

Chapter 1

From Psychological Theory to Message Design

Lessons From the Story of Gain-Framed and Loss-Framed Persuasive Messages

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INTRODUCTION

There is a natural connection between conceptions of psychological functioning and implications for the design of effective persuasive messages. Historically, one need only think of the relationship between 18th-century faculty psychology and the corresponding rhetorical principles articulated by George Campbell (1776/1988). The mind was seen as divided into different faculties—the faculty of will, the faculty of imagination, and so forth—and hence, it was reasoned, correspondingly different forms of discourse were required to activate each faculty. In current research on health-related persuasion, any number of psychological approaches—the theories of reasoned action and planned behavior (Fishbein & Ajzen, 2010), protection motivation theory (Rogers & Prentice-Dunn, 1997), and so on—have provided bases for claims about the design of effective persuasive messages.

However, this chapter argues that theoretical claims about psychological states and processes—even when empirically robust and well supported—do not easily or automatically yield corresponding dependable generalizations about message design or communication effects. Because psychological

theorizing provides an uncertain basis for recommendations about how to construct effective communications, moving from psychological phenomena to useful conclusions about communication design will require especially close attention to the reasoning that connects the two.

GAIN-FRAMED AND LOSS-FRAMED MESSAGES

As a concrete illustration of work relating psychological functioning to message design, this chapter discusses research concerning the relative persuasiveness of two kinds of persuasive appeal, namely, gain-framed and loss-framed appeals. A gain-framed appeal emphasizes the advantages of the advocated action or viewpoint; a loss-framed appeal emphasizes the disadvantages of not adopting the advocated view. So, for example, “If you wear sunscreen, you’ll have attractive skin” is a gain-framed appeal; “If you don’t wear sunscreen, you’ll have unattractive skin” is a loss-framed appeal. Considerable research attention has been devoted to assessing the relative persuasiveness of messages invoking these two kinds of appeal.

Research on gain–loss appeal framing has been animated by a variety of ideas about human psychology, but—as will be seen—those ideas have turned out not to neatly fit the facts about gain–loss message framing effects. What follows discusses two different psychological approaches—one derived from the phenomena of negativity bias and loss aversion, the other derived from prospect theory—that have been used as a basis for expectations about the persuasive effects of gain-framed and loss-framed appeals. The hypotheses derived from these two approaches have been decisively disconfirmed by the empirical evidence. Thus, this chapter argues, the story of gain–loss persuasive message framing research illustrates the difficulty of reasoning from knowledge of psychological processes to conclusions about effective communication design.

NEGATIVITY BIAS, LOSS AVERSION, AND GAIN–LOSS MESSAGE FRAMING EFFECTS

Negativity Bias and Loss Aversion

Two psychological phenomena—negativity bias and loss aversion—give grounds for supposing that, in general, loss-framed appeals will be more persuasive than gain-framed appeals.

Negativity Bias. Negativity bias is the heightened impact of, and sensitivity to, negative information (as opposed to otherwise-equivalent positive information; for a review, see Cacioppo, Gardner, & Berntson, 1997). This psychological phenomenon is manifest in a great many different ways. For example, negative information has a disproportionate impact on evaluations or decisions compared to otherwise-equivalent positive information (for reviews, see Kanouse, 1984; Rozin & Royzman, 2001; Skowronski & Carlston, 1989). Negative stimuli are preferentially detected, that is, detected at lower levels of input or exposure than are positive stimuli (Dijksterhuis & Aarts, 2003). Negative events generally evoke stronger and more rapid reactions than do positive events (for a review, see Taylor, 1991). As these various phenomena illustrate, negative information is generally more powerful than positive information.

