

Research article

When message tailoring backfires: The role of initial attitudes in affect–cognition matching

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Abstract

This research explores when and how tailoring messages to attitudinal bases backfires. Study 1 demonstrated that for attitudes (toward education subsidies) that were based more on beliefs than emotions, recipients whose initial attitudes were incongruent with the message position (i.e., message opponents) showed mismatching effects, such that the affective message was more persuasive than the cognitive message. Study 2 replicated these mismatching effects among message opponents for attitudes (toward a rival university) that were primarily affective. Study 3 controlled for effects of initial attitude certainty and replicated the mismatching effects of Study 2 for affective attitudes toward an increase in tuition. Finally, Study 4 suggested a potential mechanism for mismatching effects, revealing that for attitudes (toward an online course management system) that were based more on beliefs than emotions, message opponents counter-argued with the cognitive appeal more intensely than the affective appeal. Contrary to the notion in the extant literature that mismatching effects are relatively rare compared with matching effects, the current research suggests that mismatching effects occur for both primarily affective and cognitive attitudes when the recipient is highly opposed to the message position. The present findings also demonstrate the utility of examining attitudinal bases at the object level in the context of message tailoring. Implications for message tailoring and for affective versus cognitive attitudes are discussed. Copyright © 2013 John Wiley & Sons, Ltd.

Persuaders often attempt to maximize the impact of a message on attitudes by tailoring the message to its recipient. One common technique that persuaders use to tailor messages involves matching the message to the type of information—*affect* or *cognition*—on which the initial attitude is primarily based. For example, an appeal to forgive student loans could target attitudes that are based on *affect* by making recipients feel sympathy for university graduates who are trapped in a vicious cycle of borrowing. Alternatively, an appeal could target attitudes that are based on *cognition*, by convincing recipients to believe that loan forgiveness would stimulate the economy. Indeed, persuasion researchers have often found a matching effect, where the message that targets the individual's attitudinal basis directly is more persuasive than the message that does not. Furthermore, extensive research has replicated and explained such affective–cognitive matching effects. For instance, studies on potential mediators for these effects suggest two plausible mechanisms: better memory for the tailored message (Haddock, Maio, Arnold, & Huskinson, 2008) and greater processing fluency for the tailored message (Mayer & Tormala, 2010).

In contrast, mismatching effects are considered much less often in the existing literature. For example, the mismatching effects that were observed in Millar and Millar (1990) are often cited as exceptions to the literature on matching effects (e.g., see Clarkson, Tormala, & Rucker, 2011; Huskinson & Haddock, 2004; Haddock et al., 2008; Mayer & Tormala, 2010; See, Petty, & Fabrigar, 2008) or described as ambiguous because of the lack of manipulation checks (Fabrigar & Petty, 1999). Furthermore, in the relatively rare cases in which mismatching effects were demonstrated, differences in susceptibility to cognitive versus affective appeals were observed only for affective attitudes but not cognitive attitudes (Drolet & Aakar, 2002; Millar & Millar, 1990). Overall, it is unclear whether mismatching effects are a reliable phenomenon.

In the current research, our primary goal was to examine the conditions under which message tailoring backfires such that the message that targets the attitudinal basis directly is *less* persuasive than the message that does not. There are some reasons to expect that mismatching effects could be a reliable phenomenon under certain circumstances. In particular, prior research has shown that people whose initial attitudes are highly incongruent with the position advocated by the message (i.e., message opponents) are more motivated to resist the message than those whose initial attitudes are more congruent with the message position (e.g., Cacioppo & Petty, 1979; Clark & Wegener, 2009; Clark, Wegener, Habashi, &

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Evans, 2012).¹ More important, we suggest that message opponents might resist tailored information to a greater extent than non-tailored information. One reason why this might occur is different information is accessible depending on whether the attitude is based primarily on affect or cognition. For affective attitudes, information about the emotions the object elicits (vs. its attributes) is more accessible, whereas for cognitive attitudes, information about the object's attributes (vs. the emotions it elicits) is more accessible (Giner-Sorolla, 2004). Presumably, such selective accessibility could produce matching effects by making it easier for a recipient to remember the tailored message or experience fluency in processing the tailored message. Indeed, recent research suggests that message recipients who hold affective attitudes are more efficient at processing information about emotions than those who hold cognitive attitudes, as they spend a shorter amount of time reading such information but remember the same amount of such information (See, Petty, & Fabrigar, 2013). However, it also seems possible that such selective accessibility or efficiency could produce mismatching effects by making it easier for recipients to summon counter-arguments to resist the matched message. Therefore, we hypothesized that mismatching effects would occur reliably in a situation where the affective–cognitive nature of a message directly targets recipients' attitudinal basis *and* recipients highly oppose the message.

Another goal in the present research was to conceptualize attitudinal bases at the level of the attitude object and to examine the consequences for persuasion. In prior studies, experimenters often induced participants to have either affective or cognitive attitudes for a particular attitude object. In other words, attitudinal bases were conceptualized at the level of the individual and the attitude object. In these studies, messages that targeted attitudinal bases at this *individual* × *object* level were more effective than messages that did not (e.g., Clarkson et al., 2011; Edwards, 1990; Edwards & von Hippel, 1995; Fabrigar & Petty, 1999). Similarly, returning to our example about student loans, the attitudinal basis is conceptualized at the individual × object level: parents of recent graduates might constitute a group of individuals whose attitudes toward forgiving loans are based on affect, whereas policy makers might constitute a distinct group of individuals whose attitudes toward forgiving loans are based on cognition.

¹Because the current research sought to demonstrate mismatching effects as a reliable phenomenon under the conditions where people are motivated to resist the message, we selected issues that were likely to elicit unfavorable attitudes such that participants with relatively message-incongruent initial attitudes (i.e., "message opponents") would be highly opposed to the message position, whereas their counterparts with relatively message-congruent initial attitudes would be mildly agreeable, neutral, or mildly opposed to the message position. It bears clarifying that not all of the attitudes just described (mild agreement, neutrality, and mild opposition) are congruent with the message position in an absolute manner, but rather that they are all more congruent relative to their highly incongruent counterparts. Although the participants whom we label as "relatively message-congruent" might be heterogeneous in terms of their acceptance, noncommitment, or rejection toward the message, we expect the participants who are characterized as message opponents to be consistent in rejecting the tailored message. It is the latter group of participants for whom the current research predicts mismatching effects.

However, other research has conceptualized the attitudinal basis at the level of the individual across a variety of issues. For example, older adults, compared with younger adults, have been theorized to prioritize goals that are emotionally meaningful and have been found to prefer messages that frame products as fulfilling emotional needs to messages that frame the same products as advancing knowledge (Fung & Carstensen, 2003). Women have also been shown to perceive themselves as more emotionally oriented than men and thus to be more persuaded by an affectively than cognitively framed message (Mayer & Tormala, 2010). The individual difference measures need for cognition (Cacioppo & Petty, 1982) and need for affect (Maio & Esses, 2001) have also been found to produce similar matching effects (Haddock et al., 2008). Finally, other research has operationalized affective and cognitive attitudes at the level of the individual by examining affect–attitude correlations and cognition–attitude correlations within individuals, across various attitude objects (Huskinson & Haddock, 2004; See et al., 2008). In summary, most prior research on matching effects has conceptualized the attitudinal basis at the individual × object level (e.g., Edwards, 1990) or at the level of the individual across a variety of objects (e.g., Huskinson & Haddock, 2004).

On the other hand, previous studies have also identified issues or objects that are primarily associated with affective or cognitive attitudes across individuals (e.g., Crites, Fabrigar, & Petty, 1994; Eagly, Mladinic, & Otto, 1994; See & Khoo, 2011). Although some research has examined the functions of attitudes (e.g., the ego-defensive function) at the level of the attitude object in order to predict persuasion (e.g., Shavitt, 1990), we know of no research that has investigated the implications of affective–cognitive bases of attitudes at the object level for persuasion. Addressing this gap has practical implications for persuasion professionals. Certain objects and issues that are overwhelmingly associated with affective or cognitive attitudes across individuals might be less amenable to situational inductions or individual differences. For instance, it might be difficult to induce affective attitudes toward vacuum cleaners if they are primarily associated with cognitive attitudes. In this case, identifying the basis for attitudes toward vacuum cleaners as cognitive in order to predict persuasion would be a meaningful exercise, but trying to identify situations wherein (or individuals for whom) vacuum cleaners elicit affective attitudes might not. It is worth noting that our goal was not to demonstrate that an object-level approach is superior to the individual level or individual × object level approaches. Rather, we sought to examine whether the object-level approach is useful when predicting persuasion as a function of message tailoring and initial attitudes. Such an approach would extend prior research that merely identified issues that elicit affective–cognitive attitudes and did not examine consequences for persuasion.

