Moderating Effects of Prior Knowledge on the Perceived Diagnosticity of Beliefs Derived from Implicit versus Explicit Product Claims

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An experiment was conducted to examine the effects of prior knowledge on the perceived diagnosticity of beliefs derived from directly stated versus implied product claims. Subjects were exposed to sets of arguments implying several conclusions about specific product benefits. These conclusions were either stated directly in the text (explicit conclusions) or omitted (implicit conclusions). Degree of belief in the target conclusions and the perceived diagnosticity of these beliefs was assessed by computing Bayesian likelihood ratios on the basis of subjects’ component probability estimates. As predicted, low knowledge subjects perceived their beliefs to be more diagnostic when they were based on explicit (versus implicit) conclusions. By contrast, high knowledge subjects perceived their beliefs as diagnostic across conditions. Implications of the results for understanding the role of consumer inference processes in advertising are discussed.

Introduction

One of the key decisions required of advertising managers is whether a “hard-sell” or “soft-sell” strategy is appropriate for a specific target market. The hard-sell approach involves the use of direct, forceful claims bearing on the benefits of the advertised brand over competitors’ offerings. Consumers are told explicitly what to believe about the advertised brand. In contrast, the soft-sell approach involves the use of advertising claims that imply superiority in a more subtle manner. Consumers are invited to come to their own conclusions and are not told directly what to believe about the advertised brand. The goal of the present research is to delineate some of the conditions under which each approach is likely to be effective.

Many ways exist to implement the hard-sell approach. One tactic is to state the benefits of an advertised brand directly and explicitly in the ad. We refer to these directly stated claims as explicit conclusions. One positive aspect of this tactic is that it involves the use of very simple and straightforward product claims. Consumers are told explicitly that the advertised brand is the best brand, and there is little room for confusion regarding what the advertiser is trying to say. On the negative side, some consumers may resist being told what to believe and some may distrust the message. Resentment and distrust often lead to counterargumentation and to “boomerang” effects where consumers come to believe conclusions diametrically opposed to conclusions endorsed in advertising claims (Clee and Wicklund, 1980).

By contrast, the risk of boomerang effects is greatly reduced with subtle soft-sell approaches. One way to implement the soft-sell approach is to provide information that implies the main conclusions the advertiser wants the consumer to draw, but the conclusions themselves are left unstated in the ad. We refer to omitted but implied claims as implicit conclusions. For example, consider a recent ad for Volvo automobiles. The ad begins with a scene from an emergency room where a physician is discussing a head trauma case. The scene shifts to a parking lot where the physician is seen entering a Volvo and the announcer tells the audience that the physician has driven a Volvo for ten years. The audience is left to infer that Volvos are safe. This conclusion was implied but was never stated directly in the ad (for many excellent examples of open-ended ads with implicit conclusions, see Sawyer, 1988). Consumers are not told what to believe. Instead, they are invited to make up their own minds. Consequently, implicit conclusions reduce the risk of resentment, distrust, and counterargumentation.

Another advantage of implicit conclusions is implied by recent research on consumer memory and judgment. Beliefs or conclusions that are self-generated (vs. beliefs derived from conclusions provided explicitly by other individuals) are more accessible from memory (Slamecka and Graf, 1978). Beliefs that are easy (vs. difficult) to retrieve from memory have a greater impact on judgment and decision making (Fazio, 1989, 1990; Wyer and Srull, 1989). Moreover, self-generated beliefs are often perceived as more accurate and valid because consumers often have greater confidence in their own beliefs.

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than the beliefs of others (Hoch and Deighton, 1989; Levin, Johnson, and Chapman, 1988). In contrast, the beliefs of others (e.g., advertisers, spokespersons, salespersons, other consumers) are often perceived as less accurate because other individuals may adopt different perspectives, may be perceived as less knowledgeable, or may be perceived as manipulative or deliberately misleading (Wood and Eagly, 1981).

