SOURCE AND MESSAGE FACTORS IN PERSUASION: A REPLY TO STIFF’S CRITIQUE OF THE ELABORATION LIKELIHOOD MODEL

RICHARD E. PETTY, JEFF A. KASMER, CURT P. HAUGTVEDT AND JOHN T. CACIOOPPO

In this article we respond to James Stiff’s (1986) recent critique of the Elaboration Likelihood Model (ELM) of persuasion (Petty & Cacioppo, 1981, 1986b). In particular, we make the following corrections to Stiff’s misrepresentation of the model: (1) Many variables other than "involvement" can affect the elaboration likelihood and thus the route to persuasion, (2) variables can serve in multiple roles under specifiable conditions, and (3) the ELM does not preclude multi-channel information processing. After correcting these misperceptions of the ELM, we critique Stiff’s meta-analyses comparing the ELM predictions with those he derives from Kahneman’s (1973) elastic capacity model. His analysis of message factors is critiqued on the grounds that some of the message factors included in the analysis are capable of affecting attitudes via either the central or the peripheral route. His analysis of source factors is critiqued on the grounds of insufficient sample size, lack of statistical significance, and possible miscategorization of studies. In short, we argue both that Stiff’s presentation of the ELM and the conclusions he draws based on the data he presents are misleading.

In a recent article in this journal, James Stiff (1986) undertook an analysis of the role of source and message factors in attitude change and claimed to "refute the basic assumptions of Petty and Cacioppo’s Elaboration Likelihood Model" of persuasion (p. 89). Unfortunately, there are problems with both the conceptual and the empirical aspects of his paper. Stiff’s presentation of parts of the Elaboration Likelihood Model (ELM) are misleading and inaccurate to such an extent that his critique is therefore invalid. In addition, the meta-analyses conducted by Stiff which are used to support his claims are open to question. Our primary goals in the present paper are to provide a brief overview of the ELM, to correct Stiff’s misperception and misrepresentation of the ELM, and to critique the meta-analyses used to support his conclusions.

OVERVIEW OF THE ELM

Although it is impossible to present a complete explication of the ELM and the research supporting it here (interested readers should consult Petty & Cacioppo, 1986a, for a detailed treatment), it might be useful to provide a brief description of the model before proceeding to our analysis of Stiff’s article. The Elaboration Likelihood Model represents an attempt to integrate the many seemingly conflicting findings in the persuasion literature under one conceptual umbrella by specifying a finite number of ways in which source, message, and other variables have an impact on attitude change (Petty & Cacioppo, 1981, 1986b). The ELM is based on the notion that people want to form correct attitudes (i.e., those that will prove useful in functioning in one’s environment) as a result of exposure to a persuasive communication, but there are a variety of ways in which a reasonable position may be adopted.

Richard E. Petty is Professor of Psychology, Ohio State University. Jeff A. Kasmer and Curt P. Haugtvedt are doctoral candidates in Social Psychology, University of Missouri. John T. Cacioppo is Professor of Psychology, University of Iowa.

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The most effortful procedure for evaluating an advocacy involves drawing upon prior experience and knowledge to scrutinize carefully and elaborate the issue-relevant arguments in the persuasive communication along the dimensions that are perceived central to the merits of the attitude object. According to the ELM, attitudes formed or changed via this \textit{central route} are postulated to be relatively persistent, predictive of behavior, and resistant to change until they are challenged by cogent contrary information along the dimension or dimensions perceived central to the merits of the object. Importantly, it is neither adaptive nor possible for people to exert considerable mental effort in processing all of the persuasive communications to which they are exposed (cf., Miller, Maruyama, Beaber, & Valone, 1976). Indeed, people often act as "lazy organisms" (McGuire, 1969) or "cognitive misers" (Taylor, 1981). This does not mean that people never form attitudes when motivation and/or ability to scrutinize a message are low, but rather that attitudes may be changed as a result of relatively simple associations (as in classical conditioning; Staats & Staats, 1958), inferences (as in self-perception; Bem, 1972), or heuristics (Chaiken, 1980, 1987) in these situations. Attitudes formed or changed via this \textit{peripheral route} are postulated to be relatively less persistent, resistant, and predictive of behavior.