To summarize, by examining a variety of issues that elicit cognitive versus affective attitudes across individuals, we tested the hypothesis that among message opponents, a message that is tailored for the attitudinal basis (i.e., a beliefs-focused message for a cognitive issue or an emotions-focused message for an affective issue) would be less persuasive than a non-tailored message (i.e., an emotions-focused

message for the same cognitive issue or a beliefs-focused message for the same affective issue).²

STUDY 1: DECREASING EDUCATION SUBSIDIES AS A PRIMARILY COGNITIVE ISSUE

Study 1 examined an issue that elicited negative attitudes that are primarily cognitively based across individuals. This means that a mismatching effect would be observed if the affective message was more persuasive than the cognitive message.

Pilot Tests

Object-Level Basis

To determine that the issue was primarily associated with cognitively based attitudes, we measured participants' attitudes, beliefs, and feelings about opportunities for higher education in a pilot test involving a separate sample.³ Following past research (Crites et al., 1994), participants reported their attitudes using four semantic-differential items (negative–positive, dislike–like, bad–good, and undesirable–desirable), their beliefs using seven items (useless–useful, foolish–wise, unsafe–safe, harmful–beneficial, worthless–valuable, imperfect–perfect, and unhealthy–wholesome), and their feelings using eight items (e.g., sad–delighted, hateful–love, annoyed–happy, tense–calm, bored–excited, angry–relaxed, disgusted–acceptance, and sorrow–joy). All responses were made on 11-point scales. The attitude, affect, and cognition scales were highly reliable ($\alpha = .97, .96, \text{ and } .95$, respectively).

In this and all subsequent tests for the extent to which an issue elicits primarily affective or cognitive attitudes, we computed two discrepancy scores (Chaiken, Pomerantz, & Giner-Sorolla, 1995; Crites et al., 1994; Fabrigar & Petty, 1999). The first discrepancy score was obtained by taking the absolute value of the difference between the averaged attitudes and averaged cognition items. The second discrepancy score was obtained by taking the absolute value of the difference between the averaged attitudes and averaged affect items. Therefore, smaller absolute cognition–attitude discrepancies, relative to affect–attitude discrepancies, would indicate that attitudes for the issue were more cognitively based than affectively based. Analyses revealed that, as expected, cognition–attitude discrepancies ($M = 0.79, SD = 0.84$) were smaller

than affect–attitude discrepancies ($M = 1.31, SD = 1.13$) for attitudes toward opportunities for higher education, $t(69) = 3.34, p = .001$. That is, participants had favorable attitudes toward opportunities for higher education ($M = 9.18, SD = 1.83$). Furthermore, these favorable attitudes were driven more by their positive beliefs ($M = 9.37, SD = 1.44$) than their positive emotions ($M = 8.04, SD = 1.88$).

Another way to examine the extent to which an issue elicits primarily affective or cognitive attitudes is to analyze the extent to which affect scores versus cognition scores predict overall attitudes in a simultaneous regression analysis (e.g., Crites et al., 1994; Eagly et al., 1994). The results showed that beliefs predicted unique variance (30.80%) in attitudes, $b = 0.65, SE = 0.12, t(67) = 5.46, p < .001$. Feelings predicted a unique but smaller amount of variance (21.62%) in attitudes, $b = 0.39, SE = 0.09, t(67) = 4.31, p < .001$.

Message Type

Participants in a separate pilot test were randomly assigned to read either the affective or cognitive message. In this and all subsequent pilot tests for the messages, participants responded to the following questions: (i) "Ignoring your personal opinion about the merits of the message (i.e., how convincing or unconvincing it is), indicate the extent to which you think the message appeals to people's feelings," using a 7-point scale (1 = *totally unappealing to feelings* to 7 = *totally appealing to feelings*), and (ii) "Ignoring your personal opinion about the merits of the message (i.e., how convincing or unconvincing it is), indicate the extent to which you think the message appeals to people's reasoning," using a 7-point scale (1 = *totally unappealing to reasoning* to 7 = *totally appealing to reasoning*). To compare the messages in their relative cognitive–affective qualities, we subtracted the *feelings* response from the *reasoning* response for each participant. Results showed that the extent to which the message appealed to reasoning rather than emotions was indeed greater for the cognitive message ($M = 2.00, SD = 2.37$) than the affective message ($M = -0.67, SD = 1.37$), $t(10) = -2.39, p = .038$.

Method

Participants and Design

Eighty introductory psychology students (57 women and 23 men) at the National University of Singapore (NUS) completed the study for partial course credit.⁴ They were randomly assigned to read either an affective message or a cognitive message in favor of decreasing education opportunities. Recall that because attitudes toward opportunities for higher education were dominated by beliefs rather than feelings across individuals, the affective message was the mismatched message whereas the cognitive message was the matched message. Initial attitudes were measured as a predictor variable, so the study design was an initial attitudes (continuous) \times message type (affective/mismatched vs. cognitive/matched) between-subjects design, with 40 participants in each message type condition.

⁴The target sample size for all studies in the current research was based on the sample size in prior studies on affect–cognition matching and affective–cognitive attitudes (ranging from $N = 65$, e.g., Edwards, 1990; Mayer & Tormala, 2010, to $N = 200$ e.g., Crites et al., 1994).

²In the current research, we did not intend for the messages to be particularly strong or weak. On the one hand, it is possible for mismatching effects to be more likely when the messages are weak than strong because it is easier for participants to rely on the emotions or beliefs that dominate their attitudes to resist the weak affective or cognitive message effectively (see Petty & Wegener, 1998). On the other hand, it is possible for mismatching effects to be more likely when the messages are strong because relative to the successful resistance against a weak message, the successful resistance against a strong message would be more diagnostic of the ability to resist a threatening message (e.g., Tormala & Petty, 2002). In other words, participants might be more motivated to use the emotions or beliefs that dominate their attitudes to resist the strong affective or cognitive message.

³Although in the pilot study we measured attitudes toward opportunities for higher education, in the main study, we measured attitudes toward decreasing education subsidies under the assumption that these different ways of framing this issue were logically equivalent and that if attitudes toward opportunities for higher education were based on beliefs, then attitudes toward decreasing education subsidies would be too.

Procedure and Materials

Participants read introductory information about subsidies for higher education (e.g., currently, subsidies are provided for all admitted students) and were informed that the government was considering a reduction in the amount of subsidies for each student, which would mean fewer opportunities for higher education. They then reported initial attitudes toward a decrease in subsidies. Participants were then told that to help them develop their opinion of the issue, they would read an excerpt of the views that another participant had expressed about the issue. They were randomly assigned to read an affective or a cognitive message in favor of decreasing subsidies (see the Appendix for the full text of the messages used in the current research). After the message, participants reported their attitudes toward a decrease in subsidies. Finally, all participants were thanked for their participation and debriefed.

Predictor Variables

Initial Attitudes. Participants reported their initial attitudes toward a decrease in subsidies on 11-point scales, with the following labels: 1 = *totally negative*, 3 = *somewhat negative*, 6 = *neutral*, 9 = *somewhat positive*, and 11 = *totally positive*. Similar labels were used in the remaining semantic-differential items: dislike - like, bad - good, and undesirable - desirable. Initial attitudes were computed as the average of responses to the four items ($\alpha = .79$). Given that the persuasive message was in favor of decreasing subsidies, lower scores represented initial attitudes that were highly opposed to the message, whereas higher scores reflected initial attitudes that were relatively congruent with the message. Participants' mean initial attitudes were 2.70 ($SD = 1.39$).

Message Type. Participants read either an affective message or a cognitive message discussing the benefits of decreasing education subsidies. The affective message discussed positive feelings, such as students feeling proud of their academic achievement without having relied on government subsidies. The cognitive message discussed positive beliefs, such as the belief that people should pay for their own education.

Dependent Variable: Post-message Attitudes

Participants reported their attitudes toward a decrease in subsidies using the same items as in the initial attitudes measure ($\alpha = .84$). Higher values mean greater persuasion.

Results

Initial attitudes, message type (-1 = *affective/mismatched* vs. 1 = *cognitive/matched*), and the initial attitudes \times message type interaction term were entered as predictor variables in a regression analysis. Post-message attitudes toward a decrease in subsidies were entered as the dependent variable. In this and all subsequent studies, all continuous variables were centered at the sample mean before being entered as main effects predictors and being multiplied for the interaction terms (Aiken & West, 1991). Main effects were always interpreted in the first step, and two-way interactions in the second step

(Cohen & Cohen, 1983). In addition, when decomposing interactions, variables were re-centered at 1 SD above and below the sample mean to test simple slopes at high and low levels of that variable (Cohen & Cohen, 1983).

There was a main effect of initial attitudes, such that more positive initial attitudes predicted more positive post-message attitudes, $b = 0.73$, $SE = 0.09$, $t(77) = 8.58$, $p < .001$, $pr^2 = .49$. In addition, the predicted initial attitudes \times message type interaction emerged, $b = 0.27$, $SE = 0.08$, $t(76) = 3.28$, $p = .002$, $pr^2 = .12$ (Figure 1). In this and all subsequent studies, simple slope analyses were performed such that message opponents were at 1 SD below the mean, and individuals with initial attitudes that were relatively message congruent were at 1 SD above the mean.

