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# Message Framing and Buying Behavior: On the Difference Between Artificial and Natural Environment

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*Many marketing communication decisions are based on data generated in the laboratory. This paper demonstrates the risk of this practice by comparing the effect of message framing in a laboratory environment to its effect in a real environment. It is shown that in a laboratory environment, a loss message (e.g., if you will not buy the product, you will lose the following benefits...) is more persuasive than a gain framing (e.g., if you will by the product, you will gain the following benefits...) On the other hand, in a natural environment, a gain message is more persuasive than a loss message. It is suggested that involvement mediates this effect of framing on persuasion. J BUSN RES 1997, 40:91-95. © 1997 Elsevier Science Inc.*

In a recent article Ganzach and Karshai (1995) reported the results of a field experiment in which credit card owners who did not use the card for a period of three months received a message regarding the benefits of the card. The message was framed either in terms of gain or in terms of loss. In the gain condition, subjects were told that if they would use the card they would gain a number of benefits. In the loss condition, they were told that since they were not using the card they would lose these benefits. Their charges on the card were monitored during the two months following the reception of the message, in order to examine the effectiveness of each of the framing manipulations. The results indicated that the impact of the loss-framed message was much stronger than the impact of the gain-framed message. The percentage of customers who started to use the card in the loss-frame group was more than double the percentage of the

same in the gain-frame group, and, among the customers who used the card, the charges of the customers of the former group were more than twice as much as the charges of the customers of the latter group. Thus, very strong framing effects were observed in this field experiment.

In the current paper, we do what is rarely done in behavioral research in general, and in advertising research in particular: we attempt to replicate in an artificial environment a field study which was conducted in a natural environment. One reason for this is practical. While the results of Ganzach and Karshai suggest that negative framing is superior to positive framing, most marketing messages are framed in positive terms. Clearly, prior to embarking on a major change in the tone of the communication, such as switching from positively- to negatively-framed message, any prudent marketer would attempt to examine the effectiveness of the two methods in a controlled copy-test. Although there is debate about the level of external validity of copy-test in artificial environments (e.g., Clancy and Ostlund, 1976; Ostlund, Clancy, and Sapra, 1980), most research indicates that such research does have at least moderate validity (e.g., Plummer, 1972; Bloom, Jay, and Twyman, 1977; Haley and Baldinger, 1991). Thus, on the basis of this evidence, laboratory copy-test may be an advisable stage prior to switching from positive to negative framing; even if the validity of this research is not high, it is likely to be indicative of crude trends such as whether negative framing is superior to positive framing.

However, at least one research suggested that a laboratory copy-test may be problematic for the purpose of examining the effect of framing in the natural environment. Maheswaran and Meyers-Levy (1990) found that when issue involvement is high, negative framing is more persuasive than positive framing, while when issue involvement is low, positive fram-

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ing is superior. These findings imply that the results of laboratory testing may be quite misleading in identifying the appropriate framing for a marketing message. Since the involvement associated with laboratory decisions is often lower than the involvement associated with "real life" decisions, the effect of framing in a laboratory setting may be quite different, and even contradictory, to the effect of framing in the real world. Thus, one reason for replicating Ganzach and Karshai's findings concerns a question which is of crucial importance for copy-testing: the relationship between behavior in the laboratory and behavior in the "real world."

## Study 1

### Method

Subjects were approached by the experimenters in various settings such as work, home, or in the library. The response rate was about 85%, and a total of 159 subjects participated in the experiment. Subjects were randomly assigned to one of four experimental conditions. Since the design was an experimental design and subjects were randomly assigned to conditions, a convenience sample was used.

At the beginning of the experiment, subjects were asked, "Which means of payment do you use more, check or cash?" According to their answer, they received one of four versions of a pamphlet "about credit cards": two versions, one of them framed in terms of gain and one in terms of loss, for subjects who use primarily cash; and two versions, one framed in terms of gain and one in terms of loss, for customers who use primarily checks (assignment to the gain/loss groups was random). The loss-framed [gain-framed] pamphlet for the cash users appears in Table 1, and the loss-framed [gain-framed] pamphlet for the cash users appears in Table 2. The pamphlets for the cash users were similar, with the "checks" replaced by "cash." These stimuli are similar to the stimuli used by Ganzach and Karshai (1995), and only minor changes, necessary because of the context, were made.