Despite these advantages, implicit conclusions may not always be more effective than explicit conclusions. One risk associated with implicit conclusions is that some consumers may fail to draw their own conclusions. Inferential activity is likely only when consumers are motivated and able to engage in effortful cognitive processes (Kardes, 1988, forthcoming; Stayman and Kardes, 1992). When consumers fail to infer an implied conclusion they miss the point of the message and the advertisement will be ineffective. Another risk is that some consumers may draw a conclusion other than the one intended by the advertiser. Even if inferential activity is likely, there is no guarantee that consumers will follow the garden path provided by the advertiser. Finally, a third risk is that consumers may infer the intended conclusion, but may question the validity of their inference.

**Perceived Validity of Inferences**

When are consumers likely to question the validity of their inferences? What factors induce consumers to trust or mistrust their inferences? One factor that may influence the extent to which consumers trust their inferences is their level of prior knowledge about a product class. Those who consider themselves to be very knowledgeable about a specific product class may recognize that they have a large store of relevant knowledge and experience to draw from, and consequently, they may trust their ability to extrapolate valid conclusions on the basis of incomplete data (i.e., subtle advertising claims with omitted conclusions).

In contrast, those who consider themselves to be unknowledgeable in a given domain may feel uncomfortable when they are required to analyze incomplete information concerning an unfamiliar product. Under some circumstances, they may distrust their analytic abilities so much that they may question the validity of their inferential beliefs. If these self-doubts are sufficiently severe, unknowledgeable consumers may perceive beliefs derived from explicit conclusions provided by an outside source (i.e., the advertiser) as more compelling than their own, self-generated, inferred conclusions.

**The Present Study**

An experiment was conducted to examine the role of prior knowledge in perceptions of the validity of beliefs formed on the basis of implicit versus explicit conclusions. Implicit conclusions are implied by a set of message arguments, but the conclusions themselves are omitted from the message (Kardes, 1988, forthcoming; Stayman and Kardes, 1992). By contrast, explicit conclusions are stated directly in the message. For example, one set of arguments used in the present study states that compact disc (CD) players use digital filters to remove unwanted digital distortion. Most CD players use one filter that removes some of the noise. Only the CD880 uses two filters. These arguments imply the conclusion that the CD880 removes more noise. This conclusion is omitted from ads using implicit conclusions, but is stated directly in ads using explicit conclusions. By holding the message arguments and the intended conclusion constant, and by omitting or stating the intended conclusion, we can examine the perceived validity of beliefs based on implicit versus explicit product claims. (The four sets of arguments used in the present study are presented in the Appendix.)

How should the perceived validity of a belief be assessed? In the present experiment, perceived validity was examined using the Bayesian concept of diagnosticity, which refers to the extent to which a belief discriminates between alternative hypotheses (Feldman and Lynch, 1988; Herr, Kardes, and Kim, 1991; Lynch, Marmorstein, and Weigold, 1988). Diagnosticity is operationalized in terms of the Bayesian likelihood ratio (for an excellent discussion of Bayes’ theorem, see Fischhoff and Beyth-Marom, 1983). Bayes’ theorem states that:

\[
\frac{P(H|B)}{P(H|\overline{B})} = \frac{P(B|H)}{P(B|\overline{H})} \times \frac{P(H)}{P(\overline{H})}
\]

From right to left, the three terms are: (1) the prior odds that hypothesis \(H\) (as opposed to alternative hypothesis \(\overline{H}\)) is true given all that is known before forming belief \(B\); (2) the likelihood ratio, which represents the information value of \(B\) for evaluating the validity of \(H\); and (3) the posterior odds that \(H\) is true given all that is known after forming belief \(B\).

If the degree to which belief \(B\) implies high quality (\(H\)) differs from the degree to which belief \(B\) implies low quality (\(\overline{H}\)), belief \(B\) is useful for discriminating between high versus low quality products. Under these circumstances, the likelihood ratio will differ from 1, and the posterior odds will differ from the prior odds. By contrast, when consumers do not trust the validity of belief \(B\), the likelihood ratio will equal 1 (e.g., belief \(B\) is not useful for discriminating between high versus low quality), and the posterior odds will equal the prior odds (e.g., belief \(B\) is ignored).