This discussion highlights two ways in which variables can have an impact on persuasion. Variables may serve as persuasive \textit{arguments}, providing information as to the central merits of an object or issue, or they may serve as peripheral \textit{cues}, allowing favorable or unfavorable attitude formation in the absence of a diligent consideration of the true merits of the object or issue. According to the ELM, the third way in which a variable can have an impact on persuasion is by affecting the extent or direction of argument \textit{elaboration} (i.e., the extent to which the person is motivated and/or able to evaluate the central merits of the issue-relevant information presented). Elaboration in a persuasion context occurs when a person thinks about and evaluates the issue-relevant information presented. When conditions foster people's motivation and ability to engage in issue-relevant thinking, the "elaboration likelihood" is said to be high. This means that people are likely to attend to the appeal, attempt to access relevant associations and experiences from memory, scrutinize and evaluate the externally provided information in light of the associations available from memory, draw inferences about the merits of the arguments for a recommendation based upon these analyses, and derive an overall attitude toward the recommendation. When the elaboration likelihood is high, the probability of a person's following the central route to persuasion is increased. When the elaboration likelihood is low, the peripheral route becomes more probable. In short, the elaboration likelihood moderates the route to persuasion. Figure 1 provides a schematic depiction of the postulated antecedents and consequences of the two routes to persuasion.

\textbf{MISREPRESENTATION OF THE ELM}

Stiff's presentation of the Elaboration Likelihood Model (pp. 76–80) is misleading and/or inaccurate in a number of ways. Three of the most important misrepresentations are discussed next.

\textit{Multiple Determinants of Elaboration Likelihood}

In discussing the determinants of the central and peripheral routes to persuasion, Stiff mentions only the "personal relevance" of the message. However, the ELM holds that there are many variables capable of moderating the route to persuasion.
Some variables, like personal relevance, affect a person's *motivation* to process issue-relevant arguments. When personal relevance is high, people are motivated to scrutinize issue-relevant arguments and attitude change is dependent upon the *quality* of the arguments in the message (Leippe & Elkin, 1987; Petty & Cacioppo, 1979). When personal relevance is low, argument scrutiny is reduced and attitudes may be affected more by variables serving as peripheral cues (e.g., source expertise; Petty, Cacioppo, & Goldman, 1981). It is important to note, however, that variables other than personal relevance can also affect the motivation to process a message. For example, people are more motivated to scrutinize message arguments when they are solely responsible for message evaluation than when they share responsibility (Petty, Harkins & Williams, 1981). In addition, there are individual differences in people's motivation to think about persuasive communications (Cacioppo & Petty, 1982). People who enjoy thinking (high "need for cognition") tend to form attitudes on the
basis of the quality of the arguments in a message, thereby following the central route to persuasion (Cacioppo, Petty, & Morris, 1983). People who tend not to enjoy thinking are more reliant on simple peripheral cues in the persuasion context (Cacioppo & Petty, 1984b; Chaiken, 1987).

Importantly, variables can also determine the route to persuasion by affecting a person’s ability to process issue-relevant arguments. For example, moderate message repetition provides more opportunities for argument scrutiny (Cacioppo & Petty, 1985), but external distraction reduces argument elaboration (Petty, Wells, & Brock, 1976). High knowledge on an issue often enables people to process issue-relevant arguments, whereas low knowledge facilitates reliance on simple cues (Wood & Kallgren, in press; Wood, Kallgren, & Priesler, 1985). By focusing exclusively on personal relevance as a moderator of the route to persuasion, Stiff oversimplifies and misrepresents the ELM and unduly limits its integrative potential.

Variables Can Serve in Multiple Roles

A second serious point of confusion in Stiff’s presentation of the ELM is that he appears to view the model as classifying message variables as “central cues” and all other variables (e.g., source factors) as “peripheral cues.” For example, he states that “recipients who are involved in the persuasive message will be influenced more by characteristics of the message (central cues) than by characteristics of the persuasive situation (peripheral cues)” (p. 76). The ELM does not distinguish between “central cues” and “peripheral cues.” Instead, the ELM holds that variables can serve in one of three capacities in persuasion situations: The variable can serve as an argument, it can serve as a cue, or it can affect the extent or direction of information processing. Importantly, the model holds that any one variable can serve in multiple roles (though in different situations). Thus, just as source factors can serve as issue-relevant arguments when pertinent to evaluating the central merits of an advocacy (e.g., Petty & Cacioppo, 1980), message factors can serve as peripheral cues (see Petty & Cacioppo, 1984a, 1986b for further discussion). Furthermore, as explained shortly, the model specifies the general conditions under which variables take on the different possible roles.

As an example of the multiple roles that one variable can assume in different persuasion situations, consider studies in which the number of arguments contained in a persuasive communication is manipulated. In his meta-analysis of the effects of source and message factors on persuasion (discussed further below), Stiff treats the number of arguments in a message as a “central cue” and assumes that if a study finds that increasing the number of arguments increases persuasion, then this is because the arguments were evaluated (i.e., the central route to persuasion has been followed). In contrast to this assumption, the ELM holds that increasing the number of arguments in a message can lead to persuasion via the central route when the implications of the additional arguments are realized, but the number of arguments in a message can also trigger a simple inference (e.g., “the more arguments the more valid the position must be”) and serve as a peripheral cue producing attitude change in the absence of argument scrutiny. The ELM specifies that when the elaboration likelihood is high, the additional arguments should be processed diligently, but when the elaboration likelihood is low, the mere number of arguments in a message should be capable of serving as a simple validity cue.

