Applying Gain or Loss Framing in Promotional Email Messages to Encourage Event Attendance for Agricultural Educator Global Learning Professional Development

Agricultural educators play a crucial role in teaching learners and communities about the importance of agriculture, inclusive of food, fiber, and natural resources. This education can occur in many contexts including formal, nonformal and informal educational settings in public secondary school classrooms to university extension programs as well as through non-profit learning engagement. Professional development opportunities can benefit educators because they encourage continuous learning and skill development which, in turn, equips educators to adapt to shifting classroom dynamics and student needs. These professional development experiences are not only beneficial but often required by educational standards and accreditation bodies to ensure educators meet evolving standards of practice (e.g., Commonwealth of Pennsylvania, 2025).

Although professional development can benefit a broad array of educators, it can be difficult for many to find the time to participate. A recent survey found educators work 53 hours per week (Walker, 2023). How can organizations trying to support agriculture educators best convey the value of attending professional development events while acknowledging the demanding schedules of educators?

Recruitment emails are often how professionals learn about events, and strategic communicators have many options for designing such messages. Communicators can decide how many messages to send, when to send them, and how to say something. One messaging tactic is to stress the benefits of complying with the action or emphasizing what is lost by not following the message's advocated action. For example, "If you wear sunscreen, you will have attractive skin" or "If you don't wear sunscreen, you will have unattractive skin" (O'Keefe, 2012, p.4). This type of communication decision is known as gain or loss framing (e.g., O'Keefe & Jensen, 2006) and is derived from prospect theory (Kahneman & Tversky, 1979). Numerous studies have drawn on prospect theory to explore how message frames can shape people's perception of agricultural issues, such as food labels (Abrams, 2015) or food advertisements (Jeong & Lundy, 2016). In this study, we apply gain or loss framing not about agricultural issues, as in these previous studies, but to promotional messaging targeted at agricultural educators to encourage them to attend a professional development event offered in an online community dedicated to global agriculture and educator empowerment.

Encouraging participants to attend events can be a challenge for any organization, and this challenge can be compounded when events are held across time zones. This study seeks to better understand what promotional message designs may encourage participation in an online community where digital messages, like event emails, are a main way participants hear about events. Additionally, we advance gain or loss framing by exploring the presence of a mediator (efficacy) and moderator (issue involvement) on persuasive outcomes. Specifically, we explore how one's existing involvement in the organization (i.e., their perception the organization is important and relevant to them), impacts their event attitudes and attendance intentions. Involvement, in particular, has implications for audience segmentation that is valuable for strategic communication efforts.

Literature Review

Equivalency Framing: Gains or Losses

Prospect theory posits scenarios with equivalent information but different presentations of the content can encourage different patterns of decision making (Kahneman & Tversky, 1979). A key tenet of the theory is that the perceived risk of a choice influences behavioral decisions (Kahneman & Tversky, 1979; O'Keefe, 2012). Generally, people are willing to take more risks when presented with loss information than gain information (Kahneman & Tversky, 1979). Prospect theory has been used to inform message framing across communication sub-fields, but particularly in health communication (e.g., O'Keefe & Jensen, 2006). For decades scholars tested if gain or loss framing was more persuasive in certain contexts (Nan et al., 2018). However, meta-analyses show gain or loss frames have not outperformed one another outside specific health issues, like breast cancer detection (O'Keefe & Jensen, 2009) or dental hygiene (O'Keefe & Jensen, 2007).

Gain frames are message designs that stress "the advantages of compliance" (O'Keefe & Jensen, 2006, p. 1-2), whereas loss frames stress "the disadvantages of noncompliance" (p. 2). In the context of promotional marketing materials to encourage recycling, White and team (2011) manipulated a gain frame as "think of about what will be gained in our community if we keep recycling" (p. 483), whereas the loss frame read, "think about what will be lost in our community if we don't keep recycling" (p. 482). Related to gain or loss framing is regulatory focus theory, which explains that prevention-focus and promotion-focus messages can emphasize positive outcomes or stress avoiding negative outcomes and risk, respectively (e.g., Park & Morton, 2015; Higgins, 2000). Lee and Aaker (2004) found evidence that matching promotion-focused messages and gain frames and prevention-focused messages with loss frames enhanced persuasion, which in this case was brand attitude. As such, some communication studies have combined the two strategies to use loss-prevention and gain-promotion frames only (e.g., White et al. 2011).

