	6.23[a]

Note: Response times are in seconds. Belief Scale anchored at 1 and 7. Higher means indicate higher levels of belief in the false claim. Based on two-tailed tests, means in the same row with different superscripts are significantly different at $p < .05$, and means in the same column with different superscripts are significantly different at $p < .10$. There were 12 to 15 subjects per cell.

EXPERIMENT 2

Findings from Experiment 1 raise other questions. First, for what types of advertising claims does deception occur under high versus low involvement conditions? Second, do false beliefs based on implication claims affect brand judgments? The subsequent sections examine each of these issues.

[2]The power to detect a medium effect (f = .25) at $\alpha = .10$ was 57% and this could preclude finding significant differences in the belief measure.

Involvement and Processing Demands for Non-Deception

Highly involved consumers may be deceived by ICs because they process advertising claims elaborately and generate completions for such claims at the time of processing. I introduce the term "processing demands for non-deception" to mean the amount of effort that the claim demands for consumers not to be deceived (For a discussion on processing demands, see Kerr 1973). An IC has *low processing demands for non-deception,* because utilizing effort and completing the claim (as under high involvement in Experiment 1) could result in deception.[3] In keeping with the requirements for non-deception from ICs, low involvement consumers process the claim in less detail and are, therefore, not necessarily deceived.

An advertising claim, such as an IC that demands low levels of processing for non-deception, is likely to deceive high involvement consumers who process the claim in detail. On the other hand, an advertising claim that demands high levels of processing for non-deception is likely to deceive low involvement consumers who do not process the claim in detail. Thus, whether consumers are deceived depends on the match between the *processing strategy* that they use to process the advertising claim and the claim's *processing demands* for non-deception.

One type of implication claim that is high in processing demands for non-deception is the inconspicuous-qualification claim. This implication (Preston 1989) refers to advertising claims that emphasize a claim (e.g., in the headline or bold copy) that is then qualified explicitly, but in an ineffective manner (e.g., in small print). Avertisers, therefore, benefit from consumers making purchase decisions on the basis of claims that are false in the absence of the qualification. For example, airlines often advertise bargain fares but print restrictions in small print at the bottom of the advertisement. This type of claim is frequently charged with deception (Preston 1989), and it is, therefore, particularly important to identify conditions under which the claim is deceptive.

Consumers with low involvement are unlikely to attend to claim qualifications and are, therefore, more likely to be deceived into believing that the advertisement conveyed the unqualified (false) claim than high involvement consumers, who are more likely to process IQs and, therefore, less likely to be deceived by them (Petty and Cacioppo 1986). Thus, in the case of IQs that have high processing demands for non-deception, involvement can act as a guard against deception. On the basis of the preceding discussion, we hypothesize that:

H_{1a}: Consumers who are highly involved in processing the advertisement are more likely to complete ICs at the time of processing the advertisement and are, hence, more likely to be deceived by such claims than consumers who are less involved in processing the advertisement.

H_{1b}: Consumers who are less involved in processing the advertisement are less likely to process IQs and are, hence, more likely to be deceived by such claims than consumers who are highly involved in processing the advertisement.

Note that H_{1a} is the proposition tested in Experiment 1, but is now contrasted with H_{1b} on the basis of the different processing demands for non-deception of ICs and IQs.

False Beliefs and Product Judgments

Another question that arises from the results of Experiment 1 is whether high involvement consumers are likely to use invalid inferences from ICs while making product judgments and forming purchase intentions (Stayman and Kardes 1992). Purchase intent is especially important because it may be viewed as an operationalization of materiality of the claim, which is defined by the Federal Trade Commission (FTC) as the use of false beliefs caused by an advertisement in purchase or usage decisions. An advertisement is ruled to be deceptive only if the false belief it induces is material (Ford and Calfee 1986).

Previous research has shown that consumers make inferences and later believe these to have been asserted in the advertisement (Gaeth and Heath 1987; Harris, Dubitsky, and Bruno 1983). These inferences are, therefore, likely to be used in the formation of judgments. High involvement consumers, who are expected to make favorable inferences from an IC, are likely to have more favorable purchase intentions than low involvement consumers who are not expected to make such inferences from an IC. For an IQ, low involvement subjects, who are expected to have false (favorable) brand beliefs, are likely to have more favorable purchase intentions than high involvement consumers, who are not likely to have such false beliefs. Therefore:

H_{2a}: Consumers highly involved in processing the advertisement are likely to have greater purchase intentions after exposure to ICs than consumers less involved in processing the advertisement.