Evidence supporting the multiple roles for number of arguments has been
obtained in several studies. For example, in one of our studies cited by Stiff (Petty & Cacioppo, 1984a), we found that when the personal relevance of the message was low, increasing the number of arguments in a message from 3 to 9 enhanced persuasion whether the arguments were cogent or specious. This suggests that the additional arguments were not carefully evaluated since subjects simply judged more reasons, whether compelling or flawed, as better. However, when the message was of high relevance, increasing the number of arguments enhanced persuasion only when the arguments were strong; when the arguments were weak, increasing the number of arguments reduced persuasion. Thus, number of arguments had an impact on persuasion under both high and low relevance conditions, but the effect was quite different. Under high relevance, the additional arguments were evaluated carefully, leading to increased persuasion when they were cogent and compelling but to reduced persuasion when they were weak and specious. Under low relevance, the additional arguments served as a peripheral cue leading to increased persuasion regardless of argument quality.

Other studies have also provided evidence for the view that message factors can serve as peripheral cues when the elaboration likelihood is low. For example, in a recent study, Alba & Marmorstein (in press) compared the effects of varying the number of arguments for people who were relatively knowledgeable or unknowable about a consumer product. Possessing issue-relevant knowledge should enhance one's ability to process the issue-relevant arguments presented. In their study, people were presented with information about 3 brands of bicycles. One brand was described with 4 attributes, one with 8, and one with 12. Importantly, the additional attributes were all characteristics of low quality bicycles (i.e., weak arguments). However, only people knowledgeable about bicycles would be likely to know this. When asked to rate the bicycles, knowledgeable subjects (employees of a bicycle shop) gave less favorable ratings the more attributes that were presented. In contrast, unknowable people gave higher quality ratings the greater the number of attributes associated with the bike. In short, when the subjects were unable (due to lack of knowledge) to determine the true merits of the bicycles by evaluating the attributes, the mere number of attributes apparently served as a peripheral cue as to the worth of the product. This did not occur when the elaboration likelihood was high (see Langer, Blank, & Chanowitz, 1978, and Wood, Kallgren, & Priesler, 1985, for additional evidence that message factors can serve as peripheral cues when motivation and/or ability to process issue-relevant arguments is low).

Single versus Multi-channel Information Processing

The third and most detrimental critique of the ELM, according to Stiff, is that "the Elaboration Likelihood Model suggests that individuals are limited to processing either message content cues or peripheral situational cues" (p. 77). He concludes that: "Given that Petty and Cacioppo's model of humans as single channel information processors is inconsistent with existing research on information processing, the Elaboration Likelihood Model has limited utility for predicting human processing of persuasive messages" (p. 79). We do not know where Stiff got the idea that the ELM requires single channel information processing or that "individuals are incapable of parallel cue processing and hence are limited to processing either central or peripheral cues" (p. 87). The fact that we have proposed that attitude change may result primarily from argument processing or the operation of peripheral
cues does not mean that people are incapable of processing both arguments and cues. It does mean, however, that in some situations (e.g., low personal relevance), peripheral cues will be the primary determinant of attitude change, whereas in other situations (e.g., high personal relevance), argument processing will be the primary determinant of attitude change.

As noted above, the ELM holds that in some situations people will be relatively unmotivated and/or unable to evaluate the true merits of an issue position. In these situations, judgments will be based largely on the presence of simple cues in the situation that allow an evaluation in the absence of argument scrutiny. In other situations, however, people will be highly motivated and able to evaluate the true merits of an issue position. In these situations of high elaboration likelihood, Stiff asserts that the ELM holds that "involved recipients will process only central message cues" (p. 87). By this, he apparently means that people will not process, for example, attributes of the message source. We have not advocated this, however. Instead, we have argued that when the elaboration likelihood is high, people will process all subjectively relevant information (subject to the limits of their ability, of course) in order to determine the central merits of the advocated position.

... a consideration of source factors may be part of a person's attempt to evaluate the issue-relevant information when the elaboration likelihood is high... The important point is that when the elaboration likelihood is high, source information does not serve as a simple acceptance or rejection cue, but may be considered along with all other available information in the subject's attempt to evaluate the true merits of the arguments and position advocated (Petty & Cacioppo, 1984b, p. 671).