The diagnosticity of belief \(B\) is expressed in terms of the magnitude of the likelihood ratio or its reciprocal, whichever is larger (Beyth-Marom and Fischhoff, 1983). This ratio is computed on the basis of subjects’ component probability estimates, which are combined by the experimenter according to Bayes’ theorem (Herr et al., 1991). As the perceived diagnosticity of belief \(B\) increases, the magnitude of the likelihood ratio also increases or departs from 1. If knowledgeable consumers trust their own inferences/conclusions more than they trust the inferences/conclusions of others, the likelihood ratio should be greater for beliefs derived from implicit versus explicit product claims. By contrast, if unknowledgeable con-
consumers trust the inferences/conclusions of others more than they trust their own inferences/conclusions, the likelihood ratio should be greater for beliefs derived from explicit versus implicit claims.

Finally, because unknowledgeable consumers may fail to draw inferences about omitted conclusions spontaneously, a prompted inference condition was included in test for this possibility. In the prompted inference condition, inference scales were provided to induce subjects to form inferences about omitted conclusions (Huber and McCann, 1982; Lim, Olshavsky, and Kim, 1988). If knowledgeable consumers are likely to form inferences spontaneously, the likelihood ratio should not differ for beliefs derived from implicit claims regardless of whether the prompt was provided (prompted inference condition) or not (spontaneous inference condition). However, the likelihood ratio should still be greater for beliefs derived from implicit versus explicit conclusions.

By contrast, if unknowledgeable consumers are unlikely to form inferences spontaneously, the likelihood ratio should differ as a function of the prompt manipulation. Hence, for unknowledgeable consumers, the likelihood ratio should be greater when inferences are likely (i.e., prompted inference condition) versus unlikely to be formed (i.e., spontaneous inference condition). If unknowledgeable consumers question the validity of their inferences, the likelihood ratio should be greater for beliefs derived from explicit versus implicit claims even when inferences are solicited via prompting.

**Method**

**Design**

Subjects were 144 undergraduates who participated to earn extra credit for an introductory marketing course. Subjects read four sets of statements pertaining to the features of a fictitious CD player brand (the CD880), and each set of statements implied a specific conclusion about the benefits of the target brand. These conclusions were either provided directly and explicitly (explicit conclusions) or omitted from the description (implicit conclusions). In implicit conclusion conditions, subjects were either prompted (prompted inference condition) or not prompted (spontaneous inference condition) to draw their own conclusions. Knowledgeable and unknowledgeable subjects were randomly assigned to one of three conclusion conditions, creating a 2 (high or low prior knowledge) × 3 (explicit conclusion, prompted inference, or spontaneous inference condition) factorial design.

**Independent Variables**

**LEVEL OF PRIOR KNOWLEDGE.** Subjects were assigned to high versus low knowledge groups on the basis of a median split of their scores on a ten-item multiple-choice scale (following Sujan, 1985) designed to measure objective knowledge about compact disc players (e.g., “What is the function of a ‘high-bit’?” “MASH technology refers to ____”).

**TYPE OF CONCLUSION.** Subjects received a persuasive message containing arguments bearing on the benefits of the target product (the CD880). These benefits/conclusions were either stated directly in the message (explicit conclusion) or omitted from the message. When benefits/conclusions were omitted, subjects were either prompted (prompted inference condition) or not prompted (spontaneous inference condition) to draw their own conclusions.

**Dependent Measures**

**BELIEFS ABOUT PRODUCT BENEFITS.** Belief in the target conclusions was assessed through the use of 11-point subjective probability scales ranging from 0 (not at all likely) to 10 (extremely likely). These scales were presented prior to the administration of the perceived diagnosticity measures in the prompted inference condition, and after the administration of the perceived diagnosticity measures in spontaneous inference and in explicit conclusion conditions. Ratings for each target conclusion (“How likely is it that the CD880 removes more noise/offers higher resolution/makes it easy to find a specific passage/makes it easy to insert a disc?”) were averaged to create a single belief index.