H_{2b}: Consumers less involved in processing the advertisement are likely to have greater purchase intentions after exposure to IQs than consumers highly involved in processing the advertisement.

Method

Overview. The subjects were 152 undergraduate students who participated in the experiment for partial course credit. The hypotheses were tested in a between-subjects 4 × 2 design with (1) four types of claim of which two reflected experimental conditions—the IC and IQ—and two reflected control conditions—no claim (NC) and FA—and (2) two levels of involvement—high and low. The no-claim condition may not be an adequate measure of baseline levels of belief in the false claim because false beliefs may be transferred to the brand from sources, such as prior beliefs regarding the brand or product category (Burke et al. 1988; Russo, Metcalf, and Stephens 1981), or from beliefs regarding other attributes (Dick, Chakravarti, and Biehal 1990). In other words, an advertisement making no claims regarding certain attributes may itself be deceptive if beliefs transferred from other sources are inaccurate with respect to the brand. Hence, finding greater levels of false belief from the

[3]As noted in the General Discussion section, an IC may also have extremely high processing demands for non-deception. For example, under extremely high levels of involvement, the lack of completion may be noticed and, therefore, not completed. This speculation is in need of empirical verification.

disputed advertisement than from an advertisement without the claim indicates deception, but finding equal levels of false beliefs may indicate either deception or non-deception.

The level of beliefs about the disputed claim, therefore, must be tested against other baseline levels of beliefs (Richards 1990). The use of a hypothetical brand in this experiment precluded the use of a *true assertion* condition, in which the deceptive claim is replaced by the truth of that attribute. I, therefore, used beliefs in the false-assertion condition, in which the advertisement contained the same claim as the disputed implication (e.g., IC or IQ), but in a completed form, as a baseline measure of false beliefs. If beliefs after exposure to the implication are the same as beliefs after exposure to the FA, the advertisement can be ruled deceptive.

Underlying construct. The four types of claims represent four levels of the underlying construct "processing demands for non-deception." Assuming that advertising claims are believed to be true, the FA has the lowest processing demands for non-deception because it is deceptive when it is processed. Similarly, the NC and the IC demand low levels of processing for non-deception because processing the advertisement in detail could result in invalid inferences about the missing claim or the completion. The IQ demands the highest level of processing for non-deception because the qualification has to be detected and processed for non-deception.

Other controls. Three additional controls were used in this experiment to control for sources of false beliefs other than the advertisement. First, a hypothetical target brand was used, as in Experiment 1, to control for prior brand beliefs. Second, open-ended questions and response times to false statements about the brand were used to control for the possibility that the belief questions may themselves induce subjects to make invalid inferences (as was found in Experiment 1). Third, beliefs about what the advertisement conveyed, rather than beliefs about the brand, were used as a dependent measure to control for the possibility that subjects may identify the hypothetical brand used in the experiment as an existing brand and use their prior beliefs regarding this existing brand when responding to brand belief questions. This "advertisement belief" measure was also used because it is the measure of deception adopted by the FTC.

Stimulus Materials. The same product category of CD players and advertisement for a hypothetical brand named CD 2001 that were used in Experiment 1 were used here. Two claims—for sound quality and ease of loading—were manipulated to replicate findings across claims differing in importance. The two claims were manipulated the same way for any one subject.

Manipulations. The inferred completion tested in Experiment 1 was "most other brands." This was changed to "all other brands" in Experiment 2 for three reasons. First, a second pretest (n = 28) revealed that nearly half the subjects completed sound quality and ease of loading ICs using completions such as "other brands." Second, we reasoned that the completion "all others" has the greatest potential for deception. Third, the credibility of this completion was not as large a problem in this experiment as it was in Experiment 1, because closed-ended belief questions measured beliefs about what the advertisement conveyed rather than beliefs about the brand. Note that providing more than one completion in the same set of belief questions may have increased the potential for reactivity. Our choice of inferred completion to be tested was primarily based on the reasoning that this completion would be most likely to be deceptive in the real world.

Claims. Subjects in the no-claim condition were exposed to eight of the total ten claims, because no claims were made in the advertisement regarding sound quality or ease of loading. Subjects in the other conditions were exposed to ten claims.