Although gain or loss framing has received much attention in health communication initiatives designed to promote healthy behaviors (e.g., Robbins & Niederdeppe, 2019; O'Keefe & Jensen, 2006; O'Keefe & Jensen, 2009), there have not been consistent effects that show the advantage of gain or loss frames on persuasive outcomes (O'Keefe & Jensen, 2007; O'Keefe & Jensen, 2009). Similarly in agricultural communication contexts, some studies have found only slight effects of gain or loss framing. Food label recall and food label recognition were higher for a loss frame message compared to a gain framed messages, but no differences were found in attitudes or purchase intentions, among other outcomes (Jeong & Lundy, 2016).There was also no significant difference between a gain (e.g., "free to roam") and nonloss frame (e.g., "no cages") on product attitudes in a food label study (Abrams, 2015, p. 6). Still other studies have found no main effect of message frames outside of gain or loss framing, such as quality frames, health frames, or farmer frames, on outcomes like attitudes or behavioral intentions (Abrams & Soukup, 2017). Thus, although message-level strategies like gain or loss framing are attractive message design strategies, it is worth noting the manipulation can be inconspicuous and does not always move attitudes or behavioral intentions.

Thus, beyond assessing the main effects of message frames on outcome variables, there have been calls to explore how people may be affected by gain or loss frames differently through moderating variables. For example, a meta-analysis of gain or loss frames used in charity advertising did not find a significant persuasive advantage of one frame over the other, but

significant heterogeneity was detected in the effect sizes, suggesting the presence of other moderators (Xu & Huang, 2020). The authors call for more research into moderator research on the persuasiveness of gain or loss framing broadly and in charity advertising research (Xu & Huang, 2020). For example, perceived risk may moderate the effectiveness of the type of frame in a specific context, with loss frames more persuasive when perceived risk is higher (Lee & Aaker, 2004). Research has also shown support for a three-way interaction between gain or loss framing, scarcity appeals, and need for uniqueness, suggesting different promotional tactics may be more effective for some individuals than others due to individual difference variables (Roy & Sharma, 2015). Moreover, another study demonstrated the effect of the type of message frame depended on the audience's mindset (growth versus fixed): Audiences with a fixed mindset who saw a loss-framed advertisement were more willing to pay extra for a green hotel than were audiences with a growth mindset who saw the same loss-framed advertisement (Su & Li, 2024). In the context of vaccination messaging, individual differences in political identity, perceptions about vaccines, and source characteristics moderate the effectiveness of message frames (Limbu & McKinley, 2025), making it important to consider what audience segmentation strategies may promote persuasion.

Although it is clear the relative persuasiveness of gain or loss framing may depend on many individual differences, one factor of interest may be how involved with the issue the audience is. Issue involvement is the term used to describe how personally relevant, or important, a topic is to the audience member (Petty & Cacioppo, 1979). Higher levels of issue involvement promote deeper message processing than lower levels of issue involvement (Petty & Cacioppo, 1979). One study tested how audiences with low versus high levels of issue involvement responded to a message about getting a diagnostic blood test. The researchers found gain frames were more persuasive for low-involvement participants whereas the loss frame better persuaded high-involvement participants (Maheswaran & Meyers-Levy, 1990). Furthermore, the relevance of a message has been found to moderate mood such that participants have engaged in more systematic processing when in a positive mood and when the health message was highly relevant (Das & Fennis, 2008). Recent scholarship has called for an integrated gain-loss framework that takes into account the role of audience ability and motivation to process different message frames (Nan et al., 2018). That is, if someone is highly motivated to process a message, that person may engage in more concentrated, systematic processing. However, if someone is less motivated to process the message, they may engage in heuristic processing, which could lead to a gain frame being more persuasive or similar persuasive effects of either frame (Nan et al., 2018). Thus, this research suggests that the audience variable of involvement may be a key moderator in message framing effects due to the level of message scrutiny and processing in different involvement conditions. In the context of promoting professional development educator events, someone’s pre-existing involvement or interest in the professional community could impact their processing of the message, making either the gain or loss frame more persuasive. As such, this research considers both the audience variable of involvement and the message variable of gain or loss framing when assessing which message strategy is most persuasive and for whom.

