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Achieving persuasion or avoiding resistance? Using motivational matching theory to disentangle the benefits of matched messages from the costs of mismatched messages

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ABSTRACT

Persuasive messages are more effective when they are tailored to engage differences in people's motivations—such as a person's values or identity. This phenomenon is known as 'motivational matching'. Yet, studies commonly confound the beneficial effects of matching with the detrimental effects of mismatching. We present a framework to disentangle these effects, and report two experiments, using samples of American adults, that demonstrate how mismatching can actively reduce persuasion. In Study 1 ($N=689$), messages promoting volunteerism were substantially less successful to the extent that they contained elements that conflicted with people's motivations to volunteer. In Study 2 ($N=1101$), the detrimental effects of providing politically mismatched messages (e.g. presenting liberal individuals with appeals highlighting conservative values) were greater in magnitude than the benefits of providing politically matched messages (e.g. presenting liberal individuals with appeals highlighting liberal values). We discuss implications for theory and practice, including situations when generic/neutral messaging may outperform matching-based persuasion.

Introduction

Matching persuasive messages to one's audience—such as by aligning features of messages to people's demographics characteristics or their personalities—is a widely used persuasive technique, also known as 'tailoring' or 'personalization' (Joyal-Desmarais et al., 2022; Noar et al., 2007; Teeny et al., 2021). Messages are particularly successful when they are aligned to motivational factors such as people's goals, values, or identities—a variant of matching called *motivational matching* (Joyal-Desmarais et al., 2022; Shavitt & Nelson, 2002). For instance, product advertisements are more effective when they use self-focused appeals for people with individualistic values and other-focused appeals for those with collectivistic values (Han & Shavitt, 1994).

Motivational matching theory is grounded on the proposition that persuasive attempts are most successful when they match people's motivations (Clary et al., 1994, 1998). 'Matched' messages are the explicit focus of this proposition, and researchers generally agree on how to operationalize them—for example, emphasizing the long-term benefits of an action is a match for people with future-focused mindsets (Kees, 2011), and appealing to conservative values is a match for conservative audiences (Dixon et al., 2017). Yet, the proposition fails to specify *what*, precisely, matches are outperforming. Most research uses 'mismatches' as comparison groups, but these are mostly defined by *not* being matches. This creates ambiguity whereby different types of mismatches are treated interchangeably. For instance, future-oriented individuals may be shown messages about the short-term benefits of a behavior (benefits they are less attuned to; Kees, 2011), or messages that further mention long-term losses (conflicting with their orientation; Strathman et al., 1994). Similarly, conservatives may be shown politically neutral appeals (Dixon et al., 2017), or appeals to liberal values/identities (again eliciting conflict; Malka & Lelkes,

2010). Such message variations are likely to vary in their effects. Whereas some messages may simply fail to persuade, others may generate active resistance. This heterogeneity is an important issue. Whenever matches outperform mismatches, researchers assume that matching increases persuasion, but it could also be that mismatching *reduces* persuasion (Joyal-Desmarais, 2020; Rothman et al., 2020).

To help elucidate this situation, Joyal-Desmarais and colleagues (Joyal-Desmarais et al., 2022, 2025; Rothman et al., 2020) introduced the *Continuum of Matching Effects* depicted in Figure 1. This framework reframes the traditional dichotomy between 'matches' and 'mismatches' into a continuum. At one end, influence attempts are **matched** when they support people's motivations (e.g. the goals, needs, values and identities people seek to attain or reinforce)—for example, this may be an advert promoting volunteerism by emphasizing career-based benefits to someone seeking to further their career prospects or appealing to liberal values towards someone with liberal leanings. In line with the core proposition of motivational matching, the more a message is aligned with a person's motivations, the more persuasion should be *facilitated*.

At the other end of the spectrum, influence attempts are **actively mismatched** when they conflict with (or threaten) people's motivations. For example, an appeal to 'put aside selfish desires to help others' may be a match for altruistic people, but would clash with the motives of someone with egoistic values, making it an active mismatch. Similarly, liberals viewing an appeal to conservative values may experience these as incongruent with their values and identities. A second proposition follows that the more a persuasive attempt is actively mismatched, the more persuasion should be *hindered* (and resistance increased). This integrates motivational matching theory with research on resistance to persuasion—which maintains that persuasion is most likely to fail when certain core motivations are threatened (e.g. when forceful language threatens people's motives for freedom: Miron & Brehm, 2006).

Lastly, at the center of the continuum, influence attempts are **non-matched** when they neither support nor conflict with people's motivations. Non-matches are considered 'passive' forms of mismatching as they are orthogonal to (and disengaged from) a person's motivations. Here, emphasizing the career benefits of volunteering would be a non-match when delivered to someone with little-to-no career aspirations. Similarly, politically neutral messaging would be a non-match for liberal persons. Implicitly, a third proposition holds that non-matched elements in an influence attempt should generally have an inert effect on persuasion.