Loss Aversion. Loss aversion, a phenomenon related to negativity bias, refers to people's general preference for avoiding losses as opposed to obtaining gains. That is, gains and losses are psychologically asymmetrical such that persons are typically more sensitive to losses than to otherwise-equivalent gains. Loss aversion can be seen to underlie the "endowment effect," in which people value a thing more if they possess it than if they do not, even when the object is otherwise identical (Kahneman, Knetsch, & Thaler, 1990); losing a thing is somehow more motivating than gaining that same thing. Similarly, promising factory workers an end-of-pay-period bonus if production targets are met has been found to be less effective in raising productivity than giving the bonus provisionally at the start of the pay period with the understanding that it will be retracted if those targets are not met (Hossain & List, 2009). In short, losses generally have greater motivating power than do gains.

Application to Gain–Loss Message Framing

The phenomena of negativity bias and loss aversion plainly suggest that loss-framed appeals will generally be more persuasive than gain-framed appeals. Loss-framed appeals emphasize losses or negative consequences (of noncompliance), whereas gain-framed appeals emphasize gains or positive consequences (of compliance), so loss-framed appeals should have a natural persuasive advantage.

Indeed, one of the earliest empirical comparisons of the persuasiveness of gain-framed and loss-framed appeals, by Meyerowitz and Chaiken (1987), explicitly invoked these phenomena. Meyerowitz and Chaiken's study compared the effectiveness of gain-framed and loss-framed messages for encouraging women to undertake breast self-examinations (BSE), and found

a loss-framed appeal to be significantly more effective than a gain-framed appeal. As Meyerowitz and Chaiken suggested, negativity bias is a plausible explanation of their results:

Theorizing associated with the negativity bias effect in person perception and decision-making research . . . suggests that losses may be weighted more heavily than gains Thus it might be predicted that a pamphlet stressing the negative aspects of not doing BSE would have a greater persuasive impact than a pamphlet stressing the positive aspects of doing BSE. (pp. 501, 507)

Findings such as these, combined with the phenomena of negativity bias and loss aversion, make for a very appealing picture: Because loss-framed and gain-framed messages differentially connect with the fundamental psychological processes of loss aversion and negativity bias, loss-framed messages will naturally be more persuasive than gain-framed messages. And so it is that the research literature contains corresponding claims about the putative general persuasive advantage of loss-framed appeals: “Typically, loss frames are more persuasive than gain frames” (Johnson, Maio, & Smith-McLallen, 2005, p. 640). Or: When outcomes are “described either in terms of the positive effects of engaging in the action or the negative effects of failing to engage in the action . . . messages that emphasize the latter typically have greater impact” (Gilovich & Griffin, 2010, p. 576).

The Empirical Evidence

As plausible as it might seem to suppose that loss-framed persuasive appeals would naturally enjoy an advantage over gain-framed appeals—and as confident as the just-quoted assertions are about what research on this subject shows—the empirical evidence has decisively disconfirmed that supposition. O’Keefe and Jensen’s (2006) meta-analytic review synthesized the results of 165 gain–loss message framing studies ($N = 50,780$), and reported that the average difference in persuasiveness between gain-framed and loss-framed appeals, expressed as a correlation, was .02, a value not significantly different from zero. An update of that review, which added the subsequent studies concerning disease prevention behaviors that were included in the analyses of O’Keefe and Jensen (2007) and the subsequent studies concerning disease detection behaviors that were included in the analyses of O’Keefe and Jensen (2009), did not change this conclusion: Across 219 studies ($N = 62,836$), the mean effect was $r = .01$, again not significantly different from zero (O’Keefe, 2011).

In short, as powerful as the phenomena of negativity bias and loss aversion might be, the expected persuasive advantage for loss-framed appeals simply does not exist. There is no general difference in persuasiveness between gain-framed and loss-framed appeals. However, it might be the case that some moderating factor is at work such that under some conditions loss-framed appeals will have the persuasive advantage, but under other conditions gain-framed appeals will be more persuasive. A theoretical basis for expecting such a moderating factor was provided by prospect theory—the subject of the next section.

PROSPECT THEORY AND GAIN–LOSS MESSAGE FRAMING PERSUASIVE EFFECTS

Prospect Theory

Kahneman and Tversky's (1979) prospect theory is a model that aims to describe decision making in psychologically realistic ways. The previously mentioned psychological asymmetry of gains and losses poses a bit of a problem for various classical models of economic decision making, which treat these symmetrically (a \$5 gain and a \$5 loss are taken to be equivalent, but opposite, in value). Prospect theory, in an attempt to accommodate such findings, sought to describe how people actually value gains and losses.

