

The Elaboration Likelihood Model (ELM): Replications, Extensions and Some Conflicting Findings

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ABSTRACT

In this paper we report on three studies designed to replicate and extend the Elaboration Likelihood Model (ELM) presented in Petty, Cacioppo and Schumann's (1983) *Journal of Consumer Research* article. The reported studies were conducted with undergraduate students from two major universities using methodologies almost identical to those of Petty *et. al.* However, the results do not corroborate previous work on the ELM. We offer several possible explanations for the model's failure to generalize across products, across source manipulations and across arguments.

INTRODUCTION

In 1983, Petty, Cacioppo and Schumann published an article in the *Journal of Consumer Research* which describes an experiment and proposes the elaboration likelihood model (ELM) to explain under what conditions message cues will persuade consumers to try a new product. They argue that there are two different routes to persuasion -- central and peripheral -- and that the route taken depends on the receiver's level of involvement. According to the ELM, high involvement subjects will be motivated to process central cues such as message arguments and will be persuaded according to their quality (the central route). In contrast, low involvement subjects will focus on, and be persuaded by, peripheral cues such as source characteristics (e.g., a celebrity) and not the arguments (the peripheral route). In this paper, we report on three studies designed to replicate and extend the Petty, Cacioppo and Schumann (1983) study (hereafter, referred to as PC&S [1983]). These studies were conducted with undergraduate students from two major universities over a three year period. The methods employed in the three studies were similar, and sometimes identical, to those used by PC&S (1983). However, the results obtained are very different.

The format we use to report these studies is as follows. We first provide an overview, then describe the background, methodology and results for each study separately. Then we discuss our findings and merge them with prior research.

EXPERIMENT I

Overview

The first experiment replicates and extends PC&S (1983). We manipulate the same three variables: situation involvement, argument strength, and type of endorser. In addition, we

introduce a fourth (within subject) factor -- product involvement.

Background

The concept of involvement, the focus of much social and consumer psychology research, was a key manipulation in PC&S's (1983) test of the ELM. In that study, the researchers controlled how involved subjects felt with a print advertisement for a disposable razor by offering subjects the chance to choose a free gift for participating in the experiment; subjects selected either a disposable razor (high situation involvement) or a tube of toothpaste (low situation involvement). Involvement played a moderating role on the effects of argument quality and product endorser in influencing consumers' attitudes and purchase intentions. Based on their results, PC&S (1983) contend that the implications of ELM for advertising are that different types of messages will have different effects on different audiences.

As pointed out by Houston and Rothschild (1978) and others (Antil 1984; Stone 1984), there are different approaches to studying involvement and, more importantly, different types of involvement. These include situation involvement, issue involvement, advertisement involvement, response involvement, and product involvement. With this in mind, it may be argued that PC&S (1983) focused their efforts on manipulating "situational" involvement for a low involvement product -- a disposable razor. Attributes generally thought to characterize low involvement products include low financial and social risk, little product differentiation, and little ego involvement. As argued by Bitner and Obermiller (1985), PC&S may have ignored product involvement. For instance, it is unknown whether or not ELM would generalize and predict the route to persuasion for a high involvement product; i.e., a product that has social risk, is relatively expensive, is more ego-involving, and for which significant differences exist among available alternatives.

The present experiment examines the generalizability of ELM to high involvement products. Included in the research design are ads for a 35 mm. camera (high involvement product) and disposable razors (low involvement product). ELM predict that argument quality will have a greater effect on product attitudes under high rather than low situation involvement conditions for both cameras and razors. In addition, ELM would postulate that, for both product categories, the presence of celebrity endorsers will have a greater effect on consumers' attitudes under low rather than high situation involvement conditions.

Methods

Subjects and Design. One hundred and forty five undergraduates at a major state university participated in this first experiment. Approximately 20 subjects were randomly assigned to each of the cells in a 2 (situational involvement: high or low) x 2 (argument quality: strong or weak) x 2 (endorser: celebrity or noncelebrity) x 2 (product involvement: high or low) design. The last factor was a within subject variable; participants saw an ad for both a camera and a razor.

Procedure. Two booklets were prepared for the study. The first contains 12 product advertisements in a magazine format. The second booklet contains the dependent measures used by PC&S (1983). Included in the advertising booklet were one of four ads for a fictitious "Falka" brand 35 mm. camera, as well as one of the fictitious ads for "Edge" brand disposable razors used by PC&S (1983).