In discussing our own research we have argued against the idea that recipients are necessarily "forced to choose between" processing message arguments and processing source factors when involvement is high (Stiff, 1986, p. 77). Consider the following passage from one of our papers cited by Stiff in which we explicitly dismiss this as a requirement of the ELM:

... An anonymous reviewer of this article... suggest(ed) that subjects lacked the ability to evaluate both the source and the message, and therefore had to choose one over the other... We find this explanation implausible... Our experiment included several checks on whether or not subjects attended to the source and message information. For example, all subjects were asked if they recognized and liked the endorsers appearing in the ad. If the reviewer's suggestion is correct, we would expect subjects in the high involvement group (who diligently processed the message content) to be less likely to report recognizing the endorsers in the ad, and hence to show less liking for the ad endorsers... However, the high involvement subjects recognized and liked the famous endorsers to the same extent as did low involvement subjects. It is just that the product attitudes of the high involvement subjects were not affected by this liking, while the product attitudes of the low involvement subjects were (Petty, Cacioppo, & Schumann, 1983, p. 143).

In short, we argued that high involvement subjects processed both source and message information, but the source information failed to affect the attitudes of high involvement subjects because the source information (whether the sources were famous or not) was irrelevant to determining the true merits of the attitude object (a disposable razor). Thus, contrary to Stiff's presentation, the ELM agrees "that individuals who are highly involved with a message may... process both types of persuasive information before deciding to accept or reject message recommendations" (Stiff, p. 77). Just because both source information and message information are processed, however, does not mean that both types of information will affect attitudes.
STIFF'S META-ANALYSES OF SOURCE AND MESSAGE FACTORS

After presenting his version of the ELM, Stiff undertakes meta-analyses that purport to test the ELM predictions against predictions he derives from Kahneman’s (1973) elaslic capacity model of information processing. Stiff argues that the ELM expects there to be a positive linear relationship between message recipient involvement and the effect that “central message cues” have on attitudes, and a negative relationship between involvement and the impact of peripheral cues. On the basis of Kahneman’s model, he predicts that there should be a positive linear relationship between involvement and the effect of “central cues,” (same prediction as the ELM), but a curvilinear (inverted-U) pattern between involvement and the impact of peripheral cues.4

It is important to note that we have suggested that both argument processing and the operation of peripheral cues may be related to involvement in a curvilinear fashion if extremely high and low involvement levels are considered. Specifically, we have suggested that some minimal level of involvement is required for peripheral cues to have any effect. If involvement with an issue is extremely low, people might not process any cues associated with the message, choosing instead to devote their attention to another task (“when the elaboration likelihood is low, people will either conserve their cognitive resources . . . or expend cognitive resources on another task” Cacioppo and Petty, 1984a, p. 673). Likewise, we have argued that if involvement with an issue is extremely high, scrutiny of issue-relevant arguments may be inhibited (“we suspect that there are circumstances where involvement may be so high, as when an issue is intimately associated with certain central values . . . that processing will terminate in the interest of self-protection” (Petty & Cacioppo, 1979, p. 1924). On the other hand, since these extremely high and low involvement levels are unlikely in laboratory studies (the focus of Stiff’s review and our own research), we do not quarrel with the overall hypotheses Stiff derives from the ELM. We do, however, have problems with the specific procedures employed in his meta-analytic tests of these hypotheses.

Meta-analysis is a technique that allows reviewers to combine effects across independent studies in order to draw general conclusions about the direction and size of effects present in an accumulated literature (e.g., Glass, McGaw, & Smith, 1981; Rosenthal, 1984). Importantly, the value and ultimate conclusions drawn from any meta-analysis are highly dependent on a number of decisions made by the person who conducts the analysis (e.g., which studies to include and exclude, which parameters are relevant, should studies be weighted or not, if so, how, etc.; see Cooper, 1984; Rosenthal, 1984). We believe that some of the methodological decisions made by Stiff render his meta-analyses uninformative in regard to the hypotheses of interest. Below, we address some of the problems present in these analyses.

Meta-Analysis of Effects of Message Arguments

The goal of Stiff’s first meta-analysis is to assess the extent to which increasing involvement enhances message processing. If involvement increases message processing, then attitudes should be more affected by supporting issue-relevant information as involvement increases. This hypothesis is reasonable as long as ability to process is also high and contrary motivational states are not interfering. In order to test this
hypothesis, Stiff searched for studies that manipulated "the nature of the supporting information presented in the persuasive message" (p. 81). Then, the message topics employed in these studies were rated for "involvement," and studies were classified into high, medium, and low involvement categories. An exception to this rule was that studies manipulating high and low involvement were put into the categories designated by the original authors. Separate meta-analyses within each involvement level revealed that the magnitude of the effect of the manipulation of supporting information (as indexed by a correlation coefficient) increased with increasing involvement. Although this result appears to support both the hypotheses derived from the ELM and Stiff's translation of Kahneman's elastic capacity model, we do not believe that the analyses are necessarily informative in this regard.