In particular, prospect theory offers a description of the interplay of gain–loss framing and risk (uncertainty). The classic illustration is Tversky and Kahneman's (1981) study in which participants were asked to imagine that the United States is preparing for the outbreak of a disease that is expected to kill 600 people if nothing is done. Some participants were offered a choice between these two alternative courses of action: If option A (the certain, less-risky option) is chosen, 200 people will be saved; if option B (the riskier—less certain—choice) is selected, there is a one third chance that 600 will be saved and a two thirds chance that no one will be saved. Other participants were offered a choice between these two alternatives: If option C is chosen, 400 people will die; if option D is chosen, there is a one third probability that no one will die and a two thirds probability that 600 people will die. Although the expected outcomes of the four alternatives are identical, in the first pair of options the outcome is described in terms of lives saved, whereas in the second pair of options the outcome is described in terms of deaths.

Faced with choosing between option A and option B, participants preferred the less-risky option A—but given the choice between option C and option D, participants preferred the more-risky option D. That is, participants were

more likely to prefer a risky (vs. less-risky) option when it was presented in a way that emphasized avoiding possible losses than when it was presented in a way that emphasized obtaining possible gains. (For a review of such studies, see Kuhberger, Schulte-Mecklenbeck, & Perner, 1999.) So, broadly put, people are willing to take chances to avoid losses, but are not so willing to take those same chances in order to obtain gains: “choices involving gains are often risk averse and choices involving losses are often risk taking” (Tversky & Kahneman, 1981, p. 453).

Application to Gain–Loss Message Framing

This prospect-theoretic analysis has been taken to suggest that the relative persuasiveness of gain-framed and loss-framed persuasive appeals will vary depending on the degree of risk involved in the relevant action, such that riskier actions will be more motivated by loss-framed appeals, whereas less-risky behaviors will be more encouraged by gain-framed appeals.

In the specific domain of health behaviors, the expectation has been that gain- and loss-framed appeals will be differentially persuasive for disease detection behaviors (such as mammography or breast self-examination) and disease prevention behaviors (such as using condoms or wearing sunscreen) by virtue of the differences in the risk associated with those behaviors: “the perceived uncertainty or risk (e.g., of finding an abnormality) associated with detection behaviors leads us to predict that loss-framed messages should be more persuasive in promoting them. However, prevention behaviors might not be perceived as risky at all,” which suggests that “gain-framed messages may be more likely to facilitate performing prevention behaviors” (Salovey, Schneider, & Apanovitch, 2002, p. 394). So the prospect-theory-based expectation is that for disease detection behaviors, loss-framed appeals will be more persuasive than gain-framed appeals, but for disease prevention behaviors gain-framed appeals will be more persuasive than loss-framed appeals. The key underlying element is the perceived riskiness of the behavior, which yields a contrast between low-risk prevention behaviors and high-risk detection behaviors.

Meyerowitz and Chaiken’s early finding that a loss-framed appeal was more persuasive than a gain-framed appeal concerning breast self-examination behavior certainly fit this analysis. Indeed, Meyerowitz and Chaiken (1987) pointed out that “these findings are consistent with prospect theory’s framing postulate (Kahneman & Tversky, 1979), which asserts that loss framing maximizes risk-seeking behavior” (p. 506). And the results of several other studies also appeared to fit this picture. For example, Detweiler, Bedell, Salovey, Pronin, and Rothman (1999) found that a gain-framed appeal was

significantly more persuasive than a loss-framed appeal for encouraging sun-screen use (a prevention behavior), and Kalichman and Coley (1995) reported that for encouraging HIV testing (a detection behavior), a loss-framed message was more persuasive than an unframed message.