The first page of the advertising booklet explains that the study concerns the evaluation of rough newspaper and magazine ads. Consistent with PC&S (1983), it also contains the situational involvement manipulation. Half the subjects are told that for their participation they will choose a free disposable razor at the end of the study (high situational involvement for razor). The remaining half learn that they will receive a chance to win and select a brand of 35 mm. camera in a lottery at the end of the study (high situational involvement for camera). Thus, subjects in the high situational involvement condition for the razor are also assigned to the low situational involvement condition for the camera. Conversely, subjects in the high situational involvement condition for the camera are also in the low situational involvement condition for the razor.

Independent Variables

1. **Product Involvement.** The high involvement product is a 35 mm. camera; the low involvement product is the disposable razor.

2. **Situational Involvement.** As in PC&S (1983), we manipulate situational involvement in two ways. In the high involvement condition, subjects learn that they will select a free razor or have a chance to win and select a brand of 35 mm. camera. In addition, the short paragraph that precedes the razor and camera ads informs participants either that the product will soon be test marketed in the area where they live (high situation involvement), or will be test marketed in a different part of the country (low situation involvement).

3. **Source Effects.** Consistent with PC&S (1983), the celebrity source for the razors features two well-known professional male and female tennis players. For the 35 mm. camera, the celebrity source is a different well-known professional tennis player. Also consistent with PC&S, the non-celebrity source for razors is Bakersfield, California. Providence, R.I. is chosen as the non-celebrity source for the camera.

4. **Argument Strength.** The strong and weak arguments for the disposable razors are identical to those used by PC&S. To determine argument strength for the camera, a series of pretests were conducted with a different sample of undergraduates. Based on these results, the strong arguments for the camera are: auto loading, auto winding, programmed flash, print quality "superior" to competitors, and lightweight/compact. In addition, the strong arguments are preceded by the characterization "extremely simple operation." The weak arguments are preceded by the characterization "classic style and design" and include: comes in semi-hard case, adjustable neckstrap, easy access to battery chamber, print quality "similar" to competitors, and comes in several colors.

Dependent Measures

The dependent measures booklet contains the same questions used by PC&S, concerning subjects' attitudes and purchase intentions. The key responses are those toward Falka cameras and Edge razors. The attitude measures are three nine-point semantic differential scales with end points anchored bad-good, unsatisfactory-satisfactory, and unfavorable-favorable. Responses across the three scales are averaged to provide a general positive or negative attitude toward the product. Subjects also indicate their purchase intentions by rating, on a four-point scale, how likely they will be to purchase Falka cameras (and Edge razors) the next time they consider the purchase of a camera (and a razor). The descriptions for each scale value are: 1 = "I definitely would not buy it," 2 = "I might or might not buy it," 3 = "I would probably buy it," and 4 = "I would definitely buy it." To obscure the purpose of the study, similar attitude and purchase intent questions are posed for several of the legitimate products in the ad booklet. In order to check the manipulation of situational involvement, the last question asks participants to indicate the free gift they will receive (high involvement razor condition) or might win (high involvement camera condition).

Results

Manipulation Checks. Participants' responses to the last question in the dependent measures booklet indicate that the manipulation of situational involvement is successful. Ninety three percent and 97 percent of the subjects in the high involvement conditions for razors and cameras, respectively, correctly recall the free gift. Similarly, participants report recognizing the celebrity endorsers 86 percent of the time for razors and 89 percent for cameras. When the non-celebrity sources are used, over 93 percent of both groups report not recognizing the sources.

Attitudes and Purchase Intentions. 1. **Razors.** Separate ANOVA's are run for the attitude and purchase intention measures. Only one significant effect ($p < .05$) is found for the attitude index, such that participants like the razor more when the ad contains strong arguments than when the arguments are weak ($F[1,137] = 14.35$). Situational

involvement has a marginally significant impact ($p < .10$) on attitudes such that those in the high situational involvement condition are somewhat more favorably disposed to the razor than those in the low situational involvement condition ($F[1,137] = 3.31$). Since the present study is partly a replication of PC&S (1983), comparisons between these two studies are possible. In contrast to their results, and contrary to ELM postulates, no significant effect is found for endorser ($F < 1$), nor are any interactions found between involvement and arguments ($F < 1$) or involvement and endorser ($F < 1$).