The major problem with the analysis lies with the studies selected for inclusion. Although one could complain that there are studies that appear to meet Stiff's criteria for inclusion that were not selected for his analysis (e.g., Maddux & Rogers, 1980; Wood, Kallgren, & Priesler, 1985), we will focus instead on the inclusion rules themselves. As Stiff noted, the manipulations of supporting information "varied considerably from study to study" (p. 81), but three major categories of studies were identified. The categories included manipulations of: (a) "argument quality" (5 studies cited), (b) "number of arguments offered" (7 studies cited), and (c) "the amount of supporting information" which involved "either including or excluding evidence in the persuasive message" (7 studies cited). A critical problem with this procedure is that the manipulations employed in the latter two categories have the potential to affect attitudes by serving as peripheral cues. In fact, we have already noted earlier in this article that the mere number of arguments can affect attitudes by serving as a peripheral cue when the elaboration likelihood is low, but affect attitudes via information processing when the elaboration likelihood is high (e.g., Petty & Cacioppo, 1984a). Likewise, manipulations of whether evidence is presented or not, or how extensive that evidence "appears," could serve as a simple validity cue for people who are unmotivated or unable to evaluate the evidence carefully. For example, Wood et al. (1985) found that the attitudes of people who were relatively unknowledgeable and uninterested in a topic could be affected by increasing the length of the arguments in a message (i.e., adding words but no new information). Attitudes of people who were relatively knowledgeable and interested in the topic were unaffected by this simple message cue although they were affected by a manipulation of the quality of the arguments presented.

Since the data points in Stiff's meta-analysis are comprised largely of studies in which the manipulation of supporting information could have affected attitudes either via argument processing or because of the value of the manipulation as a peripheral cue, the results are difficult to interpret. The results do suggest that as involvement increased, the effect size of the message manipulation increased. This could be interpreted in a number of conflicting ways, however, including: (a) As involvement increases, argument evaluation becomes a more important determinant of persuasion; (b) as involvement increases, peripheral message cues become more important determinants of persuasion; (c) peripheral message cues determine persuasion under low involvement and argument processing determines persuasion under high involvement, but argument processing typically produces greater effect sizes than the operation of peripheral cues. In short, the results of Stiff's meta-
analysis may be uninformative about the role of involvement as a moderator of argument evaluation.

Meta-Analysis of Effects of Source Credibility

The meta-analysis of the effects of source credibility cues is also problematic. We have several concerns regarding this analysis. First, Stiff concludes that there is a curvilinear (inverted-U) relationship between involvement and the impact of source credibility without reporting a statistical test of this hypothesis. Using the procedure outlined by Rosenthal (1984, Chapter 6), we employed a curvilinear contrast to test this relationship. This contrast did not prove reliable, $Z = 1.66$, $p > .10$ (neither did a linear contrast). Following this, we compared the effect sizes of the studies categorized as differing in involvement. These analyses revealed that the low and moderate involvement studies did not differ significantly in effect size, but the impact of credibility under high involvement was significantly smaller than under moderate involvement, $Z = 1.98$, $p < .05$. This pattern, of course, is not inconsistent with the ELM.

Other concerns with Stiff's meta-analysis involve the unacceptably small number of data points included and the procedure used for categorizing studies. Stiff's conclusion that there is a curvilinear relationship between involvement and the impact of source credibility is based on comparisons among 2 (high involvement), 3 (medium involvement), and 5 (low involvement) data points. When dealing with so few points, the miscategorization of a few studies can result in a very different data pattern. Consider Stiff's procedure for assigning studies to involvement categories. For studies that did not manipulate involvement, Stiff had 5 "doctoral students specializing in the study of persuasion" (p. 83) rate the extent to which they believed the participants in the original studies were involved with the topic of the persuasive message. For the two studies that manipulated high and low involvement, Stiff relied on the authors' labels to categorize the data.

We undertook a reclassification of the studies used in Stiff's analysis of source credibility. Specifically, 28 undergraduates enrolled in summer school courses served as judges and rated on 11-point scales the extent to which they were "interested in" each of the topics and the extent to which each topic was "relevant" to them. By adding responses to both questions together, an overall rating of "own-involvement" was obtained. In addition, the undergraduates were provided with a brief description of the subjects serving in the original study (e.g., "undergraduates enrolled in a public speaking class in 1968"), and were asked to estimate how interested in the topic these subjects were and how relevant the topic was to them. By adding responses to both of these questions together, an overall rating of "other-involvement" was obtained. We selected undergraduates to do the ratings rather than doctoral students because undergraduates were the subjects in all of the studies comprising the meta-analysis (it is impossible, of course, to hold other factors constant such as time and setting). Our undergraduate judges rated the topics of both studies that manipulated and those that did not manipulate involvement. For those that manipulated involvement, brief descriptions of the appropriate involvement conditions were presented (e.g., "Assume that you are given a message that stated that people should sleep much less than 8 hours per night. In addition assume that you will be interviewed on and have to discuss this topic. How interested are you in
the topic?"). Because the "own" and "other-involvement" ratings for each topic produced very similar results ($r = .92$), we averaged these to obtain one overall involvement rating for each topic.