Indeed, for some time now, the most common way of describing gain–loss message framing persuasive effects has been to say that gain-framed appeals have an advantage when prevention behaviors are being advocated but loss-framed appeals have an advantage for detection behaviors—with the explanation based on prospect theory. For example: “There are a number of effects of message framing that have been consistently obtained. Detection behaviors generally are better promoted by loss-framed messages, but prevention behaviors seem better promoted by gain-framed messages” (Salovey & Wegener, 2003, p. 70). Or: “Gain-framed messages are more effective when the advocated behavior is prevention-oriented. Prevention behaviors are viewed as low-risk behaviors Loss-framed messages, on the other hand, appear to be more effective when the advocated behavior is detection-oriented. Detection behaviors . . . are perceived as high-risk” (U.S. Department of Agriculture, 2007, p. 2).

The Empirical Evidence

Despite the frequency with which it is claimed that gain-framed appeals are more persuasive for prevention behaviors but loss-framed appeals are more persuasive for detection behaviors, this generalization is not consistent with the accumulated empirical evidence.

Concerning disease prevention behaviors, O’Keefe and Jensen (2007) reported a meta-analytic review of 93 studies (with 21,656 participants). A small but statistically significant advantage emerged for gain-framed appeals (corresponding to a correlation of .03)—but this overall effect was attributable to a large effect for messages concerning dental hygiene behaviors (9 studies, mean $r = .15$). No such effect obtained for other specific kinds of prevention behaviors (e.g., safer-sex behaviors, skin cancer prevention behaviors, exercise, and dietary behaviors). When the dental-hygiene cases were put aside, the remaining 84 studies of prevention behaviors did not yield a statistically significant difference between the persuasiveness of gain-framed and loss-framed appeals. In short, there does not appear to be any general advantage of gain-framed appeals over loss-framed appeals for promoting disease prevention behaviors.

Concerning disease detection behaviors, O’Keefe and Jensen’s (2009) meta-analysis of 53 studies (9,145 participants) yielded a similar pattern of effects.

A small but statistically significant advantage appeared for loss-framed appeals (corresponding to a correlation of $-.04$)—but this overall effect was attributable to an effect for messages concerning breast cancer detection (17 studies, mean $r = -.06$). No such effect obtained for other specific kinds of detection behaviors (detection of skin cancer, other cancers, dental problems, or miscellaneous other disease conditions). When the breast cancer cases were put aside, the remaining 36 studies of detection behaviors did not yield a statistically significant difference between the persuasiveness of gain-framed and loss-framed appeals. In short, there does not appear to be any general advantage of loss-framed appeals over gain-framed appeals for promoting disease prevention behaviors.

So as appealing as prospect-theoretic reasoning might be concerning how gain-framed and loss-framed messages should be differentially effective depending on whether the advocated action is a disease prevention behavior or a disease detection behavior, the expected differences in persuasiveness do not exist.

DISCUSSION

Negativity bias, loss aversion, and prospect theory all represent empirically well-grounded understandings of psychological states and processes. Each naturally provides a basis for inferences about what will make for successful persuasive messages: negativity bias and loss aversion appear to suggest that loss-framed appeals will generally be more persuasive than gain-framed appeals; prospect theory appears to suggest that the relative persuasiveness of gain- and loss-framed appeals will vary depending on whether the advocated action is a disease detection behavior or a disease prevention behavior.

And yet the expected communication effects are not to be found. Despite the existence of negativity bias and loss aversion, loss-framed appeals are not generally more persuasive than gain-framed appeals. Despite the appeal of prospect theory, gain- and loss-framed appeals are not differentially persuasive depending on whether the advocated action is a prevention behavior or a promotion behavior. In short, these well-grounded understandings of psychological states and processes have not guaranteed that messages designed in corresponding ways will produce the expected effects.

Two (related) questions naturally arise: How did this come about? And how can similar missteps be avoided in the future? In sorting out the answers to such questions, it will be useful to consider separately the two different kinds of psychological underpinnings for expectations about gain–loss message framing effects—negativity bias and loss aversion on the one hand, and prospect theory on the other.