As predicted, among message opponents, a mismatching effect occurred such that the affective message was more persuasive than the cognitive message, $b = -0.37$, $SE = 0.16$, $t(76) = -2.37$, $p = .02$, $pr^2 = .07$. In contrast, among recipients with initial attitudes that were relatively message congruent, a matching effect occurred such that the cognitive message was more persuasive than the affective message, $b = 0.37$, $SE = 0.16$, $t(76) = 2.33$, $p = .02$, $pr^2 = .07$.

Discussion

In Study 1, the mismatched message was more persuasive than the matched message among message opponents, whereas the opposite was true among those with initial attitudes that were relatively congruent with the message position. Although we conceptualized the attitudinal basis of education subsidies at the level of the attitude object, one might wonder if the current findings were actually due to the individual \times object-level bases of initial attitudes. If message opponents were to also hold attitudes toward a decrease in education subsidies that were more affectively based than their counterparts whose initial attitudes are relatively congruent with the message position, then Study 1's finding that the affective message was more persuasive than the cognitive message among message opponents would actually indicate a matching rather than mismatching effect. Likewise, if participants with initial attitudes that were relatively message congruent were to also hold more cognitively based attitudes, then Study 1's finding

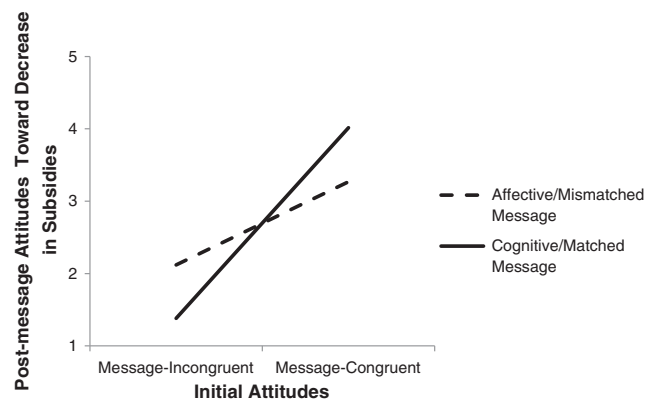


Figure 1. Post-message attitudes toward decreasing education subsidies in Study 1, depending on message type (affective/mismatched vs. cognitive/matched), and initial attitudes. Individuals with message-incongruent initial attitudes (i.e., message opponents) are at 1 SD below mean initial attitudes. Individuals with relatively message-congruent initial attitudes are at 1 SD above mean initial attitudes

that the cognitive message was more persuasive than the affective message among these participants would also indicate a matching rather than a mismatching effect.

Fortunately, we could address this concern by examining the pilot data to see whether the congruence between the message position and participants' initial attitudes was related to the individual \times object-level bases of these attitudes. To that effect, we ran one partial correlation between initial attitudes and the affect–attitude discrepancy score, controlling for the cognition–attitude discrepancy score, and another partial correlation between initial attitudes and the cognition–attitude discrepancy score, controlling for the affect–attitude discrepancy score. The analyses revealed that the more positive individuals' attitudes were toward education opportunities, the smaller the absolute cognition–attitude discrepancies ($r_{\text{partial}} = -.49$, $p < .001$) and the bigger the absolute affect–attitude discrepancies ($r_{\text{partial}} = .30$, $p = .01$). More important, this means that, as people's initial attitudes became more opposed to the message, attitudes also became more driven by cognition than on affect. Therefore, Study 1's findings could not be attributed to matching effects at the individual \times object level of bases for education subsidies. Nevertheless, in Study 2, we investigated individual \times object-level attitudinal bases as an alternative explanation more directly, by measuring affect and cognition along with initial attitudes. In addition, because prior research had extended the demonstration of matching effects beyond attitudes to behavioral intention (e.g., Clarkson et al., 2011; Mayer & Tormala, 2010), we sought to demonstrate mismatching effects on behavioral intention. More important, we sought to replicate Study 1's findings by using an object that elicits primarily *affective* attitudes across individuals and having participants report their initial attitudes and post-message behavioral intention in two separate sessions.

STUDY 2: RIVAL UNIVERSITY AS A PRIMARILY AFFECTIVE TOPIC

In this study, we wanted to investigate whether the same pattern found in Study 1 would occur but for an attitude object that was primarily affective, such that among message opponents, a mismatching effect would be observed. In this mismatching effect, the cognitive message would be more persuasive than the affective message. On the other hand, among those with initial attitudes that were relatively message congruent, a matching effect would be observed. Given that social groups tend to be associated with affective attitudes (e.g., Esses & Dovidio, 2002), we expected attitudes toward a rival university to also be affectively based.

This study took place at the Ohio State University (OSU) during the college football season. The University of Michigan (UM), a fellow member of the Big Ten Conference and OSU's biggest rival, was chosen as the attitude object.

Method

Participants and Design

One hundred and twenty-five (87 women and 38 men) introductory psychology students at OSU completed a two-session

study in return for partial course credit. Session 1 measured initial attitudes and the extent to which these attitudes were based on affect and cognition. Session 2 randomly assigned the same participants to read either a cognitive message or an affective message. In this study, because attitudes toward the rival university, UM, were predicted to be based primarily on affect rather than cognition, the cognitive message was the mismatched message whereas the affective message was the matched message. Thus, the study design was an initial attitudes (continuous) \times message type (cognitive/mismatched vs. affective/matched) between-subjects design, with 63 and 62 participants in the affective and cognitive message conditions, respectively.

Procedure and Materials

Session 1 Overview. Participants signed up for a study on attitudes that were presumed to be about colleges belonging to a common athletics division, the Big Ten Conference. Upon signing up, they received a link to a secure website where they responded to a questionnaire asking about their attitudes, beliefs, and feelings about UM and other unrelated attitude objects (e.g., abortion).

Initial Attitudes, Beliefs, and Feelings about the UM. Participants reported their initial attitudes, beliefs, and feelings about UM by responding to the same semantic-differential items as in previous tests (Study 1 pilot; Crites et al., 1994). All responses were made on 7-point scales.

Initial attitudes toward UM were computed as the average of responses to the four attitude items ($\alpha = .97$). Given that the persuasive message was positive about UM, lower scores represented initial attitudes that were more opposed to the message position. We also computed average scores for the beliefs items ($\alpha = .97$) and the feelings items ($\alpha = .96$) to be used in determining the extent to which attitudes toward UM were based on affect versus cognition.

Session 2 Overview. A few days later, participants came into the lab. They first completed a task unrelated to our main hypothesis⁵ and then received either a cognitive message or an affective message in favor of UM. To assess their positivity toward UM, we asked participants to indicate how likely they would be to participate in a roommate exchange program with UM students.

Message Type. In the laboratory, participants sat at individual cubicles to complete a questionnaire on the computer. They were presented with either an affective message or a cognitive message that was positive about UM. The message was allegedly taken from a documentary on the Big Ten Conference, and the source of the message was an OSU undergraduate alumnus who was a current graduate student at UM. The affective message discussed the positive feelings experienced by the UM student body (e.g., happy and enthusiastic), whereas the cognitive message emphasized positive characteristics and facts

⁵In the task, participants reported either three or nine beliefs they had about the UM football team. We do not discuss this task further because the number of beliefs participants were assigned to report in this task did not impact persuasion on its own or by interacting with any other predictors in our model (all $ps > .20$). In addition, the predicted initial attitudes \times message type interaction remains significant at $p < .05$, and no other significant effects emerge, when including number of beliefs in our model.

about UM (e.g., 40 intramural sports, among the top 3 public universities in the country).

Dependent Variable: Post-message Behavioral Intention. After the message, participants indicated their likelihood of participating in a program called the Rivalry Roommate Exchange Initiative. This program would involve traveling to UM during the weekend of the OSU–UM football game that season and staying with a UM student host. In exchange, the participant would be required to host a UM student who came to OSU's hometown (Columbus, OH) for the game the following football season. Participants indicated their likelihood of participating in this roommate exchange program using a 7-point scale (1 = *not at all* to 7 = *extremely likely*). Thus, higher numbers mean more persuasion.

Results

We predicted that message opponents would be more inclined to participate in the roommate exchange program if they read the cognitive (mismatched) message than if they read the affective (matched) message. Meanwhile, participants with initial attitudes toward UM that were relatively message congruent would be more inclined to participate in the roommate exchange program if they read the affective (matched) message than if they read the cognitive (mismatched) message. Furthermore, we sought to rule out that an interaction between individual \times object-level attitudinal basis toward UM and message type would account for the aforementioned interaction.

We first established that attitudes toward UM were based more on affect than cognition, by computing two discrepancy scores using the method described in Study 1. As predicted, participants' affect–attitude discrepancies ($M=0.52$, $SD=0.63$) were smaller than their cognition–attitude discrepancies ($M=0.76$, $SD=0.86$), $t(124)=3.08$, $p<.01$. This means that, as expected, attitudes toward UM were based more on affect than on cognition. In other words, participants' attitudes toward UM ($M=3.89$, $SD=1.68$) were driven more by their emotions ($M=3.84$, $SD=1.35$) than their beliefs ($M=4.53$, $SD=1.68$). We also examined the extent to which UM elicits primarily affective or cognitive attitudes by analyzing the extent to which affect scores versus cognition scores predict overall attitudes in a simultaneous regression analysis. The results showed that feelings predicted unique variance (32.95%) in attitudes, $b=0.72$, $SE=0.09$, $t(122)=7.75$, $p<.001$. Beliefs predicted a unique but smaller amount of variance (14.75%) in attitudes, $b=0.35$, $SE=0.08$, $t(122)=4.59$, $p<.001$.

