

Acting Now or Later: The Role of Message Framing and Temporal Distance in
Promoting Sustainable Consumer Behavior

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Abstract

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Promoting sustainable behaviors is essential in addressing the severe environmental challenges posed by human activities. Prior research on persuasive messaging has extensively explored the efficacy of gain vs. loss message framing. When it comes to environmental sustainability, gains (i.e., benefits) and losses (i.e., harms) often accrue in the future, thus temporal distance is an important dimension. The efficacy of presenting gains and losses in the present vs. future remains underexamined in the context of sustainability messaging. In particular, I discuss two theoretical perspectives that make different predictions about how message framing may interact with temporal distance to shape behavior. Across three studies, this thesis investigates how these variables influence purchase intentions for sustainable products. Study 1 found a significant interaction between framing and temporal distance—future-oriented loss messages led to higher purchase intentions than present-oriented loss messages, while temporal distance did not impact gain-framed messages. Study 2 replicated the effect for loss-framed messages, while gain-framed messages exhibited the reverse effect—purchase intentions were higher when gains were present- rather than future-oriented. These effects were marginally significant. Study 3 attempted to replicate these results, but found null effects. Overall, this thesis highlights the complex interplay between message framing and temporal distance, suggesting that the current understanding—both theoretical and empirical—of this topic remains incomplete. Lastly, theoretical contributions, practical implications, and future directions for research are discussed.

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INTRODUCTION

Promoting sustainable behaviors is increasingly critical as human activities continue to place significant strain on the environment, leading to severe consequences for both ecological and human health (UN Environment Programme, 2019; World Health Organization, 2021). Despite widespread awareness of these environmental issues, there remains a significant gap between knowledge and action, with individuals often failing to engage in behaviors that support sustainability, such as reducing consumption, enhancing resource efficiency, or participating in community initiatives (Kollmuss & Agyeman, 2002; Kennedy et al., 2009). This “knowledge-action gap” highlights the need for more effective communication strategies to bridge the divide. Social marketing, which aims to influence behaviors for societal good, plays a vital role in this effort by encouraging sustainable consumer behaviors—actions intended to protect and preserve the environment (Chen et al., 2020; Cheng et al., 2011). Marketers, in particular, have a unique opportunity to shape consumer behavior through carefully crafted messaging. Research has shown that how a message is framed—whether it emphasizes gains or losses—can significantly impact its effectiveness in motivating behavioral change (Levin & Gaeth, 1988; Anghelcev & Sar, 2014). However, the challenge lies in determining the most effective framing strategies, given the diversity of consumer perceptions and the complexity of sustainability issues. Understanding and applying the principles of message framing in social marketing campaigns is crucial for encouraging behaviors that contribute to a more sustainable future (Randolph & Viswanath, 2004; McKenzie-Mohr, 2000)

THEORETICAL & CONCEPTUAL BACKGROUND

Message Framing

The presentation advertising messages—specifically, how information is framed—can significantly impact consumer judgments and decision-making regarding advertised products (Ganzach & Karsahi, 1995; Smith, 1996). In this context, message communications can either highlight the positive outcomes of engaging in an action or purchasing a product, termed as 'gain framing', or the negative consequences of not taking action or missing out on purchasing a product, known as 'loss framing'. These strategies are collectively recognized in the literature as 'message framing' or 'goal framing' (Levin et al., 1998).

Numerous prior studies have demonstrated that gain/loss framing influences consumers' attitudes and purchase intentions (Meyers-Levy & Maheswaran, 2004). Specifically, past research in areas such as smoking cessation (Goodall & Appiah, 2008; Toll et al., 2008), disease prevention (Latimer, Slovery, & Rothman, 2007; O'Keefe & Jensen, 2007), and consumer recycling intentions (White et al., 2011) shows that message framing indeed influences consumer decisions; however, as I will discuss further, these studies also revealed that the impact of framing is highly dependent on the topic and specific situational characteristics.

Several theoretical frameworks may help to explain how different factors influence the effectiveness of message framing. For instance, construal level theory suggests that the psychological distance of an event affects how it is perceived and processed; distant events are viewed more abstractly than immediate ones, which can alter the effectiveness of message framing (Trope & Liberman, 2003). Regulatory focus theory posits that individuals' motivation orientation (promotion-focused or prevention-focused) influences how they respond to gains versus losses (Higgins, 1997).

O'Keefe and Jensen (2007) analyzed 93 studies through a meta-analysis and observed a modest advantage for gain-framed messages over loss-framed ones in promoting disease prevention behaviors. However, other research indicates that loss frames may be generally more effective in prevention behaviours where mild risk taking is involved (Tversky & Kahneman, 1981; Meyerowitz & Chaiken, 1987). Further studies highlight that the effectiveness of gain- and loss-framed messages can vary based on the dispositional traits of the audience (Updegraff et al., 2007). For instance, individuals with an approach orientation respond more favorably to gain-framed health messages, whereas those with an avoidance orientation tend to react better to loss-framed messages (Sherman, Updegraff, & Mann, 2008).

Another set of comprehensive reviews of the literature has explored the effectiveness of gain- versus loss-framed messaging, revealing that the differences in persuasiveness between these two types are generally minimal (Rothman et al., 2006; Rothman & Salovey, 1997). These findings underscore the necessity to pinpoint moderators that could influence the efficacy of message framing. As mentioned previously it was again recognized that the dispositional traits of message recipients significantly affect their responsiveness to gain-versus loss-framed messages when manipulated temporally in terms of distance (Lee & Aaker, 2004; Mann, Sherman, & Updegraff, 2004; Zhao & Pechmann, 2007). Given the nuanced effects of personal traits on message reception especially when messages are manipulated in terms of temporal distance, investigating temporal distance as a potential moderator becomes particularly pertinent. Temporal framing could play a critical role in further delineating when gain or loss messages achieve maximum impact, thus enriching our understanding of strategic message design in various contexts.

How Temporal Distance May Affect Message Framing

Understanding the interplay between message framing and temporal distance involves synthesizing insights from several psychological theories to ascertain how these factors jointly influence consumer judgments. This research explores how different temporal focus—whether focusing on immediate (present) or long-term (future) outcomes—may impact the effectiveness of gain versus loss message framing for environmental communications. First, I will discuss the prevailing perspective in the literature, which is based on theories of construal level and regulatory focus. Then, I will present an alternative perspective, based on temporal discounting, and explain why this is a useful perspective.

Perspective 1: Construal Level Theory and Regulatory Focus Theory

According to Construal Level Theory (CLT), the interpretation of persuasive information varies with psychological distance, which can be spatial, temporal, or social (Liberman & Trope, 1998). This research will focus on temporal distance. Temporal distance affects whether information is processed abstractly or concretely (Trope & Liberman, 2010). For instance, objects or events that are temporally distant tend to be viewed in abstract terms (high-level construal), whereas those that are imminent are perceived with a greater focus on detailed, concrete features (low-level construal). Förster, Friedman, and Liberman (2004) highlight that perspectives focusing on the distant future promote abstract thinking, whereas those oriented towards the near future encourage concrete thinking. This distinction is crucial in marketing, where the framing of messages often aligns with natural temporal rhythms—some ads emphasize long-term ecological benefits (future-oriented), while others highlight immediate advantages of environmentally friendly behaviors (present oriented).

In parallel, research examining regulatory focus offers some insight about the efficacy of future- vs. present-oriented gain and loss framing. According to Higgins (1997), two motivational orientations affect behavior—promotion-focused or prevention-focused. Promotion-focused individuals, who are generally more receptive to the presence or absence of positive outcomes, tend to be particularly responsive to gain-framed messages that align with their long-term aspirations. In contrast, prevention-focused individuals, who are more attuned to avoiding negative outcomes, may find loss-framed messages that emphasize immediate risks more persuasive. For example, Lee and Aaker (2004) observed that aligning the message frame (gain vs. loss) with the consumer's regulatory focus (promotion vs. prevention) facilitates information processing, which mediates the message's persuasive impact. Research has also found that an alignment or match between regulatory focus and construal level facilitates persuasion, with promotion focus matching high-level construal and prevention focus matching low-level construal (Lee, Keller & Sternthal, 2010).

This line of research provides theoretical insight about framing for sustainability messages. It suggests that presenting gains in the distant future may be more effective than presenting gains in the present. Gain framing not only highlights the long-term benefits of choosing an environmentally friendly product but also generates positive emotions, potentially leading to a higher construal level among consumers (Labroo & Patrick, 2009), suggesting an alignment between gains and a future orientation. By contrast, loss framing may be more effective when focusing on immediate threats or risks rather than those in the distant future, prompting consumers to take action now to avoid negative outcomes. Loss-framed messages emphasizing the long-term consequences of not adopting environmentally friendly practices can evoke feelings of concern and urgency. This approach may align with a lower construal level, where consumers focus on concrete, immediate consequences (Labroo & Patrick, 2009; Meyerowitz & Chaiken, 1987).

Research on sustainability messaging provides empirical evidence that supports the theorizing outlined above. For instance, White et al. (2011) conducted a study on consumer recycling behaviors, which manipulated the framing of messages as either gain- or loss-framed while considering the consumer's construal level. The study found that gain-framed messages emphasizing the benefits of recycling (e.g., "Recycling helps protect the environment for future generations") were more effective when paired with high-level construals that focused on the abstract, long-term benefits of recycling. Conversely, loss-framed messages that highlighted the negative consequences of not recycling (e.g., "Failing to recycle harms the environment") proved more persuasive when combined with low-level construals emphasizing immediate, concrete impacts. This aligns with the notion that gain framing is more effective when focused on future aspirations and long-term goals, while loss framing is more effective when highlighting immediate risks and harms.