Negativity Bias and Loss Aversion Revisited

It is not implausible to have supposed that loss aversion and negativity bias should be manifest in differential persuasiveness of gain-framed and loss-framed appeals. The divergence between this expectation and the empirical results, however, should immediately put researchers—and message designers—on notice that the inferential step from psychological phenomena to message design is perhaps a little more difficult than one might have expected.

Still, given the plausibility of the supposition that loss-framed appeals will generally be more persuasive than gain-framed appeals, it is worth considering the possibility that in some fashion the expected negativity effect has been masked—that some aspect of the design of these gain–loss persuasion studies has prevented negativity bias and loss aversion from having their usual effects. And a little reflection will suggest an appealing potential culprit, namely, the way in which the experimental messages phrased the consequences under discussion.

As noted by several commentators (e.g., Wilson, Purdon, & Wallston, 1988), gain-framed and loss-framed appeals can each take two different forms. A gain-framed appeal, in emphasizing the desirable consequences of compliance, might mention either positive states that result from compliance (“Wearing sunscreen will increase the chances of having attractive skin”) or negative states that are avoided by compliance (“Wearing sunscreen will decrease the risk of skin cancer”). A loss-framed appeal, in emphasizing the undesirable consequences of noncompliance, might mention either positive states that are foregone by noncompliance (“Not wearing sunscreen will reduce the chances of having attractive skin”) or negative states that result from noncompliance (“Not wearing sunscreen will increase the risk of skin cancer”).

As is probably apparent, this sort of linguistic variation might well be expected to interfere with the appearance of negativity-bias effects in this domain. For example, if a researcher compared a loss-framed appeal with positive language (e.g., “attractive skin,” “healthy skin,” “long life,” etc.) against a gain-framed appeal with negative language (e.g., “skin cancer,” “tumors,” “premature death,” etc.), the expected persuasive advantage of the loss-framed appeal might be undermined.

To permit negativity bias and loss aversion to manifest themselves, a more specific sort of experimental comparison is wanted. Specifically, the comparison of interest is between a gain-framed appeal that uses exclusively positive language (to describe the outcomes of compliance) and a loss-framed appeal that uses exclusively negative language (to describe the outcomes of noncompliance). This provides the desired contrast between a thoroughly positive message

and a thoroughly negative message, and so should—given negativity bias processes—produce a substantial persuasive advantage for the loss-framed appeal.

O’Keefe and Jensen’s (2006) meta-analytic review identified 17 studies (with 20,568 participants) that provided just such a comparison. But there was no statistically significant difference in persuasiveness between gain- and loss-framed appeals in these studies (the average effect size, expressed as a correlation, was $-.01$). And in O’Keefe’s (2011) updated analysis of 20 such studies (with 21,213 participants), this same result obtained (a nonsignificant mean effect size of $-.01$). In short, even under experimental conditions that should maximize the appearance of negativity-bias effects and loss-aversion effects, there is no difference in the persuasiveness of gain-framed and loss-framed appeals.

Two points are worth noticing here. The first is simply that there is no general persuasive advantage of loss-framed appeals over gain-framed appeals, even under theoretically favorable conditions. As powerful as negativity bias and loss aversion may be, these phenomena just do not manifest themselves straightforwardly in the persuasive effects associated with gain-framed and loss-framed messages.

The second is that there are nuances to be considered in moving from abstract categories such as “negative information” or “losses” to concrete message elements. In the present case, this is illustrated by the various ways in which (for example) undesirable outcomes might be represented—as the occurrence of some bad event or as one’s missing out on the possibility of some good event. As it happens, this particular subtlety did not serve to mask negativity bias effects as one might have expected. But this nevertheless serves as an example of the potential intricacies in moving from abstract message categories (as suggested by psychological theorizing) to concrete messages.