We next examined whether the extent to which one's initial attitudes were opposed to the message was related to the extent to which those attitudes were based on affect or cognition, using the same method as in Study 1's pilot test. Results revealed that the more positive individuals' attitudes were toward UM, the larger the affect–attitude discrepancies ($r_{\text{partial}}=.34$, $p<.001$) and the smaller the cognition–attitude discrepancies ($r_{\text{partial}}=-.29$, $p=.001$). Put differently, the more people's initial attitudes were opposed to the message position (i.e., the more negative UM attitudes), the more these attitudes were based on affect versus cognition. This means that if a cognitive message was more persuasive than an affective message among message opponents, the pattern could be due to either a mismatching effect that involves primarily

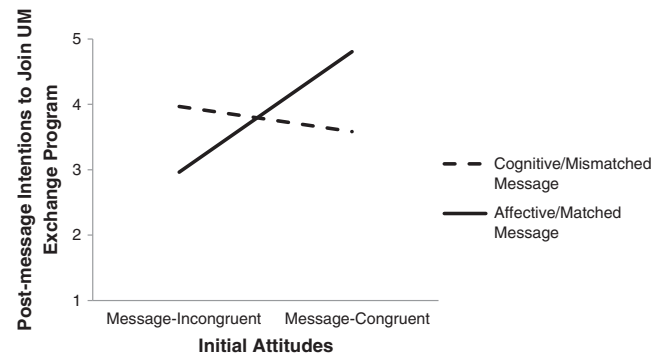


Figure 2. Post-message intentions toward joining UM roommate exchange program in Study 2, depending on message type (cognitive/mismatched vs. affective/matched), and initial attitudes. Individuals with message-incongruent initial attitudes (i.e., message opponents) are at 1 *SD* below mean initial attitudes. Individuals with relatively message-congruent initial attitudes are at 1 *SD* above mean initial attitudes

affective attitudes toward UM across all message recipients or a mismatching effect that involves primarily affective attitudes toward UM among message opponents.

In order to control for attitudinal bases at the individual \times object level, we ran a regression analysis predicting likelihood of participating in the roommate exchange program from message type ($-1 = \text{cognitive/mismatched}$ vs. $1 = \text{affective/matched}$), initial attitudes toward UM, affect–attitude discrepancy, and cognition–attitude discrepancy in the first step, and the two-way interactions between message type and each of the other three predictors in the second step. As predicted, the effect of message type on behavioral intentions depended significantly on initial attitudes, $b=0.33$, $SE=0.12$, $t(117)=2.66$, $p<.01$, $pr^2=.06$ (Figure 2). Among message opponents, reading the cognitive (mismatched) message made them marginally more likely (than the affective [matched] message) to want to participate in the roommate exchange program, $b=-0.50$, $SE=0.29$, $t(117)=1.76$, $p=.08$, $pr^2=.03$. However, among participants with initial attitudes that were relatively message congruent, reading the affective (matched) message made them more likely (than the cognitive [mismatched] message) to want to participate in the roommate exchange program, $b=0.61$, $SE=0.28$, $t(117)=2.16$, $p=.03$, $pr^2=.04$.⁶ No other effects reached significance.

Discussion

Consistent with our predictions and with the results of Study 1, in Study 2, the mismatched message tended to increase persuasion (relative to the matched message) among message opponents, whereas the matched message increased persuasion (relative to the mismatched message) among those whose initial attitudes were relatively congruent with the message position. In the current study, the attitudinal bases at the individual \times object level did not interact with the type of message to influence persuasion, $ps>.71$. As described in the earlier analyses, we entered affect–attitude discrepancy and cognition–attitude discrepancy separately in order to examine the effects of attitudinal bases at the individual \times object level.

⁶The predicted interaction effect and simple slope findings did not change in statistical significance when attitudinal bases at the individual \times object level were removed from the analyses.

Another way to index attitudinal bases at the individual \times object level is to subtract affect–attitude discrepancy from cognition–attitude discrepancy such that we have a single measure of dominant attitudinal basis at the individual \times object level. Parallel analyses using this measure of attitudinal basis at the individual \times object level also revealed no significant interaction between attitudinal basis at the individual \times object level and the type of message, $p = .56$. More important, the predicted initial attitudes \times message type interaction remained significant, $b = 0.34$, $SE = 0.12$, $t(119) = 2.81$, $p < .01$, $pr^2 = .06$. It is possible that attitudinal bases that are measured at the individual \times object level approach are more likely to fluctuate across situations depending on other factors such as the situational salience of affect or cognition, whereas attitudinal bases that are measured at the object level (across different individuals) are more stable across situations. We look to future research for comparisons between the different level approaches.

Taken together, Study 2's findings replicated the pattern in Study 1 by using a different attitude object, one for which people had primarily affective attitudes. Furthermore, our results suggest that congruence of individuals' initial attitudes with the message, independent of whether these attitudes had an individual \times object-level base of affect or cognition, interacted with message type to influence persuasion. As the mismatching effects observed for message-incongruent initial attitudes in Study 2 failed to reach traditional levels of significance, the main goal in Study 3 was to demonstrate mismatching effects using a different affective issue. In addition, because recent research has suggested that mismatching effects occur when individuals are uncertain of their initial attitudes (Clarkson et al., 2011), we measured initial attitude certainty as a potential confound for our predicted initial attitudes \times message type interaction pattern.

STUDY 3: TUITION INCREASE AS AN AFFECTIVE ISSUE

Pilot Tests

Object-Level Basis

In order to ensure that the topic was associated with affectively based attitudes, we measured participants' attitudes, beliefs, and feelings about a tuition increase using the same measures as in previous tests (Studies 1 and 2 pilots; Crites et al., 1994). All responses were made on 7-point scales. The attitude, affect, and cognition scales were highly reliable ($\alpha = .90$, $.87$, and $.89$, respectively).

To test the extent to which attitudes were based on affect versus cognition, we computed two discrepancy scores as before. As predicted, participants' affect–attitude discrepancies ($M = 0.76$, $SD = 0.49$) were smaller than their cognition–attitude discrepancies ($M = 1.15$, $SD = 0.71$), $t(39) = -3.92$, $p < .001$, thus indicating that attitudes toward an increase in tuition were based more on affect than cognition. That is, participants' negative attitudes toward increasing tuition ($M = 1.96$, $SD = 0.84$) were driven by their emotions ($M = 2.70$, $SD = 0.80$) rather than their beliefs ($M = 3.11$, $SD = 0.84$). When we examined the extent to which affect scores versus cognition scores predicted

overall attitudes in a simultaneous regression analysis, the results showed that feelings predicted unique variance (39.69%) in attitudes, $b = 0.71$, $SE = 0.14$, $t(37) = 4.93$, $p < .001$, but beliefs did not predict attitudes, $p = .25$.

Message Type

To assess the affective–cognitive nature of the message, we used the same measures as before. Participants in a separate pilot test were randomly assigned to read either the affective or cognitive message. To compare the messages in their relative affective–cognitive qualities, we subtracted the *reasoning* response from the *feelings* response for each participant. Results showed that the extent to which the message appealed to feelings relative to reasoning was indeed greater for the affective ($M = 1.22$, $SD = 0.97$) than cognitive ($M = -0.25$, $SD = 1.75$) version, $t(15) = -2.18$, $p = .046$.

Method

Participants and Design

Two hundred and three (163 women and 40 men) introductory psychology students at NUS completed the study either in return for partial course credit or for monetary reimbursement (about €3.06). They were randomly assigned to read either an affective message or a cognitive message. Recall that because attitudes toward a tuition increase were dominated by feelings rather than beliefs across individuals, the cognitive message was the mismatched message, whereas the affective message was the matched message. The study design was an initial attitude certainty (continuous) \times initial attitudes (continuous) \times message type (cognitive/mismatched vs. affective/matched) between-subjects design, with 102 participants in the affective message condition and 101 participants in the cognitivemessage condition.

Procedure and Materials

Participants were informed that a committee in the university was proposing an increase in tuition, which would start in the next academic year and apply to current as well as incoming students. Participants reported initial attitudes toward a tuition increase and then the certainty with which they held these attitudes. They were then presented with either an affective message or a cognitive message, depending on random assignment. After reading the message, participants were told

You may or may not have changed your opinion toward a tuition fee increase at NUS. If you have, please indicate your attitudes by responding to the same list of words from before. If not, please just report the same attitudes that you indicated before.

They then reported their attitudes toward an increase in tuition. Finally, all participants were thanked for their participation and debriefed.

Predictor Variables

Initial Attitudes Participants reported their initial attitudes toward an increase in tuition with the same four attitude items

used in the pilot test. Initial attitudes were computed as the average of responses to the four items ($\alpha = .88$, $M = 2.13$, $SD = 0.91$). Given that the persuasive message was in favor of increasing tuition, lower scores represented initial attitudes that were more opposed to the message.