**PERCEIVED DIAGNOSTICITY OF BELIEFS.** Subjects were asked to estimate the percentage of high quality CD players having a benefit corresponding to each of the four target conclusions on an 11-point scale ranging from 0 (0%) to 10 (100%). For example, for the first conclusion, subjects were asked “What percentage of high quality CD players (top 30%) remove most of the noise generated by digital distortion?” They were also asked to estimate the percentage of low quality CD players having the same benefit: “What percentage of low quality CD players (bottom 70%) remove most of the noise generated by digital distortion?” These estimates were divided by ten to convert them to units of probability (Wyer, 1975; Wyer and Srull, 1989). Perceived diagnosticity was operationalized in terms of the Bayesian likelihood ratio—which was computed by dividing the first probability by the second—or its reciprocal, whichever is larger (Beyth-Marom and Fischhoff, 1983). These procedures were applied for each of the four target conclusions. Likelihood ratios were averaged across the four conclusions to provide a single index of perceived diagnosticity.

**Procedure**

Four sets of arguments pertaining to the features of the CD880 were developed. Each set of arguments implied a specific conclusion about the benefits of the target product. These arguments and their conclusions are presented in the Appendix. In the explicit conclusion condition, each conclusion was presented in the text. By contrast, each conclusion was omitted from the text in implicit conclusion conditions. The text was identical in all other respects (the four sets of arguments used in the present study are presented in the Appendix).

Half of the implicit conclusion subjects were prompted to infer the target conclusions (prompted inference condition),
Table 1. Perceived Diagnosticity of Beliefs as a Function of Prior Knowledge and Type of Conclusion

<table>
<thead>
<tr>
<th>Type of Conclusion</th>
<th>Spontaneous inference</th>
<th>Prompted inference</th>
<th>Explicit conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low prior knowledge</td>
<td>1.79 (n=26)</td>
<td>2.94 (n=27)</td>
<td>6.78 (n=26)</td>
</tr>
<tr>
<td>High prior knowledge</td>
<td>3.34 (n=21)</td>
<td>4.22 (n=22)</td>
<td>2.97 (n=22)</td>
</tr>
</tbody>
</table>

Note: Higher scores indicate greater perceived diagnosticity. A score of 1 indicates that the belief is not at all diagnostic.

and half were not (spontaneous inference condition). Prompting was performed, by asking subjects to indicate the likelihood that the implied conclusion was true, immediately after they read the relevant message arguments. An 11-point belief scale ranging from 0 (not at all likely) to 10 (extremely likely) was provided for each conclusion. In the spontaneous inference condition, no such prompting was performed. After product benefit beliefs were assessed, the probability scales required for computing perceived diagnosticity scores were administered. Finally, the Compact Disc Player Knowledge Questionnaire was administered at the end of the session.

Results

Prior Knowledge

Subjects were assigned to high or low prior knowledge conditions on the basis of a median-split of their scores on the Compact Disc Player Knowledge Questionnaire. Subjects’s scores were greater in high (M = 5.52) than in low (M = 3.14) prior knowledge conditions, F(1, 142) = 320.85, p < .001. Hence, this procedure was effective.

Product Beliefs

A 2 (high or low prior knowledge) × 3 (spontaneous inference, prompted inference, explicit conclusion) analysis of variance performed on subjects’ beliefs yielded no main effect for prior knowledge (Ms = 7.00 and 7.22 for high and low knowledge conditions, respectively), F(1, 138) = .43, p > .40, no main effect for type of conclusion (Ms = 7.03, 6.91, and 7.44 for spontaneous inference, prompted inference, and explicit conclusion conditions, respectively), F(2, 138) = .88, p > .40, and no prior knowledge by type of conclusion interaction, F(2, 138) = .59, p > .40. Hence, belief content did not vary as a function of the independent variables. This allows us to examine the perceived diagnosticity of beliefs while holding the beliefs themselves constant.