Conflicting results are also found on the purchase intention index for razors. Unlike PC&S (1983), no significant effects are found for argument quality ($F[1,137] = 1.41$) or the interaction between involvement and argument quality ($F < 1$). In fact, no significant effects are obtained for any of the independent variables when participants rate their likelihood of purchasing the Edge disposable razor.

2.35 mm. Camera. Separate ANOVA's are also run for the attitude and purchase intention indexes for the camera. No significant effects or interactions are found for any of the factors when subjects rate how much they like the camera. For the purchase intention measures, significant effects ($p < .05$) are found for argument quality only ($F[1,137] = 4.77$); participants are more likely to purchase the Falca brand camera when the arguments are strong rather than weak. Contrary to the predictions of ELM, no significant interaction is found between involvement and either argument quality ($F < 1$) or endorser ($F < 1$).

EXPERIMENT II

Overview

The purpose of the second study is to determine if we can replicate the general findings from PC&S (1983) by substituting source attractiveness for spokesperson's celebrity status. Unlike Petty and Cacioppo (1980)'s study in which a physical feature of the spokesperson could serve as a cogent product-relevant argument (e.g., nice hair in an ad for shampoo), there is no relationship in this study between any features of the displayed female face and the product (a disposable razor).

Background

In this study we manipulate the source's physical attractiveness because prior research shows that a physically attractive source facilitates attitude change (Joseph 1982; Kahle and Homer 1985; Petty and Cacioppo 1980). However, the ELM postulates that physical attractiveness, acting as a peripheral cue, will affect attitude and purchase intentions in low involvement situations only, and that argument strength, acting as a central cue, will influence attitude and purchase intentions in high involvement situations only.

Methodology

Subjects and Design. 187 undergraduates were recruited from introductory marketing classes at a

major state university. Approximately 20 subjects were randomly assigned to one of 8 cells in a 2 (argument strength: strong or weak) x 2 (situational involvement: high or low) x 2 (source: attractive or unattractive) design.

Procedures. Eight different versions of the advertising booklets were prepared for the study. Each version has one Edge razor ad manipulating argument strength and source attractiveness. The first page of the advertising booklet, and the paragraph introducing the Edge ad, manipulate situational involvement in exactly the same way as PC&S (1983). The second booklet contains the dependent variable measures for the Edge ad as well as questions concerning other ads.

Independent Variables. As mentioned, argument strength and situational involvement are manipulated in the same way as in PC&S (1983). Source attractiveness is manipulated by using a black and white photograph of the face of either an attractive or unattractive spokeswoman. A different group of students evaluated these photographs on an attractive/unattractive scale; the differences were significant.

Dependent Measures. Attitudes toward Edge razors is assessed with the same 3 item nine-point semantic differential scale as used in PC&S (1983). Coefficient alpha for the three items is .89. Purchase intentions are assessed with the same four item scale used in Experiment I.

Results

Manipulation Checks. To determine whether or not the physical attractiveness manipulation is successful, an analysis of variance is performed on the semantic differential item included to measure spokesperson attractiveness. Subjects who see the attractive spokesperson rate her as more attractive than subjects who see the unattractive spokesperson ($F[1,175] = 29.23$, $p < .05$).

To determine whether or not we successfully manipulated argument strength, we run an ANOVA on a two item semantic differential scale (good-bad; convincing-not convincing) designed to measure argument quality. Scores are higher for subjects who see the strong arguments than for subjects who see the weak arguments ($F[1,175] = 11.57$, $p < .05$).

Participants' responses to the last question in the dependent measures booklet indicate that over 95% of the subjects correctly recall the free gift (a razor in the high situational involvement situation; a candy bar in the low situational involvement situation).

Attitude and Purchase Intentions. Argument strength is the only significant effect found on the attitude measure ($F[1, 175] = 7.08$, $p \leq .01$) and on the purchase intentions measure ($F[1,175] = 2.58$, $p \leq .05$). As expected subjects who are exposed to strong arguments like the product more and are more likely to express intentions to purchase the razor than those subjects who are exposed to weak arguments. Contrary to expectations, this result holds regardless of involvement level or spokesperson attractiveness. There are no

significant interactions involving the independent variables: involvement, attractiveness and argument strength ($F < 1$ in all cases). Consequently, in this study we do not obtain the interaction predicted by the ELM model, nor do we observe a main effect for attractiveness as has been found in other research (Kahle and Homer 1985).