In the bottom of each of the versions, subjects were asked a single question: "How much were you convinced by the pamphlet?" They answered the question on a 10-point numerical scale anchored by very much (10) and not at all (1). After they answered this question, the experimenter also noted whether the subject owned a credit card.

### Results

The data were analyzed by means of a 2 (framing: positive versus negative)  $\times$  2 (payment method: checks versus cash)  $\times$  2 (ownership: whether the subject owned or did not own a credit card) Analysis of Variance. The analysis revealed a significant main effect for framing,  $F(1,149) = 3.8$ ,  $p < .05$ ; a significant main effect for payment method,  $F(1,149) = 5.9$ ,  $p < .02$ , and a marginally significant interaction between payment method and ownership,  $F(1,149) = 2.9$ ,  $p < .1$ . (The ANOVA was performed within a regression framework

because of an unequal cell size. Note, however, that the results indicate independence between payment method and credit card ownership.)

The means of the answers of each of the eight groups, their standard deviations, and the number of subjects in each group are presented in Table 3. It is clear from the table that the main effect for framing is due to the fact that the message was perceived to be more convincing in the positive framing condition than in the negative framing condition. Thus, the results of this study, which was done in an artificial environment, are opposite to the results of Ganzach and Karshai's study, which was done in the natural environment.

Two other effects emerged from the analysis. Although these effects are not directly related to our research question, they are also of interest. First, the main effect for ownership is due to the fact that the message was perceived as more convincing to people who own a credit card than to people who do not own a card. Second, the interaction between payment method and ownership is due to the fact that ownership has a larger impact on persuasiveness among the check users than among the cash users. Both effects are related to the potential benefits associated with the contents of the message. These benefits are more relevant for credit card owners than for non-owners, and are particularly relevant to credit card owners who use checks (rather than cash). Objectively, the message is stronger for check users, since while all the arguments for using a credit card which are relevant to the cash users also apply to the check users, there is an additional important argument which is relevant only to the check users—savings on the checks' transaction costs (compare, for example, the first item of the pamphlet to the check users with the first item of the pamphlet to the cash users).

## Study 2

A comparison of the results of Study 1 and the results of Ganzach and Karshai (1995) suggests that the effect of framing in an artificial environment is opposite to the effect of framing in the natural environment. However, this comparison is between two experiments; thus, differences in experimental procedures and non-random assignment of subjects to conditions makes the comparison problematic. In the current study, we rely on a within-experiment comparison to demonstrate the difference between the two environments. Subjects in one group (the artificial environment group) are told that the question they are asked is a part of an experiment, and subjects in the other group (the natural environment group) are led to believe that the question they are asked is a "real life" question.

### Method

Two hundred and eighty-eight people who do not own a credit card and who use primarily checks participated in the current experiment; subjects were selected by means of pre-

**Table 1.** The loss-framed (left) and gain-framed (right) pamphlet for the check users

We would like to draw your attention to the disadvantages of checks in comparison to a credit card. Using checks has a lot of disadvantages, but we chose to focus on a few things of particular importance.

1. *In using checks you can only lose in comparison to using a credit card!!*

- In using checks you lose the fee you pay for the checkbook.
- You lose the commission the bank charges you for each transaction, since every check-transaction is treated as a regular transaction which costs money.

2. *Using checks does not provide you with protection against theft or loss!!*

If you use checks it is very easy for someone else to get money out of your account, since a sample of your signature does not appear on your checkbook. Furthermore, if something has happened, and someone used your checks, your money is in danger. But if your card was lost or stolen, and someone used it, we are obliged by law to return the money to you, if you notified us about it immediately after you discovered the loss or the theft.

*Additional disadvantages in using checks*

- No free credit for up to one month.
- No continuous tracking of your expenses.
- Inconvenience in daily use.

We would like to draw your attention to the advantages of a credit card in comparison to checks. Using a credit card has a lot of advantages, but I chose to focus on a few things of particular importance.

1. *In using a credit card you can only gain in comparison to using checks!!*

- In using a credit card you gain the fee you pay for the checkbook.
- You gain the commission the bank charges you for each transaction, since every check-transaction is treated as a regular transaction which costs money.