The Continuum of Matching Effects offers several benefits. *Theoretically*, it enables researchers to expand how they conceive of matching effects. For example, theorists have largely focused on explaining matching effects by emphasizing motivational reactions that facilitate persuasion, such as matching
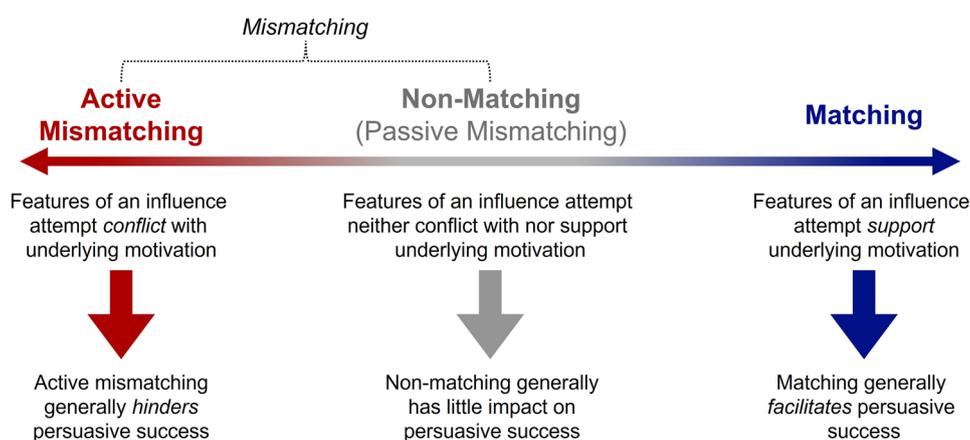
Figure 1. Continuum of matching effects: active mismatching hinders influence, whereas matching facilitates influence.

Notes: The 'active mismatching' versus 'matching' distinction has previously been referred to as 'negative matching' versus 'positive matching' (see Joyal-Desmarais et al., 2022; Rothman et al., 2020) highlighting that both types of messages engage motivational forces but in opposing directions. In contrast, 'non-matching' can be conceived of as 'passive mismatching' (Joyal-Desmarais et al., 2025), as it differs from an active mismatch by failing to engage with a person's motivations. This difference is also what distinguishes a non-match from matches, which could be described as 'active' in that they operate by actively supporting a person's motivations. In this framework, hindrance and facilitation are defined relatively, in relation to a baseline persuasive attempt that is non-matched. A non-matched message may itself have other properties that lead it to vary in terms of its baseline level of persuasive success.

increasing positive affect, feelings of fluency, perceived personal relevance, message engagement, and elaboration (Briñol & Petty, 2025; Dijkstra, 2008). The continuum encourages researchers to also consider variables that inhibit persuasion. Notably, because active mismatches threaten a person's motivational pursuits, mismatches may trigger aversive reactions such as negative affect, source derogation, counter-arguing, and disengagement, each generating resistance to persuasion (Joyal-Desmarais et al., 2025). *Methodologically*, the continuum encourages researchers to design studies to explicitly tease apart the benefits of matches from the inhibitory effects of active mismatches by comparing each type to non-matches. By positing a continuum, it further holds that matching and mismatching exist as degrees. For example, influence attempts are stronger matches (or active mismatches) to the degree to which they support (or threaten) motivations a person holds strongly. *Practically*, the continuum also urges greater care in making recommendations for practice. Matching interventions are often expensive to implement, and this investment is worthwhile only to the extent that matches confer substantial benefits (Coppock et al., 2020; Joyal-Desmarais et al., 2020, Joyal-Desmarais et al., 2022). When persuasion is primarily achieved by avoiding active mismatches, there may be value in creating generic message interventions (at a lower cost than matching interventions) that would deliver non-matches to all.

So far, the Continuum of Matching effects has received theoretical attention but has yet to be examined using primary empirical studies. Thus, the goal of this project is to empirically showcase the value of the continuum, particularly of the active mismatching concept. Study 1 examines the degree to which active mismatches induce resistance (to messages promoting volunteerism) compared to non-matches and provides evidence of a gradient such that active mismatches induce greater resistance the more they target motivations people hold strongly. Study 2 extends this to the political domain, exploring the full continuum (from active mismatches to matches), paying particular attention to how active mismatching effects compare in their magnitude and scope to matching effects. Study 2 further showcases a situation where a non-matched influence attempt may be the optimal solution (rather than seeking matches).

Study 1: an examination of active mismatching for pro-environmental volunteerism

Study 1 experimentally demonstrates that active mismatches increase resistance (e.g. lower intentions to comply with a request) relative to non-matches. It also demonstrates how active mismatching operates as a continuum: *strong* active mismatches—that is, messages that conflict with dominant (i.e. important) motives—lead to higher resistance than *weak* active mismatches—that is, messages that conflict with less important motives. Study 1 examines active mismatching in the volunteerism domain, where past research has held that six key motives (or 'functions') primarily guide people's decisions to volunteer. These motives have each previously been leveraged to elicit matching effects (e.g. Clary & Snyder, 1999) and include: improving one's *career*; fulfilling *social* expectations; advancing one's *values*; *enhancement* of the self; *ego-protection*; and seeking greater *understanding* (Clary et al., 1998; Clary & Snyder, 1999). Table 1 provides formal definitions for each motive.

Methods

Open practices statement
A project page is accessible at https://osf.io/usfz7/ containing deidentified data, codebooks, and analysis script files to reproduce the findings for Study 1 and Study 2. This page also includes a copy of our Supplementary material, which contains all our study materials (e.g. survey items for both studies). Study 1 was not preregistered. Study 2's hypotheses and design (including all materials, sample size, inclusion/exclusion procedures, and planned analyses) were preregistered at https://osf.io/yqmsd, and this report adheres fully, without deviation, to this preregistration.

Sample
947 adult American participants completed a survey via *Amazon Mechanical Turk* (*MTurk*; Buhrmester et al., 2011) in 2015. Five attention check items were embedded in the survey (e.g. 'I have never met

Table 1. Study 1 constructs and measures.