Efficacy

As discussed above, highly involved agricultural educators may respond differently than low-involvement educators to differently framed email messages. We propose how confident educators are in their ability to respond to the email request could explain this effect. Efficacy, according to Bandura’s Social Cognitive Theory (e.g., Bandura, 2001), can be defined as

someone's perceived confidence to enact a behavior. An indirect effect was found between gain/loss frames and distal/proximal appeal types and recycling intentions through processing fluency and perceived efficacy in recycling promotional materials (White et al., 2011).

Researchers often break efficacy down into two types: response efficacy and self-efficacy (e.g., Witte, 1994). Response efficacy is the belief an intervention or treatment will work, while self-efficacy is an individual's perception they can perform a target behavior (e.g., see Witte, 1994). Immediately following stimulus exposure in an environmental VR experience, a gain framed experience elicited higher response efficacy than the loss framed experience (Ahn et al., 2015), and one week later, response efficacy was found to mediate the framing and actual self-reported behaviors. In this study, we focus on self-efficacy as one's perceived ability to engage in an online community for professional development and networking.

Self-efficacy is associated with less burnout and stress among middle school teachers (Bottiani et al., 2019). Herman and team (2020) advance the three Cs Theory of Teacher Stress, explaining coping, competence, and context all influence teacher stress levels, which can then affect teacher burnout and attrition as well as classroom management. Teaching training and institutional support can help promote teacher coping and a supportive context for teachers (Herman et al., 2020). A loss frame (in the context of skin cancer messages) was found to be more effective in promoting behavioral intentions than the gain frame message, but only for individuals with high self-efficacy (van 't Riet et al., 2010). Moreover, farmers who viewed gain-framed messages reported higher levels of self-efficacy related to climate change adaptation, response efficacy, and behavioral intentions for climate adaptation and mitigation compared to farmers who viewed loss framed messages (Ngo et al., 2022).

Although not a formal school teaching environment, this study is situated in a community of educators seeking to share resources and support one another in global agricultural endeavors. Herman et al. (2018) argue it is important to consider a teacher's efficacy and coping skills along with burnout and stress. As such, this study predicts efficacy will influence intentions and attitudes to attend events after message exposure. We propose the following hypotheses and research questions:

Hypothesis 1: Message frames will interact with involvement. Following previous research (Maheswaran & Meyers-Levy, 1990), we predict the gain frames (vs loss frames) will be more persuasive (i.e., favorable event attitudes and attendance intentions) for low-involvement individuals. However, for high-involvement individuals, the loss-framed messages will be more persuasive than the gain framed messages.

Hypothesis 2: The gain frame (vs. loss frame) will engender higher efficacy perceptions for low involvement individuals. The loss frame (vs. gain frame) will engender higher efficacy perceptions for the high involvement individuals.

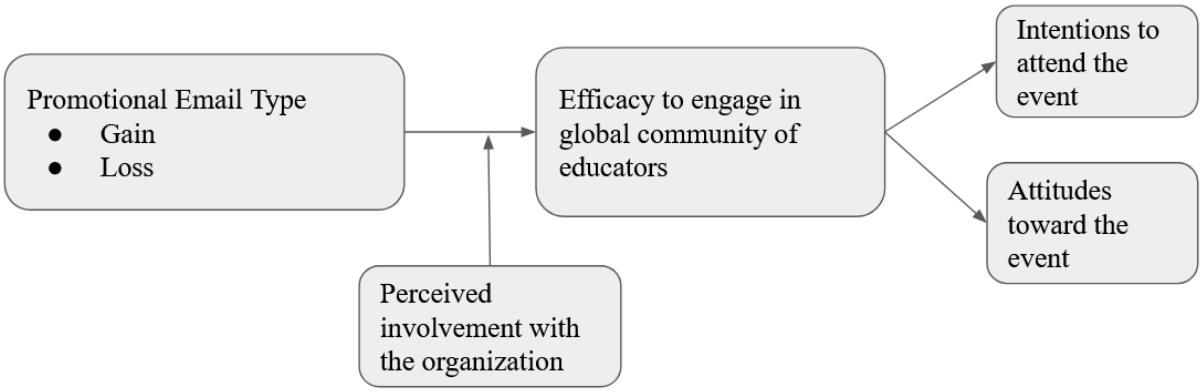
Hypothesis 3: Efficacy will mediate framing effects on intentions and attitudes toward attending programming events. Specifically, there will be a positive relationship between efficacy and intentions and attitudes to attend events.