Similarly, Chang et al. (2015) investigated message framing in green advertising, examining how temporal distance, message framing and consumer environmental concern affect message effectiveness. The study manipulated temporal distance and message framing, finding that gain-framed messages presented in a distant-future context led to more positive attitudes towards the advertisement and higher purchase intentions among consumers with high environmental concern. The authors theorize that consumers who naturally adopt a promotion focus due to their concern for long-term ecological benefits are more influenced by messages that highlight future gains and loss-framed messages emphasizing immediate threats are more effective among consumers with lower environmental concern, who are typically more prevention-focused. By framing messages in a way that resonates with the audience's inherent motivational orientation and perceived temporal distance, marketers can enhance the persuasive impact of green advertising.

These findings provide support for the idea that gain-framed messages that emphasize long-term benefits are more effective than those emphasizing immediate benefits, while loss-framed messages focusing on immediate consequences are more effective than those focusing on long-term consequences.

Theorizing based on construal level theory and regulatory focus has been the prevailing explanation for the effects of message framing across different temporal distances, including in sustainability contexts. This theorizing focuses on the abstract versus concrete processing of information across temporal distances. In the real world, consumers become increasingly aware of the urgency and salience of environmental issues—the future may seem less abstract than it did even just a few years ago. Recent reports by the Intergovernmental Panel on Climate Change (IPCC) underscored this urgency, emphasizing the immediate need for action to mitigate climate change effects.

How might an increased urgency affect consumer response to gains and losses framed in the present vs. future? I suggest that an alternative theoretical perspective—based on findings in the temporal discounting literature—may be more applicable under the current circumstances.

Perspective 2: Temporal Discounting

Work from the judgment and decision making literature can offer a different perspective on the impact of present- vs. future-oriented gain/loss framing. **Temporal discounting** is the psychological tendency to devalue future outcomes relative to those that are imminent. This phenomenon has been observed robustly for monetary and nonmonetary forms of gains and rewards (Frederick et., 2002; Green & Myerson, 2004). For example,

people prefer to receive a smaller monetary reward now compared to a larger monetary reward later, reflecting a bias toward immediate gratification (Ainslie, 1975; Frederick et al., 2002; Green & Myerson, 2004). This is also true for nonmonetary gains. For instance, Hardisty and Weber (2009) conducted a study comparing how people discount future monetary rewards versus environmental benefits, such as cleaner air. They found that while people generally discounted future environmental benefits less steeply than future monetary rewards, the preference for immediate gains still prevailed. Participants were more inclined to favor immediate environmental improvements over those that would occur in the future, reflecting a similar bias toward immediate gratification as seen with monetary rewards. When it comes to good things, people want to have them right away (Benhabib et al., 2010). Thus, for gain-framed messages, the temporal discounting perspective would make opposing predictions as Perspective 1. It would suggest that messages presenting gains in the present may be more effective than those presenting gains in the future.

Less research has examined temporal discounting in the domain of losses and penalties. However, existing research has suggested that effects may differ across different types of losses (Hardisty, Appelt & Weber, 2013; Harris, 2011). Larger monetary losses tend to show a similar pattern as monetary gains—people tend to prefer larger, future losses over accepting smaller, immediate ones, thus displaying a tendency to delay facing negative consequences (Frederick, Loewenstein, & O’Donoghue, 2002; Harris, 2011; Kable & Glimcher, 2007). However, some evidence suggests that nonmonetary losses—which are more relevant to the present context—exhibit the opposite pattern. For example, studies have found that a substantial proportion of people prefer to have negative experiences (e.g., electric shock, bee sting, embarrassment) over with sooner rather than later (Harris, 2011; Loewenstein, 1987). This is thought to occur because postponing such experiences increases the amount of anticipated dread (Loewenstein, 1987). In other words, individuals may be

highly motivated to avoid future negative experiences. Thus, for loss-framed messages about environmental consequences, the temporal discounting perspective would also make opposing predications as the construal level/regulatory focus perspective. It suggests that messages highlighting future losses may be more motivating than those focusing on immediate losses.

It is worth noting that the temporal discounting perspective has not been considered or investigated in message framing research, especially in sustainability contexts. Thus, more remains to be understood about this perspective in the context of message framing and the contrast it presents with the theorizing based on construal level and regulatory focus.

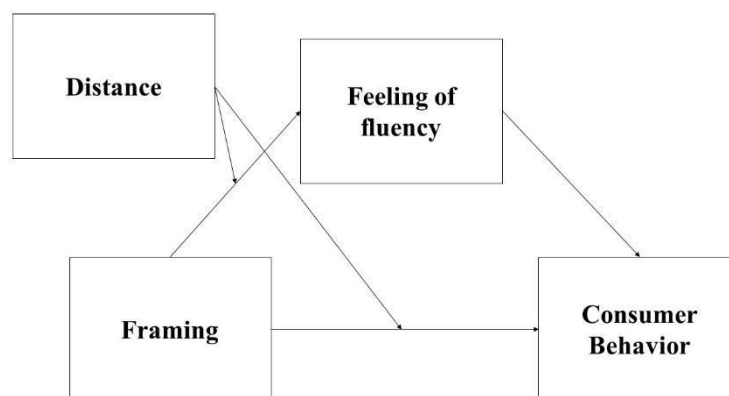
Fluency

Past research on message framing has explored the role of fluency in increasing persuasion. Specifically, an alignment or fit between the message frame and the content results in greater processing fluency and “feeling right” (Cesario, Grant & Higgins, 2004; Lee & Aaker, 2004). Prior research on message framing from the construal level and regulatory focus perspective (Perspective 1) focused on fluency as the mechanism for enhancing persuasion. However, it is possible that fluency may also play a role in the predictions made from a temporal discounting perspective. Fluency may not only result from an alignment between regulatory orientation and means, but may also result from the ease of being able to imagine different outcomes (Chang, 2013; Petrova et al., 2005). For example, it is possible that gains in the present are more vivid and imaginable than gains in the future, while losses in the future may feel more imaginable and therefore impactful than those in the present. If this is true, fluency may also play a role in explaining the temporal distance predictions.

Fluency was thus measured in some of the studies to explore this possibility, for example, to see if it mediated the effects of framing and temporal distance.

Proposed Model

Figure 1. Conceptual Model



Possible Outcomes Based on Perspectives 1 and 2

As reviewed, there are two perspectives that provide contrasting predictions regarding the interaction between message framing (gain vs. loss) and temporal distance (present vs.

future) in influencing the persuasiveness of a sustainable message. Here, I summarize the contrasting predictions suggested by these two perspectives.

Possibility 1: Perspective 1 predicts that gain-framed messages emphasizing long-term benefits will be more persuasive when focusing on future outcomes, while loss-framed messages emphasizing immediate threats will be more effective when focusing on present outcomes.

Possibility 2: Perspective 2 predicts that gain-framed messages will be more effective when emphasizing immediate rewards due to individuals' preference for immediate gratification. Conversely, loss-framed messages will be more effective when highlighting immediate losses, as people are more motivated to avoid immediate negative outcomes than future ones.

The goal of this research is to test between these two possibilities. While prior studies on message framing have found results consistent with possibility 1, this research will examine whether possibility 2 might occur. Given the practical importance of environmental messaging, it is critical to provide a more nuanced understanding of message framing in this context.

The primary dependent measure used to assess the efficacy of messages was purchase intentions. This measure was chosen because it reflects the behavioral outcomes we aimed to influence through our messaging strategies. A secondary dependent measure, administered in most of the studies, was a measure of perceived message efficacy. This measure aimed to assess how persuasive or convincing consumers believe a message to be, and we anticipated that it would exhibit effects similar to those observed with purchase intentions.

OVERVIEW OF THE STUDIES

Three studies were conducted to test the current theorizing, utilizing Connect from CloudResearch as the primary platform for data collection. Each study included over 300 participants, ensuring robust sample sizes. Study 1 served as an initial examination of the interactive effects of message framing (Gain vs. Loss) and temporal distance (Present-focused vs. Future-focused) on consumer behavior, specifically focusing on purchase intention, message efficacy, and message fluency. Additionally, the study explored the mediating role of message fluency in these effects. Studies 2 and 3 aimed to replicate and extend the findings from Study 1. Study 2 tested the same metrics but within a different product category (cleaning products as opposed to sustainable cotton clothing in Study 1) to assess the generalizability of the results. Study 3 expanded the investigation by examining not only consumer behavior but also the impact of framing and temporal distance on brand evaluation.

STUDY 1

The goals of Study 1 were to i) test the interactive effect of Framing x Distance on purchase intention, message efficacy and feelings of fluency, and ii) test feelings of fluency as a potential mediator.

Methods

Two hundred and eighty participants ($M_{age} = 39.27$; $SD = 11.91$; 56.4% female) completed this study on the CloudResearch Connect platform and were compensated \$0.65 for a 5-minute study.