Construct		Conceptual description [number of items]	Example item	Anchors	α
Volunteer Functions (Clary et al., 1998)	Career	Volunteering to advance one's professional career. [5]	Being a volunteer will help me succeed in my future profession.	1 = Not important; 7 = Extremely important	0.92
	Social	Volunteering to fulfill social expectations and maintain relationships. [5]	People I'm close to want me to volunteer.	1 = Not important; 7 = Extremely important	0.91
	Values	Volunteering to express or act on important beliefs and values (e.g. humanitarianism). [5]	I can do something for a cause that is important to me.	1 = Not important; 7 = Extremely important	0.89
	Enhancement	Volunteering to develop and strengthen a more positive perception of oneself. [5]	Volunteering makes me feel important.	1 = Not important; 7 = Extremely important	0.82
	Ego Protection	Volunteering to reduce negative feelings or address personal problems. [5]	Volunteering is a good escape from my own troubles.	1 = Not important; 7 = Extremely important	0.83
	Understanding	Volunteering to learn (e.g. about a cause) and grow (e.g. develop a skill). [5]	I can learn more about the cause for which I am volunteering.	1 = Not important; 7 = Extremely important	0.86
Primary outcomes	Attitude	General evaluation of the volunteer activity as good or bad. [4]	[Volunteering with this organization would be][a] … *enjoyable.*	1 = Strongly disagree; 7 = Strongly agree	0.88
	Intention	Degree to which a person would willingly decide to volunteer for the organization in the future. [6]	I would be willing to volunteer for this group in the future.	1 = Strongly disagree; 7 = Strongly agree	0.96
	Decision	Binary decision to accept an offer to volunteer for the organization. [1]	Are you interested in becoming an official volunteer with us?[b]	0 = Decline; 1 = Accept	NA
Affective outcomes	Positive emotions	Degree to which the experience elicited positively valanced emotional reactions. [5]	[how would the experience make you feel?][a] … *happy.*	1 = Not at all; 5 = Extremely	0.95
	Negative emotions	Degree to which the experience elicited negatively valanced emotional reactions. [13]	[how would the experience make you feel?][a] … *frustrated.*	1 = Not at all; 5 = Extremely	0.90

Notes.: α = Cronbach alpha; NA = not applicable (single dichotomous item).
[a]Question stem in square brackets is paraphrased. See Section 1 of the Supplementary material for exact wording.
[b]Paraphrased question. Participants were provided a hypothetical scenario in which they received a call from a supervisor at the facility. At the end of the call, they were asked whether they would accept or decline the offer.

anyone younger than I am'), and we only retained participants who answered all five questions correctly in order to ensure the reliability of our findings (Maniaci & Rogge, 2014). This left $N = 689$ responses, allowing Study 1 to be well-powered (>0.95) to detect effect sizes of $r \geq .15$. The proportion of participants failing attention checks was similar to past online surveys relying on multiple attention check items (e.g. Alvarez et al., 2019) and sensitivity analyses revealed that findings would remain equivalent even if we retained all participants.

Table 2 summarizes the sample's demographic characteristics. Additional information on sampling (including a discussion of power) and attention checks is available in Section 1 of the Supplementary material.

Procedure and measures

Participants first completed a measure of the functions that volunteerism fulfills for them and were then randomized to read one of seven messages describing a hypothetical volunteer organization. Following message exposure, participants completed outcome measures, demographics questions, and were debriefed. Participants were masked to experimental conditions and hypotheses. Table 1 summarizes each measure from Study 1. Detailed descriptions (including exact items, descriptive statistics, and psychometric analyses) are provided in Section 1 of the Supplementary material.

Volunteer functions. We used the Volunteer Functions Inventory (VFI; Clary et al., 1998) to assess individual differences in the motivational functions served by volunteering. The VFI includes six scales to assess people's endorsement of the six functions in Table 1. For each function, we examined whether participants' scores were higher (vs. lower) than their average across the six functions. If a score was

Table 2. Participant demographics for studies 1 and 2.

Variable	Study 1 (N=689)		Study 2 (N=1101)	
	N	%	N	%
Age (mean, SD)	40.1	13.4	39.6	12.5
Year of birth (Mean, SD)	1974.5	13.4	1979.6	12.5
Gender				
Male	240	34.8	437	39.7
Female	448	65.0	656	59.6
Other	1	0.1	8	0.7
Race/ethnicity[a]				
White/Caucasian	564	81.9	890	80.8
Black/African American/African	70	10.2	78	7.1
Asian/Asian American	34	4.9	102	9.3
Latino/Hispanic	33	4.8	70	6.4
Other	18	2.6	20	1.8
Highest education level				
High school or less	115	16.7	212	19.3
Vocational/College	223	32.4	279	25.3
Bachelor's	250	36.3	418	38.0
Master's/Doctoral/Professional	100	14.5	189	17.2
Other/No answer	1	0.1	3	0.3
Employment status				
Full-time	411	59.7	653	59.3
Part-time	98	14.2	203	18.4
Not working	87	12.6	101	9.2
Retired	52	7.5	59	5.4
Other/No answer	41	6.0	85	7.7
Family income (U.S. Dollars)				
Less than 30,000	197	28.6	224	20.3
30,000–59,999	240	34.8	323	29.3
60,000–89,999	129	18.7	258	23.4
90,000 and above	105	15.2	268	24.3
No answer	18	2.6	28	2.5
Dominant volunteer functions[b]				
Career	227	32.9	–	–
Social	201	29.2	–	–
Values	615	89.3	–	–
Enhancement	425	61.7	–	–
Ego protection	121	17.6	–	–
Understanding	588	85.3	–	–
Political orientation[c]				
Liberal	–	–	367	33.3
Moderate	–	–	371	33.7
Conservative	–	–	363	33.0