Based on previous literature (e.g., O'Keefe & Jensen, 2006), we do not predict a direct effect of frame type (gain or loss) on attitudes or intentions.

As discussed above, gain versus loss framing has been studied across messaging contexts, including in studies of agriculture-related issues (e.g., Jeong & Lundy, 2016; Abrams, 2015, Abrams & Soukup, 2017). See Figure 1 for our study model, which explains how involvement with the organization will interact with gain or loss message framing to ultimately impact

persuasion. Persuasive outcomes in the context of professional development events include one's attitude toward the event and their intention to attend it.

Figure 1
Study model.



Method

A promotional email message advertising a real, upcoming event was created. The event was for the Global Teach Ag Network (GTAN), an online community group dedicated to empowering educators about global agriculture and food security. The IRB at Pennsylvania State University approved the study.

Recruitment

Nearly 1200 members of the online community of practice representing educators from diverse contexts, disciplines and geographic locations were invited to complete a Qualtrics survey. Following a modified protocol of the Tailored Design Method of surveys (Dillman, et al., 2024), participants received an emailed invitation link to participate in the research. Once clicking on the survey link to assess the instrument, participants read the consent information before continuing to the survey questions. Qualtrics was set up to randomly assigned them to view either a gain or loss framed email message about a real, upcoming community event. One final reminder email to encourage research participation was sent before the actual event. The survey was closed once the event started.

Sample

We sent 1,191 invitations through Qualtrics. There was approximately a 15% response rate and an 82% completion rate of those who responded. After data cleaning (e.g., removing those who did not finish enough of the survey), there were 110 usable responses. Later another response was identified as a multivariate outlier using Mahalanobis distance and was removed, leaving 109 usable responses. Notably, participants were not forced to answer each question, so some questions received fewer than 109 responses.

The final sample was 54.1% female, 67.1% reported having a master's degree or higher, and 24.7% identified professionally as a K12 educator. The mean age of respondents was 43.29

years (*SD* = 13.32). Participants reported coming from 11 different countries, with most coming from the United States (*n* = 56) and Uganda (*n* = 16). See Table 1 for sample.

Table 1
Demographic Characteristics of Participants

	n	%
Gender		
Female	38	44.7
Male	46	54.1
Prefer not to say	1	1.2
Profession		
University educator	20	23.5
K12 educator	21	24.7
Extension educator	14	16.5
Non-profit work	8	9.4
Company/business	2	2.4
Student	2	2.4
Other	18	21.2
Highest educational level		
Master's degree or above	57	67.1
Bachelor's degree	20	23.5
Some college (no degree)	4	4.7
Associate's or technical degree	3	3.5
Prefer not to say	1	1.2
Country		
United States	56	67.5
Uganda	16	19.3
Nigeria	3	3.6
Other	8	9.6

Note. N = 83–85 for demographic questions. Percentage reflects valid percentage of that category.

Procedures

After consenting to participate, participants were randomly assigned to see one of two promotional messages advertising a real, upcoming event in either a gain-framed message or a loss-framed message. After viewing the event promotional email in Qualtrics, they answered questions, such as manipulation check items, efficacy perceptions, stress (not included in this analysis), attitude toward the specific event, attitude toward the broader community, intentions to attend the event, and community involvement. An additional question asked if the researchers could record the participant's actual RSVP event decision, and when the participant indicated

yes, they wrote their name.[1] This project is part of a larger research project and additional survey items were also asked, which are not reported here. The end of the survey asked about demographics and provided participants an opportunity to enter a drawing to win an e-gift card, which linked to a separate survey, so identifying contact information was not associated with the experimental survey data.

Stimuli

A screenshot of an email message in either a gain or loss frame was displayed in the Qualtrics survey instrument. The gain message (135 words) stressed the benefits of event attendance, while the loss message (147 words) stressed the negative consequences of not attending the event. For example, the gain frame message said, "Join us for the . . . annual launch event" and the loss frame stated, "Don't miss joining us for the . . . annual launch event." There were six message instantiations of the frame in each message. The event promoted a keynote address for the online community during an important week where new members join, and many events kick off the next cycle of online programming. This event was chosen because we believed the high interest in the event itself would help garner a sufficient response rate to the research study invitation. See Table 2 for the stimuli.

[1] Due to too few responses, this variable is not analyzed.