Message Type Participants read either an affective message or a cognitive message in favor of increasing tuition. The affective message discussed positive feelings such as students having more enjoyable experiences at lectures. The cognitive message discussed positive consequences such as lectures being delivered more efficiently.

Initial Attitude Certainty Participants also reported the certainty of their initial attitudes toward a tuition fee increase by responding to three items asking, "How _____ are you of your attitudes toward a tuition fee increase at NUS?" (*certain, convinced, and confident*). All items were completed on a 7-point scale ranging from 1 = *not at all* to 7 = *extremely*. Initial attitude certainty was computed as the average of the responses to the three items ($\alpha = .94$, $M = 5.25$, $SD = 1.30$).

Dependent Variable: Post-message Attitudes

Participants reported their attitudes toward an increase in tuition using the same four items as in the initial attitudes measure ($\alpha = .91$). Higher values mean greater persuasion.

Results

The following predictor variables were entered in a regression analysis: initial attitude certainty, initial attitudes, message type ($-1 = \text{cognitive/mismatched}$ vs. $1 = \text{affective/matched}$), all possible two-way interactions, and the three-way interaction term. Post-message attitudes toward an increase in tuition were entered as the dependent variable.

Two main effects emerged. Initial attitudes positively predicted post-message attitudes, $b = 0.69$, $SE = 0.06$, $t(199) = 11.34$, $p < .001$, $pr^2 = .39$. Of most importance, the predicted initial attitudes \times message type interaction emerged even when initial attitude certainty was controlled for, $b = 0.15$, $SE = 0.06$, $t(196) = 2.33$, $p = .02$, $pr^2 = .03$ (Figure 3). As expected, among message opponents, a mismatching effect occurred such that the cognitive message was more persuasive than the affective message, $b = -0.17$, $SE = 0.07$, $t(196) = -2.38$, $p = .02$, $pr^2 = .03$. However, among recipients with initial attitudes that were relatively message congruent, both messages were equally persuasive, $b = 0.09$, $SE = 0.07$, $t(196) = 1.25$, $p = .21$, $pr^2 = .01$.⁷

Attitude Certainty Analyses

Initial attitude certainty negatively predicted post-message attitudes, $b = -0.21$, $SE = 0.04$, $t(199) = -5.03$, $p < .001$, $pr^2 = .11$. Furthermore, the effect of initial attitude certainty was not moderated by the type of message, $b = 0.04$, $SE = 0.04$, $t(196) = .94$, $p = .35$. However, there was a significant initial attitudes \times initial attitude certainty interaction,

⁷The predicted interaction effect and simple slope findings did not change in statistical significance when initial attitude certainty was removed from the analyses.

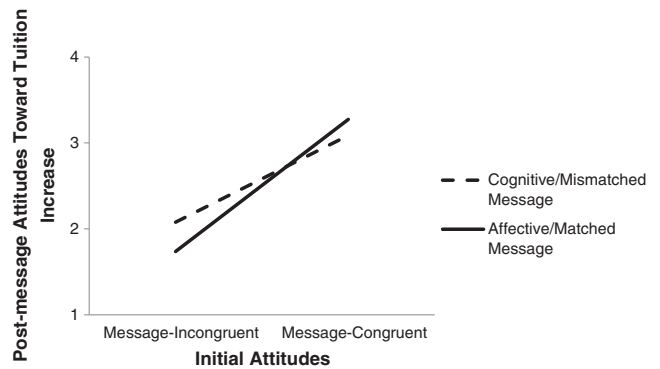


Figure 3. Post-message attitudes toward a tuition increase in Study 3, depending on message type (cognitive/mismatched vs. affective/matched), and initial attitudes, controlling for initial attitude certainty and all higher order interactions. Individuals with message-incongruent initial attitudes (i.e., message opponents) are at 1 *SD* below mean initial attitudes. Individuals with relatively message-congruent initial attitudes are at 1 *SD* above mean initial attitudes

$b = 0.13$, $SE = 0.04$, $t(196) = 3.31$, $p = .001$, $pr^2 = .05$, which indicated that although initial attitude certainty negatively predicted persuasion overall, this relationship was stronger among message opponents, $b = -0.34$, $SE = 0.06$, $t(196) = -5.54$, $p < .001$, $pr^2 = .14$, than among those with initial attitudes that were relatively message congruent, $b = -0.10$, $SE = 0.05$, $t(196) = -1.97$, $p = .05$, $pr^2 = .02$. In addition, the initial attitudes \times initial attitude certainty \times message type interaction was marginally significant, $b = -0.07$, $SE = 0.04$, $t(195) = -1.75$, $p = .08$, $pr^2 = .02$. Among message opponents, the certainty \times message type interaction was marginally significant, $b = 0.12$, $SE = 0.06$, $t(195) = 1.92$, $p = .06$, $pr^2 = .02$, indicating that those with low certainty in their initial attitudes were more persuaded by the mismatched than the matched message, $b = -0.38$, $SE = 0.14$, $t(195) = -2.73$, $p < .01$, $pr^2 = .04$, whereas those with high certainty in their initial attitudes were equally persuaded by both messages, $b = -0.07$, $SE = 0.07$, $t(195) = -1.00$, $p > .3$, $pr^2 = .005$. Thus, the predicted mismatching effects occurred only among those with lower initial attitude certainty, a pattern also found in prior research (Clarkson et al., 2011). Meanwhile, among individuals with initial attitudes that were relatively message congruent, certainty did not determine which type of message was more persuasive, $b = -0.01$, $SE = 0.05$, $t(195) = -.16$, $p > .8$, $pr^2 = .0001$.

Discussion

Consistent with the goal of the current research, the main analyses revealed that our predicted initial attitudes \times message type interaction remains significant even when controlling for attitude certainty and any interaction involving attitude certainty. In addition, the results suggest that the pattern found in prior research (Clarkson et al., 2011), where mismatching effects occur under low attitude certainty but matching effects occur under high certainty, seems to occur among message opponents but not those with attitudes that are relatively message congruent. Although the focus of the current research was not to examine how attitude certainty impacts our predicted initial attitudes \times message type interaction, our findings seemed to replicate prior research where mismatching effects were obtained among low certainty individuals, as long as

initial attitudes were relatively opposed to the message. However, given the marginal significance of these findings, this suggestion should be viewed with caution, and future research could examine the interplay between attitude certainty and the message congruence of initial attitudes in their impact on mismatching effects.

It is worth noting that unlike in the current study, the two studies from Clarkson et al. (2011), in which all participants read a counter-attitudinal message, did not reveal overall mismatching effects. However, this can be explained by the differences between the paradigms used in the two lines of research. In Clarkson et al. (2011), participants' initial attitudes toward a fictitious issue were created to be negative and thus opposed to the message position. In the current research, participants' pre-existing initial attitudes toward a familiar issue were measured as opposed to the message position. Therefore, when it came to resisting persuasion, participants in Clarkson et al. (2011) could rely only on information they were presented with in the attitude creation phase, whereas participants in the current research could rely on their prior experience with the familiar issue. Because people's behavior follows their attitudes when their attitudes are based on direct experience (Fazio & Zanna, 1981), participants in the current research were more likely to engage in behavior (e.g., counter-arguing with the message) that corresponds to their negative attitudes.

Moreover, in the research by Clarkson et al. (2011), all participants received the same affective and cognitive information in the attitude creation phase, but they differed in the type of information— affective or cognitive—that they focused on. Because these emotions or beliefs were grounded in minimal experience, they were unlikely to be of much help in resisting persuasion. In the current research, participants' resources for resisting persuasion were dominated by beliefs or emotions depending on the pre-existing attitudinal basis for the issue. As mentioned earlier, issues with pre-existing affective attitudes and issues with pre-existing cognitive attitudes predict greater accessibility of emotions and beliefs, respectively (Giner-Sorolla, 2004). Thus, it is likely that participants in the current research could access emotions or beliefs quickly in order to effectively resist tailored messages that were highly opposed to their initial attitudes.

STUDY 4: INTEGRATED VIRTUAL LEARNING ENVIRONMENT AS A PRIMARILY COGNITIVE ISSUE

Having demonstrated that mismatching effects occur among message opponents in three studies, we next examined a potential underlying mechanism for mismatching effects: the ability to counter-argue with the message. In this study, we investigated attitudes toward an online course management system known as Integrated Virtual Learning Environment (IVLE). As mismatching effects were shown to hold even when controlling for initial attitude certainty, we excluded attitude certainty in this study. In prior research, message opponents have been shown to generate counter-arguments in an active fashion rather than simply express disagreement with the message (Eagly, Kulesa, Brannon, Shaw, & Hutson-Comeaux, 2000). Therefore, in order to assess such active

counter-arguing, we asked participants to generate counter-arguments that are intended to convince others and to rate the extent to which they thought their counter-arguments were convincing.