Notes. : N = sample size; SD = standard deviation; VFI = volunteer functions inventory.
[a]Participants could select more than one category.
[b]Dominant functions were operationalized as those that participants rated more highly (i.e. endorsed more strongly) than their average rating across the six functions.
[c]The political orientation scale from Study 2 was used to classify participants as liberal (scores below 3), conservative (scores above 5) or moderate (scores between, and inclusive of, 3 to 5).

higher, we coded the function as 'dominant' for that person; otherwise, the function was noted as of lesser importance. This procedure has previously been used to explore matching effects with the VFI (Clary et al., 1998) and can be used to differentiate strong active mismatches (messages threatening a dominant function) from weak active mismatches (message threatening a lesser function—as most individuals endorse each function at least to some extent). Table 2 summarizes the proportion of participants for whom each function was dominant.

Outcomes. We used multi-item scales to assess participants' *attitudes* and *intentions* toward volunteering with the promoted organization, and a binary measure asked participants to make a *decision* to accept or decline a hypothetical offer to volunteer. In addition, we examined two affective outcomes: participants' *positive emotions* (e.g. joy) and *negative emotions* (e.g. frustration, anger—states associated with resistance towards persuasion; Quick & Stephenson, 2007). We also measured satisfaction with the organization, but we do not report this outcome for simplicity (the findings mirror the other outcomes and are reported in Table S8 of the Supplementary material).

Multi-item scales were scored by taking means across items, and each scale showed good psychometric properties: Cronbach alphas ranged from 0.82 to 0.96, and confirmatory factor analyses found each item to load significantly on its intended factor.

Experimental conditions

Seven messages were developed that described a hypothetical volunteer experience. In the messages, participants were instructed to imagine visiting a recycling facility where they were offered a volunteer opportunity. The text described touring the facility, attending a presentation by a supervising officer, and interacting with current volunteers. Overall, the opportunity was presented in a favorable light, but the text also suggested a few downsides, creating a two-sided influence scenario. For six messages, the downsides were designed to threaten each of the six volunteer functions (from Table 1). For instance, to threaten *understanding*, participants were told by current volunteers that the supervising officer might provide inaccurate information about the nature of the work. Similarly, to threaten the *social* function, the text mentioned social stigma from working in waste management. In a seventh (neutral) message condition, downsides were framed in more general terms (e.g. noting that most days were less pleasant than the tour had been). The full texts are available in the Supplementary material (Section 1).

Participants were classified into three categories prior to analyses. First, participants assigned to the neutral message were considered the non-matched *control* group ($N = 105$). Second, participants assigned messages threatening one of their dominant volunteer functions were classified into the *strong active mismatch* condition ($N = 308$). Third, participants assigned to messages threatening a less important function were classified into the *weak active mismatch* condition ($N = 276$). On average, participants in the weak active mismatch condition endorsed the threatened function (average score of 4 out of a 7-point scale), but to a lesser extent than in the strong active mismatch group (average = 5.5 of 7).

Analyses

We used a logistic regression to examine group differences on the categorical decision outcome, and one-way ANOVAs with pairwise comparisons (using Tukey's HSD correction) to evaluate differences for the continuous outcomes. Analyses were conducted in *R* (R Core Team, 2020).

Results

Figure 2 provides descriptive and inferential results for participants' decision to volunteer. As hypothesized, participants were most likely to accept the volunteer position in the non-matched control group, less likely to accept in the weak active mismatch condition, and least likely to accept in the strong active mismatch condition. All three conditions were significantly different from each other. Participants' attitudes and intentions, along with their affective responses, revealed a parallel pattern of findings, as shown in Table 3.
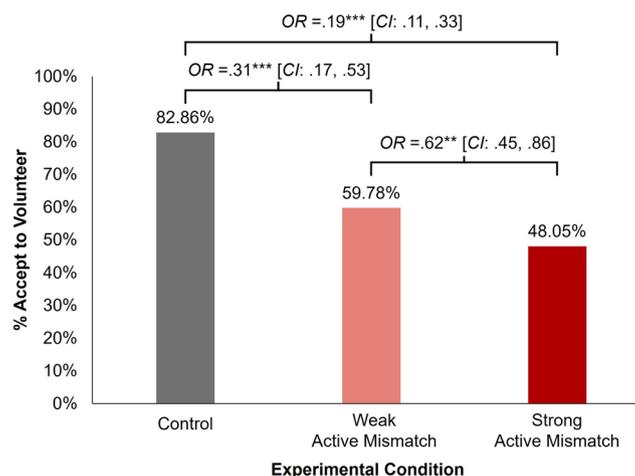
Figure 2. Study 1 results on decision to volunteer ($N = 689$).
Notes: OR = Odds Ratio, calculated using a logistic regression model; *CI* = 95% confidence interval.
***$p < .001$; **$p < .01$.

Table 3. Study 1 results on cognitive and affective responses to volunteering ($N=689$).