Table 2

Gain or Loss Message Stimuli

Gain Message	Loss Message
Subject**: <u>Get more</u> from the GTAN community:** RSVP for the 2024 keynote! Dear GTAN Community Members, **<u>Want to learn more</u>** about how animal science can contribute to combatting food insecurity and climate change? **<u>Join us</u>** for the GTAN annual launch event about animal science and its connection to sustainable development and global food security with Dr. Curtis Youngs of Iowa State University. You'll learn about animal science in international contexts and the knowledge, skills, and dispositions needed for and developed by working in international contexts. Join us in Mighty Networks on Thursday, February 8th at 7 pm ET for this one-hour session. **<u>We think you'll benefit</u>** by learning more about animal science and global food security from Dr. Youngs. Think of the **<u>knowledge you could gain</u>** by attending this event! **<u>See you there</u>,** GTAN team	Subject: **<u>Don't miss the chance</u>** to build community with GTAN: RSVP for the 2024 keynote! Dear GTAN Community Members, **<u>Do you know all you want to know</u>** about how animal science can contribute to combatting food insecurity and climate change? **<u>Don't miss joining us</u>** for the GTAN annual launch event about animal science and its connection to sustainable development and global food security with Dr. Curtis Youngs of Iowa State University. You'll learn about animal science in international contexts and the knowledge, skills, and dispositions needed for and developed by working in international contexts. Join us in Mighty Networks on Thursday, February 8th at 7 pm ET for this one-hour session. **<u>We think you'll regret missing out</u>** on learning more about animal science and global food security from Dr. Youngs. Think of the **<u>knowledge you might lose</u>** by **<u>not</u>** attending this event! **<u>Don't miss it</u>**, GTAN team

Note: Differences between the gain or loss message are bolded and underlined.

Measures

Measures are largely adapted from previous studies and are reported with one multivariate outlier removed. Only measures used in the analysis are presented here. See Table 3 for means and SDs per condition.

Manipulation check. A 2-item manipulation check was included to assess if participants perceived the messages to be stressing the gain or loss of the message, on 1 (not at all) to 7 (very much so), Likert scale (adapted from White et al., 2011). For example, "To what extent did the email focus on what would be gained if people attended the event?"

Efficacy was measured with five items on a 1 (strongly disagree) to 7 (strongly agree) Likert scale. Items were adapted from White et al. (2011) and Murphy et al. (1989); for example, "I feel that by participating in the [Community] I can make a difference," $M = 5.04$, $SD = 1.23$, $\alpha = .84$.

Event attitudes contained three items (adapted from Lee & Aaker, 2004) on a 7-pt bipolar scale, negative/positive, unfavorable/favorable, and bad/good, $M = 5.44$, $SD = 1.43$, $\alpha = .96$.

Intentions to attend the event included three items (adapted from White et. al 2011) on a 7-pt bipolar scale, not very likely to attend/very likely to attend, not very inclined to attend/very inclined to attend, and very unwilling to attend/very willing to attend, $M = 4.93$, $SD = 1.58$, $\alpha = .90$.

Involvement[2] was measured with three items (adapted from Lim and Noh, 2017) on a 7-pt bipolar scale, "not very important/interesting/relevant to me" to "very important/interesting/relevant to me," $M = 5.45$, $SD = 1.16$, $\alpha = .92$.

Table 3

	Conditions					
	Gain Message			Loss Message		
	Mean	SD	n	Mean	SD	n
Efficacy	4.84	1.21	57	5.27	1.22	52
Event Attitudes	5.29	1.50	57	5.60	1.35	52
Intentions	4.88	1.67	57	4.97	1.49	52

Data Analysis

Hayes' (2018) PROCESS Model 1, a series of independent samples T-tests, and linear regressions were used for analysis. First z-scores were computed and assessed to look for outliers (Tabachnick & Fidell, 2013). No values were above or below 3.29. One multivariate outlier was detected using Mahalanobis distance and was removed, leading to roughly equal cell sizes for the gain frame ($n = 57$) and loss frame ($n = 52$) conditions.[3] SPSS v.29 was used for analysis.

