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original article

What difference does a frame make? Potential moderators of framing effects and the role of self-efficacy

Jonathan van 't Riet^{1*}, Robert A.C. Ruiter², Marieke Q. Werrij², Hein de Vries³

¹ Agricultural Economics Research Institute – Wageningen University and Research Centre, the Netherlands

² Department of Work and Social Psychology, Maastricht University, the Netherlands

³ School for Public Health and Primary Care (CAPHRI), Maastricht University, the Netherlands

Health-promoting communications usually stress the value of healthy behaviour, but they can do this in many ways. In particular, the message can be framed in terms of the benefits of performing the behaviour (gain frame – e.g., 'quitting smoking is healthy') or in terms of the costs of failing to perform the behaviour (loss frame – e.g., 'continuing to smoke is unhealthy'). Unfortunately, studies show inconsistent results with regard to which type of framing is more persuasive. The results of several studies have suggested that gain-framed information is more persuasive than loss-framed information, the results of other studies have suggested that loss-framed information is more persuasive and some studies have reported no differential effects (for meta-analyses see O'Keefe & Jensen, 2006; 2007). To account for these inconsistent findings, many researchers have been concerned with identifying possible moderating variables of message framing effects.

Behaviour function: Prevention and detection behaviour

One potential moderator that has been proposed is the function of the recommended behaviour. Several scholars have made a distinction between behaviours that serve to prevent an illness (like exercising or quitting smoking) and behaviours that serve to detect an illness (like skin self-examination or obtaining a mammography). According to Rothman and Salovey (1997), people perceive disease-prevention behaviours as relatively safe, because they minimize the chance of falling ill. In contrast, people perceive disease-detection behaviours as inherently risky because they entail the possibility of finding out that one is ill. Because Prospect Theory holds that people are risk-averse when considering gain-framed information and risk-seeking when considering loss-framed information (Kahneman & Tversky, 1984), Rothman and Salovey (1997) go on to suggest that gain-framed information is more persuasive when advocating disease-prevention behaviours, because gain-framed information makes people risk-averse and thus more likely to engage in relatively safe disease-prevention behaviours. In contrast, they suggest that loss-framed information is more persuasive for disease-detection behaviours, because loss-framed information



Jonathan van 't Riet

Agricultural Economics Research Institute
Wageningen University and Research Centre
The Netherlands

makes people willing to take risks and thus more likely to engage in relatively risky disease-prevention behaviours. A recent meta-analysis showed, however, that for behaviours serving to detect an illness, gain- and loss-framed messages were not differentially persuasive (O'Keefe & Jensen, 2006). For prevention behaviours, a small advantage of gain-framed messages was found, but additional analyses revealed that this effect was only found in a limited amount of studies on dental health (O'Keefe & Jensen, 2007). Thus, a distinction between prevention and detection behaviours does not seem to be sufficient to explain differences between the effects of gain- versus loss-framed information.

Perceived risk as a potential moderator

Although message-framing effects do not seem to differ systematically between prevention- and detection behaviours, Latimer and colleagues (2007) have argued that Prospect Theory could still provide an adequate framework for studying message framing. They argue, however, that researchers should focus less on whether the recommended behaviour serves to prevent or detect illness, but more on the way the recipient perceives the behaviour. For instance, even though smoking cessation is clearly a prevention behaviour, some people might perceive quitting smoking as entailing many risks, such as the risk of nasty withdrawal symptoms. Similarly, exercising and eating a ►

*Corresponding Author: Jonathan van 't Riet; email: vanriet@wur.nl

What difference does a frame make? Potential moderators of framing effects and the role of self-efficacy

healthy diet obviously have great benefits in terms of health, but may be perceived as having many potential costs and drawbacks. When this is the case, people might be more responsive to a loss-framed message. Some studies have found support for the hypothesis that loss-framed information is more persuasive than gain-framed information for people who perceive the advocated behaviour as risky, whereas loss-framed information is more persuasive for people who perceive the advocated behaviour as risk-less. However, more research is needed to resolve this issue.

Cognitive elaboration as a potential moderator

A third moderator that has been proposed in the literature is mode of information processing. According to dual process accounts of persuasion, persuasive messages are processed in one of two modes: heuristically or systematically. With heuristic processing, attention is paid to surface features of the message (e.g., the expertise of the message source, the length of the message). These surface features can work as heuristic cues to facilitate persuasion. With systematic processing, attention is paid to particular details in message content. Several factors can influence people's mode of information processing, among which are personal involvement with the issue, a person's mood, and a person's need for cognition.