Prospect Theory Revisited

As discussed above, the application of prospect theory to gain–loss message framing persuasive effects generated the expectation that loss-framed appeals will be more persuasive than gain-framed appeals for (relatively risky) disease detection behaviors, whereas gain-framed appeals will be more persuasive than loss-framed appeals for (relatively non-risky) disease prevention behaviors. But there is good reason to suppose that prospect theory’s application to gain–loss message framing effects was perhaps not thought through quite as carefully as it might have been. Specifically, the application of prospect theory to the question of gain–loss persuasive message framing arguably went amiss in two

ways. The first involved misapprehension of the nature of “risk” in prospect theory; the second concerned misapprehension of the behavioral alternatives with which prospect-theoretic analyses are concerned.

Misapprehension of “Risk” in Prospect Theory. In a colloquial sense, something that is “risky” is dangerous. Understood in this way, disease detection behaviors are relatively risky (undergoing disease screening might lead to the discovery of an abnormal condition) but prevention behaviors are relatively not risky (there is not much danger in eating fruits and vegetables).

But in prospect theory, *risk* refers to uncertainty about outcomes, not dangerousness; a “riskless” option is one that yields the outcome “with certainty,” no matter the desirability or undesirability of the outcome (Kahneman & Tversky, 1979, p. 263). So, for example, leaping from an airplane at 10,000 feet without a parachute is not a risky behavior in prospect theory terms because the outcome is certain. Understood in this way, it is not clear that disease detection behaviors and disease prevention behaviors differ in perceived risk (i.e., uncertainty of outcomes). People might plausibly suppose that the outcomes of a disease prevention behavior are uncertain (“If I eat more fruits and vegetables, I might or might not still have a heart attack”)—and that degree of perceived uncertainty could be the same as for disease detection behaviors (“If I undergo a colonoscopy, I might or might not turn out to have colon cancer”).

But these two different meanings of risk—dangerousness and uncertainty—seem not to have been fully appreciated in some applications of prospect theory to persuasive message framing. Consider, for example, the suggestion that “prevention behaviors might not be perceived as risky at all; they are performed to deter the onset or occurrence of a health problem. Thus, choosing to perform prevention behaviors is a risk-averse option; it maintains good health” (Salovey, Schneider, & Apanovitch, 2002, p. 394; similarly, see Rothman & Salovey, 1997, p. 5). This description treats prevention behaviors as not “risky” because those behaviors are not dangerous—but this is not prospect theory’s sense of risk.

So it seems faulty to have supposed that, in prospect-theoretic terms, disease prevention behaviors are relatively not risky (i.e., are relatively certain in outcome) and disease detection behaviors are relatively risky (i.e., are relatively uncertain in outcome). And the source of this misstep may well have been the confusion of a colloquial sense of “risk” with prospect theory’s technical sense of “risk.”

Misapprehension of Behavioral Alternatives in Prospect Theory. The circumstance with which prospect theory is concerned is one in which persons

are faced with choosing between two behavioral alternatives that differ in the degree of risk (i.e., the degree of certainty of outcomes). In the disease-problem research scenario described earlier, participants chose between one option with certain outcomes and one option with uncertain outcomes. For example, option A was low-risk (high certainty: it was certain that 200 people would be saved), whereas option B was high-risk (low certainty: there was a one-third chance that 600 would be saved and a two-thirds chance that no one would be saved). And the prospect-theory analysis was that people would display greater preference for the uncertain-outcome option (the riskier option) if losses were emphasized rather than gains. Notice, thus, that the canonical situation of prospect-theoretic interest is one in which a person is faced with choosing between two behavioral options that differ in relative riskiness.

But the usual application of prospect theory to message framing does not refer to circumstances in which the behavioral options differ in riskiness. Rather, this application of prospect theory has generally focused on the perceived riskiness of a single behavior (e.g., undergoing mammography) or of a behavioral category (e.g., disease detection behaviors)—not on the relative perceived riskiness of two behavioral *options*. (For an exception, see Meyerowitz & Chaiken, 1987, p. 501, n2.) The only difference-in-riskiness emphasized by this application is, curiously, the contrast between (putatively high-risk) disease detection behaviors and (putatively low-risk) disease prevention behaviors—curious, because people do not ordinarily have to choose *between* prevention and detection.

