

# Frame Effects in Persuasive Messages Against Smoking

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## Abstract

Literature on message framing effects on persuasive communication shows mixed results. It appears that framing effects depend on different factors that activate different processes. We report the results of an experiment in which smokers and non-smokers judged some characteristics of messages describing negative consequences of smoking or positive consequences of not smoking. Positive consequences were framed either as gains or avoided losses and negative consequences were framed either as losses or as foregone gains. Results show that perceived persuasive efficacy increases with loss and gain messages, particularly when gain messages are evaluated by smokers and loss messages describe long-term consequences.

**Keywords:** Frame; persuasive communication.

## Framing Effects

The framing effect consists in the influence that different formulations of the same message have on decisional processes and judgements. According to prospect theory (Tversky & Kahneman, 1981), people perceive uncertain risky situations in terms of potential gains or losses with respect to a neutral reference point, and consider losses more important than equivalent gains (it is worse to lose 100\$ than it is better to gain 100\$). In the original experiment (i.e., Asian Disease Problem, Tversky & Kahneman, 1981), it was clearly shown that different formulations -- in terms of gain or loss -- of the same problem have a strong cognitive impact, as people are risk adverse when the problem is gain framed (people who will survive), but are risk seeking when the problem is loss framed (people who will die). This means that a risky option seems more desirable if it is framed in terms of potential loss, and less desirable if it is framed in terms of potential gains.

After this first study, many experiments have been conducted on framing effects, producing mixed results: some studies showed framing effects, but not always in the same direction, and some other studies did not show any framing

effects at all (Kühberger, 1998; Levin, Schneider, & Gaeth, 1998).

## Framing Effects and Persuasion

Framing effects have been also investigated in applicative research based on non-hypothetical contexts, particularly in studies that have examined the influence that different framings have on persuasive communication (Edwards, Elwyn, Covey, Matthew, & Pill, 2001). In this line of research it was hypothesized that the way in which a message is framed affects the persuasive impact of the message in the following way: a message that promotes a risky behavior is more persuasive when it is framed in terms of negative consequences of not adopting the behavior (loss) than when it is framed in terms of positive consequences of adopting the behavior (gain). Meyerowitz & Chaiken (1987) have shown that brochures promoting breast self-examination (BSE) as an effective behavior in the prevention of breast cancer, are more persuasive when they focus on the negative consequences of not doing BSE than when they focus on the positive consequences of doing BSE. Loss frame, with respect to gain frame, positively modifies young women's compliance in terms of attitudes towards the behavior and intentions of performing the behavior in the future.

Successive studies, however, have obtained inconsistent results: in some cases loss frame was more effective than gain frame (Banks, Salovey, Greener, Rothman, Moyer, Beauvais, & Epel, 1995; Maheswaran & Meyers-Levy, 1990; Rothman, Martino, Bedell, Detweiler, & Salovey, 1999), while in other cases no framing effects were revealed (Siminoff & Fetting, 1989; Steffen, Sternberg, Teegarden, & Sheperd, 1994).

According to Levin *et al.*, (1998), different studies show inconsistent results as they employ different definitions of framing and investigate different processes. Risky choice framing (Tversky & Kahneman, 1981), implies a choice between two different options framed either in terms of gains (saved lives) or in terms of losses (lost lives), whereas studies on persuasive communication employ a goal framing by

manipulating different framings of the same option (a promoted behavior) with the aim of affecting individual decisions about the behavior (BSE is promoted either by stressing the positive consequences of performing it or by stressing the negative consequences of not performing it). Researchers who found positive goal framing effects explained them applying prospect theory: if the promoted behavior is perceived as risky (performing BSE implies the risk of finding a lump), then loss framed messages are more persuasive than gain framed messages because people try to avoid the uncertain negative consequences of not doing the promoted behavior (Meyerowitz & Chaiken 1987). According to Levin *et al.*, (1998), this explanation is not plausible because it is not possible to identify in advance which option is perceived by people as riskier (performing vs. not performing BSE). They suggest an alternative explanation: in psychological literature it has been clearly demonstrated that negative information is processed more systematically and has a stronger impact on decision and judgement processes than positive information (Fiske & Taylor, 1991; Peeters & Czapinski, 1990). Independently of the perceived risk, a negativity bias can account for framing effects: loss framed messages are more persuasive than gain framed messages in that it is more important to avoid a loss than to obtain a gain of the same size (Levin *et al.*, 1998).