Pilot Tests

Object-Level Basis

As before, we measured participants' attitudes, beliefs, and feelings about IVLE using the same measures as in previous tests (Studies 1, 2, and 3 pilots; Crites et al., 1994). All responses were made on 7-point scales. The attitude, affect, and cognition scales were highly reliable ($\alpha = .94, .83, \text{ and } .87$, respectively). Again, we computed two discrepancy scores to determine the extent to which IVLE attitudes were primarily based on cognition rather than affect. Analyses revealed that absolute affect–attitude discrepancies ($M = 0.79, SD = 0.47$) were bigger than absolute cognition–attitude discrepancies ($M = 0.50, SD = 0.37$), $t(39) = 2.79, p = .008$. That is, participants had favorable IVLE attitudes ($M = 5.22, SD = 0.84$), which were driven more by their beliefs ($M = 5.52, SD = 0.73$) than their emotions ($M = 4.50, SD = 0.69$).

As before, we examined the extent to which affect scores versus cognition scores predicted overall attitudes. The results showed that beliefs predicted unique variance (30.14%) in attitudes, $b = 0.57, SE = 0.14, t(37) = 3.99, p < .001$. Feelings also predicted a unique but smaller amount of variance (23.23%) in attitudes, $b = 0.51, SE = 0.15, t(37) = 3.35, p = .002$.

Message Type

As before, we compared the messages in their relative cognitive–affective qualities in a pilot test by subtracting the *feelings* response from *reasoning* response for each participant. Results showed that the extent to which the message appealed to reasoning relative to feelings was greater for the cognitive version ($M = 1.29, SD = 1.25$) than affective version ($M = -0.38, SD = 1.51$), $t(13) = -2.30, p = .039$.

Method

Participants and Design

One hundred and five (71 women and 34 men) introductory psychology students at NUS completed the study for partial course credit. They were randomly assigned to read either an affective (mismatched) message or a cognitive (matched) message. The study design was an initial attitudes (continuous) \times message type (affective/mismatched vs. cognitive/matched) between-subjects design, with 55 and 50 participants in the affective and cognitive message conditions, respectively.

Procedure and Materials

Participants were informed that they were completing a brief survey on IVLE. They reported initial attitudes toward IVLE and then were told that in order to help them form a balanced view of IVLE, they would be provided with others' opinions on IVLE. They were presented with an ostensible excerpt of

what other survey respondents thought of IVLE. The excerpt consisted of either an affective message or a cognitive message against IVLE, depending on random assignment. After reading the excerpt, participants first generated counter-arguments against the excerpt (i.e. arguments in favor of IVLE) and then rated the extent to which each of their counter-arguments was convincing. Finally, all participants were thanked for their participation and debriefed.

Predictor Variables

Initial Attitudes Participants reported their initial attitudes toward IVLE with the same four attitude items that were used in the pilot, with higher values reflecting more positive IVLE attitudes. Because the message was against IVLE, initial attitudes were reverse-coded before they were averaged ($\alpha = .94$, $M = 2.39$, $SD = 0.93$) so that as in Studies 1–3, lower values reflected initial attitudes that were more opposed to the message.

Message Type Participants read either an affective message or a cognitive message. The affective message described the anxiety that students would feel when missing a deadline because they erroneously assumed that they would receive all information through IVLE. The cognitive message described how IVLE is less effective than it should be because of difficulties in customization.

Dependent Variable: Intensity of Counter-arguing

In order to measure the intensity of a participant's counter-arguing, participants were given the following instructions:

What arguments would you use if you want to convince others that we SHOULD use the IVLE? Please list one argument per box. Do not worry about punctuation or grammar. Press 'Esc' when you are done listing your arguments.

Participants could list between 0 and 6 counter-arguments. After participants listed their counter-arguments, they rated each counter-argument using a 7-point scale (1 = *not at all convincing*, 4 = *somewhat convincing*, and 7 = *extremely convincing*). An example of a counter-argument that was rated as not at all convincing was "We are able to check who is on the class roster (using IVLE)." An example of a counter-argument that was rated as extremely convincing was that IVLE allows students "to submit questions and homework online."⁸

An index was created from the product term of the number of counter-arguments and the mean convincingness of the arguments. This means that a person who gives two moderately convincing arguments (e.g., mean convincingness = 3) will have the same score as another person who gives only one argument but that argument is more convincing (e.g., mean convincingness = 6). Participants' scores ranged from 0 to 39 (maximum possible is 42). The mean and *SD* were 14.19 and 8.81, respectively.

⁸An independent coder also rated the convincingness of the responses of 40 different participants (117 responses in all). Participants' own mean convincingness ratings ($M = 4.87$, $SD = 1.12$) did not differ significantly from the coder's mean ratings ($M = 5.18$, $SD = 0.96$), $t(38) = -1.15$, $p = .26$. Furthermore, no significant differences emerged when the coder's and participant's convincingness ratings were compared for each individual counter-argument, $p > .25$.

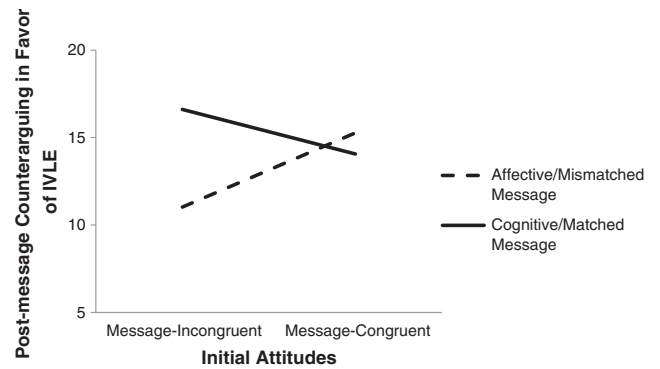


Figure 4. Post-message counter-arguing in favor of IVLE in Study 4, depending on message type (affective/mismatched vs. cognitive/matched), and initial attitudes. Individuals with message-incongruent initial attitudes (i.e., message opponents) are at 1 *SD* below mean initial attitudes. Individuals with relatively message-congruent initial attitudes are at 1 *SD* above mean initial attitudes

Results

Initial attitudes, message type (-1 = affective/mismatched vs. 1 = cognitive/matched), and their interaction were entered as predictors in a regression analysis. Intensity of counter-arguing was entered as the dependent variable.

Only the predicted initial attitudes \times message type interaction emerged, $b = -1.82$, $SE = 0.92$, $t(101) = -1.99$, $p < .05$, $pr^2 = .04$ (Figure 4). As expected, among message opponents, the cognitive (matched) message produced more intense counter-arguing than the affective (mismatched) message, $b = 2.79$, $SE = 1.20$, $t(101) = 2.32$, $p = .02$, $pr^2 = .05$. However, among individuals with initial attitudes that were relatively message congruent, counter-arguing did not differ as a function of the message, $b = -0.60$, $SE = 1.20$, $t(101) = -.50$, $p = .62$, $pr^2 = .002$.⁹

GENERAL DISCUSSION

The present studies support our key hypothesis that when recipients' initial attitudes are highly opposed to the position advocated in a message, mismatching effects occur such that the tailored message that directly targets the object-level

⁹An additional analysis using the mere number of counter-arguments as the dependent variable produced similar results, such that the initial attitudes \times message type interaction was a significant predictor, $b = -0.36$, $SE = 0.17$, $t(101) = -2.17$, $p < .05$, $pr^2 = .04$. Among message opponents, the cognitive (matched) message produced a marginally higher number of counter-arguments than the affective (mismatched) message, $b = 0.40$, $SE = 0.22$, $t(101) = 1.80$, $p = .07$, $pr^2 = .03$. However, among individuals with relatively message-congruent initial attitudes, number of counter-arguments did not differ as a function of the message, $b = -0.28$, $SE = 0.22$, $t(101) = -1.27$, $p = .21$, $pr^2 = .02$. In this analysis, there was also a marginally significant main effect of initial attitudes on number of counter-arguments, such that more congruent initial attitudes was associated with more counter-arguments, $b = 0.30$, $SE = 0.17$, $t(102) = 1.74$, $p < .10$, $pr^2 = .03$. A separate analysis predicting participants' mean convincingness score (i.e., across all of their counter-arguments) from initial attitudes, message type, and their interaction reveals no significant interaction, $p = .60$. However, there was a significant main effect of initial attitudes, such that more incongruent initial attitudes were associated with perceptions of more convincing counter-arguments, $b = -0.31$, $SE = 0.10$, $t(97) = -3.01$, $p < .01$, $pr^2 = .09$. There was also a marginally significant main effect of message type, such that the cognitive (matched) message produced counter-arguments that were perceived as more convincing than the affective (mismatched) message, $b = 0.18$, $SE = 0.10$, $t(97) = 1.84$, $p < .10$, $pr^2 = .03$.

attitudinal basis is less persuasive than the non-tailored message. These patterns occurred when the extent to which initial attitudes were congruent with the message was disentangled from the extent to which initial attitudes had an affective or cognitive basis at the individual \times object level (Study 2), when initial attitudes were measured a few days before the presentation of the tailored or non-tailored message (Study 2), and initial attitude certainty was controlled for (Study 3). A meta-analysis for Studies 1–3 tested the significance of the combined probabilities (Rosenthal & Rosnow, 2008), revealing that mismatching effects among message opponents were reliable, $Z = 3.70$, $p < .001$. Matching effects among individuals whose initial attitudes were message congruent were also reliable, $Z = 3.20$, $p < .001$. In addition, consistent with prior research examining matching effects for various measures that capture overall persuasion (e.g., Clarkson et al., 2011; Mayer & Tormala, 2010), the predicted mismatching effects occurred for post-message attitudes (Studies 1 and 3) and behavioral intentions (Study 2). Finally, Study 4 suggests that the intensity of counter-arguing is a potential underlying mechanism for such mismatching effects by showing that the tailored message produced more intense counter-arguing than the non-tailored message.