Some authors have argued that when people process persuasive messages heuristically, people use positive rather than negative information in the message as a heuristic, responding more favourable towards more positive messages. Thus, under conditions of heuristic processing, gain-framed information should be more persuasive than loss-framed information (Maheswaran & Meyers Levy, 1990). Indeed, some studies have found that for individuals with a low need for cognition (i.e., individuals who are likely to process information heuristically), gain-framed information was more persuasive than loss-framed information, while for individuals with a high need for cognition (i.e., individuals who are likely to process information systematically) gain- and loss-framed information had no differential effects.

It has also been proposed that, when processing information systematically, people tend to focus more on negative information than on positive information, because of a 'negativity bias' (Maheswaran & Meyers Levy, 1990). The negativity bias refers to the assumption that, because people perceive the world as predominantly positive, negative information will trigger more attention than factually equivalent positive information. Paying more attention to negative cues than to equivalent positive cues makes sense from an evolutionary point of view, as it increases chances of survival in a dangerous

environment (Dijksterhuis & Aarts, 2003). The results of several studies have suggested that loss-framed information might indeed be more persuasive than gain-framed information under conditions of systematic processing (Maheswaran & Meyers-Levy, 1990). However, there is no clear theoretical reason why positive cues would be more powerful than negative cues under conditions of heuristic processing and why the negativity bias would only occur when people process information systematically (as opposed to heuristically). Thus, the influence of mode of processing on the effects of framed messages is currently less than clear.

The role of self-efficacy

Recently, we have proposed that, in addition to the above-mentioned factors, self-efficacy can moderate the impact of gain- and loss-framed messages on health intentions and health behaviour. We have tested this hypothesis in three experiments, using gain- and loss-framed information on smoking cessation, skin self-examination and reducing salt-intake.

Loss-framed messages have been found to evoke a greater sense of threat than gain-framed messages (Cox & Cox, 2001). Fear-appeal research suggests that this greater sense of threat might increase persuasiveness, but only if recipients feel capable of averting the threat by performing the recommended action (Ruiter, Abraham, & Kok, 2001). If recipients have low self-efficacy expectations, however, this greater sense of threat may result in less message acceptance due to defensive avoidance and message derogation processes. Thus when perceived self-efficacy is high, loss-framed messages might be more persuasive than gain-framed messages, whereas when perceived self-efficacy is low, gain- and loss-framed messages might not be differentially persuasive. The latter theoretical assumption can explain why, in some cases, loss-framed messages are more persuasive than gain-framed messages, whereas in other cases they are not.

Based on this reasoning, we hypothesized that loss-framed information would be more persuasive than gain-framed information for people with high self-efficacy, and that there would be no differential effects of gain- and loss-framed information for people with low self-efficacy. In the remainder of this article, we report on three experiments that investigated whether participants' self-efficacy could moderate the effects of gain- and loss-framed messages.

Smoking cessation. For the first study (Van 't Riet, Ruiter, Verrij, & De Vries, 2008), which ►



What difference does a frame make? Potential moderators of framing effects and the role of self-efficacy

investigated the effects of framed messages promoting smoking cessation, data was collected at various markets and fairs throughout the Netherlands. In total, 592 adult smokers agreed to participate in the experiment. First, we assessed participants' self-efficacy to quit smoking. Next, participants were randomized into a gain-framed message condition, a loss-framed message condition and a no-message control condition. During the immediate follow-up, their post-test intentions to quit smoking were assessed. The results showed that, for participants with low self-efficacy, there were no differential effects between the gain-framed, loss-framed and no-message control condition. For participants with high self-efficacy, however, reading a loss-framed message resulted in stronger intentions to quit smoking than reading a gain-framed message or reading no message, in line with our hypothesis.

Skin self-examination. One problem with our first study was the fact that we did not assess whether the loss-framed information was indeed perceived as more threatening than the gain-framed information. Therefore, we conducted a second study in which we assessed perceived threat as a result of the framed messages. In addition, because several authors propose that framing effects are different for prevention versus detection behaviours (e.g., Rothman & Salovey, 1997), and to increase the generalizability of our results, we used framed information advocating skin self-examination (SSE) in the second study (Van 't Riet, Ruiter, Werrij, & De Vries, 2009).

Before we conducted the main experiment, we pilot-tested our messages among 41 university students. We invited these students to our laboratory, where they were randomized into a gain- and a loss-framed condition and were asked to what extent they found the information promoting SSE threatening. Results showed that the loss-framed information was perceived as more threatening than the gain-framed information. We then used these framed messages in the main experiment, in which 124 students participated, once again in our laboratory. We assessed their self-efficacy to perform SSE and provided them with either gain- or loss-framed information. After this we assessed their intentions to perform SSE on a monthly basis.

The results showed that self-efficacy moderated the effects of gain- and loss-framed information on intention as hypothesized. For participants with low self-efficacy, the gain- and loss-framed messages were not differentially persuasive. For participants with high self-efficacy, loss-framed information resulted in a stronger intention to perform SSE than gain-framed information.