2. *Using a credit card does provide you with protection against theft or loss!!*

If you use a credit card it is very difficult to get money out of your account, since a sample of your signature does appear on your credit card. Furthermore, if something has happened, and someone used your credit card, your money is not in danger. The reason for this is that we are obliged by law to return the money to you if you notified us about it immediately after your discovered the loss or the theft.

*Additional advantages in using a credit card*

- Free credit for up to one month.
- Continuous tracking of your expenses.
- Convenience in daily use.

liminary questions. Subjects were evenly divided between the four conditions. The sampling method, the experimental procedure, and the experimental material were similar to those of Study 1. The main difference was in the questions which were given to the subjects after they read the pamphlet. Subjects in the artificial environment group were asked, "Do you

think people will be willing to meet with a Visa agent after reading this pamphlet in order to receive further information on this matter?" Subjects in the natural environment group were asked, "Would you be interested to meet with a Visa agent to receive further information on this matter?" Subjects had to circle one of two options—either yes or no.

**Table 2.** The loss-framed (left) and gain-framed (right) pamphlet for the cash users

We would like to draw your attention to the disadvantages of cash in comparison to a credit card. Using cash has a lot of disadvantages, but I chose to focus on a few things of particular importance.

1. *In using cash you can only lose in comparison to using a credit card!!*

In using cash you lose the commission the bank charges you for each transaction, since every cash withdrawal is treated as a regular transaction which costs money.

2. *Using cash does not provide you with protection against theft or loss!!*

In this case you lose your money. But if your card was lost or stolen, and someone succeeded in using it, we are obliged by law to return the money to you, if you notified us about it immediately after you discovered the loss or the theft.

*Additional disadvantages in using cash*

- No free credit for up to one month.
- No continuous tracking of your expenses.
- Inconvenience in daily use.

We would like to draw your attention to the advantages of a credit card in comparison to cash. Using a credit card has a lot of advantages, but I chose to focus on a few things of particular importance.

1. *In using a credit card you can only gain in comparison to using cash!!*

In using a credit card you gain the commission the bank charges you for each transaction, since every cash withdrawal is treated as a regular transaction which costs money.

2. *Using a credit card does provide you with protection against theft or loss!!*

In this case you gain your money. The reason for this is that if your card was lost or stolen, and someone succeeded in using it, we are obliged by law to return the money to you, if you notified us about it immediately after you discovered the loss or the theft.

*Additional advantages in using a credit card*

- Free credit for up to one month.
- Continuous tracking of your expenses.
- Convenience in daily use.

**Table 3.** Mean Answers by Condition in Study 1

Framing	Check Users		Cash Users	
	Owner	Non-Owner	Owner	Non-Owner
Positive	6.35 (2.37, 26)	4.57 (2.07, 7)	5.06 (2.78, 35)	3.54 (2.57, 13)
Negative	5.30 (2.82, 23)	3.09 (2.66, 11)	4.28 (2.47, 32)	4.10 (2.60, 10)

Note: The first number in parenthesis is the standard deviation. The second number is the number of subjects in the cell.

## Results

The percent of subjects who gave a positive answer to the question posed in the end of the questionnaire is given in Table 4. It is clear from the table that whereas, within the artificial environment group, positive framing is more effective than negative framing [ $\chi^2_{(1)} = 4.8, p < .03$ ], in the natural environment group, negative framing is more effective than positive framing [ $\chi^2_{(1)} = 7.5, p < .006$ ].

## Study 3

This study extends the results of studies 1 and 2 in three directions. First, it uses a manipulation of real vs. artificial environment, which is closely related to the concept of involvement. Second, it examines the interactions between framing and environment in a product category other than credit cards. And third, it includes a direct measure of subjects' involvement.

To demonstrate the difference between artificial and natural environment, we rely on a manipulation that was used by Mazursky and Schul (1992), and was found to affect subjects' involvement. Student subjects were given a description of a computerized service designed to facilitate communication between students and university staff, and asked whether they would sign up for it. Subjects in the natural environment group were told that the service would be offered to them, whereas subjects in the artificial environment group were told that the service is to be offered to students at a foreign university.