Limitations

One potential issue with using the object-level approach while measuring pre-existing initial attitudes is the alternative explanation that message opponents differed systematically from their relatively neutral counterparts in their individual \times object-level attitudinal bases. However, this alternative explanation was unlikely given several findings from the present research. In studies where affective messages were less persuasive than cognitive messages among message opponents, message opponents sometimes had more affectively based attitudes compared with non-opponents (see Study 2's Results section) but other times did not (i.e., in Study 3 where initial attitudes toward tuition were not related to absolute affect–attitude discrepancies, $r_{\text{partial}} = -.22$, $p = .17$). Moreover, message opponents were more persuaded by mismatched than matched messages even when we controlled for individual \times object-level attitudinal bases in Study 2. Nevertheless, more converging evidence to discount the role of individuals' attitudinal bases for a particular issue as a confounding variable could be obtained in future research where the message incongruence of initial attitudes is manipulated, for instance, through the presentation of a very unappealing versus a relatively neutral message position.

Another limitation is that, although the findings for the intensity of counter-arguing (Study 4) parallel the findings for post-message attitudes and behavioral intention (Studies 1 to 3), Study 4 did not show that counter-arguing mediates the effects of message type on post-message attitudes. However, there are some drawbacks of the measurement-of-mediation design (Spencer, Zanna, & Fong, 2005). One disadvantage is that the very act of trying to measure the mediator might interfere with the effects of the independent variable on the dependent measure. In the case of persuasion, it is possible that when participants' counter-arguing is highlighted via the completion of the counter-arguing measure, other psychological

mechanisms might be triggered that disrupt the original effects of message type on persuasion (e.g., the meta-cognitions regarding counter-arguing; e.g., Tormala & Petty, 2002). One way to address this issue is to measure the mediating mechanism after the dependent variable (e.g., Mayer & Tormala, 2010). Alternatively, disruptions to the original effects might be minimized if instead of being explicitly requested to generate counter-arguments, participants spontaneously generated counter-arguments. Yet another way to address this issue is to directly manipulate the mediating mechanism to observe its impact on the dependent variable (Spencer et al., 2005). Although prior research has shown that giving participants the instruction to counter-argue could lead to less persuasion by a message (e.g., Killeya & Johnson, 1998), future research could examine whether such manipulations could be adapted to examine effects on decreased persuasion by the tailored message relative to the non-tailored message. That said, as far as we know, in contrast to past research that focused on underlying mechanisms for matching effects (e.g., Haddock et al., 2008; Mayer & Tormala, 2010), the current research was the first attempt to explore the ability to counter-argue with the message as a potential mechanism for mismatching effects.

Implications

The current research has several implications for our understanding of mismatching effects. First, contrary to the notion that matching effects are a common phenomenon whereas mismatching effects are exceptions, the present findings provide evidence that mismatching effects can occur reliably. Unlike in past research where differences in susceptibility to cognitive versus affective appeals were observed only for affective attitudes but not cognitive attitudes (Drolet & Aakar, 2002; Millar & Millar, 1990), the present findings suggest that mismatching effects could occur for both primarily affective and primarily cognitive attitudes.

Furthermore, mismatching effects occur among message opponents. The present studies suggest that, besides considering whether an attitude object elicits primarily affective or cognitive attitudes, we need to know the degree to which the intended recipient opposes the message position. For example, if forgiving student loans elicits primarily affective attitudes, but most message recipients are very much against the idea of loan forgiveness, then a tailored message that elicits sympathy for loan recipients would backfire whereas a non-tailored message that discusses the economic benefits of forgiving student loans might be more persuasive. Indeed, although persuasion could involve reinforcing pre-existing attitudes, many persuasion efforts in the real world are attempts to change the attitudes of a message opponent, such as blood donation campaigns for non-donors (Farley & Stasson, 2003) or anti-smoking campaigns for smokers (Stark, Borgida, Kim, & Pickens, 2008). Our findings suggest that in such situations, message tailoring might backfire.

Second, the mismatching effects in the present research occurred among message opponents when attitudinal bases were operationalized at the level of the attitude object. As mentioned before, past researchers have already identified some attitude objects as being more affective or cognitive than others. For example, some have proposed that the inherently

emotional nature of close interpersonal contact means that people's behavior toward members of social groups is primarily based on affect (e.g., Esses & Dovidio, 2002). Although exceptions could probably be identified, it is possible that for most individuals in most situations, social groups elicit attitudes that are primarily affective. Another category is science education. Attitudes toward physics and chemistry were found to be more affectively than cognitively based, whereas biology attitudes are associated with more cognitively than affectively based attitudes (See & Khoo, 2011). Nevertheless, the present findings show that mismatching effects are not as rare as they might seem and, in fact, could occur for both primarily affective and primarily cognitive attitudes. More important, as far as we know, this is the first attempt to demonstrate the utility of examining attitudinal bases at the object level in the context of persuasion by affective–cognitive message tailoring.

The present research also has implications for how we understand affective versus cognitive attitudes. Consider, for example, interview applicants as an attitude object. If participants' pre-existing attitudes toward interview applicants as an attitude object happen to be more strongly associated with attributes such as "valuable" than emotions such as "happy," then attempts to induce a cognitive basis in participants via the presentation of cognitive information might reinforce or increase participants' existing cognitions (e.g., valuable). Such reinforcement could occur because exposure to the presented cognitive information increases the accessibility of the existing cognitions or the confidence with which the existing cognitions are held (Berger, 1992; Holland, Verplanken, & van Knippenberg, 2003). Subsequently, the strengthened cognitive attitude becomes more resistant to persuasion (Krosnick & Petty, 1995), even when the persuasion is beliefs-focused. On the other hand, attempts to induce an affective basis for this cognitive object (i.e., the interview applicant), via the presentation of emotions-related information, might produce relatively weak affective attitudes that are especially susceptible to affective persuasion. More important, such future directions could shed light on the asymmetry in prior matching effects where affective attitudes were more susceptible to emotions-focused than beliefs-focused persuasion, but cognitive attitudes were *not* more susceptible to beliefs-focused than emotions-focused persuasion (e.g., Edwards, 1990; Edwards & von Hippel, 1995; Drolet & Aakar, 2002).

Similarly, pre-existing attitudinal bases might also interfere with the creation of persuasive attempts to target the recipient's emotions or beliefs. For example, in Study 3, where the topic of tuition increase was associated with affective attitudes, the affective message was seen as being more affective than cognitive, but the reverse was not true for the cognitive message. It is possible that when the topic is affective, message recipients are more efficient at processing the emotions associated with the affective persuasion than the beliefs associated with the cognitive persuasion. Likewise, in Study 4 where the topic of IVLE was associated with primarily cognitive attitudes, the cognitive message was seen as more cognitive than affective, but the reverse was not true for the affective message. Thus, it is possible that when the topic is cognitive, recipients are better at processing the beliefs in the cognitive message than the emotions in the affective message.

It is also worthwhile to clarify what the present findings do not imply. First, we do not suggest that operationalizing attitudinal basis at the object level is superior to the other approaches. Instead, because the current research demonstrates that the object-level approach has predictive utility for persuasion, it would be worthwhile to compare this approach with other approaches in future studies. Such comparisons might enhance our understanding of affective–cognitive message tailoring.

Second, the present findings do not mean that the prevalence of matching effects in prior studies was only due to the message position being neutral or congruent with respect to the recipient's pre-message attitudes. Although the message congruence of initial attitudes is one variable that could moderate message tailoring effects, other variables might matter too. For instance, even though pre-message attitudes were commonly manipulated to be opposed to the message position in prior matching effects studies, these attitudes were induced for unfamiliar attitude objects (e.g., Chinese ideographs, a novel beverage, a stranger, a fictitious animal, and fictitious mineral donation). We find it interesting that the two studies that demonstrated mismatching effects (although only for affective attitudes) used topics that were arguably familiar to participants (i.e., known beverages such as milk, orange juice, and hot chocolate in Millar & Millar, 1990; Head & Shoulders and Johnson & Johnson shampoos in Drolet & Aakar, 2002). The same is true for the present studies, which used topics that were familiar to participants (e.g., a rival university; increasing tuition). Further research could examine whether the message incongruence of initial attitudes alone or the combination of message-incongruent attitudes and some other variable such as topic familiarity are sufficient conditions for mismatching effects to occur.