Statistics	Cognitive and affective responses to volunteering			
	Attitudes	Intentions	Negative emotions[a]	Positive emotions
Means (raw score) per Condition				
Control (N=105)	5.52	4.90	1.57	2.49
Weak AM (N=276)	4.67	4.01	2.27	1.75
Strong AM (N=308)	4.23	3.54	2.41	1.64
Pairwise comparisons (*d*)[b] [95% *CI*]				
Weak AM – Control	−0.57***	−0.51***	0.76***	−0.74***
	[-0.82, −0.31]	[-0.77, −0.25]	[0.51, 1.02]	[-0.97, −0.52]
Strong AM – Control	−0.86***	−0.78***	0.92***	−0.85***
	[−1.11. −0.61]	[−1.04, −0.53]	[0.67, 1.17]	[−1.07, −0.64]
Strong AM–Weak AM	−0.29***	−0.27**	0.15	−0.11
	[−0.48, −0.11]	[−0.46, −0.09]	[−0.03, 0.34]	[−0.27, 0.05]

N = sample size; AM=active mismatch; CI = confidence interval; d = Cohen's *d*. An expanded version of this table (e.g. with exact *p*-values, *CI*s for each mean, omnibus tests) is available in the Supplementary material (Table S8).
[a]The negative emotions outcome should (and does) show a pattern in the opposite direction than other outcomes. Whereas lower scores on other outcomes should indicate greater resistance, *higher* scores on negative emotions should relate to greater resistance.
[b]Pairwise tests conducted using Tukey's HSD correction.
***$p<0.001$.
**$p<0.01$.

### Exploratory analyses across functions

Though Study 1 was not powered to examine effects for each VFI function individually (e.g. comparing weak to strong active mismatches for the *values* function), results broken down by VFI function are presented in Table S10 of the Supplementary material. Overall, we observed more favorable responses in the control group (relative to the mismatch groups) for all outcomes and functions (72 comparisons), and more favorable responses in the weak active mismatch group relative to the strong active mismatch group for most outcomes/conditions (32 of 36 comparisons). These findings suggest our patterns are generally robust across volunteer functions.

Summary

Study 1 provides evidence that active mismatches elicit less favorable reactions (e.g. more negative attitudes, intentions) than non-matches. Notably, we observed that active mismatching operates in a gradient, with messages exerting stronger detrimental effects on persuasive outcomes when more strongly mismatched. This dose response pattern, and the magnitude of the active mismatching effects, provide initial evidence for the continuum from Figure 1 (Guyatt et al., 2013; Hill, 1965). However, how do such effects compare with the persuasive benefits of matching? We explore this question next.

Study 2: What are the relative impacts of matching vs. active mismatching? An investigation in the political domain

In Study 2, we examine matching and mismatching dynamics when individuals across the political spectrum see messages appealing to different political values. This study extends Study 1 in several ways. *First*, it examines matching effects in a new domain: the liberal-conservative political spectrum. This domain was chosen as political orientation may allow for especially pronounced active mismatching effects (in addition to matching effects). This is because a person's political leanings encompass a conjunction of motivational forces, from value-based judgments imbued with morality (Emler, 2003) to identity-related motives such as who people identify as and want (or not) to associate with (Huddy et al., 2015), both of which may amplify reactions to politically charged messages. Further, given high polarization in the United States according to political stance (Westfall et al., 2015), liberal and conservative views are frequently construed as opposing each other, which may also make active mismatching effects more likely. *Second*, we build on Study 1 by operationalizing the full continuum from Figure 1, crafting messages (e.g. conservative appeals) that can simultaneously be active mismatches for some individuals (liberal participants), non-matches for others (politically moderate participants), and matches for others still (conservative participants). This enables us to evaluate the relative impact of active mismatching
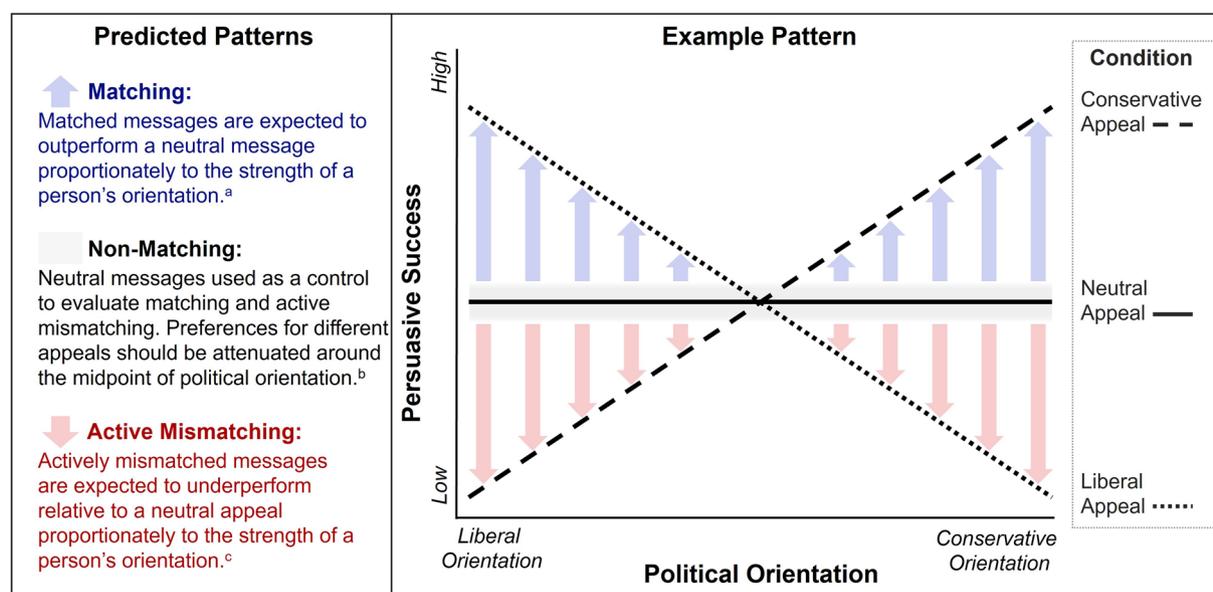
Figure 3. Preregistered pattern of findings in study 2 as predicted by the continuum of matching effects.