So if prospect-theory ideas are to be applied to the domain of gain–loss message framing, the appropriate way would seem to be to think of the receiver as choosing between two options—behavioral performance and nonperformance—that might differ in riskiness (certainty of outcomes). But for two reasons, even this application seems dubious. First, it is not clear that performance and nonperformance of (say) a disease prevention behavior will differ in perceived riskiness (uncertainty of outcome). For example, a person could well think “I might or might not get skin cancer if I do wear sunscreen, and I might or might not get skin cancer if I don’t wear sunscreen.” That is, the outcome of performance and the outcome of nonperformance might be perceived as roughly equally uncertain.

Second, performance and nonperformance of a health behavior generally do not have the same long-run expected outcome while differing only with respect to the certainty of that outcome. Notice that in the classic disease-problem scenario, the two presented options have the same long-run expected outcome. (With option A 200 people would be saved, and with option B there was a one-third chance that 600 would be saved and a two-thirds chance that no

one would be saved—which yields a long-run expected outcome of 200 saved with option B.) By contrast, wearing sunscreen and not wearing sunscreen do not have the same long-run outcome. The implication is that even this contemplated revised application of prospect theory to persuasion situations encounters complexities that prevent straightforward application of prospect theory.

In sum, the kinds of behavioral choices of interest to prospect theory do not seem to be the kinds of behavioral choices of interest to those studying the persuasive effects of message variations. Small wonder, then, that the application of prospect-theoretic reasoning to gain–loss persuasive message framing effects should have yielded such a tangled mess.

Summary. Applications of prospect theory to the problem of persuasive message design appear to have involved two misapprehensions—one concerning the meaning of “risk” and one concerning the nature of the behavioral alternatives of interest. Taken together, these led to hypotheses that turned out to be inconsistent with the empirical evidence about persuasive message framing.

MOVING FROM PSYCHOLOGY TO COMMUNICATION

Psychological theory and research provide an appealing basis for the design of persuasive messages, but as the story of gain–loss message framing research shows, this enterprise can too easily go off the rails. So how might such missteps be avoided in the future? The present analysis underwrites two general recommendations.

First, and most simply, the difference between an understanding of psychological processes and an understanding of communication processes should be acknowledged. Generalizations about psychological states and processes—even when well-evidenced—do not easily or automatically yield corresponding generalizations about message design or communication effects. Sound conclusions about what makes for effective messages require direct evidence about message effects.

To put this first point another way: Messages do not necessarily map easily or straightforwardly onto psychological processes or states. The claim is not that understandings of psychological processes cannot possibly provide any guidance whatever for message design, but only that such understandings cannot be guaranteed to be a sufficient basis for decisions about message design. The best evidentiary basis for conclusions about effective message design is direct evidence about message effects—not evidence of psychological processes that then is used to underwrite inferences about what will make for effective communication.

Second, when psychological phenomena *are* used as a basis for hypotheses about communication phenomena, special attention should be given to the reasoning that connects the two. The logical structure that is used to reason from psychological theorizing to hypotheses about message effects fits the abstract argument form of *modus ponens*, an argument form with two premises—namely, “P” and “if P then Q”—that straightforwardly yield a conclusion, “Q.” In the context of scientific theorizing, this reasoning form can be seen to underlie the derivation of hypotheses from theories. The two premises are (a) “Theory T is true” and (b) “If theory T is true, then observation O will be true (i.e., observation O will obtain).” The logical implication—the prediction from the theory—is that “observation O will be true.”

Consider, for example, how negativity bias was used as a basis for expectations about gain–loss message framing effects. The reasoning was roughly (a) “negativity bias is real” and (b) “if negativity bias is real, then loss-framed appeals will be more persuasive than gain-framed appeals,” which generates the hypothesis that “loss-framed appeals will be more persuasive than gain-framed appeals.”¹ This hypothesis turned out to be false—and the disconfirmation of that hypothesis has logical consequences for the assessment of the premises on which it was based. Given that the hypothesis is false, then at least one of the two premises (from which it was derived) must be false. However, the evidence for the existence of negativity bias is so extensive as to make it implausible that the premise “negativity bias is real” is false. So the culprit presumably must be the premise that “if negativity bias is real, then loss-framed appeals will be more persuasive than gain-framed appeals.”² That is, the root of the problem lies in the reasoning that was used to connect negativity bias to message effects.