Future Directions

As mentioned earlier, it would be useful to determine whether the message congruence of initial attitudes interacts with other variables to influence mismatching effects. For instance, it is possible that direct experience might increase mismatching effects relative to indirect experience, because the former increases attitude–behavior consistency (Fazio & Zanna, 1981). In other words, relative to indirect experience, direct experience might increase mismatching effects because for participants with direct experience, any behavior that is consistent with those attitudes (e.g., counter-arguing with a message that is opposed to those attitudes) would be more likely. One way to test the role of direct experience is to manipulate whether participants are asked to interact with a tangible object themselves or given information about the tangible object by a third party (e.g., Regan & Fazio, 1977). We expect that for objects that elicit primarily affective attitudes, for instance, math (Crites et al., 1994), participants who dislike math might differ in mismatching effects depending on their experience with the math problems. Participants who interact with the math problems themselves would be more likely to exhibit mismatching effects such that they are less persuaded by the affective ("math can be fun") than the cognitive message ("math can be useful"), compared with participants with only indirect experience with the math problems. In addition, the direct experience group might also counter-argue with the

affective message to a greater extent than the cognitive message, whereas the indirect experience group might produce relatively little counter-arguing, regardless of whether the message was affective or cognitive.

Another variable that might moderate the current pattern of findings is personal relevance. Because personal relevance enhances message processing (Petty & Cacioppo, 1979), it is possible that mismatching effects are more likely to occur for topics of high personal relevance. This means that when the message topic is highly relevant, participants might invest more effort in elaborating on the persuasive message such that message opponents might counter-argue with the message more effectively. The current findings suggest that these participants would counter-argue with the tailored message even more effectively than the non-tailored message. On the other hand, when the topic is less personally relevant, participants who are opposed to the message might invest less effort in processing the message such that they might not counter-argue with the message effectively. Furthermore, the lack of resistance among these participants might occur regardless of whether the message was tailored to the attitudinal basis of the topic or not. Future studies could test the role of personal relevance, for instance, by manipulating whether participants believe that a university policy would be implemented at their own university or a distant university (e.g., Petty & Cacioppo, 1979).

A question that remains is why or how people counter-argue more intensely against the message that directly targets the predominant attitudinal basis. As mentioned earlier, one reason might be that when an issue or object is associated with primarily affective or cognitive attitudes, the selective accessibility of information related to emotions versus attributes (Giner-Sorolla, 2004) enables one to readily summon counter-arguments against affective or cognitive messages, respectively. In addition, although we focused on the intensity of counter-arguing as a consequence of mismatching effects for a cognitive attitude object, prior research has shown that a more affective type of counter-arguing (e.g., emotions-related negative thoughts such as “The tape made me angry”) could occur (Zuwerink & Devine, 1996). Therefore, further research could examine the role of affective versus cognitive counter-arguing in mismatching effects. Besides, additional research could investigate the role of other resistance strategies in the context of mismatching effects such as selective avoidance (e.g., Sawicki et al., 2011) and source derogation (e.g., Eagly et al., 2000; Zuwerink & Devine, 1996).

Finally, the role of initial attitudes and counter-arguing in producing matching versus mismatching effects could also be examined for other types of message tailoring beyond affect-cognition. For instance, matching effects also occur when the message is tailored to the recipient’s personality (Wheeler, Petty, & Bizer, 2005; Hirsh, Kang, & Bodenhausen, 2012). Similar effects have also been observed with regard to regulatory focus orientation, where promotion focus is associated with sensitivity to gains and prevention focus sensitivity to losses (Higgins, 1998). In such research, matching the message to the recipient’s orientation has been most effective, whether such orientation is directly measured (Cesario, Grant, & Higgins, 2004) or manifest in independent versus interdependent self-construal (Aaker & Lee, 2001). Last, the function of attitudes has also

been proposed to play a role in message tailoring effects, such that attitudes serving a specific function are more effectively targeted by strong messages that are tailored to these functions (Petty & Wegener, 1998; Snyder & DeBono, 1985). Future studies could examine whether mismatching effects occur for these various forms of message tailoring when the recipient is highly opposed to the message.

Conclusion

The current research provides evidence for the utility of identifying a priori the dominant attitudinal basis associated with an attitude object in the context of message tailoring. Contrary to the notion that mismatching effects are a relatively rare phenomenon, the present findings suggest that mismatching effects occur reliably among message opponents. We hope that the present findings generate new directions for future work on the effects of message tailoring and message position on persuasion and related processes.

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APPENDIX

Study 1: Cognitive/Matched Message for Decreasing Education Subsidies

- Decrease in education subsidies from the government will be beneficial for members of the public as education subsidies expenditures can be channelled to improving public facilities such as more beautiful parks.
- Less education subsidies from the government may be beneficial to taxpayers as they could pay less taxes annually.
- Government should decrease the amount of education subsidies based on the belief that everyone should pay for their own education.

Study 1: Affective/Mismatched Message for Decreasing Education Subsidies

- Members of the public will be excited to know that education subsidies expenditures can be channelled to improving public facilities such as more beautiful parks.
- If the government decreases the amount of education subsidies, taxpayers will be delighted to know that they can pay less taxes annually.

- Students will feel proud of their academic achievement if they pay for their own education and not relying on education subsidies from the government.

Study 2: Affective/Matched Message in Favor of Rival University

Don't get me wrong, as a graduate of The Ohio State University, I love my alma mater, but I also feel very fondly toward the University of Michigan. Like Ohio State, the University of Michigan is a large, public, Midwestern university with a happy and enthusiastic student body. I have formed many life-long friendships with my fellow students at Michigan.

The athletics programs at Ohio State and Michigan give students a lot to be excited about. While attending the University of Michigan, my friends and I have had a lot of fun at the football and basketball games, and have also enjoyed several hockey games. I have even played on a few intramural sports teams. My softball team wasn't that great but my flag football team won first place overall! My friends and I have definitely taken advantage of these sporting activities as well as the recreational facilities all around campus.

I've learned a lot about the history of Michigan football - a major source of pride for the students here. The football players come from all over the country and dedicate a lot of their time giving back to the University. The football players are often seen helping various causes and charities around campus, using their celebrity status as an asset to help those in need.

Also like Ohio State, Michigan is one of the best academic universities in the country, and offers students a variety of majors. I have personally learned a lot and developed great relationships with my instructors and classmates. In fact, I met my wife in a sociology class and we are inviting our professor to the wedding!

Just like Ohio State is for its students, Michigan is truly a home away from home, and a place where its students belong.

Study 2: Cognitive/Mismatched Message in Favor of Rival University

Don't get me wrong, as a graduate of The Ohio State University I think very highly of my alma mater, but now I also think highly of the University of Michigan. Like Ohio State, the University of Michigan is a large, public, Midwestern university with endless opportunities for students. Actually, OSU and Michigan have a lot of positive characteristics in common.

To start, the athletics programs at Ohio State and Michigan are unmatched in the Big Ten Conference. Michigan has over 30 varsity sports and over 40 intramural sports throughout the year for students. A large majority of students participates in at least one intramural sport during their time at Michigan. The recreational facilities are also top-notch, allowing students opportunities to play tennis, take exercise classes, enjoy a jog or play softball, as just a few examples.

The Michigan football team has a long, storied history. Consistently a top-rated program and Big Ten championship contender, Michigan successfully recruits top players from across the country. The players are not only expected to perform well on the field, but also to perform well in the classroom and to be strong representatives of the university.

Also like Ohio State, Michigan is one of the best academic universities in the country, and offers students a variety of majors. Michigan is consistently rated among the top 3 public universities in the country. In addition, students have many opportunities to become involved in research, volunteer work, and internships to gain experience for their future careers. Michigan attracts top faculty members who excel at teaching.

Just as students from Ohio State, students at Michigan have a lot of opportunities to take advantage of while they are at school.

Study 3: Affective/Matched Message for Increasing Tuition

With the increase in tuition fees, incoming students would feel less pressure to attend university as this increase in fees would give students a reason to look elsewhere for options such as getting work experience first.

The increase in tuition fees would also allow accepted students to feel assured that the education they are receiving is good.

Professors in the university would feel greater joy in delivering their best due to the increase in their pay. Hopefully, this means students would have a more enjoyable experience in class.

Study 3: Cognitive/Mismatched Message for Increasing Tuition

With the increase in tuition fees, incoming students would think in a more logical manner and weigh the pros and cons of attending university. They may start to look elsewhere for options such as getting work experience first.

The increase in tuition fees would also allow accepted students to think that they are receiving an education of higher quality.

Professors in the university would have a pay increase and hence be able to deliver lectures more efficiently. Hopefully, this means students would be able to spend less time attending class.

Study 4: Affective/Mismatched Message against Integrated Virtual Learning Environment

Many new students do not know that they can customize their email alerts. They receive alerts for some module announcements and uploads but not others. Imagine how much anxiety you would feel missing a deadline because you thought you were emailed information from all modules. This situation is irritating because the alert customization page is hard to find.

Study 4: Cognitive/Matched Message against Integrated Virtual Learning Environment

Many new students are unaware about certain functions, such as how to customize their email alerts. They receive alerts for some module announcements and uploads but not others, missing information and deadlines. This means that in general, the IVLE system is less effective than it is supposed to be. This situation may remain uncorrected because the alert customization page is hard to find.