In addition to eight other claims, subjects in the incomplete-comparison condition were exposed to the subsequent claims:

1. CD 2001 features superior stereo separation and is totally free from distortion, making it sound better.
2. CD 2001 is equipped with a carousel changer that makes loading discs easier.

Subjects in the inconspicuous-qualification condition were exposed to the subsequent claims, with accompanying qualifications shown in parentheses. These claims were included with eight other claims. Qualifications were indicated using * superscripts.

1. CD 2001 features superior stereo separation and is totally free from distortion, making it sound better than all other brands in the market. (Shown to sound better than the leading [largest selling] brand only.)
2. CD 2001 is the easiest loading compact disc player. (Easier to load compared to brands with magazine changers.)

The qualifications were placed at the bottom of the advertisement. The sound quality IQ was a FA qualified to be true and the ease of loading IQ was an expansion implication (cf. Burke et al. 1988) qualified to be true.

Subjects in the false-assertion condition were exposed to the subsequent claims embedded in eight other claims.

1. CD 2001 features superior stereo separation and is totally free from distortion, making it sound better than all other compact disc players.
2. CD 2001 is easier to load than all other compact disc players.

Involvement. The involvement manipulation used in Experiment 1 was again used. In addition, prior to viewing the advertisement, high involvement subjects read that there was a great deal of variance in the quality of brands in the CD player product category (see Kardes 1988a).

Procedure and dependent measures. Subjects were run in groups of ten to fifteen persons and were randomly assigned to the different involvement and claim conditions. First, the experimenter told the subjects the cover story for the experiment, which included the involvement manipulation. This story was reiterated on the first screen of the computer. Subjects then saw the target advertisement on the screen, and the computer recorded the time it took them to read it. Sound quality and ease of loading were in either the first and fourth positions or the fourth and first positions, respectively. Next, subjects responded to the same involvement manipulation check questions as in Experiment 1.

Subjects then completed a recall task during which they wrote down as many claims as they could remember on a

blank sheet of paper. Next, they completed the following sentences on the basis of what the advertisement stated:

1. CD 2001 sounds better than _____.
2. CD 2001 is easier to load than _____.

The subjects then placed their index fingers over the keys labelled "Yes" (/ key) and "No" (z key) and responded to whether the statements on the screen were true. They were instructed to respond as quickly and accurately as possible. The target statements "CD 2001 sounds better than all other compact disc players" and "CD 2001 is easier to load than all other compact disc players" were embedded among other statements that also included the statement, "Press the Yes key." Responses to this dichotomous response task concerned subjects' beliefs about the brand CD 2001.

In keeping with FTC requirements to prove deceptiveness, subjects then answered if the advertisement conveyed whether (1) CD 2001 sounds better than all other compact disc players and (2) CD 2001 is easier to load than all other compact disc players. A 7-point scale with end points (–3 and +3) labelled "Definitely False" and "Definitely True," and with mid-point 0 labelled "Don't Know" was used. To avoid hypotheses guessing, questions regarding the level of belief in the two false claims of interest were embedded in nine true and unstated claims about the CD player. Two random orders of these questions were used.

Because the belief questions asked what the advertisement conveyed, and not what was true about the brand, the correct answer to these statements is "definitely false" in the no-claim, incomplete-comparison, and inconspicuous-qualification conditions and is "definitely true" in the false-assertion condition. Subjects also responded to a purchase intention question that asked subjects to respond to the following question based on the advertisement for CD 2001: "If you were to buy a compact disc player, how likely would you be to purchase CD 2001?" (anchored at 1 = Not at all likely and 7 = Very likely). The order of closed-ended belief questions and the purchase intention question were counter balanced across subjects. Subjects then rated the importance of each claim on a scale anchored at "would not at all affect my purchase decision" (–3) and "would be a primary factor in my purchase decision" (+3). Finally, subjects provided familiarity, product usage, and demographic information, and answered two questions regarding their interest in the experiment.