EXPERIMENT III

Overview

In the third experiment, we extend the PC&S (1983) study by looking at a different source characteristic (referent or expert) and product involvement (high: MBA programs; low: root beer) in short billboard type ads. In addition, we extend the dependent variables to include attitude toward the ad itself, as well as attitude toward the brand and purchase intentions.

Background

Research has confirmed that sources holding expert power exert a large amount of influence in persuasive situations. Reinforcement theory, for example, states that communications made by experts are more readily accepted because experts are usually right and the expectation of being right is reinforcing (Maddux and Rogers 1979).

A large number of other studies have confirmed that sources holding referent power, which is here defined as similarity to the target audience, are likely to exert influence in persuasive situation. Reinforcement theory again comes into play here as it states that social approval is rewarding and people may think that agreeing with similar others will bring about social approval (Maddux and Rogers 1979). Social comparison theory and congruency theory also predict that similarity of the source would exert a positive influence on persuasion (Joseph 1982).

Consistent with the ELM, we predict an interaction between involvement and source characteristics. For high involvement products an expert source should be most persuasive because expertise is a product-relevant cue. Conversely, for low involvement products a referent source should be most persuasive, because in low involvement situations people are more likely to attend to similarity characteristics of the source, and not to expertise.

Methodology

Subjects and Design. A total of 74 male and female undergraduates business majors at a large state university participated in order to earn extra course credit. The design was a 2 (product involvement: high or low) x 2 (source: expert or referent) factorial. (Note: all subjects saw an ad for both root beer and the University's MBA program).

Procedure. Four different booklets containing five billboard-type advertisements were prepared. In each booklet, the second ad is for the school's MBA program and the fourth ad is for Lucille's root beer. A second booklet contains the dependent measures.

Independent Variables.

1. **Involvement.** Subjects see an ad for a high involvement product (the MBA program) and a fictitious low involvement product (Lucille's Root Beer). To increase involvement with the MBA program, subjects are also told on the cover sheet of the first booklet that they will receive a chance to participate in a lottery to receive a free guide to MBA programs.

2. **Source.** Two versions of each experimental advertisement are used, one with an expert endorser and one with a referent endorser. For the MBA ad, the source of a short quote is identified as either the president of IBM (Expert) or as a business student at the University (Referent). For the root beer ad, the source of a short quote is identified as the president of the American Soft Drink Association (Expert) or as a business student at a different east coast university (Referent).

Dependent Measures. For each of the experimental advertisements subjects complete a four-item semantic differential scale designed to assess impression of the ads, a four-item semantic differential scale designed to assess impression of the brand, and a single-item semantic differential purchase intentions scale. They also complete Zaichowsky's (1985) 20 item personal involvement inventory (PII) scale for each advertised product.

Results

Manipulation Checks. Subjects who see the expert source (for root beer or the MBA program) rate the source as more expert than students who see the referent source (root beer $F[1,71] = 16.97$; $p < .05$; MBA $F[1,71] = 17.10$, $p < .05$). Subjects who see the referent source (for root beer or the MBA program) tend to rate the source as more likeable than the expert source. Although this difference is in the predicted direction it is not statistically significant (root beer: $F < 1$; MBA $F(1,71) = 2.56$, $p < .11$). Finally, a paired comparison t-test on Zaichowsky's (1985) PII scale responses indicates that the MBA program is more personally involving than the root beer ($t[72] = 10.76$; $p < .05$).

Attitude toward the Ad, Attitude toward the Brand, and Purchase Intentions. For the root beer ads, there are no significant effects on attitudes toward the ad ($F[1,71] = 1.07$), attitudes toward the brand ($F < 1$), or purchase intentions ($F < 1$). Thus, the hypothesis that referent sources will have more influence in low involvement situations is not supported.