Reducing salt-intake. The two studies reviewed

above suffered from two important limitations. First, in both studies self-efficacy was assessed observationally. Thus we cannot completely rule out that the effect of self-efficacy was due to some other factor. Evidence that an experimental self-efficacy manipulation could moderate the effects of framed communications would allow us to draw firmer conclusions about the causality of the effect. Second, neither of the two studies included a long-term follow-up, making it impossible to assess behavioural effects. In our third study (Van 't Riet, Ruiter, Smerecnik, & De Vries, submitted), we aimed to investigate whether our previous findings could be replicated, using a self-efficacy manipulation instead of a self-efficacy assessment and including a three-week follow-up assessment of behaviour (in this case: salt consumption). A total of 575 adults, recruited from an Internet-panel, took part in the study. Half of the participants received self-efficacy enhancing information, whereas the other half received no such information (participants in both self-efficacy conditions did not differ in baseline self-efficacy as measured with a five-item self-efficacy scale). After this self-efficacy manipulation, half of the participants received a gain-framed, and half of the participants received a loss-framed message promoting a low-salt diet. As in the study on SSE, a pretest showed that the loss-framed information was perceived as more threatening than the gain-framed information. We assessed intention and behaviour as the outcome measures.

In line with our hypothesis, the results of this study showed that the loss-framed message resulted in healthier behaviour after three weeks (i.e., less salt intake), but only for those participants who also received self-efficacy information. However, the effect of the interaction between self-efficacy and framing on salt consumption was not mediated by measures of intention to reduce salt-intake. In contrast to the previous studies, no interaction effect on intention was observed. This surprising effect shows that more research is needed to deepen our understanding of message-framing effects. However, we note that these findings are in line with previous studies that have also found effects on behaviour, but failed to find effects on determinants of behaviour (Banks et al., 1995; Detweiller, Bedell, Salovey, Pronin, & Rothman, 1999). For instance, in a study investigating the effects of framing and ethnic targeting on mammography use Schneider and colleagues (2001) found effects of framing on behaviour at a six-months follow-up, but failed to find effects on numerous psychosocial variables, such as risk perceptions, self-efficacy, outcome ►

What difference does a frame make? Potential moderators of framing effects and the role of self-efficacy

efficacy, attitudes, social norms, and intentions. Perhaps different findings can be expected for different health behaviours. Quitting smoking and performing regular skin self-examination may require planning, which makes it likely that intention plays an important role. Other health behaviours may be performed without conscious planning, making it more likely that framing exerts a direct influence on behaviour. More research is needed to test this assumption.

Recently we have conducted two experiments which yielded different findings. We found that participants with high self-efficacy were more likely to be persuaded by gain-framed information than by loss-framed information (Werrij, Ruiter, Van 't Riet, & De Vries, in preparation). It seems, then, that in some cases self-efficacy might have different effects than described above. Perhaps in the latter two studies, the loss-framed messages might not have been sufficiently threatening. The first study investigated the effects of gain- and loss-framed information advocating sunscreen use among student participants. Since many participants indicated that they already regularly applied sunscreen it seems plausible that the loss-framed information did not evoke high levels of threat. Similarly, in the second study, which investigated the effects of framed information advocating the consumption of organic meat, again among student participants, the disadvantages of non-organic meat (e.g., added antibiotics) might not have been perceived as particularly threatening. Loss-framed information may be more persuasive than gain-framed information for people with high self-efficacy, but only when the loss-framed information is perceived as sufficiently threatening. Unfortunately, perceived threat was not assessed in these studies. We are currently investigating whether perceived threat can determine whether highly self-efficacious people are more persuaded by gain- or loss-framed information. More particularly, we are investigating the possibility of moderated mediation. We have proposed that loss-framed information is perceived as more threatening than gain-framed information and that this greater threat can enhance persuasion, but only for people with high self-efficacy. This actually implies a model in which framing has an effect on perceived threat, and threat has an effect on persuasion which is moderated by self-efficacy. Because we have so far used pretests to assess whether message framing affects perceived threat, we have not yet been able to test this model of moderated mediation. In the future, we hope to be able to shed more light on this issue. We conclude that, although some questions remain, self-efficacy seems an important variable in message-framing effects.

Conclusion

Taken together, our results suggest that self-efficacy can operate as an important moderator of message-framing effects. It seems that loss-framed information has a greater potential to persuade people than gain-framed information, because of the greater threat it entails. However, this greater threat only results in health-conducive intentions and behaviours when recipients feel they are capable of averting the threat. The results also illustrate that research aimed at identifying the circumstances under which gain- or loss-framed information is more persuasive is indispensable to foster our understanding of message-framing effects and can be helpful to increase the effectiveness of persuasive messages. ■

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