Results

Overview. The eight manipulation check questions were averaged to form an index of involvement (Cronbach's alpha = .88), which revealed that subjects in the high involvement condition (M = 1.78) were significantly more involved than subjects in the low involvement condition (M = 1.03, $F_{1,160}$ = 13.22, $p < .001$, $\eta^2 = .076$).[4]

Mean level of familiarity with CD players was 4.4 on the 7-point scale (anchored at 1 = not at all familiar and 7 = very familiar). There was no difference between the familiarity levels in the two involvement conditions ($p > .9$) and the different type of claim conditions ($p > .05$). The belief-purchase intention questioning order, the order of belief questions, and the order of the two target claims in the advertisement did not have any main or interactions effects on the dependent variables of interest and were, therefore, not included in the analyses (p's > .1). Sound quality was rated to be extremely important to the purchase decision of a CD player (M = 2.9 on a –3 to 3 scale) and ease-of-loading was considered to be less important than sound quality (M = 1.51, $t_{161} = 11.98$, $p < .01$).

Hypothesis 1a. This hypothesis states that inferences from ICs will be made at the time of processing the advertisement by high involvement subjects, but not by low involvement subjects. This was tested using response times and advertisement reading times.

Sound quality response times: Response times to the statement "CD 2001 sounds better than all other CD players" were analyzed in the same manner as in Experiment 1. Fifty subjects who responded "Yes" to the statement in the incomplete-comparison and false-assertion conditions were retained and an analysis of covariance was used to test H_{1a}.[5] One subject, whose response times to the covariate was more than two standard deviations away from the grand mean, was dropped prior to analyses.

As required, the covariate was not significantly affected by the independent variables. The 2 × 2 analysis of covariance revealed that the covariate was significant ($F_{1,44} = 8.51$, $p < .01$). The only other significant effect was a main effect for claim type ($F_{1,44} = 4.09$, $p < .05$). The means reveal that "Yes" responses in the incomplete-comparison condition are slower than in the false-assertion condition (Ms: IC = 3.40 seconds, FA = 2.65 seconds). This suggests that the specific inference tested (CD 2001 sounds better than all other CD players) was computed by some subjects (i.e., those who responded "yes") at the time of questioning and was not inferred at the time of processing the advertisement, under both high and low involvement conditions.

The inference induced by the measurement task was reflected in responses of the 25 subjects who responded "Yes" in the incomplete-comparison condition to the follow-up closed-ended belief question. Beliefs of these subjects (M = 1.56) were not significantly different from beliefs of subjects who responded "Yes" in the false-assertion condition (M = 1.88; $F_{1,45} = .67$, $p = .42$). As in Experiment 1, it appears that the measurement task can induce false beliefs among some subjects. However, results from the "Yes" or "No" response itself (i.e., number of subjects who responded either "Yes" or "No"), or from the "yes" respondents' answers to the belief scales, make it appear that these subjects were deceived by the advertisement.

Results of Experiment 2 differ from those of Experiment 1 in three ways. First, only 65% of subjects in the incomplete-comparison condition responded "Yes" compared to the 78% in Experiment 1. Second, unlike in Experiment 1,

[4]These responses indicate only that the level of involvement was higher in the high involvement condition than in the low involvement condition. Further references to "high" and "low" involvement should be interpreted with this caveat in mind.

[5]Of the 31 subjects who responded "No", 11 were in the false-assertion/high involvement condition, 6 were in the false-assertion/low involvement condition, 9 were in the incomplete-comparison/high involvement condition, and 5 were in the incomplete-comparison/low involvement condition.

Table 2
EXPERIMENT 2: ADVERTISEMENT BELIEFS AND PURCHASE INTENTIONS

	CLAIM TYPE			
	FA	*NC*	*IC*	*IQ*
Beliefs: Sound Quality				
High involvement	.95[a]	.60[a]	.95[a]	.10[a]
Low involvement	1.50[a]	.35[a]	.65[a]	1.48[b]
Beliefs: Ease of Loading				
High involvement	1.43[a]	1.25[a]	.95[a]	.90[a]
Low involvement	2.00[a]	.70[a]	1.20[a]	2.29[b]
Purchase Intentions				
High involvement	4.91[a,b]	4.95[a,b]	5.20[a]	4.45[b]
Low involvement	4.95[a,b]	4.60[a,b]	4.35[b]	4.76[b]

Note: The Belief Scale is anchored at –3 and +3. Higher means indicate higher levels of belief that the advertisement conveyed the false claim. Purchase intention scale is anchored at 1 and 7. Higher means indicate greater purchase intentions. There were 20 or 21 subjects per cell. Two-tailed tests reveal that means in the same row or column with different superscripts are significantly different at $p < .05$. Boldfaced superscripts in the same row reveal that means are significantly different at $p < .10$, two-tailed.