Goal framings are more complex than other frames in that more aspects of persuasive messages can be manipulated, producing many linguistic variations: positive consequences of doing the promoted behavior (if you stop smoking) can be described as obtained gains (you prolong your heart and lungs life) or as avoided losses (you don't shorten your heart and lungs life); negative consequences of not doing the behavior can be described as suffered losses (you shorten your heart and lungs life) or as foregone gains (you don't prolong your heart and lungs life).

Furthermore, goal framing seems to interact with several factors: according to Maheswaran & Meyers-Levy (1990), personal involvement in the issue promoted by a persuasive message motivates people to process information in detail: by manipulating participants' processing involvement, they showed that loss framed messages were more effective in the high-involvement condition, whereas gain framed messages were more effective in the low-involvement condition.

Smith & Petty (1996) showed that framing effects interact with the strength of message arguments. According to the authors, loss framed messages are more effective because the negative information they convey is processed more deeply than the equivalent -- but with an opposite valence -- information conveyed by gain framed messages. In their study, information processing was measured by manipulating the strength of message arguments: participants' attitudes were more influenced by strong than by weak arguments in the messages when messages were loss framed.

It appears that goal framing effects depends both on the persuasiveness of the messages and on the situations that probably activate different cognitive, affective, and thinking processes that occur at the same time.

## The experiment

Framing effects have been investigated by a number of applicative studies. However, there are no studies that systematically manipulate at the same time linguistic characteristics, content of persuasive message, the degree of participants' personal involvement and the intensity of framing effects.

The aim of our research is to systematically evaluate the impact of different factors on persuasive communication, as part of a broader project focused on the promotion of healthy behaviors in a population of young people. The project investigates the role that affective motivations and strategies of emotional regulation have on the adoption of health-related behaviors in adolescents (Tice & Bratslavsky, 2000). Following what both the WHO and the Community Action Program on Health of the European Parliament recommend, it seems very important to plan preventive interventions in young populations that promote health behaviors and prevents risky behaviors such as smoking, alcohol abuse, drug taking, risky sex, etc...

Our research is a necessary contribution to the broader project, as a better understanding of mechanisms of persuasive communication makes it possible to implement efficacious interventions to promote preventive behaviors. Among many possible risky behaviors, we focused at first on cigarettes smoking. We had undergraduate participants judge and evaluate several aspects of many different messages about smoking or not smoking. We manipulated different variables at the same time. Frame: messages were framed as gains or losses, and both gains and losses were presented with or without negations, as a means of assessing the impact of all the linguistic variations, as suggested by Levin *et al.*, (1998). Consequences: messages described two kinds of consequences, short-term consequences and long-term consequences as a means of assessing the impact of different arguments (Smith & Petty, 1996). Personal involvement: participants were either smokers or non smokers, as a means of assessing differences due to a different degree of personal involvement (Maheswaran & Meyers-Levy, 1990).

## Method

Participants were 65 undergraduates students, either smokers (N = 33) or non smokers (N = 32). Participants were informed that the experiment concerned the planning of a campaign against smoking. Their task was to read and evaluate 24 messages describing the positive consequences of the promoted behavior (stop smoking) or the negative consequences of the opposite behavior (keep smoking). Positive consequences were framed either as gains (you save money) or as avoided losses (you don't waste money), negative consequences were framed either as losses (you waste money) or as foregone gains (you don't save money). Messages described either 3 possible long-term consequences (addiction to/freedom from cigarettes; heart and lungs life; one's and other's damage/protection) or short-term consequences (bad/good example; waste/save money; hard/right breathing). Participants evaluated on 5 point scales (1 = not at all; 5 = very much) 7 characteristics of each message: Is this message... 1. ...clear? 2. ...interesting? 3.