Participants first provided the informed consent. They were then randomly assigned to one of four conditions in a 2 (framing: gain vs. loss) x 2 (distance: present vs. future) between-participants design. Participants were presented with a message corresponding to their assigned condition. For example, participants in the gain-present condition saw this message: “Organic cotton is grown more sustainably than regular cotton. Choosing organic cotton means you achieve 70% more in water supply savings today! Gain precious water resources for a better world now.” Participants in the loss-future condition saw this message: “Organic cotton is grown more sustainably than regular cotton. Choosing organic cotton means you lose 70% less in water supply savings for the future! Conserve precious water resources for a better tomorrow.” Appendix 1 shows the experimental stimuli for all four conditions.

After being exposed to the ad, participants reported their purchase intentions for the product using two items (i.e., “How likely are you purchase shirt made from organic cotton?” 1 = *very unlikely* to 7 = *very likely*; “How much do you intend to buy a shirt made from organic cotton?” 1 = *Do not intent at all* to 7 = *Highly Intend*).

Participants then rated the efficacy of the message on four items: “To what extent is the message...”: effective, compelling, motivating, persuasive, 1 = *Not at all* to 7 = *very much so*)

Next, participants’ feelings of fluency were measured using a two-item scale (i.e., How easy was it to process the information in the message? // To what extent did the wording feel fluent?: 1 = *Not at all easy/not at all fluent* to 7 = *Very easy/very fluent*)

They were then presented with a manipulation check question, asking them to rate whether they felt the message was framed in the near or distant future. (i.e., 1 = *highly focused on impact in the present* to 7 = *Highly focused on impact in the future*)

Participants reported their normal purchasing behaviour (e.g., whether they buy clothes made of organic cotton in general or if they buy sustainable clothing in general), which might serve as a covariate given its potential influence on purchase intentions. Participants also completed the General Regulatory Focus Questionnaire (Lockwood, Jordan & Kunda, 2002), as their regulatory focus orientation might affect how they respond to gain and loss framing. Lastly, basic demographic questions were administered.

Results

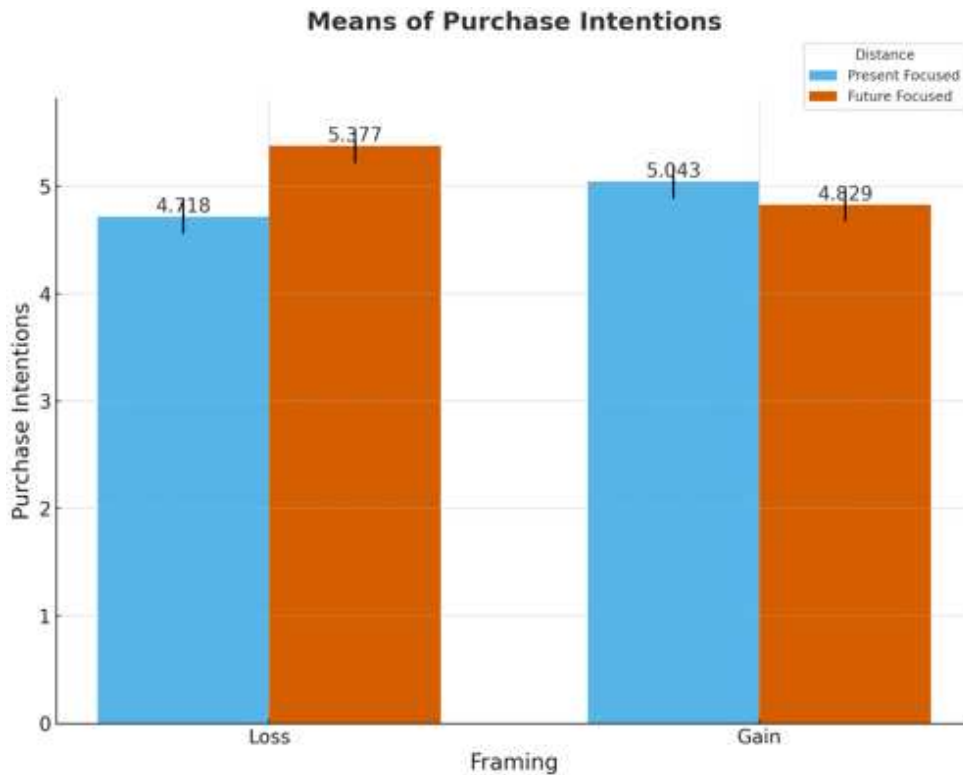
To analyse the results, 2 (gain vs. loss) x 2 (present vs. future) ANOVAs were conducted.

Manipulation check. The item assessing perceived distance was examined. The main effect of distance on the temporal manipulation check was significant ($F(1, 276) = 17.34, p < 0.001$). Participants rated the future-focused messages ($M = 5.53, SD = 1.30$) as more temporally manipulative than the present-focused messages ($M = 4.76, SD = 1.75$). The main effect of framing on the temporal manipulation check was nonsignificant ($F(1, 276) = 2.16, p = 0.143$). The framing x distance interaction was nonsignificant ($F(1, 276) = 0.70, p = 0.405$).

Purchase intentions. The main effect of framing was nonsignificant on purchase Intentions of the participants ($F(1,276) = 0.49, p = 0.485$). The main effect of distance was nonsignificant ($F(1,276) = 1.92, p = 0.167$). A significant framing x distance interaction emerged ($F(1, 276) = 7.43, p = 0.007$). Participants reported significantly higher purchase intentions when exposed to the future-loss message ($M = 5.37, SD = 1.13$) than the present-loss message ($M = 4.71, SD = 1.41$), ($F(1, 276) = 8.45, p = 0.004$). For gain-framed messages, participants' purchase intentions did not differ significantly across the present-gain

message ($M=5.04$, $SD=1.40$) and the future-gain message ($M=4.82$, $SD=1.39$), ($F(1, 276) = 0.895$, $p = 0.345$).

Figure 2. Means of Purchase Intentions with Std error



Additional exploratory analyses were performed by adding co-variates to the analysis. In one model, normal purchasing behaviour was added as a covariate. The inclusion of this covariate did not affect the significance of the results reported above. In a separate model, measured regulatory focus was added as covariates, specifically the promotion and prevention indices along with their interactive effects with the factor variables. The inclusion of regulatory focus in the model also did not affect the results reported above.

Message efficacy. The main effect of framing ($F(1,276) = 0.56$, $p = 0.456$) was insignificant. The main effect of distance was significant ($F(1,276) = 4.59$, $p = 0.033$), with future-focused messages ($M = 5.17$, $SD = 1.60$) rated as more effective overall than present-focused messages ($M = 4.76$, $SD = 1.65$). The framing x distance interaction had a

significant effect on ad efficacy ($F(1,276) = 6.226, p = 0.013$). The future-loss message was rated more effective ($M = 5.50, SD = 1.44$) than the present-loss ($M = 4.60, SD = 1.64$), ($F(1,276) = 10.75, p = 0.001$). There was no significant difference in the rated effectiveness between the present-gain ($M = 4.93, SD = 1.64$) and the future gain message ($M = 4.87, SD = 1.69$), ($F(1,276) = 0.062, p = 0.804$).

The extended exploratory analyses with covariates (specifically normal purchasing behaviour and regulatory focus) showed that the inclusions did not affect the results reported above.

Fluency Index. The two scale items used to measure feelings of fluency were averaged into a single measure – fluency index ($r = 0.8$).

The ANOVA on the fluency index revealed a significant main effect of framing, ($F(1, 276) = 5.89, p = 0.016$), and a marginally significant effect of distance, ($F(1, 276) = 2.90, p = 0.090$). The interaction between framing and distance was significant, ($F(1, 276) = 8.78, p = 0.029$). Participants found the present-loss message less fluent ($M = 5.23, SD = 1.71$) than the future-loss message ($M = 5.86, SD = 1.22$), with a significant difference, ($F(1, 276) = 10.70, p = 0.001$). For gain messages, there was no significant difference between the present-gain ($M = 5.97, SD = 1.18$) and future-gain messages ($M = 5.90, SD = 1.21$), ($F(1, 276) = 0.027, p = 0.870$) in terms of fluency. The ratings for distance showed a marginally significant difference, with present-focused messages found to be less fluent ($M = 5.60, SD = 1.51$) than the future-focused messages ($M = 5.88, SD = 1.22$), ($F(1, 276) = 2.90, p = 0.090$).

Mediation Analysis

To test whether Fluency Index mediated the interactive effect of framing and distance on purchasing intentions, a mediation analysis using process model 8 (5,000 bootstrapped

samples; Hayes 2022) was conducted, with Message Framing as our Independent variable, Purchase Intention of buyers as the dependent variable, Distance as our moderator and Fluency Index as our mediator.

Framing had a significant impact on Fluency Index ($\beta = 0.75, SE = 0.23, t = 3.27, p = 0.001$). Distance had a significant impact on Fluency Index ($\beta = -0.63, SE = 0.23, t = 2.75, p = 0.006$). The framing x distance interaction had a significant impact* on Fluency Index ($\beta = -0.70, SE = 0.32, t = -2.19, p = 0.02$)

Framing had an insignificant impact on purchase intentions ($\beta = 0.04, t = 0.20, p = 0.84$). Fluency Index had a very high significant impact on purchase intentions ($\beta = 0.38, t = 6.84, p = 0.00$). Distance had a significant impact on purchase intentions ($\beta = 0.42, t = 1.97, p = 0.04$). Int_1 (Framing*Distance) had a significant impact on purchase intentions ($\beta = -0.60, t = -2.02, p = 0.04$)

Finally, the index of moderated mediation showed that the confidence interval did not include zero (95% $CI = [-.53; -.03]$), indicating that Fluency Index contribute to understanding why framing and distance interact to affect purchase intentions.