The involvement ratings that we obtained for each topic are presented in Table 1. On the basis of these ratings (and following Stiff), topics were classified as low, medium, or high in involvement. Our classification placed six topics in the same categories as in Stiff's analysis and four in different categories. For example, our undergraduate judges rated the Chaiken (1980) low and high involvement conditions as moderate and high in involvement respectively, and they rated the Petty, Cacioppo, & Schumann (1983) low and high involvement conditions as low and moderate in involvement when placed in the context of the topics employed in the other research. Next, we calculated the unweighted average effect size (expressed as a correlation coefficient) for each of the involvement conditions. Unlike Stiff, whose data showed a curvilinear pattern, our analysis revealed similar effect sizes across all levels of involvement (see Table 1).

Of course, we have no more confidence in the conclusion of "no effect" that might be reached based on our meta-analysis than the "curvilinear effect" conclusion that Stiff reached based on his analysis. Both analyses are based on an insufficient sample and thus anomalous results are easily explained by appealing to conceptual and methodological factors other than involvement that should be related to and thereby account for the effect sizes observed. For example, if the ELM is correct, why would the Cook (1969) study show a relatively large effect for source credibility under high involvement conditions (see Table 1)? There are both conceptual and methodological reasons to expect this. First, the ELM holds that simple cues may be important determinants of persuasion when people lack either the motivation or the ability to evaluate issue-relevant arguments. Clearly subjects are interested in the "dangers of tooth brushing" topic employed by Cook, but do they have the requisite knowledge to evaluate a technical message on the topic? As a rough check on this we asked a second set of 46 undergraduate judges to rate on an 11-point scale how much knowledge they had on each topic (1 = know very little; 11 = know very much). The average rating of knowledge on the dangers of tooth brushing was quite low ($M = 2.67$; for comparison, rated knowledge on British royalty = 5.04; disposable razors = 6.79). Thus, even though subjects were interested in the topic, they may have perceived that they had little ability to evaluate the arguments and thereby relied on the expertise of the message source. It might be noted that McGuire's (1964) inoculation theory is based on the notion that people have relatively little cognitive support (i.e., prior knowledge) on cultural truism topics such as tooth-brushing.

Secondly, an important determinant of effect size should be the magnitude of the source credibility manipulation used in each study. To obtain a rough approximation of this, we provided our sample of 46 undergraduate judges with brief descriptions of the high and low credibility sources employed in each study and asked them to rate the extent to which they would believe an advocacy on the appropriate topic that was presented by them. We subtracted the believability score of the low credibility source from the score of the high credibility source to obtain an estimate of the magnitude of the manipulation. Interestingly, the Cook (1969) study, which found a large source effect under high involvement, had the most powerful manipulation of credibility ($M = 5.60$) of all the studies included in the meta-analysis. For comparison, the McCroskey and Combs (1969) study, which found a very small effect for credibility
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under low involvement, used a credibility manipulation that apparently was much weaker ($M = 1.75$).

The technique of meta-analysis works best when averages can be taken across a very large number of studies employing different subjects, topics, and manipulations. When an estimate is based on only two or three data points, as in Stiff's analysis of credibility, the effects observed may be too dependent on factors other than the variable of interest that can have an impact on the effect size. When averaging across many studies, these extraneous variables may be less problematic since they are more likely to be randomly distributed across the conditions of interest. It is important to note that Stiff recognized that his analysis included only a "minute portion of the total credibility literature" (p. 85), and he concluded that "a more comprehensive analysis of the effects of involvement on the source credibility-attitude relationship would be more enlightening" (p. 88). On this point, we agree.

AN ELM ANALYSIS OF SOURCE FACTORS

Now that we have presented the Elaboration Likelihood Model and addressed some of the problems with Stiff's conceptualization and meta-analyses, we can conclude with a brief explication of the role of source factors in persuasion according to the ELM. One of the intriguing, albeit complicating, features of the ELM is that it holds that any one variable can serve in each of three distinct roles. Thus, as noted above, source factors can serve as persuasive arguments in some situations, act as peripheral cues in others, and affect the extent or direction of argument elaboration in still other contexts.