...hard to understand? 4. ... grabbing the reader's attention? 5. ...efficacious in modifying a smoker's habits? 6. Do you like this message? 7. Would you use this message in a campaign against smoking?.

## Results

Repeated measures analyses of variance 4 (Frame: gain, loss, foregone gain, avoided loss; *within*) X 2 (Consequences: short/long terms; *within*) X 2 (Smoking: yes/no; *between*) were conducted on participants' judgments of the 7 characteristics of messages. We report here only results about the perceived efficacy and the agreement in using a message in a campaign against smoking as in our opinion they are the most interesting from a persuasive communication point of view. Analyses revealed the following effects.

**Perceived efficacy.** Frame:  $F_{(3,189)} = 12,58, p < .001$ . Participants consider more efficacious gain (mean = 2,56) and loss (mean = 2,55) frames than avoided loss (mean = 2,31) and foregone gain (mean = 2,28); Consequences:  $F_{(1,63)} = 6,55, p < .01$ . Participants judge more efficacious messages that describe long-term consequences (mean = 2,51) than short-term consequences (mean = 2,34). Smoking:  $F_{(1,63)} = 5,59, p < .005$ . No smokers show a higher perceived efficacy (mean = 2,62) than smokers (mean = 2,24). Frame X Smoke:  $F_{(3,63)} = 2,85, p < .05$ . Smokers perceive as more efficacious gain messages (mean = 2,45) than loss messages (mean = 2,29) whereas non-smokers perceive as more efficacious loss messages (mean = 2,81) than gain messages (mean = 2,67). Frame X Consequences:  $F_{(3,189)} = 6,38, p < .001$ . When messages are gain framed, participants perceive equally efficacious messages describing long-term consequences (mean = 2,6) and messages describing short-term consequences (mean = 2,52), whereas when messages are loss framed, participants perceive more efficacious messages describing long-term consequences (mean = 2,76) than messages describing short-term consequences (mean = 2,34).

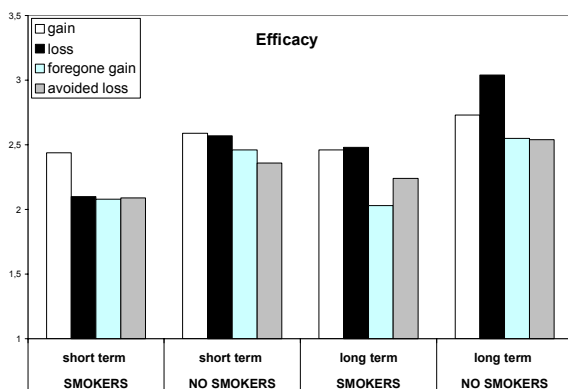


Figure 1: Means of perceived efficacy of the persuasive messages across conditions

The three-way interaction was not significant.

*Post-hoc* analyses (*t-test*) revealed the following significant differences ( $p < .05$ ) among the four frames. For smokers and short term consequences, the gain frame was perceived as more efficacious than loss, avoided loss and foregone gain

frames. For no smokers and short term consequences both loss and gain frames are preferred to avoided loss frame. For smokers and long term consequences the three gain, loss, and avoided loss frames are preferred to foregone gain frame. For no smokers and long term consequences loss frame is preferred to the other three frames.

**Would you use this message?** Frame:  $F_{(3,189)} = 19,37, p < .001$ . Participants would use gain (mean = 2,52) and loss (mean = 2,58) frames more than avoided loss (mean = 2,21) and foregone gain (mean = 2,81) frames; Consequences:  $F_{(1,63)} = 4,96, p < .05$ . Participants would use messages describing long-term consequences (mean = 2,45) more than messages describing short-term consequences (mean =

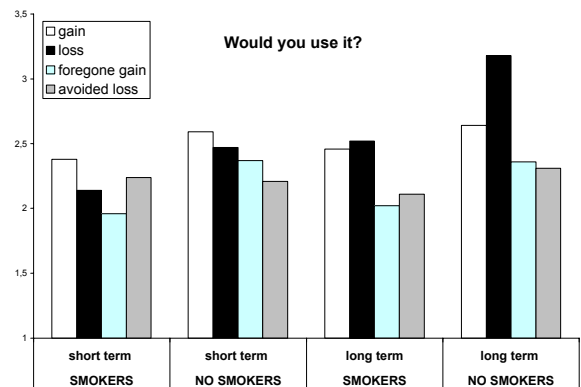


Figure 2: Means of "Would you use this message in a campaign against smoking?" across conditions