Discussion

The mediation analysis conducted using process model 8 (Hayes, 2022) reveals insightful findings about the interplay between message framing, temporal distance, and the feelings of fluency in influencing purchase intentions. The results indicate that both message framing and temporal distance significantly affect fluency. Specifically, framing positively

impacted the fluency, while distance negatively impacted it. Additionally, the interaction between framing and distance also significantly influenced the Fluency Index.

While framing alone did not significantly impact purchase intentions, the Fluency Index was a strong predictor of purchase intentions. Distance also significantly affected purchase intentions, and the interaction between framing and distance showed a significant impact on purchase intentions.

The mediation analysis confirmed that the Fluency Index mediates the interactive effect of framing and distance on purchase intentions. The significant mediation is evident as the 95% confidence intervals for the direct effects of both distantly and closely framed messages do not include zero, and the index of moderated mediation also shows a confidence interval that does not include zero. These findings highlight the critical role of Fluency Index in understanding how message framing and temporal distance interact to influence consumers' purchase intentions.

STUDY 2

The goal of Study 2 was to gain a deeper insight into how message framing and perceived distance within a product category different from that in Study 1 influence consumers' reactions to the advertised brand (study 1 did not endorse any brand) and product, along with identifying potential mediating variables in this interaction. Study 2 was conducted to further confirm i) test the hypothesized main effect of Framing x Distance on purchase Intention, message efficacy and message fluency, and ii) further test feelings of fluency as a potential mediator.

Methods

Four-hundred and two participants (Mage = 37.03; SD = 11.23; 44.03% female) completed this study on the CloudResearch Connect platform and were compensated \$0.65 for a 5-minute study.

Participants first provided the informed consent. They were then randomly assigned to one of four conditions in a 2 (framing: gain vs. loss) x 2 (distance: present vs. future) between-participants design. Participants were presented with a message corresponding to their assigned condition. For example, participants in the gain-present condition saw this message:

“Say hello to effective and eco-conscious ingredients! What's good for the environment in the here and now is also good for the current health of your skin. By opting for EcoShine, you not only help to improve the environment right away but can also gain healthier skin today. Enjoy the benefits of the eco-friendly choice starting now!”. Participants in the loss-future condition saw this message: “Say goodbye to harsh and harmful chemicals! What's bad for the environment in the long run is also bad for the future health of your skin. By avoiding harmful chemicals and choosing EcoShine, you not only help to protect the environment for a better tomorrow but also prevent harm to your skin in the future. Don't miss out on the benefits of the eco- friendly choice in the years to come!”. After being exposed to the ad, participants reported their purchase intentions for the product using two items (i.e., “How likely are you purchase ECOSHINE’s cleaning products?” 1 = *very unlikely* to 7 = *very likely*; “How much do you intend to buy a cleaning product by ECOSHINE?” 1 = *Do not intent at all* to 7 = *Highly Intend*).

Participants then rated the efficacy of the message on four items: “To what extent is the message...”: effective, compelling, motivating, persuasive, 1 = *Not at all* to 7 = *very much so*)

Next, participants’ feelings of fluency were measured using a two-item scale (i.e., How easy was it to process the information in the message? // To what extent did the wording feel fluent?; 1 = *Not at all easy/not at all fluent* to 7 = *Very easy/very fluent*).

They were then presented with a manipulation check question, asking them to rate whether they felt the message was framed in the near or distant future. (1 = *highly focused on impact in the present* to 7 = *Highly focused on impact in the future*).

Participants were then informed that ECOSHINE was a hypothetical brand and were subsequently asked if they would like information about real-life brands offering eco-conscious cleaning products.

After reading the advisory message, participants reported their usual purchasing behavior, such as whether they consider environmental sustainability when buying cleaning products and how often they purchase sustainable and eco-conscious cleaning products. This information might serve as a covariate, given its potential influence on purchase intentions.

Participants also completed the General Regulatory Focus Questionnaire (Lockwood, Jordan & Kunda, 2002), as their regulatory focus orientation might affect their responses to gains and losses. An attention check question was embedded within the regulatory focus questionnaire, instructing participants to select a specific option. This was done to screen out inattentive participants in the final analysis. Lastly, basic demographic questions were administered.

Results

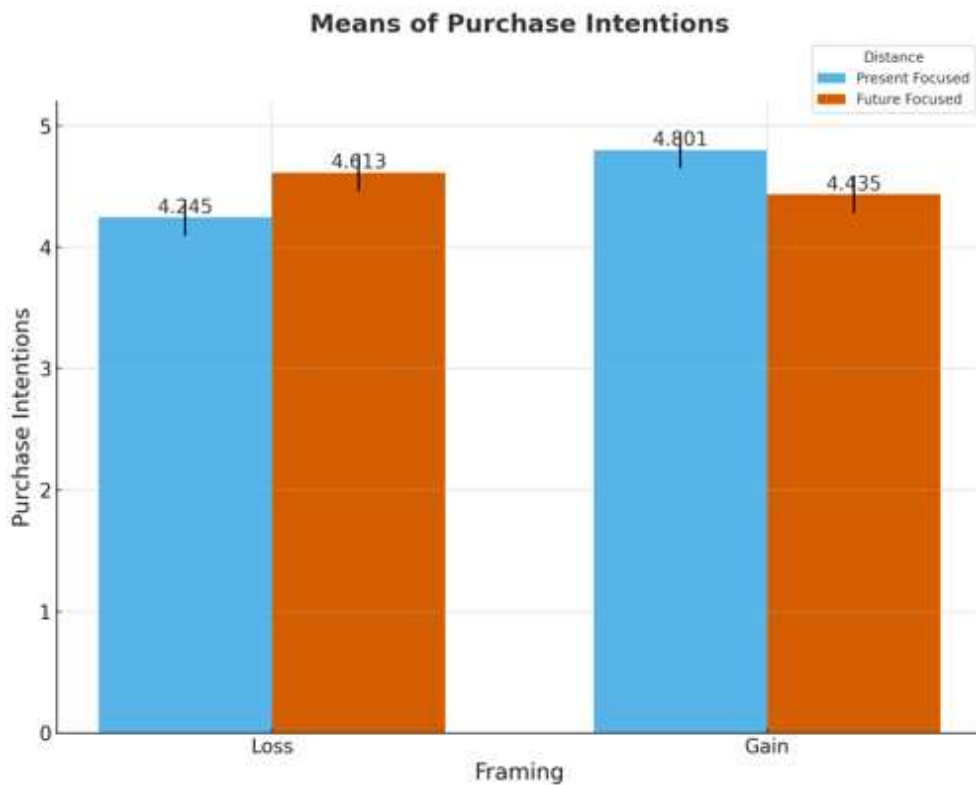
Participants that failed the attention check were excluded from the analysis. After exclusions, 384 participants were included in the analyses. To analyse the results, 2 (gain vs. loss) x 2 (present vs. future) ANOVAs were conducted.

Manipulation check. In this study, similar to Study 1, we conducted a temporal manipulation check by asking participants to rate whether they perceived the message as being temporally present-focused or future-focused. The effect of temporal distance on the temporal manipulation check was highly significant ($F(1, 380) = 20.54, p < 0.001$). Overall, present-focused messages were perceived to be nearer in time ($M = 4.12, SD = 1.98$) than future-focused messages ($M = 4.95, SD = 1.60$). The main effect of framing on the temporal manipulation check was also significant ($F(1, 380) = 3.88, p = 0.05$). The future focused loss messages were rated higher ($M = 4.91, SD = 1.71$) than the present focused loss messages ($M = 3.8, SD = 2.05$). Similar trend was observed for gain messages, future focused gain messages were rated higher ($M = 4.99, SD = 1.48$) than the present-focused gain messages ($M = 4.44, SD = 1.85$). The interaction of framing x distance was nonsignificant ($F(1, 380) = 2.30, p = 0.130$).

Purchase intentions. Purchase intentions. The main effect of framing on purchase intentions of the participants was nonsignificant ($F(1, 380) = 1.54, p = 0.215$). The main effect of distance was nonsignificant ($F(1, 380) = 0.00, p = 0.992$). A significant framing x distance interaction emerged ($F(1, 380) = 5.81, p = 0.016$). Participants reported higher purchase intentions when exposed to the future-focused loss message ($M = 4.61, SD = 1.47$) than the present-focused loss message ($M = 4.24, SD = 1.54$) with ($F(1, 380) = 2.95, p =$

0.087). For gain-framed messages, participants reported purchase intentions ($M = 4.80$, $SD = 1.55$) for present-focused gain message and ($M = 4.43$, $SD = 1.39$) for future-focused gain message with ($F(1, 380) = 2.87$, $p = .091$).

Figure 3. Means of Purchase Intentions with Std error



Like experiment 1, Additional exploratory analyses were performed by adding covariates to the analysis for experiment 2. In one model, normal purchasing behaviour was added as a covariate. The inclusion of this covariate did not affect the significance of the results reported above. In a separate model, measured regulatory focus was added as covariates, specifically the promotion and prevention indices along with their interactive effects with the factor variables. The inclusion of regulatory focus in the model also did not affect the results reported above.