high involvement subjects did not infer the tested completion at the time of processing the advertisement. Third, the level of belief that the advertisement conveyed the false claim among those who responded "Yes" is lower than the level of brand beliefs in Experiment 1. A post-hoc explanation for these different results is that the completion tested in Experiment 2 (all other CD players) was more stringent than that tested in Experiment 1 (most other CD players). This stringent completion may have seemed less plausible to some subjects, and the question did not induce these subjects to make the invalid inference. High involvement subjects may have completed the incomplete-comparison claim using a different completion such as "most other brands." This explanation is supported by the lower levels of belief among "Yes" respondents in Experiment 2 compared to those in Experiment 1.

Ease-of-loading response times: Response times of 52 "Yes" responses to the statement "CD 2001 is easier to load than all other CD players" were analyzed in the incomplete-comparison and false-assertion conditions under low and high involvement.[6] Three outliers distributed between the two incomplete-comparison conditions were dropped from the analysis. The response times of 49 subjects were analyzed. Analysis of covariance revealed that the covariate was significant ($F_{1,44} = 9.61$, $p < .01$). None of the other effects were significant (Ms: FA = 2.85, IC = 2.88; p's > .9).

Advertisement reading time: Based on the reasoning that inference making requires effort and, hence, is time-consuming, self-paced reading times have been frequently used to measure whether certain inferences are generated on-line during processing (Graesser, Singer, and Trabasso 1994; Noordman, Vonk, and Kempff 1992). The advantage of this measure is that no assumptions must be made about the specific completions generated to the IC. Advertisement reading times were screened for outliers in each of the involvement conditions. This resulted in the deletion of 4 subjects in the incomplete-comparison condition (2 each under low and high involvement), whose reading times were greater than two standard deviations from the mean in that condition. The results reveal that high involvement subjects exposed to the IC spent a longer time reading the advertisement than low involvement subjects (Ms: high = 13.41 seconds, low = 11.55 seconds, $t_{34} = 2.09$, $p < .05$).[7] This finding provides support for the notion that high involvement subjects are more likely to be deceived by ICs because they are likely to try to complete the claim at the time of reading the advertisement, and not all completions generated can be true.

A limitation of this measure is that the reading time of the entire advertisement was measured and may simply reflect the amount of effort used to process the advertisement. Although the finding that advertisement reading times are not significantly different in each of the other claim conditions argues against this interpretation, findings from this measure should be interpreted cautiously.

Hypotheses 1a and 1b. The interaction effect implied by these hypotheses cannot be tested using response times. Response times are meaningful measures of inference making only when subjects are expected to draw inferences by going beyond what is stated in the advertisement. The inconspicuous-qualification condition does not require such inference making because the unqualified claim is the same as an FA, and no inference making is required for false beliefs to result. Hence, closed-ended beliefs and open-ended sentence completions were used to test the hypotheses. Table 2 presents the mean levels of belief in the false statements that the advertisement claimed "CD 2001 sounds better than all other compact disc players" and "CD 2001 is easier to load than all other compact disc players."[8]

Closed-ended advertisement beliefs: For all conditions, mean beliefs in the ease-of-loading attribute were significantly greater than mean beliefs in the sound quality attribute ($F_{1,154} = 16.80$, $p < .01$). However, the attributes (sound quality or ease-of-loading) did not interact significantly with involvement or claim type in a mixed design analysis of variance (p's > .5). The hypotheses were, therefore, tested by averaging the belief ratings for the two attributes. H_{1a} and H_{1b} suggest that highly involved subjects are likely to be deceived by ICs and not by IQs, whereas less

[6]Of the 29 subjects who responded "No," 8 were in the false-assertion/high involvement condition, 4 were in the false-assertion/low involvement condition, 8 were in the incomplete-comparison/high involvement condition, and 9 were in the incomplete-comparison/low involvement condition.

[7]A t-test of difference between means in the low versus high involvement incomplete-comparison condition is reported here, because the length of the advertisement differed in the four claim type conditions, and the relevant difference is in the incomplete-comparison condition between low and high involvement. The mean advertisement reading times (in seconds) in the false-assertion condition are 11.57 (high involvement) and 11.86 (low involvement); in the no-claim condition, 11.14 (high involvement) and 13.42 (low involvement); and in the inconspicuous-qualification condition, 14.15 (high involvement) and 14.95 (low involvement). The low versus high involvement differences are not significant.