Multiple Roles for Source Attractiveness

In our own research, we have observed that source attractiveness can serve in each of the three roles postulated by the ELM. In one study, for instance, people who were high and low in their need for cognition (Cacioppo & Petty, 1982) were exposed to an advertisement for an electric typewriter (Haugtvedt, Petty, & Cacioppo, 1986, cited in Petty & Cacioppo, 1986a). One version of the ad featured two very attractive endorsers of the product and the other ad featured two unattractive endorsers. As expected, subjects who were low in need for cognition were influenced by the simple cue of attractiveness, but people who characteristically enjoyed thinking were not. In this study, the attractiveness of the endorsers was completely peripheral to the merits of the attitude object (typewriter). For some objects, however, source attractiveness may provide information that is central to an evaluation of merit. In these situations, source attractiveness should be an important determinant of attitudes when the elaboration likelihood is high. In a study relevant to this notion, we exposed subjects to an advertisement for a new shampoo product that featured either two very attractive or two unattractive endorsers (Petty & Cacioppo, 1980). Unlike the typewriter study, in this research the attractiveness of the endorsers is potentially relevant to determining the merits of the product (e.g., "the shampoo will make my hair look like that of the endorsers"). Consistent with this reasoning, attitudes toward the shampoo were affected by endorser attractiveness to an equivalent extent whether involvement was high or low. This is the expected result if attractiveness served as a peripheral cue under low involvement conditions, but served as a pertinent product argument under high involvement.
Finally, we have also observed that source attractiveness could affect the extent of argument processing. In this study, the subjects were led to believe that they were evaluating the essays produced by students in an evening continuing education course (Puckett, Petty, Cacioppo, & Fisher, 1983). All essays argued that seniors should be required to pass a comprehensive exam in their major area as a prerequisite for graduation and employed either strong or weak arguments. The essays were accompanied by author information cards that among other things provided a picture of the source of the essay (attractive or unattractive). The major result of this study was an Attractiveness X Argument quality interaction indicating that the arguments were more carefully processed when they were associated with the attractive than the unattractive sources.

In sum, in three separate studies we have observed that source attractiveness, when irrelevant to the central merits of the issue or object under consideration, could serve as a simple peripheral cue, or it could affect argument processing. When attractiveness was relevant to the central merits of an issue or object, however, it could serve as a persuasive argument. Given this complication, it is crucial to specify the general conditions under which variables act in each of these distinct roles. For source attractiveness, the results can be summarized as follows: Under conditions of relatively low elaboration likelihood, increased source attractiveness, if it has any impact at all, will serve as a peripheral cue, enhancing attitudes regardless of whether a message contains strong or weak arguments. Under conditions of relatively high elaboration likelihood, source attractiveness will be less important as a peripheral cue, and may serve as a persuasive argument if it provides information central to the merits of the attitude object. Finally, under conditions of moderate elaboration likelihood, source attractiveness will affect the extent of argument elaboration, increasing persuasion if the arguments are strong, but decreasing persuasion if the arguments are weak. The left side of Figure 2 depicts the hypothesized effects of variables (such as source attractiveness) serving in multiple roles under conditions of low, moderate, and high elaboration likelihood.

When the elaboration likelihood is high (e.g., high personal relevance, high knowledge, simple message, no distractions, etc.), people typically know that they want and are able to evaluate the merits of the arguments presented and they do so. Simple peripheral cues have relatively little impact on evaluations. When the elaboration likelihood is low (e.g., low personal relevance, low knowledge, complex message, many distractions, etc.), people know that they do not want and/or are not able to evaluate the merits of the arguments presented (or they do not even consider exerting effort to process the message). Thus, if any evaluation is formed, it is likely to be the result of relatively simple associations or inferences. When the elaboration likelihood is moderate (e.g., uncertain personal relevance, moderate knowledge, moderate complexity, etc), however, people may be uncertain as to whether or not the message warrants or needs scrutiny and whether or not they are capable of providing this analysis. In these situations they may examine the persuasion context for indications (e.g., is the source credible?) as to whether or not they should attempt to process the message.

Multiple Effects of Source Credibility

Although a number of studies have examined the impact of variables at two levels of elaboration likelihood (high and low), and have provided evidence for the general
ELM postulates (see Petty & Cacioppo, 1986a), we are aware of only one study that has examined the multiple effects of a variable across three distinct levels of elaboration likelihood. In this study (Moore, Hausknecht, & Thamodaran, 1986), the elaboration likelihood was manipulated by varying the speed of speech in radio commercials for two products. Increasing the presentation rate, of course, is one way to reduce a person's opportunity to think about the message arguments. Subjects listened to an ad for a product that presented information either at a normal rate of speech (high elaboration likelihood), at 130% of normal (moderate elaboration likelihood), or at 160% of normal (low elaboration likelihood). In addition to varying the speed of speech, the investigators also varied whether the commercials contained strong or weak arguments for the product and whether the product endorsers were of low or high credibility.

The right half of Figure 2 depicts the attitudinal results from this study. As shown in the figure, source credibility had quite different effects depending upon the elaboration likelihood. When the elaboration likelihood was low (top panel), only a main effect for source credibility emerged. Increasing credibility enhanced product
attitudes regardless of argument quality. At the other extreme, under the conditions of highest elaboration likelihood (bottom panel), the effect of source credibility was considerably weaker; however, a large main effect for argument quality emerged. Finally, when the elaboration likelihood was moderate (middle panel), a main effect for argument quality was qualified by an interaction with source credibility. Thus, just as anticipated by the ELM, subjects processed the arguments when it was easy to do so, but used the message source as a peripheral cue when message processing was very difficult. When message processing was just somewhat difficult, subjects appeared to decide to exert the effort necessary to process the arguments mostly when it was deemed worthwhile to do so—when the source was of high credibility.