Message efficacy. The main effects of framing ($F(1, 377) = 0.49$, $p = 0.484$) and distance ($F(1, 377) = 0.03$, $p = 0.862$) were nonsignificant. The interaction of framing x

distance had a marginal effect on ad efficacy ($F(1, 377) = 2.80, p = 0.095$). For the ad efficacy measure, the following were the mean scores for the four cases. The future-focused loss message ($M = 4.95, SD = 1.42$) was rated more effective than the present-focused loss message ($M = 4.67, SD = 1.60$), with ($F(1, 377) = 1.71, p = 0.191$). The present-focused gain message ($M = 5.04, SD = 1.67$) was rated similarly to the future-focused gain message ($M = 4.80, SD = 1.43$), with ($F(1, 377) = 1.12, p = 0.290$).

During our extended exploratory analyses, we found that the covariates, normal purchasing behavior and self-regulatory focus index, had no effect on our main effects of framing and distance. Similarly, the two covariates had no significant effects on the interaction of framing x distance for ad efficacy.

Fluency Index. The two scale items used to measure feelings of fluency were averaged into a single measure – Fluency Index index - as they had a coefficient of correlation ($r = 0.7$).

The two-way ANOVA with framing and distance revealed no main effects, framing ($F(1,380) = 0.263, p = 0.608$) and distance ($F(1,380) = 0.016, p = 0.899$). The interaction of framing and distance was also nonsignificant with ($F(1,380) = 2.53, p = 0.112$).

Mediation Analysis

To test whether the Fluency Index mediated the interactive effect of framing and distance on purchasing intentions, a mediation analysis using process model 8 (5,000 bootstrapped samples; Hayes 2022) was conducted, with Message Framing as our Independent variable, Purchase Intention of buyers as the dependent variable, Distance as our moderator, and Fluency Index as our mediator.

Framing had a nonsignificant impact on Fluency Index ($\beta = 0.1209$, $SE = 0.1574$, $t = 0.7676$, $p = 0.4432$). Distance had a nonsignificant impact on Fluency Index ($\beta = 0.1925$, $SE = 0.1578$, $t = 1.2195$, $p = 0.2234$). The framing x distance interaction also had a nonsignificant impact on Fluency Index ($\beta = -0.3565$, $SE = 0.2239$, $t = -1.5927$, $p = 0.1121$).

Framing had a significant impact on purchase intentions ($\beta = 0.5157$, $SE = 0.2080$, $t = 2.4794$, $p = 0.0136$). Fluency Index had a significant impact on purchase intentions ($\beta = 0.3355$, $SE = 0.0677$, $t = 4.9553$, $p < 0.001$). Distance had a nonsignificant impact on purchase intentions ($\beta = 0.3040$, $SE = 0.2088$, $t = 1.4563$, $p = 0.1461$). Int_1 (Framing*Distance) had a significant impact on purchase intentions ($\beta = -0.6145$, $SE = 0.2965$, $t = -2.0729$, $p = 0.0389$).

Because the 95% confidence interval for the direct effect in the case of distantly framed messages (1 = Distant, 0 = Close) did include zero (95% CI = [-0.5130, 0.3153]), the mediation was not significant. For the direct effect, the 95% confidence interval did not include zero for closely framed messages (95% CI = [0.1067, 0.9246]), the mediation was significant. Finally, we observed no mediation caused by our moderator – distance, as the index of moderated mediation showed that the confidence interval included zero (95% CI = [-0.2940, 0.0221]), indicating that Fluency Index do not contribute significantly to understanding why framing and distance interact to affect purchase intentions.

Discussion

This study found results consistent with the temporal discounting perspective. Gains were more effective when present-focused, while losses were more effective when future-focused.

In this study, the mediation analysis indicated that neither message framing nor temporal distance significantly affects feelings of fluency, although fluency remained a significant predictor of purchase intentions. These results indicate that fluency alone cannot explain how and why framing and distance interact to impact purchase intentions.

Given the inconsistent results for fluency, it was not measured further in the next experiment. The next experiment also replaced the measure of message efficacy with a more managerially relevant variable, brand evaluation, to enhance the practical implications of the findings.

STUDY 3

Study 3 utilized the same product category as Study 2; however, the stimuli were adjusted based on feedback from participants in Studies 1 and 2. Unlike the previous studies, Study 3 also explored whether framing had any effect on participants' brand evaluations. Therefore my main goals for study 3 were i) To further test and confirm the hypothesized main effect of the interaction between Framing and Distance on purchase intention. ii) Assess the impact on brand evaluation.

Methods

Six-hundred and thirty-four participants ($M_{age} = 38.18$; $SD = 12.16$; 50% *female*) completed this study on the CloudResearch Connect platform and were compensated \$0.65 for a 5-minute study.

Participants first provided the informed consent. They were then randomly assigned to one of four conditions in a 2 (framing: gain vs. loss) x 2 (distance: present vs. future) between-participants design. Participants were presented with a message corresponding to their assigned condition. For example, participants in the gain-present condition saw this message:

“Say hello to effective and eco-conscious ingredients! What's good for the environment in the here and now is also good for the current health of your skin. By opting for EcoShine, you not only help to improve the environment right away but can also gain healthier skin today.

Enjoy the benefits of the eco-friendly choice starting now!”. Participants in the loss-future condition saw this message: “Say goodbye to harsh and harmful chemicals! What's bad for the environment in the long run is also bad for the future health of your skin. By avoiding harmful chemicals and choosing EcoShine, you not only help to protect the environment for a better tomorrow but also prevent harm to your skin in the future. Don't miss out on the protection of the eco- friendly choice in the years to come!”. After being exposed to the ad, participants reported their purchase intentions for the product using two items (i.e., “How likely are you purchase ECOSHINE’s cleaning products?” 1 = *very unlikely* to 7 = *very likely*; “How inclined are you to purchase ECOSHINE’s products?” 1 = *Not inclined at all* to 7 = *very inclined*).

Participants then evaluated the brand ECOSHINE on three items: 'How would you evaluate the brand...': positivity, favorability, and desirability, each on a 7-point scale with the extremities being positive/negative, unfavorable/favorable, and undesirable/desirable, respectively.

After evaluating the brand, participants were presented with a framing manipulation check question, asking them to indicate their agreement with the following statements:

“When I processed the message above, I thought about the ECOSHINE brand in terms of...”: 1) “Improvements and benefits to be gained” and 2) “Harms that it can help to protect against and prevent”

Both statements were rated on a 7-point scale, with 1 being 'not at all' and 7 being 'very much so'.

They were then presented with a temporal manipulation check question, asking them to rate whether they felt the message was framed in the near or distant future. (*Scale – “in the present” 1 = not at all to 7 = very much so; “in the future” 1 = not at all to 7 = very much so*).

Participants were then informed that ECOSHINE was a hypothetical brand and were subsequently asked if they would like information about real-life brands offering eco-conscious cleaning products.

Another attention check question was administered to screen out inattentive participants in the final analysis. The question asked participants what kind of products ECOSHINE makes, with the following choices provided: skincare products, sunscreen, household cleaning, shoe care, or hair care products. Lastly, basic demographic questions were administered.

Results

After excluding 105 participants for failing the attention check, 528 participants were included in the analyses. To analyse the results, 2 (gain vs. loss) x 2 (present vs. future) ANOVAs were conducted.

Manipulation checks: Temporal distance items. The “present” temporal manipulation check was first examined. The effect of temporal distance was nonsignificant, ($F(1, 524) = 1.22, p = 0.27$). The effect of framing was significant ($F(1, 524) = 4.89, p = 0.028$). The present focused loss messages were rated similarly ($M = 5.35, SD = 1.30$) to the future focused loss messages ($M = 5.25, SD = 1.51$). Similar trend was observed for gain messages, present focused gain messages were rated similarly ($M = 5.11, SD = 1.51$) to the future-focused gain messages ($M = 4.92, SD = 1.58$). The interaction effect of framing x distance was nonsignificant ($F(1, 524) = 0.11, p = 0.735$).