[8]As an anonymous reviewer noted, the mid-point of the scale was labelled "Don't Know," and, therefore, measures of beliefs and confidence in beliefs may be confounded. Further research is needed to distinguish between these two aspects of deception.

involved subjects are likely to be deceived by IQs but not by ICs.

To test this hypothesis the interaction effect between involvement and the two experimental claims (IC and IQ) on beliefs was tested in the context of the entire 2 × 4 design. This interaction effect was significant ($F_{1,154} = 4.72$, $p < .05$). Follow-up contrasts revealed that H_{1a} was not supported ($t_{154} = 0$, $p = .96$). However, as H_{1b} posited, low involvement subjects were significantly more deceived by IQs than high involvement subjects ($t_{154} = 3.04$, $p < .01$).

H_{1a} suggests that under high involvement, false beliefs in the incomplete-comparison condition will be (1) greater than beliefs in the no-claim condition and (2) equal to beliefs in the false-assertion condition. Planned contrasts revealed that under high involvement, beliefs in the incomplete-comparison condition were not greater than those in the no-claim condition ($t_{154} = 0$, $p = .96$) and were also not significantly different from beliefs in the false-assertion condition ($t_{154} = .53$, $p = .60$).

H_{1b} suggests that under low involvement, false beliefs in the inconspicuous-qualification conditions are likely to be (1) greater than beliefs in the no-claim condition and (2) equal to beliefs in the false-assertion conditions. These planned contrasts show the expected pattern. Under low involvement, false beliefs in the inconspicuous-qualification condition were significantly greater than those in the no-claim condition ($t_{154} = 2.98$, $p < .01$), and not significantly different from those in the false-assertion condition ($t_{154} = .08$, $p = .77$).

Open-ended data: The finding that high involvement subjects exposed to the IC are not significantly more deceived than high involvement subjects exposed to the NC could be an artifact of the specific referent (all other brands in the market) tested in the closed-ended belief questions. The open-ended (sentence completion) responses suggest that subjects with high involvement may have completed the incomplete-comparison claim with another referent. Specifically, the most commonly used completions in the incomplete-comparison condition were prototypical brands such as "many other brands" or "the average brand" (53% of all completions in the sound quality incomplete-comparison condition and 76% in the ease-of-loading incomplete-comparison condition).

Responses to the sentence completion task do not support H_{1a}. In addition, they suggest that even this open-ended question may induce subjects to make inferences regarding the brand. Subjects in the no-claim and incomplete-comparison conditions were not provided with a completion in the advertisement. Yet, only 3 of 40 subjects in the sound quality no-claim condition and 3 of 40 subjects in the sound quality incomplete-comparison condition left the sentence blank or said "don't know." This finding suggests that even open-ended questions may be reactive and prompt consumers to make potentially invalid inferences. If consumers later believe these inferences to be true about the brand, they may be deceived.

Recall data collected after advertisement processing do not show evidence of inference making. Research has generally shown that subjects make inferences without being aware of doing so (Newman and Uleman 1989). Even so, such inferences should have been represented in memory and confused for genuine claims in a recall task. Hence, the null findings on recall are a limitation of this study. Explicit measures, such as recall and cognitive responses, often do not capture on-line inference making, which may explain the results here.

Hypothesis 2a and 2b. These hypotheses state that high involvement subjects exposed to the IC are likely to have more favorable purchase intentions than low involvement subjects exposed to the IC. The opposite pattern is expected for IQs. To test this hypothesis, the 2 × 2 interaction between involvement and the two implication claims was tested in the context of the entire 2 × 4 design. Table 2 presents the mean purchase intentions.

As hypothesized, the interaction effect between involvement and the two implication claims was significant ($F_{1,154} = 4.08$, $p < .05$). For the ICs, the means reveal that, as expected, high involvement subjects had greater purchase intentions than low involvement subjects (Ms: high = 5.20; low = 4.35; $t_{154} = 2.07$, $p < .05$). However, purchase intentions of low involvement subjects exposed to the IQ were not significantly greater than those of high involvement subjects exposed to the IQ (Ms: low = 4.76; high = 4.45; $t_{154} = .76$, $p = .45$). One explanation for the finding that low involvement consumers were not persuaded by inconspicuous-qualification claims more than high involvement consumers is that the specific qualifications used in this experiment did not make the claims less persuasive.