CONCLUSION

In this article we have attempted to correct the misperceptions of the ELM contained in the critique by Stiff (1986). In particular we have: (1) Noted that there are many determinants of elaboration likelihood other than personal relevance or involvement; (2) illustrated that any one variable can affect persuasion by serving in different roles, and specified the general conditions under which variables take on these different roles; and (3) explained that the ELM does not preclude multi-channel information processing. In addition, we have pointed to both conceptual and methodological problems with Stiff’s meta-analyses and have cautioned against premature acceptance of his conclusions. Despite all of this, we are in general accord with Stiff’s intent to analyze contemporary theories of attitude change critically and to employ meta-analyses to provide crucial tests of competing predictions. Although there are thousands of individual persuasion studies, there are too few attempts to examine reliable patterns across studies (e.g., Eagly & Carli, 1981). It is important to recognize, however, that conclusions from meta-analyses can be susceptible to many of the same problems that plague interpretation of individual experiments (Cooper, 1984).

NOTES

1According to the ELM, elaboration may proceed in a relatively objective or a relatively biased manner (e.g., Petty & Cacioppo, 1983). We do not discuss this here since it is not directly relevant to the Stiff critique. Readers should consult Petty and Cacioppo (1986a, 1986b) for details.

2Argument quality refers to the subjective cogency of the arguments in a message. Strong arguments are those that elicit primarily favorable elaborations when motivation and ability to process are high, whereas weak arguments are those that elicit primarily unfavorable elaborations under these conditions (see Petty & Cacioppo, 1986a, for further discussion).

3Although we have endorsed the idea that in forming opinions people may process both source and message information, we have not addressed the issue of whether this processing of source and message information occurs sequentially or in parallel. Kahneman’s (1973) ideas appear quite reasonable here. Thus, under high involvement, if the message (primary task) is rather simple (thereby imposing few demands on cognitive resources), people may be able to process both the explicit message arguments and the source information in parallel; if the message is rather complex, however, source and message information may be processed sequentially (just as individual arguments are processed, at least in part, sequentially). Also, we do not mean to argue that all information available in the persuasion context is processed more diligently as involvement and/or other factors affecting elaboration likelihood are increased. For example, the color of the room in which persuasion takes place may be less likely to be noticed by a person who is attempting to evaluate the central merits of an advocacy than one who is not. It is also apparent, of course, that in certain situations so much issue-relevant information is presented that people are unable to process it all even when they are highly motivated to do so. In these situations, people should devote the greatest resources to processing the information that is most subjectively relevant to determining the true merits of the advocated position. The important point is that there is nothing about the ELM that precludes processing of both arguments and peripheral cues. The ELM focuses on when each will affect the resulting attitudes.

4Kahneman (1973), of course, had no intention of trying to explain attitudes and persuasion, and we leave it to
others to evaluate whether Stiff's translation of Kahneman's theory to the persuasion situation is reasonable. Also, as noted above, the ELM does not distinguish "central cues" from "peripheral cues," but rather distinguishes attitudes based largely on argument elaboration from those based on simple (peripheral) cues.

*This contrast applied weights of −6 to the five low involvement effect sizes (expressed as Fisher's Z-s), +20 to the three moderate involvement effect sizes, and −15 to the two high involvement effect sizes. We thank James Stiff (personal communication, June, 1986) for providing us with the information about how the specific topics were categorized in his research and for the effect sizes for each estimate employed in his meta-analysis of credibility. Our analysis employed the effect sizes provided by Stiff.

*In calculating average effect sizes, Stiff weighted each study by the number of subjects. We employed an unweighted average, because with so few data points, one or two studies with large N could dramatically alter the mean. Nevertheless, for more direct comparison with Stiff we also calculated weighted effect sizes. This analysis revealed a (nonsignificant) linear increase in effect size with increasing involvement (L = −10; M = −15; H = +20) and resulted because under low involvement the study with the largest N was associated with a small effect size whereas under high involvement the study with the largest N was associated with a large effect size. In short, although Stiff reported a curvilinear pattern, a statistical test (see text) indicated that this pattern was not reliable. In addition, our reclassification of the studies in Stiff's sample provided no hint of a curvilinear pattern.

*Unfortunately, several studies provided insufficient information about the sources to permit us to obtain ratings.

*Of course, it is still possible that some third variable determines the observed relationship between involvement and credibility. For example, investigators who select high involvement topics may select more powerful manipulations of credibility than those who choose low involvement topics (e.g., because a stronger manipulation is required to obtain an effect).

REFERENCES