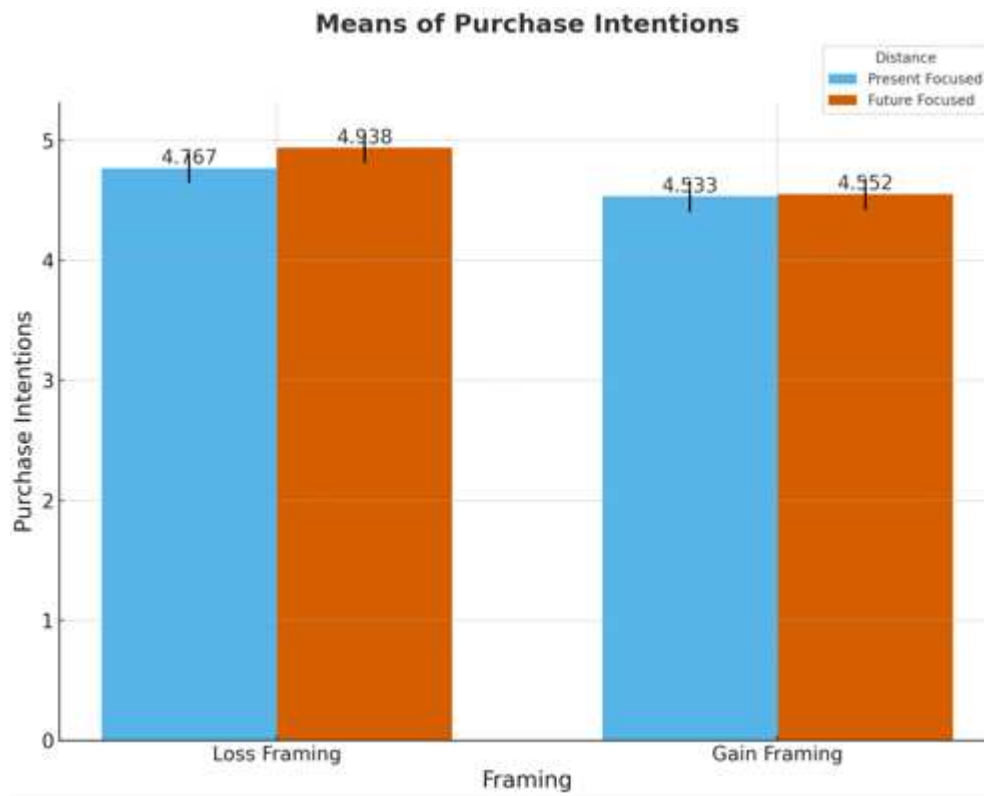
Next, the “future” manipulation check was examined. Here, the effect of distance was significant ($F(1, 524) = 4.85, p = 0.028$). Participants rated the future-focused messages ($M = 5.33, SD = 1.52$) as further in the future compared to the present-focused messages ($M = 5.02, SD = 1.64$). The effect of framing was nonsignificant, ($F(1, 524) = 2.37, p = 0.124$). The interaction effect was nonsignificant, ($F(1, 524) = 2.61, p = 0.106$).

Manipulation checks: Framing. The “loss” framing item was first examined. The effect of framing was highly significant ($F(1, 524) = 18.05, p < 0.001$). The present focused loss messages were rated similarly ($M = 4.85, SD = 1.57$) to the future focused loss messages ($M = 4.93, SD = 1.54$). Similar trend was observed for gain messages, present focused gain messages were rated similarly ($M = 5.00, SD = 1.53$) to the future-focused gain messages ($M = 4.96, SD = 1.39$). The effect of distance was nonsignificant ($F(1, 524) = 1.04, p = 0.308$), and the interaction effect was also nonsignificant ($F(1, 524) = 0.63, p = 0.427$).

Next, the “gain” framing item was examined. The effects of both framing ($F(1, 524) = 0.453, p = 0.501$) and distance ($F(1, 524) = 0.031, p = 0.860$) were nonsignificant, and the interaction effect was also nonsignificant ($F(1, 524) = 0.232, p = 0.630$).

Purchase intentions. The two items used for measuring purchasing intentions were averaged into one single variable “PI Index” as they had a very high correlation coefficient of 0.9. The effect of framing was significant on purchase intentions of the participants ($F(1, 524) = 6.02, p = .014$). The main effect of distance was nonsignificant ($F(1, 524) = 0.568, p = 0.451$). Participants reported similar purchase intentions for the loss messages: present-focused loss message ($M = 4.76, SD = 1.41$) and future-focused loss message ($M = 4.93, SD = 1.36$). The purchase intentions for gain messages were also similar, for present-focused gain ($M = 4.53, SD = 1.50$) and for future-focused gain ($M = 4.55, SD = 1.52$). A nonsignificant framing x distance interaction emerged ($F(1, 524) = .356, p = 0.551$).

Figure 4. Means of Purchase Intentions with Std error



Brand Evaluation. The three items used for measuring brand evaluation by participants were averaged into one single variable “Brand Eval Index” as they had a very high reliability coefficient of 0.936. The effect of framing was nonsignificant on brand evaluation ($F(1, 524) = 1.93, p = 0.166$). The main effect of distance was nonsignificant ($F(1, 524) = 0.803, p = 0.371$). A nonsignificant framing x distance interaction emerged ($F(1, 524) = 1.090, p = 0.297$).

Results Summary

Based on the manipulation checks, the clarity of how temporal distance and framing were perceived by participants was mixed. Regarding temporal distance, the messages successfully conveyed the intended future orientation, as participants rated future-focused messages as more aligned with the distant future compared to present-focused messages. However, the messages did not significantly differ in their present orientation, indicating that

participants may not have fully distinguished between present-focused and future-focused messages when considering the immediacy of the temporal frame.

In terms of framing, the manipulation checks confirmed that loss-framed messages were perceived as intended, with a clear distinction between loss-focused content. However, the gain-framed messages did not differ significantly in how they were perceived in terms of emphasizing benefits, suggesting a potential limitation in the effectiveness of the gain-framing manipulation. This discrepancy in how the messages were perceived might help explain the lack of significant interaction effects on purchase intentions observed in this study, which were found in Studies 1 and 2.

Moreover, the study yielded null effects for both purchase intentions and brand evaluations. The lack of significant effects could be partially attributed to the higher number of inattentive participants, with 105 participants failing the attention check. This may have diluted the overall results, making it difficult to detect significant differences in how participants responded to the various framing and temporal distance conditions. Consequently, the anticipated interaction effects between framing and temporal distance on purchase intentions and brand evaluations were not observed, which contrasts with the findings from the previous studies.

GENERAL DISCUSSION

In summary, the three studies investigated the interactive effects of message framing (Gain vs. Loss) and temporal distance (Present-focused vs. Future-focused) on key consumer behaviors, including purchase intentions, message efficacy, and brand evaluation. In Study 1 a significant interaction between framing and distance emerged. In particular, the loss-framed message was more effective when aligned with a future focus, while temporal focus did not

impact the gain-framed message. Study 2 replicated these findings within a different product category. Though the effects of the framing x distance interaction were slightly less pronounced, a marginally significant reversal was found for the gain-framed message, such that the present-focused message was more effective than the future-framed message. Study 3 yielded null effects, with no significant interaction between framing and distance observed on either purchase intentions or brand evaluation.

These findings underscore the complexity of how framing and temporal distance interact to shape consumer responses, revealing that their impact may vary significantly depending on the specific behavioral outcomes and context.

Theoretical Contributions

This research may be one of first to formally theorize about different possibilities for how message framing and temporal distance may interact to affect consumer behavior. While prior work on the effects of message framing has primarily drawn from theorizing around construal level and regulatory focus—found results consistent with this perspective—this thesis raises an alternative possibility. Specifically, work from the temporal discounting literature would make the opposite prediction: Temporal discounting suggests that individuals tend to place greater value on outcomes that are closer in time, whether these outcomes are gains or losses. This is because people generally prefer to receive rewards sooner rather than later, driven by an inherent desire for immediate gratification. Conversely, while people might prefer to delay losses, research indicates that when faced with the anticipation of aversive experiences, individuals may actually prefer to get these experiences over with sooner rather than later. This is particularly true for nonmonetary losses, such as environmental consequences, where the dread of future negative outcomes can be more motivating than the immediacy of smaller, present losses (Loewenstein, 1987; Harris, 2011).

Therefore, the temporal discounting perspective predicts that gain-framed messages should be more persuasive when they highlight immediate rewards, as people are more likely to act quickly to secure these benefits and loss-framed messages might be more effective when they emphasize future losses, as the anticipation of these negative experiences could drive stronger behavioral responses. This contrasts with Construal Level Theory, which posits that individuals engage in more abstract thinking when considering the distant future, leading them to align gain-framed messages with future rewards and loss-framed messages with present-focused risks.

My experiments generally found results consistent with the temporal discounting perspective. For the loss-framed messages, both studies 1 and 2 revealed that future-focused loss messages were more effective than present-focused ones. This pattern may be explained by the tendency of individuals to prefer getting aversive experiences over with as soon as possible, a concept supported by the 'fixed-cost present bias' described by Hardisty, Appelt, and Weber (2013). According to this bias, people are often more motivated to act immediately when they perceive a future cost or loss, as they would rather eliminate the anticipation of that negative experience than let it linger. Moreover, the anticipation of future losses can evoke significant feelings of dread, which can drive individuals to take action now to avoid these future negative outcomes (Berns et al., 2006). The combination of wanting to avoid future losses and the emotional burden associated with their anticipation makes future-focused loss messages particularly compelling, as they tap into the inherent human desire to mitigate impending negative experiences.

For the gain-framed messages, two of the three studies did not yield significant differences between present- and future-focus, however study 2 provided some indication that present-focused gain messages outperformed future-focused gain messages. This finding

aligns with the temporal discounting perspective, which suggests that individuals tend to value immediate rewards more than those in the distant future. The immediate benefits of engaging in sustainable behaviors, when framed in the present, seem to resonate more with consumers, likely due to the inherent psychological preference for short-term gains over long-term rewards. This insight again adds to the understanding of how Temporal Discounting can operate in the context of sustainability messaging, suggesting that when it comes to promoting environmentally friendly behaviors, emphasizing immediate benefits can sometimes be a more effective strategy than focusing on future gains.

These findings contribute to the message framing literature by highlighting a different theoretical perspective that can shape consumer responses to sustainability messages. This research underscores the importance of considering both theories when designing effective sustainability campaigns, offering a more integrated approach to understanding message framing and persuasion.