Perceived Diagnosticity

Mean perceived diagnosticity scores as a function of prior knowledge and type of conclusion are presented in Table 1. A 2 (high or low prior knowledge) × 3 (spontaneous inference, prompted inference, explicit conclusion condition) analysis of variance performed on these scores yielded a significant main effect for type of conclusion, F(2, 138) = 3.09, p < .05. Diagnosticity scores tended to be greater in explicit conclusion than in prompted inference or spontaneous inference conditions. No main effect was found for prior knowledge, F(1, 138) = .16, p > .40.

More importantly, the type of conclusion main effect was qualified by the predicted prior knowledge by type of conclusion interaction, F(2, 138) = 4.26, p < .02. Low knowledge subjects perceived their beliefs as more diagnostic in the explicit conclusion condition (M = 6.78) than in the prompted inference (M = 2.94, t[138] = 2.78, p < .01) or spontaneous inference conditions (M = 1.79, t[138] = 3.59, p < .01). In contrast, high knowledge subjects tended to exhibit the opposite pattern. Specifically, high knowledge subjects tended to perceive their beliefs as less diagnostic in the explicit conclusion condition (M = 2.97) than in the prompted inference (M = 4.22) or spontaneous inference conditions (M = 3.34), but these trends were nonsignificant (Fs < 1).

Finally, in implicit conclusion conditions, no effects for the prompt manipulation were found for high or low prior knowledge subjects (Fs < 1). This pattern suggests that both high and low prior knowledge subjects inferred the target conclusions spontaneously (i.e., without prompting).

Discussion

The results of the present experiment indicate that inferential beliefs are not always more compelling than beliefs derived from explicit product claims. The perceived diagnosticity of a belief is contingent upon the consumer’s level of context-specific prior knowledge, as well as upon the manner in which the belief is derived. Knowledgeable consumers trust their inferential abilities and are unlikely to question the validity of their inferential beliefs. They may recognize that they have a relatively large stock of relevant knowledge and experience to draw from, and that their analytic and inferential abilities are superior to the reasoning abilities of many others (Alba and Hutchinson, 1987). Consequently, they tend to perceive their own inferential beliefs as more diagnostic than the inferences/conclusions provided by a potentially less knowledgeable, less reliable, or less trustworthy outside source (e.g., advertisers, salespersons, other consumers).

Unknowledgeable consumers, on the other hand, may recognize that they have limited knowledge and experience to draw from. Consequently, they distrust their analytic and inferential abilities and are likely to question the validity of their inferential beliefs. Moreover, they perceive other people (e.g., advertisers, salespersons, other consumers) as more knowledgeable than themselves and they perceive the inferences/conclusions generated by others as more diagnostic than self-generated inferential beliefs. Hence, the consumer’s level of prior knowledge is an important moderator of the effectiveness of explicit versus implicit product claims.

The results have several important implications for adver-
tising effectiveness. For example, the effectiveness of explicit versus implicit conclusions depends critically on the characteristics of the target audience. Different groups of consumers may have diametrically opposed responses to the same message. Knowledgeable consumers tend to respond more favorably to implicit (versus explicit) claims, whereas unknowledgeable consumers respond more favorably to explicit (versus implicit) claims. Knowledgeable consumers are likely to draw inferences about omitted conclusions spontaneously, whereas unknowledgeable consumers may draw inferences about omitted conclusions only when prompted to do so (especially when implied claims are more subtle than the claims used in the present study). Hence, unknowledgeable consumers frequently miss the point of messages with very subtle implications. Moreover, even when unknowledgeable consumers draw the appropriate inferences they are likely to question the validity of these inferences.