In regard to the ads for the MBA program, students who see the ad with the expert source have more favorable impressions about the ad than those who see the ad with the referent source ($F[1,70] = 11.92$; $p < .05$). Students who see the expert source also have more favorable impressions about the MBA program than those who see the referent source ($F[1,70] = 6.78$; $p < .05$). However, no significant difference is found in relation to intentions to apply to the MBA program ($F < 1.0$). In conclusion, then, we observe source effects only in the high involvement situation for a high

TABLE I
Summary of Research Results

Experiment	Independent Variables			
	Argument Quality	Source Features	Situational Involvement	Product Involvement
I	Yes	Celebrity	Yes	Yes
Major Findings:	1. For low involvement products (1) main effect of argument quality on attitudes and (2) main effect of situational involvement on attitude (marginal). 2. For high involvement products, main effect of argument quality on purchase intentions.			
II	Yes	Attractiveness	Yes	No
Major Findings:	1. Main effect of argument quality on attitudes and purchase intentions.			
III	No	Referent/Expert	Yes	Yes
Major Findings:	1. For low involvement products, no main effects. 2. For high involvement products expert source influenced attitude toward the ad, brand and behavioral intentions.			

involvement product. We do not observe source effects for a low involvement product.

DISCUSSION

In light of the predictions of the Elaboration Likelihood Model, the findings from the three experiments present some conflicting results. Table I summarizes these findings. In the first two studies, only main effects for argument quality are found. No source effects are reported and, more important, no interactions are found between involvement and any of the independent variables in either experiment. The third study, which did not manipulate argument quality, finds an expert source effect only in the high involvement situation. Thus, across three experiments designed to extend and test the generalizability of ELM, little if any support is found for the major postulates of the model. In this section, we identify reasons why our findings may diverge from those reported previously.

First, consider why we fail to replicate the critical cue by involvement interactions postulated by ELM in Experiments I and II. One possibility is that whether or not a given cue acts centrally, peripherally, as an irrelevant cue, or as a dominant cue depends to a large extent on characteristics of the product, the individual, the situation and the ad. Thus, for example, when we used slightly different products in the three studies, we necessarily had to modify the ads and some procedures. As a result, we may not have observed the expected interactions.

Nonetheless, if ELM is going to be an effective means of explaining consumer response to advertising, it should be robust enough to handle minor procedural variations.

Second, consider why we observed expertise acting as a central cue in Experiment III, while Petty, Cacioppo and Goldman (1981) found expertise acting as a peripheral cue. One difference between the two studies is that our billboard type ad provided very little product information, while Petty et al.'s message listed multiple arguments. As Bitner and Obermiller (1985) note, when no other central cues are available, a peripheral cue may act like a central cue. This result highlights a limitation of ELM; the model does not clearly specify a priori what will be a peripheral cue and what will be a central cue (Bitner and Obermiller 1985).

Another possibility, suggested by one reviewer, is that involvement should be correctly viewed as a continuous rather than a dichotomous construct. The inability to replicate the critical interaction observed in previous ELM research may reflect a failure to manipulate involvement so that subjects feel exactly the same levels of involvement as subjects in Petty and Cacioppo's (1981, 1983) research. For example, our low involvement manipulations could actually represent moderate involvement situations. Consequently, we may not observe the expected interactions. However, it should be noted that we secured the actual research materials used in PC&S (1983) and replicated the methods and procedures as closely as possible. Of

course, minor differences -- different subjects, different administrators, different surrounding ads -- may account for different levels of felt involvement, and thus the inconsistent results.

This possibility emphasizes the need for researchers to develop and report an independent measure of felt involvement. Zaichowsky's (1985) PII scale represents an important step in this direction. So that researchers can make more precise comparisons across studies, we suggest that future ELM studies report PII scores, across involvement conditions.

A final possible explanation for our finding from Experiments I and II that argument quality dominates attitude formation is that, contrary to PC&S (1983) and the predictions of ELM, consumers may base their judgments about products on the cogent reasons for purchase provided in the ad. If an ad contains both source and argument information, argument quality may be the most important determinant of attitudes and purchase intentions. Thus, the results appear to support Fishbein and Ajzen (1981) who argue that:

"...the persuasiveness of a communication can be increased much more easily and dramatically by paying careful attention to its content ... than by the manipulation of credibility, attractiveness, ... or any of the other myriad factors that have caught the fancy of investigators in the area of communication and persuasion" (p. 359).

While certain factors (e.g., extremely appropriate sources who act like product relevant arguments) may mitigate the strength of the argument quality-persuasion relationship, consumer behavior and advertising researchers will do well to approach the persuasion process as resulting from the thoughtful consideration of issue- and product-relevant information.

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