GENERAL DISCUSSION

Processing Demands and Deception

Overview. Response time findings from Experiment 1 indicate that high involvement subjects may be deceived by ICs because they are likely to make invalid inferences about the brand at the time of processing. One alternative explanation for these response time findings is that subjects in the high involvement and low involvement conditions encoded and stored the IC as claiming that the sound quality and ease-of-loading were excellent. All subjects may then have computed the inference in response to the question because it sounded plausible. The finding that response times of high involvement subjects exposed to the IC were faster than those of low involvement subjects exposed to the IC could be attributed to the subjects' desire to follow the instructions to respond quickly. Three findings suggest that this alternative explanation may not hold. First, if high involvement subjects were following instructions more closely than low involvement subjects they should also have responded faster in the false-assertion condition. Second, even if high involvement subjects were speedily computing the inference and responding quickly, they should have been slower than high involvement subjects in the false-assertion condition who retrieved the claim (Camp, Lachman, and Lachman 1980). Third, this explanation does not hold in Experiment 2 in which high involvement subjects were not faster than low involvement subjects in responding to the IC. Despite these indications of support for my interpretation of the results, further research is needed to rule out the proposed alternative explanation.

Support for hypotheses concerning ICs from Experiment 2 is weak for two dependent measures—response times and closed-ended beliefs. Results from two other measures are suggestive. First, high involvement subjects spent more time reading the entire advertisement containing two ICs than did the low involvement subjects, suggesting that high involvement subjects may have completed the ICs at the time of processing the advertisement. The finding that advertisement reading times for high and low involvement subjects were not significantly different in the other claim conditions supports this interpretation. Second, high involvement subjects had greater purchase intentions after processing advertisements with ICs than did low involvement subjects, suggesting that high involvement subjects used invalid inferences made from ICs in forming product purchase intentions. This speculation could not be tested directly because beliefs in only one completion (all other brands) were measured in the experiment. The purchase intention results are also limited in that a single-item measure was used. Furthermore, purchase intentions of high involvement subjects may have been greater than those of low involvement subjects simply because they took the study more seriously. However, the non-significant differences in the purchase intentions of high versus low involvement subjects in the other type of claim conditions argues against this interpretation.

In Experiment 2, results from belief scales and response times do not support the hypotheses concerning ICs (H_{1a} and H_{2a}). Taken together, these results suggest that the tested completion that CD 2001 sounded better than "all other brands" was not inferred by high involvement subjects at the time of processing the advertisement. Completions generated in response to the sentence completion task reveal that the completions inferred vary among subjects. Thus, testing a single stringent completion in these two measures may have obscured the true level of deception. Recall data also do not show any traces of inference making in the high involvement condition, which suggests that the findings regarding ICs are limited in Experiment 2.

Results from Experiment 2 provide strong evidence that low involvement consumers are less likely to process IQs and are, therefore, more likely to be deceived by them than are high involvement consumers.

Contributions. Previous research has identified certain types of claims as being deceptive on the basis of judgments made by the courts and the FTC (cf. Preston 1989), as well as on the basis of empirical findings (cf. Burke et al. 1988). This research advances our knowledge in the area of deception by identifying potential moderating factors for such deception on the basis of a theoretical analysis of the match between an advertising claim's processing demands for non-deception and the processing strategy used by consumers. These results also have practical implications for public policy. The Food and Drug Administration (FDA) requires advertisements for prescription drugs to include detailed product information in "brief summaries." Consumer advocates and researchers who have argued that these brief summaries are printed in fine print and are ineffective have called for an examination of this issue (Sheffet and Reece 1994). Because these brief summaries have high processing demands for non-deception, the processing strategy used by the target audience to process these advertisements must be analyzed. For example, consumers of prescription drugs may be motivated to process the advertisement, but may lack the ability to read the qualifications (e.g., the elderly), thus, rendering the qualifications ineffective.

Measurement

Overview and contributions. Results from the two experiments revealed that closed-ended as well as open-ended measures can induce respondents to make inferences that they may not have made in the absence of the measurement task. As McKoon and Ratcliff (1989, p. 331) state, "[W]riting a continuation forces the generation of an inference specific enough to write down." Response latencies offer a powerful additional measure to test whether consumers make invalid inferences from specific advertising claims at the time of processing the advertisement rather than at the time of responding to a belief question.