Although prior research has shown that recall for cognitive responses (versus message arguments) is often more predictive of attitude change (for a review, see Petty and Cacioppo, 1986), the present study suggests that this relationship is unlikely to be observed for unknowledgeable consumers. Unknowledgeable recipients are likely to generate relatively few cognitive responses (i.e., elaboration likelihood is low; Petty and Cacioppo, 1986) and these cognitive responses are unlikely to be perceived as highly diagnostic. Consequently, for unknowledgeable recipients, recall for message arguments (versus cognitive responses) may be more predictive of attitude change. Consistent with this reasoning, recent research has shown that recall for message arguments (versus cognitive responses) is more predictive of persuasion when elaboration likelihood is low (Mackie and Asunis, 1990).

Future research should examine additional moderators of the effectiveness of explicit versus implicit conclusions. The present study focused on one moderator, level of prior knowledge. Recently, Stayman and Kardes (1992) have shown that other individual difference variables—specifically, need for cognition (Cacioppo and Petty, 1982) and self-monitoring (Snyder, 1974)—also moderate the effectiveness of explicit versus implicit conclusions. Need for cognition influences the likelihood of inference generation, whereas self-monitoring influences the degree to which generated inferences are utilized in subsequent judgments and decisions. Several other individual difference variables—such as locus of control (Rotter, 1966), integrative complexity (Tetlock, 1983), and the need for structure (Kruglanski, 1989)—may also moderate the effectiveness of explicit versus implicit product claims.

Recent work on the FCB Grid (Ratchford, 1987) and the Rossiter-Percy Grid (Rossiter, Percy, and Donovan, 1991) suggests several additional moderators that should be examined in future research. For example, inferential activity should be most prevalent in the "high involvement/think" cell of the FCB Grid (this cell includes products such as compact disc players, stereo components, television sets, 35-millimeter cameras, etc.). Implicit conclusions are likely to be effective only when inference generation is likely. Because inference generation is likely in the high perceived risk cells of the Rossiter-Percy Grid, implicit conclusions should be effective in these cells. Moreover, implicit conclusions should also be effective when Rossiter and Percy's informational motives (i.e., problem removal, problem avoidance, incomplete satisfaction, mixed approach-avoidance, normal depletion) are salient, because "cold" cognitive processes (such as the inferential processes examined in the present study) are likely to be activated by such motives. By contrast, transformational motives influence "hot" affective and sensory-related processes, and, consequently, explicit conclusions may be more effective when transformational motives are activated.

In conclusion, an advertising strategy that is effective for one group of consumers may be ineffective for another. In the present study, we investigated the interaction between level of prior knowledge and consumer response to explicit versus implicit product claims. More research on individual difference by ad appeal interactions is needed to facilitate the tailoring of advertising messages that match audience characteristics more effectively.

Appendix: The Message Arguments and Target Conclusions

<table>
<thead>
<tr>
<th>Set</th>
<th>Message Arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All CD players use digital filters to remove unwanted digital distortion. Most CD players use one filter that removes some of the noise. Only the CD880 uses two filters. The CD880 removes more noise.</td>
</tr>
<tr>
<td>2</td>
<td>Our superior audio amplifiers clearly define low-level digital codes. Clearer definition leads to higher resolution. The CD880 offers higher resolution.</td>
</tr>
<tr>
<td>3</td>
<td>The CD880 has an audible fast forward and reverse. Finding a specific passage is easier with an audible scanner. The CD880 makes it easy to find a specific passage.</td>
</tr>
<tr>
<td>4</td>
<td>The CD880 has a motorized drawer. Inserting a disc is difficult without a motor. The CD880 makes it easier to insert a disc.</td>
</tr>
</tbody>
</table>

Note: The intended conclusion to each set of arguments is underlined. All underlined statements were presented in explicit conclusion conditions, but were omitted in implicit conclusion conditions.

References
Fazio, Russell H., On the Power and Functionality of Attitudes. The Role of Attitude Accessibility, in Attitude Structure and Function. Anthony R. Pratkanis, Steven J. Breckler, and Anthony G. Green-