## Methods

Three hundred and fifty-nine business administration students participated in the experiment, which was conducted during

**Table 4.** Percent Positive Answers by Condition in Study 2

Framing	Environment	
	Natural	Artificial
Negative	68%	43%
Positive	45%	62%

**Table 5.** Percent Positive Answers by Condition in Study 3

Framing	Environment	
	Natural	Artificial
Negative	79%	68%
Positive	66%	84%

class hours on a voluntary basis. The experimental material for subjects in the [natural][artificial] environment group was:

"The School of Business Administration at [Tel Aviv University] [a large university in England] is planning to construct a computerized system that will allow communication between the students and staff. Among other things, students will be able to send academic questions to their professors and teaching assistants, and administrative inquires to the secretarial staff, and get answers via the system. The annual fee for using the system will be about \$25, and it will take about two hours to learn it. By and large, it is expected that the students who [use] [do not use] the system will [derive] [suffer] a considerable [gain] [loss] in terms of [saved] [wasted] time. From a survey that has been conducted, for the average student this [gain] [loss] will amount to a [saving] [wasting] of 25-35 hours each year.

[Do you plan to use this service?] [If you were a student of this English university, would you use this service?]"

The subjects were asked to circle a Yes or No option, and in addition to indicated "How important is the effectiveness of this service to you" on a nine-point scale anchored by not important at all (1) and very important (9).

## Results

The answers to the question on the importance of the service indicated that involvement was higher among subjects in the natural environment groups than among the subjects in the artificial environment group,  $p < .0001$  (the means were 5.8 and 4.2, respectively).

The percentage of subjects who gave a positive answer to the question posed at the end of the questionnaire is given in Table 5. These results replicate the results of Study 2. Whereas within the artificial environment group, positive framing is more effective than negative framing [ $\chi^2_{(1)} = 6.4, p < .01$ ], within the natural environment group, negative framing is more effective than positive framing [ $\chi^2_{(1)} = 3.9, p < .05$ ].

## Discussion

Why is a positively-framed message more persuasive than a negatively-framed message in an artificial environment and less persuasive in the natural environment? Our view is that differences in involvement explain the differences in persuasiveness (see also Maheswaran and Meyers-Levy, 1990). In the natural environment, where involvement is high, a thorough

processing of the information occurs (i.e., "central" processing. See, for example, Petty and Cacioppo, 1981). Under such processing, the negative information is more effective (Kahneman, 1984; Wright, 1981). On the other hand, in an artificial environment, where involvement is low, people are likely to form inferences on the basis of superficial cues (i.e., "peripheral" processing), such as whether "the attitude issue of an object is associated with positive or negative cues" (Petty, Cacioppo, and Schuman, 1983). Under such processing, positive information is more effective.

The results of the two studies reported in this paper clearly supply an example where copy-test in an artificial environment is not predictive of behavior in the natural environment. This example is particularly provocative, since it suggests that a response to a message in an artificial environment may be diametrically opposite to the response to such a message in the natural environment.

However, the circumstances under which the response to a message in an artificial environment is opposite to the response to the same message in the natural environment may be quite rare. In many cases, increase in involvement does not change the cognitive processes underlying decision and judgement (e.g., Slovic and Lichtenstein, 1983). Thus, the difference between the two environments which were observed in this paper may be the exception rather than the rule. Nevertheless, the findings highlight the need to consider differences between artificial and natural environments which are associated with differences in involvement, an issue that is rarely mentioned in discussions concerning the validity of copy-test. In our view, the question of how involvement affects the relationship between response to an ad in an artificial environment and in the natural environment is an interesting question for future research.

Unlike most studies of framing effects, the loss/gain framing in the current studies were induced in a comparative fashion. Nevertheless, the results of the paper are still relevant to questions regarding the validity of various theoretical explanation for framing effects. One explanation offered by Kahneman and Tversky (1979; Tversky and Kahneman, 1981) attributes framing effects to loss aversion—the tendency of losses to loom larger than gains. The results of Ganzach and Karshai (1995) as well as the results of an earlier message framing experiment conducted by Meyerowitz and Chaiken (1987) are consistent with this explanation, since they both indicate that negative framing is more persuasive than positive framing. However, a loss aversion explanation is not consistent with the results of this paper, as well as the results of Maheswaran and Meyers-Levy (1990), which indicate that the effect of framing depends on involvement. These results are not consistent with loss aversion, since loss aversion is conceived to be

associated with perceptual factors (the shape of people utility function), and therefore not to be dependent on motivational factors (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981). They are, however, consistent with the view that different mechanisms underlie the processing of positive and negative information.

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