Notes: Figure depicts expected pattern of matching (in blue upward arrows; when a message conveys themes that support a person's political orientation), active mismatching (in red downward arrows; when a message conveys themes that conflict with a person's political orientation), and non-matching (in gray; when a message conveys themes that are orthogonal to a person's political orientation).

[a]A liberal message increasingly becomes a match to the extent that a person is more strongly liberal, whereas a conservative message increasingly becomes a match to the extent that a person is more strongly conservative.

[b]A neutral message's slope should be predominantly determined by the main effect of a person's political orientation, rather than how political orientation interacts with the message (it need not be flat as portrayed here, but should be in between the other two slopes in terms of magnitude/direction). At the two ends of the political spectrum, the neutral message should perform somewhere in between the liberal and conservative messages. Additionally, to the extent that someone is politically moderate, they should show less pronounced differences across message conditions.

[c]A liberal message increasingly becomes an active mismatch to the extent that a person is more strongly conservative, whereas a conservative message increasingly becomes an active mismatch to the extent that a person is more strongly liberal.

compared to matching (both using non-matches as comparisons). *Third*, we introduce a measure of participants' intentions to actively oppose the advertised organization—this allows us to assess a stronger form of resistance than typical measures of attitudes/intentions (which may only monitor a passive failure to be persuaded). *Fourth*, using a larger sample size with fewer message conditions, we increase our statistical power to examine how matching effects operate as a gradient. Our expected results, as preregistered, are summarized in Figure 3. We summarize Study 2's methods below. Additional details are available in our Supplementary material (Section 2).

Methods

Pilot study

A pilot study was conducted to: (a) develop a multi-item measure to assess political orientation in a continuous manner, and (b) select message features that could be clearly identified as politically liberal, conservative, or neutral. Participants ($N = 250$) completed 25 items assessing political orientation, taken from past work matching messages to political orientation (e.g. Dixon et al., 2017; Feinberg & Willer, 2015; Kidwell et al., 2013; Nelson & Garst, 2005; Wolsko et al., 2016). We used factor analysis, item-response theory, and consulted with political psychologists to select six items that reliably discriminated between levels of political orientation across the full spectrum of scores (the final items are described in the measures section below), offering finer measurement than common single-item measures. Ultimately, we retained items that asked participants to explicitly rate their political positioning (from liberal to conservative) or their overall views on the political left/right. In contrast, items that were excluded all referred to views on specific policies. The lower performance of this second set of items may reflect that support towards specific policies varies substantially within political groups and is informed by more than political orientation alone. After answering political orientation items, participants rated the extent to which 27 goal statements and 12 images (each of which could feasibly appear in adverts for a nonprofit

organization) evoked associations to liberal, conservative, or politically neutral goals and positions. Ratings were used to construct adverts for the current study. Further details on the pilot study are available in Section 2 of the Supplementary material.

Sample

Following an *a priori* power analysis to reliably detect multiple effects of $r=0.15$ or higher (details are in our preregistration), we recruited 1,101 adult Americans via the *CloudResearch* platform (Litman et al., 2017; Litman & Robinson, 2020) in 2020. Instead of using attention checks throughout the study, participants were pre-selected through stringent *CloudResearch* recruitment criteria (e.g. high approval rates, verified geolocation) to ensure data quality. Prior to the survey, participants also completed a screener with additional data quality checks (e.g. including a reCAPTCHA, and an open-ended object identification task) they were required to pass before invitation into the formal study. During this screening stage, participants also answered our measure of political orientation—which was used to implement quota-based sampling to recruit a uniform distribution of participants across political views. Details on the sample recruitment and screening are available in Section 2 of the Supplementary material. The demographics of our resulting sample are presented in Table 2.

Procedure

Once recruited, participants answered demographic questions and a brief personality measure (Gosling et al., 2003) to obscure the purpose of the study. Then, they were randomized to one of three adverts promoting a fictional nonprofit organization. After this, participants completed outcome measures, further demographics questions, and were debriefed. Participants were masked to experimental groups and hypotheses.

Experimental conditions

Participants read one of three adverts for a hypothetical non-profit organization, which was described as creating programs to reduce crime rates and improve relations between law enforcement and local community members. One version contained liberal goals/imagery (e.g. providing services such as education to those with criminal records), one version contained conservative goals/imagery (e.g. establishing neighborhood watch groups), and the final version contained politically neutral goals/imagery (e.g. meeting with community leaders to create tailored programs). To further make salient the political position of each message (and leverage social identity motivations), the text also explicitly framed the goals of the promoted organizations in political terms. The full content of the messages is available in the Supplementary material (figures S7, S8, S9).

Measures

Table 4 summarizes each measure from Study 2. Further details (exact items, descriptive and psychometric analyses) are in Section 2 of the Supplementary material.