Results

Two manipulation checks were assessed with two-sided independent samples T-tests. There was not a significant difference between the gain ($M = 5.29$, $SD = 1.36$) and loss ($M = 5.29$, $SD = 1.35$) conditions with the question of what would be gained if people attended the event, $t(105) = 0.009$, $p = .99$. However, the loss frame condition was rated significantly higher in terms of what would be lost if people did not attend the event (gain: $M = 3.60$, $SD = 1.74$; loss: $M = 4.71$, $SD = 1.78$), $t(105) = -3.27$, $p = .001$. Thus, although participants largely saw the benefit of what would be gained by attending the event in both messages, this is likely because both messages advocated event attendance. Because participants perceived the loss framed

[2] Valid 84 responses

[3] Not all participants answered all questions, so sample size reported for the outcome variables may differ from 109.

message as stressing what would be lost by not attending the event more than the gain framed message, the manipulation check was deemed sufficient.

Hypothesis 1 predicted message frame (gain or loss) would interact with involvement. Specifically, we predicted the gain frames (vs. loss frames) would be more persuasive for low-involvement individuals. However, for high-involvement individuals, the loss-framed (vs. gain framed) message was predicted to be more persuasive (i.e., elicit more favorable attitudes toward the event and behavioral intentions to attend the event).

To test for an interaction between message frame and involvement, Hayes' (2018) PROCESS Model 1 was used. There was no evidence of a significant interaction between gain/loss framing and involvement on event attitudes (.30, 95% CI = [-.1224, .7172], p = .16) or event intentions (.12, 95% CI = [-.4199, .6543], p = .67). This indicates people's different levels of involvement did not substantially change the relationship between the message frame and event attitudes or intentions. In other words, our results do not suggest loss frames work better for low involvement individuals, gain frames work better for high involvement individuals, or vice versa.

Similarly, independent samples t test showed no main effect of gain/loss message on event attitudes, t (105) = -1.10, p = .27. Both the gain frame (M = 5.29, SD = 1.50, n = 55) and loss frame (M = 5.60; SD = 1.35, n = 52) led to similar, positive ratings (mean scores are above the scale mid-point) in event attitudes. Additionally, there no was no main effect of frame on intentions to attend the event, t (105) = -0.27, p = .79. Both the gain frame (M = 4.88, SD = 1.67, n = 55) and loss frame (M = 4.97; SD = 1.49, n = 52) led to similar ratings in intentions to attend the actual event.

To look at isolated effects of involvement, linear regressions were computed with event attitudes and attendance intentions as outcomes to assess how involvement (as an independent variable) impacted perceptions. There was a significant relationship between involvement and event intentions and involvement and event attitudes (see Table 2). Involvement was a significant predictor of event intentions, F (1,80) = 28.39, R^2 = .26, p <.001, but efficacy was not when entered after involvement: F (2,79) = 14.43, R^2 = .27, p < .001. Involvement was a significant predictor of event attitudes: F (1,80) = 40.12, R^2 = .33, p< .001. Efficacy was not a significant predictor when entered after involvement, F (2,79) = 20.34, p < .001, R^2 = .34. In sum, one's involvement with the organization positively predicted their intentions to attend events and their attitudes toward the event. However, message frame did not significantly affect event attitudes, intentions, or efficacy.

Table 4

Regression model predicting event attitudes and attendance intentions

	Attendance Intentions		Event Attitude	
	B	SE	B	SE
1				
Involvement	0.71***	0.13	0.67***	0.11
Total R^2 (%)	26.2***		33.4***	
2				
Involvement	0.67***	0.14	0.64***	0.11
Efficacy	0.11	0.14	0.09	0.11
Total R^2 (%)	26.8***		34.0***	

N = 82. Upon-entry unstandardized regression coefficients reported.
*p < .05.**p < .01.***p < .001.

Hypothesis 2 predicted the gain frame (vs. loss frame) would engender higher efficacy perceptions for the low involvement individuals, but the loss frame (vs. gain frame) would engender higher efficacy perceptions for the high involvement individuals. Hayes' (2018) PROCESS Model 1 was used again for moderation analysis. There was no significant moderation effect of involvement on efficacy perceptions (-.08, 95% CI = [-.5081, .3447], p = .70). Furthermore, an independent samples t test showed a marginally significant effect of gain/loss framing on efficacy, in which the loss frame (M = 5.27; SD = 1.22; n = 52) generated higher levels of efficacy than the gain frame (M = 4.84; SD = 1.21; n = 56), t (106) = 1.82, p = .07. Similarly, a linear regression showed that involvement was a positive, significant predictor of efficacy perceptions (B = .35, SE = .11, p <.01), F (1,81) = 10.71, R^2 = .12, p <.01

Hypothesis 3 predicted efficacy would mediate framing effects on intentions and attitudes toward attending programming events. Specifically, we predicted there would be a positive relationship between efficacy and intentions and attitudes to attend events. However, because there was no main effect of message frame on efficacy perceptions, no further mediation was assessed.