2,29). Frame X Smoke:  $F_{(3,63)} = 3,96, p < .05$ . Smokers would use equally gain messages (mean = 2,42) and loss messages (mean = 2,33) whereas non-smokers would use loss messages (mean = 2,83) more than gain messages (mean = 2,62). Frame X Consequences:  $F_{(3,189)} = 6,95, p < .001$ . When messages are gain framed, participants would use equally messages describing long-term consequences (mean = 2,55) and messages describing short-term consequences (mean = 2,48), whereas when messages are loss framed, participants would use messages describing long-term consequences (mean = 2,85) more than messages describing short-term consequences (mean = 2,3).

*Post-hoc* analyses (*t-test*) revealed the following significant differences ( $p < .05$ ) among the four frames. For smokers and short term consequences, the gain frame would be more used than both loss and foregone gain frames. For no smokers and short term consequences, gain frame is preferred to avoided loss and foregone gain frames, and loss frame is preferred to avoided loss frame. For smokers and long term consequences, both gain and loss frames are preferred to foregone gain and avoided loss frames. For no smokers and long term consequences, loss frame is preferred to the other three frames.

## Discussion

Our results show that loss frames are not generally preferred over gain frames, but both loss and gain frames are perceived as more efficacious and would be used in a campaign with

respect to avoided loss and foregone gain frames. This is probably due to the fact that both avoided loss and foregone gain messages contain negations and are linguistically more complex. Indeed, participants judge them less clear and harder to understand. As our results show, message content has an important effect: participants perceive as more efficacious and would use messages describing long-term consequences, probably because they refer to stronger arguments referring to permanent and bigger changes in one's life and health. Furthermore, message content interacts with message frame allowing a frame effect to emerge: loss framed messages, but not gain-framed messages, reveal a difference between long-term and short-term consequences. This result goes in the same direction as results obtained by Smith and Petty (1996) who suggest that loss framings enhance message processing and that this function served by loss framings is shown when arguments strength is varied. Given that long-term consequences are preferred by participants, we can reasonably assume that they work as strong arguments. Smokers and non smokers perceive efficacy of gain framed messages and loss framed messages in an opposite way: non smokers prefer loss framed messages over gain framed messages but smokers either judge gain framed messages more persuasive than loss messages, or would use both frames. As smokers should be more involved than non smokers in the issue, our results seem to go in the opposite direction with respect to the results previously obtained by Maheswaran & Meyers-Levy, (1990) who showed in the high-involvement condition loss frames are more persuasive, and in the low-involvement condition gain frames are more persuasive. We think that our result can be accounted for assuming that participants' expectancies modulate the effect of personal involvement. Campaigns against smoking are nowadays very frequent and very aggressive in describing negative consequences of smoking, and loss frames are more expected than gain frames, especially by smokers who are more often exposed to them than non smokers (in Italy negatively framed messages are printed on each cigarettes box). According to Smith and Petty (1996), framing effects depend on detailed processing and detailed processing may be induced by not expected framings. Our results show that probably the effect of unexpected framings emerges only for personally involved participants, in that only smokers reveal this effect.

Our research suggests that in planning campaigns promoting healthy behaviors, we should pay attention to some important factors that appear to affect persuasive communication. Thus, a general strategy may be to use loss framed messages that describe long-term negative consequences, but this strategy should be combined with unexpected message frames that affect involved people: in order to convince smokers to give up with cigarettes, it might be more efficacious to also use gain framed messages and not only loss framed messages. The current study does not incorporate direct measures of behavioral changes, and this of course limits the significance of our results. Further research is needed in order to test if variables affecting the perceived efficacy of persuasive messages also affect participants' intentions and behavior.

## Acknowledgments

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