Political orientation. During screening, participants completed six Likert-type items to report their self-perceived political orientation. Participants reported on their political views 'in general', on their 'social/cultural views', and on their 'economic views'. Participants also reported on their preference and opinion towards political parties within the United States (e.g. Democrat vs. Republican). The scale was scored from 1 = 'strongly liberal' to 7 = 'strongly conservative' and showed strong psychometric properties for assessing political orientation across the liberal-conservative spectrum (e.g. Cronbach alpha = 0.95; favorable item-response theory and factor analytic results; see Section 2.03 of the Supplementary material).

Outcome measures. Participants completed four multi-item scales assessing their: *attitude towards the organization* being promoted, *attitude towards contributing* to the organization (financially or through volunteerism), *positive intention* to take action to benefit the organization (e.g. to volunteer if given an opportunity), and their *negative intention* to act against the organization (e.g. actively discourage others from volunteering). All measures were scored by taking means across items, and scores were

Table 4. Study 2 constructs and measures.

Construct	Conceptual description [number of items]	Example items[a]	Example anchors[b]	α
Political orientation	Extent to which an individual holds views and associates themselves with positions and groups along the liberal-conservative continuum. [6]	a. How would you describe your political party preference? b. In terms of your social/cultural views, where would you place yourself on the following scale?	1 = Strongly liberal; 4 = Moderate/middle of the road; 7 = Strongly conservative	0.95
Attitude towards organization	General evaluation of the advertised organization as good versus bad. [6]	I would rate the organization as… a. Valuable b. Ineffective[c]	1 = Strongly disagree; 6 = Strongly agree	0.94
Attitude towards contributing	General evaluation of whether contributing (e.g. financially, by volunteering) to the organization would be good versus bad. [6]	a. I would find the idea of making a financial contribution to this organization… b. I would find the idea of volunteering for this organization…	1 = Extremely bad; 6 = Extremely good	0.95
Positive intention	Intention to make an active positive contribution to the organization (e.g. donating, volunteering, or encouraging others). [6]	a. If provided a link to donate, would you intend to contribute financially? b. Would you encourage a friend who was considering volunteering?	1 = Not at all; 5 = Strongly	0.94
Negative intention	Intention to actively behave in a way that goes against the organization (e.g. withdrawing a contribution, discouraging others). [6]	a. If you had made a small donation to the organization would you intend to withdraw the donation? b. Would you discourage a friend who was considering volunteering?	1 = Not at all; 5 = Strongly	0.84

Notes.: α = Cronbach alpha.
[a]Examples provided here may be paraphrased as many items were more complex in their wordings (see Section 2 of the Supplementary material for the full list of questions with their exact wording).
[b]Anchors varied by specific question when assessing political orientation and attitude towards contributing.
[c]Item is reverse-coded.

standardized prior to analyses. Each scale showed good psychometric properties: Cronbach alphas ranged from 0.84 to 0.95, and confirmatory factor analyses found each item to load significantly on its intended factor.

Statistical analyses

Matching effects were evaluated with linear regression analyses whereby we regressed each outcome variable onto political orientation scores, experimental condition (liberal, conservative, or neutral advert), and the interaction between these two factors. The control group was set as the comparison, and simple slopes were calculated to evaluate the impact of political orientation within each experimental condition. Additional analyses were conducted to determine regions of significance—delineating the range of political orientation scores at which people showed significantly different responses (e.g. attitude levels) to different appeal types. Regions of significance were computed using the nonparametric bootstrapping procedure (with 10,000 bootstrap samples) delineated in Joyal-Desmarais et al. (2020). Analyses were conducted in *R* (R Core Team, 2020).

Results

Across all four outcome variables, participants' responses to the messages were contingent on their political orientation in a manner that was consistent with our expectations (see Table 5 for the regression findings). To aid interpretation, Figure 4 provides a visual depiction of participants' attitudes towards the organization, showing regression slopes and 95% confidence bands. Findings were similar across all outcomes (see Figure S10 of the Supplementary material). Within the neutral appeal condition, there was never a significant effect of political orientation—i.e. individuals across the political spectrum responded similarly to the neutral appeal. Within both the conservative and liberal appeal conditions, political orientation always had a significant effect—and interaction effects between political orientation and message appeals were always significant ($p < 0.001$). The liberal appeal led to increasingly unfavorable responses (e.g. less positive attitudes, more negative intentions) as participants became more conservative, whereas the conservative appeal led to increasingly favorable responses (e.g. more positive attitudes, less negative intentions) as participants became more conservative.

Table 5. Study 2 inferential results (regressions analyses; $N=1101$).

Attitude (organization)	β	95% CI	Attitude (contributing)	β	95% CI
Regression parameters			*Regression parameters*		
Intercept	0.26***	[0.16, 0.35]	Intercept	0.21***	[0.12, 0.31]
Conservative appeal	−0.50***	[−0.63, −0.36]	Conservative appeal	−0.47***	[−0.60, −0.33]
Liberal appeal	−0.26***	[−0.39, −0.13]	Liberal appeal	−0.17*	[−0.30, −0.03]
Political Orientation (PO)[a]	−0.01	[−0.10, 0.09]	Political Orientation (PO)[a]	−0.01	[−0.11, 0.08]
PO*Conservative appeal[b]	0.49***	[0.36, 0.62]	PO*Conservative appeal[b]	0.47***	[0.33, 0.60]
PO*Liberal appeal[b]	−0.29***	[−0.43, −0.16]	PO*Liberal appeal[b]	−0.33***	[−0.46, −0.19]
Slope of PO given[a]			*Slope of PO Given[a]*		
Conservative appeal	0.48***	[0.39, 0.58]	Conservative appeal	0.45***	[0.36, 0.55]
Liberal appeal	−0.30***	[−0.40, −0.20]	Liberal appeal	−0.34***	[−0.43, 0.24]