Discussion

We conducted an online experiment about a real upcoming event happening in an online community dedicated to agricultural educator empowerment and professional development. The message was manipulated as either a gain or loss message. Our findings show no main effect of gain or loss message framing on attitudes or intentions, which aligns with findings of previous research (Jeong & Lundy, 2016). Indeed, meta-analyses have shown little evidence gain or loss frames may directly affect persuasion (O'Keefe & Jensen, 2006), which is why we hypothesized and tested involvement as a moderator. Although we did find a marginally significant effect of framing on efficacy, in which the loss frame led to higher efficacy perceptions, this should be interpreted with caution. More research with different messages would shed more light on the effects of gain or loss messaging on efficacy across message contexts.

However, we do not wish to suggest gain or loss framing has no place in agricultural communication. Indeed, science information may be more effectively communicated through

gain frames (Nabi et al., 2020), and gain frames may be especially effective at promoting efficacy, risk perceptions, and behavioral intentions (Ngo et al., 2022). Future research can investigate combining gain or loss frames with other message designs. In their study of message frames about conserving water, Warner et al. (2015) found gain frames were more effective in raising people's perceived behavioral control and attitude toward water conservation than loss frames when combined with either individual or social value frames. Gain frames when paired with concrete frames were also more effective in eliciting behavioral intentions for climate change adaptation, efficacy, and risk perceptions about climate change to Vietnamese farmers than loss and abstract frames (Ngo et al., 2022). Thus, investigating interaction effects (i.e., gain or loss frames combined with another frame) and potential mediators and moderators in agricultural education and communication, is still ripe for investigation.

Importantly, our results show involvement in an organization can positively predict event attendance intentions and event attitudes. That is, the more a person feels the organization is important and relevant to them, the more favorable attitudes they may hold about the event and the more likelihood they have of attending the event. Because involvement can lead to deeper message processing (Petty & Cacioppo, 1979), it is important for communicators to design messages that resonate with higher involvement individuals. This study results suggest gain or loss message framing may not differentially affect individuals with different levels of issue involvement, but it is possible other message designs could, such as value-oriented message frames (Fischer et al., 2020). Our results suggest that communicators wishing to promote professional development events should consider people's motivation to process the message (Nan et al., 2018; Petty & Cacioppo, 1984) and pick a messaging strategy that taps into this pre-existing relevance in order to best persuade them to attend events.

This study has important limitations like all studies. We had a relatively small sample size and not all participants answered all questions. Thus, it is possible some analyses were statistically underpowered. In this experiment, we measured responses after a single message exposure. It is arguably difficult to change attitudes and behavioral intentions with a single message exposure. However, it is possible participants read about the event in other places and through other communication channels because it was a real upcoming event.

Furthermore, this is a single message design. It would strengthen the analysis to employ stimulus sampling (Reeves et al., 2016) and test multiple upcoming events. However, because we wanted to sample real community members for ecological validity, we chose one message to avoid participant fatigue by asking them to read and respond to numerous messages. We also asked about participants' involvement with the organization at the end of the survey. Participants might have felt a social desirability bias to report high levels of organizational involvement. However, it is also possible the relatively high average score of involvement is driven by the fact people who already have higher involvement are more likely to participate in a research study about an organization they participate in. Involvement was not asked at the beginning of the survey instrument due to concerns about sensitizing participants to read the message more carefully.

Despite these limitations, this experiment assessed the effects of gain or loss framing with real, target community members. We found no main effect of gain or loss framing on event attitudes, intentions to attend the event, or efficacy to engage in the organization (albeit a marginally significant result). However, our results point to the importance of involvement in driving positive attitudes and intentions to attend professional development events. Thus, if involvement is an important factor, organizations need to consider what message strategies will

persuade members at different levels of involvement. Value-oriented message frames may work for low involvement individuals (Fischer et al., 2020) and high-quality arguments could persuade those with high issue involvement (Petty & Cacioppo, 1984). Future research should continue to investigate what message designs may attract attention and facilitate persuasion for those at different levels of involvement.

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