Another thing to note is that significant societal shifts have increasingly emphasized the relevance of the temporal discounting perspective in environmental messaging. The rise of global climate movements, such as Fridays for Future, and the growing influence of corporate social responsibility (CSR) campaigns have heightened awareness and urgency surrounding sustainability issues, particularly among younger generations. With more frequent and severe climate events being widely covered in the media, the consequences of inaction now feel more immediate and pressing. Additionally, the proliferation of social media and digital platforms has revolutionized how messages are delivered and consumed, allowing for more personalized and immediate communication. As a result, younger consumers today are more environmentally conscious and increasingly expect immediate action from brands and governments. This shift in consumer behavior, driven by the growing

urgency to address climate change, has created a cultural environment where immediate action on environmental issues is not just preferred but demanded. This social pressure amplifies the salience of the immediate consequences of environmental neglect, potentially making future-focused messages more compelling, as they align with the growing expectation for sustained and long-term environmental action. Consequently, consumers are more likely to respond strongly to messaging that highlights long-term outcomes, reinforcing the observed effects in our research.

Limitations

Reconciling the two theoretical perspectives—Construal Level Theory (CLT) and Temporal Discounting—was beyond the scope of the current research. However, future research could benefit from identifying and examining the conditions under which each perspective holds. This could involve exploring situational or contextual factors that might dictate when one theory is more applicable than the other. For example, different messaging contexts or consumer psychological states could potentially influence when each theoretical framework is more relevant.

While Studies 1 and 2 yielded results generally consistent with the temporal discounting perspective, the consistent observation of stronger effects for losses in our studies may be attributed to the heightened sensitivity people have toward negative information (CITE Ito et al., 1998; Bilgin 2012; Kahneman & Tversky, 1984)). It is possible that losses are perceived with a greater sense of urgency and importance than gains. It is also possible that losses appear more likely to occur than gains (Bilgin, 2012).

Study 3 produced null effects. Null results may occur for many different reasons. For example, this discrepancy may be due to participant inattentiveness during the third study, which ultimately makes it difficult to ascertain the exact reasons for the lack of significant

findings. Some of the manipulation checks in study 3 also did not show a significant distinction between conditions. This lack of differentiation in how the framed messages were perceived across conditions could be another reason why we observed null results in this study.

Additionally, the current research may have been limited by the demographic homogeneity of the sample, which consisted of participants in the United States. Different cultures vary on dimensions that are relevant to the current theorizing. For example, cultural variations in regulatory focus—such as the West’s tendency toward promotion focus and the East’s toward prevention focus—could affect responses to gain- and loss-framed messages (Uskul et al., 2009; Lee & Aaker, 2004; Keller & Lehmann, 2008; Semin et al., 2005; Aaker & Williams, 1998). People from different cultures also differ in their long-term orientation which reflects the degree to which a culture values future rewards over immediate benefits (Hofstede, 1991). Cultures with a strong long-term orientation, such as many East Asian societies, are more likely to prioritize future outcomes and may be more responsive to future-focused messaging. In contrast, cultures with a short-term orientation, often found in Western societies, tend to emphasize immediate results and could be more influenced by present-focused messages. Thus, different cultures may also affect consumer response to the temporal focus in a message. Due to these cultural differences, the interaction between message framing and temporal focus may thus differ across cultures.

Another limitation of our studies is the absence of covariates such as attitudes toward climate change and political affiliation. These individual differences could have significantly influenced participants' responses to the framed messages. By not controlling for these variables, the data could have contained greater noise, making it more challenging to uncover

the effects of the framing strategies. Including such covariates may have allowed for a more precise analysis of the interaction between message framing and temporal distance.

Practical Implications

Practitioners should consider the insights from this research when designing sustainability messaging strategies. While existing research may suggest that construal level and regulatory focus theory should guide message development, our findings suggest a more complex reality where the Temporal Discounting perspective can also play a critical role. Specifically, the effectiveness of loss-framed messages that emphasize future consequences indicates that highlighting longer-term impacts can be more persuasive for today's consumers. This may be particularly relevant in the context of increasing environmental awareness, where consumers are more inclined to consider the future implications of their choices.

In either case, practitioners should not take a one-size-fits-all approach. It's crucial to assess the target audience's mindset, cultural background, and the specific product category when crafting messages. For instance, messages promoting products with long-term benefits may benefit more from future-focused loss framing, while other products might still respond better to different combinations of framing and temporal focus. Additionally, incorporating these findings into digital and interactive media strategies could enhance message relevance and consumer engagement. Therefore, while these insights may provide valuable guidance to some extent, practitioners should remain flexible and responsive to the evolving nature of consumer attitudes and the specific contexts in which their messages are delivered.

Conclusion

This thesis explored how message framing and temporal distance may interact to affect consumer behavior in the context of sustainability. Through three studies, the research examined how gain- and loss-framed messages, combined with present- or future-focused temporal framing, influence purchase intentions, message efficacy, and brand evaluation. Novel results were found relative to existing findings in the message framing literature. Future research should continue to investigate these interactions, particularly in diverse settings, to refine strategies for effective environmental communication. By doing so, marketers can develop more impactful messaging that encourages sustainable consumer behavior and contributes to long-term environmental goals.

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APPENDIX – STUDY 1

Stimuli - Present Focused Gain Framing

GAIN MORE WATER RESOURCES NOW



Organic cotton is grown more sustainably than regular cotton.

Choosing organic cotton means you **achieve 70% more** in water supply savings **today!**

Gain precious water resources for a **better world now.**



Stimuli - Present Focused Loss Framing

LOSE LESS WATER RESOURCES NOW



Organic cotton is grown more sustainably than regular cotton.

Choosing organic cotton means you **lose 70% less** in water supply savings **today!**

Conserve precious water resources for a better world now.



Stimuli - Future Focused Gain Framing

GAIN MORE WATER RESOURCES FOR THE FUTURE



Organic cotton is grown more sustainably than regular cotton.

Choosing organic cotton means you **achieve 70% more** in water supply savings **for the future!**

Gain precious water resources for a **better tomorrow.**



Stimuli - Future Focused Loss Framing

LOSE LESS WATER RESOURCES FOR THE FUTURE



Organic cotton is grown more sustainably than regular cotton.

Choosing organic cotton means you **lose 70% less** in water supply savings **for the future!**

Conserve precious water resources for a **better tomorrow.**



Purchase Intentions - Items

Q If you need to buy a new shirt for yourself...

...how likely are you to purchase a shirt made from organic cotton?

Very Unlikely 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very Likely 7 (7)

Q ...how much do you intend to buy a shirt made from organic cotton?

Do not Intend at all 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Highly Intend 7 (7)

Efficacy Measure - Items

Q To what extent is the message...

	Not at all 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	Very much so 7 (7)
...effective? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...compelling ? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...motivating? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...persuasive? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fluency Measure - Items

Q How easy was it to process the information in the message?

- Not at all easy to process 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)

Very easy to process 7 (7)

Q To what extent did the wording of the message feel fluent?

Not at all fluent 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very fluent 7 (7)

Temporal Manipulation

Q When you processed the message, how did you think about the benefits of buying organic cotton clothing?

Highly focused on impact in the present 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Highly focused on impact in the future 7 (7)

Normal Purchasing Behavior - Items

Q The following questions are about your normal purchasing behavior.

Normally, how often do you consider environmental sustainability in your clothing purchase decisions?

1 = Never consider sustainability (1)

2 = Rarely consider sustainability (2)

3 = Occasionally consider sustainability (3)

4 = Sometimes consider sustainability (4)

5 = Often consider sustainability (5)

6 = Always consider sustainability (6)

Q How often do you buy organic cotton products?

1 = Never (1)

2 = Rarely (2)

3 = Occasionally (3)

4 = Sometimes (4)

5 = Often (5)

6 = Always (6)

Q How often do you buy organic products in general?

1 = Never (1)

2 = Rarely (2)

3 = Occasionally (3)

4 = Sometimes (4)

5 = Often (5)

6 = Always (6)

Beliefs and Values Survey

Please answer the following question about yourself:

Q I typically focus on the success I hope to achieve in future

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q In general, I am focused on achieving positive outcomes in my life

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often imagine myself experiencing good things that I hope will happen to me

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I frequently imagine how I will achieve my hopes and aspirations

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often imagine myself experiencing bad things and fear what might happen to me

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often think about the person I am afraid I might become in the future

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I am more oriented toward preventing losses than I am toward achieving gains

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I frequently think about how I can prevent failures in my life

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Demographics

Q Do you have any comments about this survey that you would like to share with us?

(Leave blank if you don't have any comments.)

Age Please indicate your age:

Gender Please indicate your gender:

Male (1)

Female (2)

Non-binary / third gender (3)

Prefer not to say (4)

Prefer to self describe (5)

Q In the past year, what was your household income before taxes?

less than \$20,000 (1)

\$ 20,000 to \$40,000 (2)

\$40,000 to \$60,000 (3)

\$60,000 to \$80,000 (4)

\$80,000 to \$100,000 (5)

more than \$100,000 (6)

APPENDIX - STUDY 2

Stimuli - Present Focused Gain Framing

**ENJOY THE BENEFITS OF ECOSHINE'S ECO-CONSCIOUS
CLEANING PRODUCTS TODAY!**



Say hello to effective and eco-conscious ingredients! What's **good for the environment in the here and now** is also **good for the current health of your skin.**

By opting for **EcoShine**, you not only help to **improve the environment right away** but can also **gain healthier skin today.**

Enjoy the benefits of the eco-friendly choice starting **now!**



ECOSHINE
GAIN A VIBRANT PLANET TODAY

Stimuli - Present Focused Loss Framing

DON'T MISS OUT ON THE BENEFITS OF ECOSHINE'S ECO-CONSCIOUS CLEANING PRODUCTS TODAY!