Proposed measurement of deception. I propose that the time taken to respond that a false claim is true with respect to the brand can be used to test for deception. If this response time in a group previously exposed to a false implication is equal to (or faster than) the response time in a group previously exposed to the FA, the advertisement can be ruled deceptive. Because this test calls for finding non-significant differences, the researcher must ensure that the experiment has sufficient power to detect the smallest meaningful difference (Keppel 1991). Alternatively, interaction hypotheses should be proposed where significant differences are expected only under some conditions.

This measure has two advantages. First, it controls for prior brand beliefs from other sources (held before exposure to the advertisement), and, hence, beliefs about the brand rather than beliefs about what the advertisement conveyed can be used to test for deception. Beliefs about what the advertisement conveyed are not a good measure of deception because consumers may not believe that what the advertisement conveyed is true for the brand (Richards 1990). Response time measures control for prior beliefs because response times in the false implication condition are likely to be as fast as (or faster than) response times in the false-assertion condition only if the implication reinforces the previously held false belief as the FA does.[9]

If false beliefs did not exist prior to the test session and are not induced on exposure to the implication or the false test statement, subjects should respond that the false statement about the brand is false. If the questions induce inference making, subjects may respond that the false statement is true and such inferences constructed in response to the question should be reflected in slower response times in the implication condition than in the false-assertion condition. Thus, a second advantage of this measure is that it controls for the question inducing false beliefs.

[9]Comparing beliefs in the implication condition with beliefs in the false-assertion condition can also control for prior beliefs by detecting whether the advertisement reinforces false beliefs to the same extent in the two cases. However, if prior false beliefs are very strong, the belief scale may not be able to detect reinforcement of false beliefs during exposure at the time of testing because of the ceiling effect on the scale.

The limitation of response time measures is that they cannot be used to determine the magnitude of the effect, that is, the extent to which consumers believe the false claim; therefore, they need to be supplemented by belief scales. Closed-ended belief scales are also needed because the response time measure requires finding statistically non-significant differences. Another limitation of this measure, as with all measures taken at one point in time, is that it does not take into account environmental factors that may make implications in the advertisement salient at a later point in time (e.g., store displays). This increased salience could induce inference making. Finally, response time measures may be difficult to implement in the real world.

Limitations and Further Research

Low involvement subjects in our experiments were told that the advertised brand was in the preliminary stages of development. The low ecological validity in this manipulation is one limitation of our research because processing such an advertisement is a condition that may not occur frequently in the real world. Another limitation of this research is that only two levels of involvement, both of which fall in the middle of the involvement continuum were examined. The findings may not hold under extremely high levels of involvement in which consumers may detect the missing referent in the IC and may, therefore, encode the claim as a weak argument, rather than generating completions spontaneously. Contrary to our findings, this would make ICs less persuasive under extremely high levels of involvement compared to low levels of involvement. Thus, an important question for further research concerns delineating the variables that make motivated processors notice that an advertising claim is incomplete (cf. Peracchio and Meyers-Levy 1994).

The proposed measurement of deception must be tested in an experimental setting by manipulating prior beliefs to validate the proposed pattern of results when false beliefs are reinforced by implications versus assertions. Another direction for further research concerns delayed inference making from advertising claims. Environmental factors that are expected to result in delayed inference making (e.g., product choice) could be manipulated in an experimental setting (e.g., by adding an interpolated choice task condition) to study whether the advertising claim is likely to deceive in the long-term.

Additional research should also study how inferences evolve as consumers are repeatedly exposed to the same implications (cf. Bruno and Harris 1980) and generate predictions regarding the conditions under which internally generated invalid inferences are remembered as assertions (cf. Johnson and Raye 1981; Kardes 1988b). The FDA definition of misleading advertising (cf. Jacoby and Small 1975) explicitly includes the content and/or context of the advertisement as elements that could be responsible for deception, and these elements must be explored further. Finally, research also must be done on other product categories. For example, ICs in diet food advertisements (e.g., Fewer calories!) may be more deceptive than in advertisements for other product categories because of consumers' motivation to complete the claim. Studying invalid inferences from advertisements, therefore, remains a fruitful area for additional research.

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