Something similar can be said to have happened in the application of prospect theory to gain–loss message framing effects. The source of difficulty was not prospect theory, but the reasoning used to connect prospect theory to gain–loss message framing effects—and specifically confusions about the meaning of “risk” and about the kinds of behavioral alternatives of prospect-theoretic interest.

Apparently, then, moving from general psychological phenomena or models to concrete hypotheses about message design and communication effects requires considerable vigilance. However tempting it is to suppose that “because the mind (or brain) works in such-and-such a way, messages should therefore be designed thus-and-so,” such reasoning can all too easily stumble. And, as illustrated here, loose reasoning about how to apply psychological ideas to communication situations is unlikely to yield satisfactory results.

Indeed, the difficulties in reasoning from knowledge of psychological processes to conclusions about effective message design underscore the need for

direct evidence about message effects. Even with secure knowledge about how the mind works, it is quite a challenge to use that knowledge to effectively deduce how messages will work. Now perhaps this means that the mind is not really understood as well as one might hope, but at a minimum it suggests caution about too easily advancing claims about how communication works on the basis of beliefs about human psychology.

Conclusion

Research concerning the persuasive effects of gain-framed and loss-framed messages has been animated by various psychological bases, especially negativity bias, loss aversion, and prospect theory. These phenomena have been used to underwrite inferences about how and why gain-framed and loss-framed messages should differ in persuasiveness, but those inferences have not been consistent with the empirical evidence about persuasive effects. Thus it appears that theoretical claims about psychological states and processes—even when empirically robust and well supported—do not easily yield corresponding dependable generalizations about message design or communication effects. The difficulty of reasoning from knowledge of psychological processes to conclusions about effective communication emphasizes the contrast between these enterprises and underscores the need for direct evidence about message effects.

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Notes

1. One may note here the misstep invited by evidence confirming the predicted observation O—the mistake of concluding that the theory T must be true because the predicted observation O was confirmed. This is the familiar fallacy of affirming the consequent (reasoning from “if T then O” and “O” to the unjustified conclusion “T”).

2. Actually, the situation is more complicated than this, because no theory by itself straightforwardly implies any particular observation, as noted long ago by Duhem (1914/1962, esp. pp. 162, 187–190). Moving from theoretical statements to expected observations requires a set of “auxiliary hypotheses,” and so a disconfirmed expectation about an observation doesn’t disconfirm the theory specifically but rather disconfirms the bundle of theory-plus-auxiliary-hypotheses as a package. Though not entirely without interest in the present context, this complexity does not influence the force of the argument being advanced here.

Suggested Additional Readings

- Latimer, A. E., Salovey, P., & Rothman, A. J. (2007). The effectiveness of gain-framed messages for encouraging disease prevention behavior: Is all hope lost? *Journal of Health Communication, 12*, 645–649.
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Questions for Theory and Practice

1. How are promises and threats similar to, and different from, gain-framed and loss-framed appeals?
2. Gain-framed and loss-framed appeals generally do not differ in persuasiveness—but do you think there are some conditions under which one kind of appeal will generally be more persuasive than the other? What are those conditions, and why do you think the persuasiveness of gain-framed and loss-framed appeals would differ in such circumstances? How could you test your hypothesis?
3. One way of influencing people’s behavior can be to make them feel guilty about their behavioral choices. Do you think one sort of message framing (gain or loss) would generally be more effective than the other in inducing guilt feelings? What does this suggest about the kinds of situation in which gain-framed and loss-framed appeals might differ in persuasiveness?
4. This chapter concerns aspects of *how* a message’s arguments are presented (as gain-framed or loss-framed), but does not address *what* arguments to make. Is it possible that psychological theories might be useful for one of these two aspects of message design, but not for the other?