Say goodbye to harsh and harmful chemicals! What's **bad for the environment in the here and now** is also **bad for the current health of your skin.**

By avoiding harmful chemicals and choosing **EcoShine**, you not only help to **protect the environment right away** but can also **prevent harm to your skin today.**

Don't miss out on the benefits of the eco-friendly choice starting **now!**



ECOSHINE
PRESERVE THE PLANET TODAY

Stimuli - Future Focused Gain Framing

ENJOY THE BENEFITS OF ECOSHINE'S ECO-CONSCIOUS CLEANING PRODUCTS FOR A BETTER TOMORROW!



Say hello to effective and eco-conscious ingredients! What's good for the environment in the long run is also good for the future health of your skin.

By opting for EcoShine, you not only help to improve the environment for a better tomorrow but also gain healthier skin in the future.

Enjoy the benefits of the eco-friendly choice in the years to come!



ECOSHINE
GAIN A VIBRANT PLANET FOR THE FUTURE

Stimuli - Future Focused Loss Framing

DON'T MISS OUT ON THE BENEFITS OF ECOSHINE'S ECO-CONSCIOUS CLEANING PRODUCTS FOR A BETTER TOMORROW!



Say goodbye to harsh and harmful chemicals! What's **bad for the environment in the long run** is also **bad for the future health of your skin**.

By avoiding harmful chemicals and choosing **EcoShine**, you not only help to **protect the environment for a better tomorrow** but also **prevent harm to your skin in the future**.

Don't miss out on the benefits of the eco-friendly choice in the years to come!



ECOSHINE
PRESERVE THE PLANET FOR THE FUTURE

Purchase Intention - Items

Q If you need to buy a cleaning product...

...how likely are you to purchase ECOSHINE's cleaning products?

Very Unlikely 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very Likely 7 (7)

Q ...how much do you intend to buy a cleaning product by ECOSHINE?

Do not Intend at all 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Highly Intend 7 (7)

Efficacy Measure - Items

Q To what extent is the message...

	Not at all 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	Very much so 7 (7)
...effective? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...compelling ? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...motivating? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...persuasive? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fluency Measure - Items

Q How easy was it to process the information in the message?

- Not at all easy to process 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)

- 5 (5)
- 6 (6)
- Very easy to process 7 (7)

Q To what extent did the wording of the message feel fluent?

- Not at all fluent 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- Very fluent 7 (7)

Temporal Manipulation

Q When you processed the message, how did you think about the benefits of ECOSHINE's cleaning products?

Highly focused on impact in the present 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Highly focused on impact in the future 7 (7)

Additional Information Request

Q Please note that EcoShine was a brand created for the purposes of this study and is not available in the marketplace. However, if you are interested in eco-conscious cleaning products that you can buy, we can provide you a list of alternatives. Would you like to have this information?

Yes, I would like to get this information (we will give you this information at the end of the study) (4)

No, I don't want this information (5)

Normal Purchasing Behavior - Items

Q The following questions are about your normal purchasing behavior.

Normally, how often do you consider environmental sustainability in your purchase decisions while buying cleaning products?

- 1 = Never consider sustainability (1)**
- 2 = Rarely consider sustainability (2)**
- 3 = Occasionally consider sustainability (3)**
- 4 = Sometimes consider sustainability (4)**
- 5 = Often consider sustainability (5)**
- 6 = Always consider sustainability (6)**

Q How often do you buy eco-conscious cleaning products?

- 1 = Never (1)**
- 2 = Rarely (2)**
- 3 = Occasionally (3)**

4 = Sometimes (4)

5 = Often (5)

6 = Always (6)

Beliefs and Values Survey

Please answer the following question about yourself:

Q I typically focus on the success I hope to achieve in future

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q In general, I am focused on achieving positive outcomes in my life

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often imagine myself experiencing good things that I hope will happen to me

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I frequently imagine how I will achieve my hopes and aspirations

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often think about my ideal future self. Please select 2 below instead of your actual answer

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often imagine myself experiencing bad things and fear what might happen to me

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I often think about the person I am afraid I might become in the future

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I am more oriented toward preventing losses than I am toward achieving gains

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Q I frequently think about how I can prevent failures in my life

Very Untrue 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very True 7 (7)

Demographics

Q60 Do you have any comments about this survey that you would like to share with us?

(Leave blank if you don't have any comments.)

Age Please indicate your age:

Gender Please indicate your gender:

Male (1)

Female (2)

Non-binary / third gender (3)

Prefer not to say (4)

Prefer to self describe (5)

Q In the past year, what was your household income before taxes?

- less than \$20,000 (1)
- \$ 20,000 to \$40,000 (2)
- \$40,000 to \$60,000 (3)
- \$60,000 to \$80,000 (4)
- \$80,000 to \$100,000 (5)
- more than \$100,000 (6)

Earlier, you indicated you would be interested to get more information about eco-conscious cleaning brands available in the market. We have provided some information below. As always, we advise consumers to do their own research before purchasing a product.

1) <https://www.wired.com/story/eco-friendly-natural-cleaning-products/>

2) <https://www.nationalgeographic.com/lifestyle/article/best-natural-cleaning-products>

3) <https://www.rd.com/list/green-cleaning-products/>

APPENDIX - STUDY 3

Stimuli - Present Focused Gain Framing

**ENJOY THE BENEFITS OF ECOSHINE'S ECO-CONSCIOUS
CLEANING PRODUCTS TODAY!**



Say hello to effective and eco-conscious ingredients! What's **good for the environment in the here and now** is also **good for the current health of your skin.**

By opting for **EcoShine**, you not only help to **improve the environment right away** but can also **gain healthier skin today.**

Enjoy the benefits of the eco-friendly choice starting **now!**



ECOSHINE
GAIN A VIBRANT PLANET TODAY

Stimuli - Present Focused Loss Framing

DON'T MISS OUT ON THE PROTECTION OF ECOSHINE'S ECO-CONSCIOUS CLEANING PRODUCTS TODAY!



Say goodbye to harsh and harmful chemicals! What's **bad for the environment in the here and now** is also **bad for the current health of your skin.**

By avoiding harmful chemicals and choosing **EcoShine**, you not only help to **protect the environment right away** but can also **prevent harm to your skin today.**

Don't miss out on the **protection** of the eco-friendly choice starting **now!**



ECOSHINE
PRESERVE THE PLANET TODAY

Stimuli - Future Focused Gain Framing

**ENJOY THE BENEFITS OF ECOSHINE'S ECO-CONSCIOUS
CLEANING PRODUCTS FOR A BETTER TOMORROW!**



Say hello to effective and eco-conscious ingredients! What's **good for the environment in the long run** is also **good for the future health of your skin.**

By opting for **EcoShine**, you not only help to **improve the environment for a better tomorrow** but also **gain healthier skin in the future.**

Enjoy the benefits of the eco-friendly choice in the years to come!



ECOSHINE
GAIN A VIBRANT PLANET FOR THE FUTURE

Stimuli - Future Focused Loss Framing

DON'T MISS OUT ON THE PROTECTION OF ECOSHINE'S ECO-CONSCIOUS CLEANING PRODUCTS FOR A BETTER TOMORROW!



Say goodbye to harsh and harmful chemicals! What's bad for the environment in the long run is also bad for the future health of your skin.

By avoiding harmful chemicals and choosing **EcoShine**, you not only help to protect the environment for a better tomorrow but also prevent harm to your skin in the future.

Don't miss out on the protection of the eco-friendly choice in the years to come!



ECOSHINE
PRESERVE THE PLANET FOR THE FUTURE

Purchase Intentions - Items

Q If you need to buy a household cleaning product...

...how likely are you to purchase ECOSHINE's products?

Not Likely At All 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very Likely 7 (7)

Q ...how inclined are you to purchase ECOSHINE's products?

Not Inclined At All 1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

Very Inclined 7 (7)

Brand Evaluation - Items

Q49 How would you evaluate the ECOSHINE brand?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Negative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Positive
Unfavorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Favorable
Undesirable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Desirable

Manipulation Check - Framing

Please indicate your agreement with the following statements.

When I processed the message above, I thought about the ECOSHINE brand in terms of...

	1 = Not at all (11)	2 (12)	3 (13)	4 (14)	5 (15)	6 (16)	7 = Very much so (17)
...improvements and benefits to be gained. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...harms that it can help to protect from and prevent. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Manipulation check - Distance

When I processed the message above, I thought about the impact of ECOSHINE's cleaning products...

	1 = Not at all (11)	2 (12)	3 (13)	4 (14)	5 (15)	6 (16)	7 = Very much so (17)
...in the present. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...in the future. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attention Check

What type of product does ECOSHINE make?

- Skincare products (1)
- Sunscreen products (2)
- Household cleaning products (3)
- Shoe care products (4)

Hair products (5)

Demographics

Q Do you have any comments about this survey that you would like to share with us?

(Leave blank if you don't have any comments.)

Age - Please indicate your age:

Gender - Please indicate your gender:

Male (1)

Female (2)

Non-binary / third gender (3)

Prefer not to say (4)

Prefer to self describe (5)