Positive intention	β	95% CI	Negative intention[c]	β	95% CI
Regression parameters			*Regression parameters*		
Intercept	0.15**	[0.06, 0.25]	Intercept	−0.20***	[−0.30, −0.11]
Conservative appeal	−0.34***	[−0.48, −0.20]	Conservative appeal	0.41***	[0.27, 0.55]
Liberal appeal	−0.11	[−0.25, 0.03]	Liberal appeal	0.20**	[0.06, 0.34]
Political Orientation (PO)[a]	−0.05	[−0.15, 0.05]	Political Orientation (PO)[a]	−0.01	[−0.11, 0.09]
PO*Conservative appeal[b]	0.41***	[0.27, 0.55]	PO*Conservative appeal[b]	−0.37***	[−0.51, −0.24]
PO*Liberal appeal[b]	−0.23***	[−0.37, −0.09]	PO*Liberal appeal[b]	0.25***	[0.11, 0.39]
Slope of PO given[a]			*Slope of PO given[a]*		
Conservative appeal	0.36***	[0.26, 0.45]	Conservative appeal	−0.38***	[−0.48, −0.29]
Liberal appeal	−0.28***	[-0.38, −0.19]	Liberal appeal	0.24***	[0.14, 0.34]

Notes: PO = Political orientation; β = Standardized beta; CI = confidence interval. Expanded results (e.g. with standard errors, exact *p*-values), along with added guidance for interpreting each parameter, are available in Tables S17 and S18 of the Supplementary material.
[a]The slope in the neutral appeal condition is equal to the Political Orientation (PO) regression parameter.
[b]We can also derive interaction effects that compare the slope of PO between the liberal and conservative appeal conditions (by making the conservative appeal condition the comparison group). The resulting interactions would all be significant at $p < 0.001$: for attitude towards the organization, $β = −0.78$ [95% CI: −0.91, −0.65]; for attitude towards contributing, $β = −0.79$ [-0.92, −0.66]; for positive intention, $β = −0.64$ [-0.78, −0.50]; and for negative intention, $β = 0.62$ [0.49, 0.76].
[c]The negative intention outcome should (and does) show a pattern in the opposite direction than other outcomes. Whereas lower scores on other outcomes indicate greater resistance, *higher* scores on negative intention relate to greater resistance.
***$p < 0.001$.
**$p < 0.01$.
*$p < 0.05$.
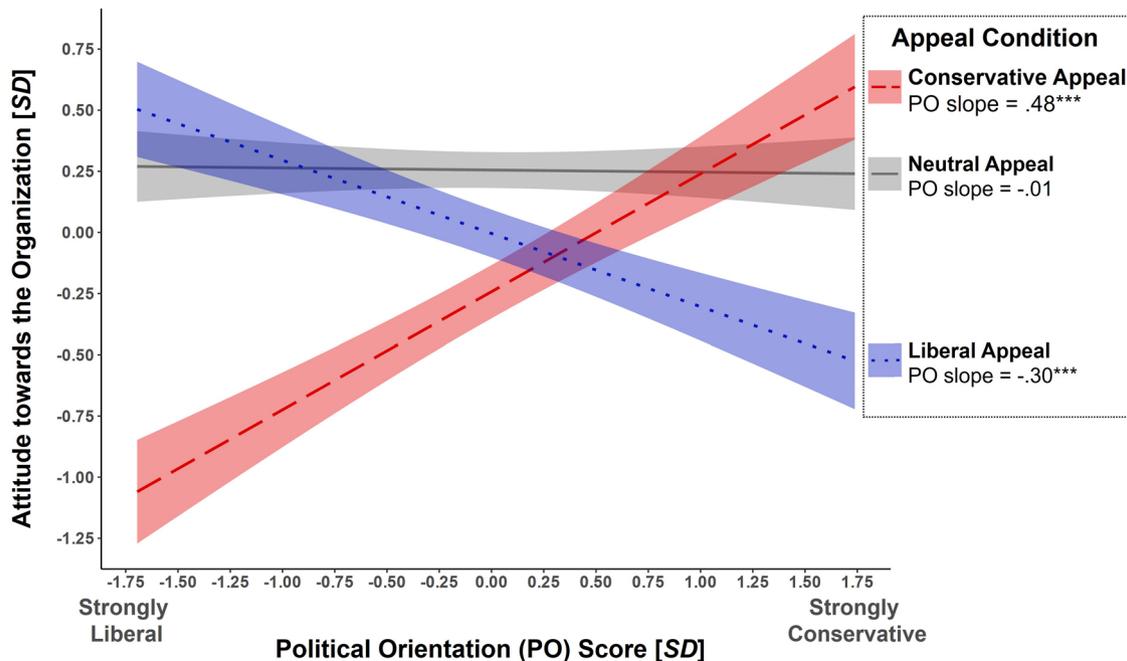
Figure 4. Study 2 matching regression findings on attitudes towards the organization ($N=1101$).
Notes: PO = political orientation; *SD* = standard deviation (unit of standardized variables). The figure depicts regression slopes (with 95% confidence bands) for the effect of political orientation conditioned on each level of the message appeal condition. For the political orientation variable, scale anchors of 1 (strongly liberal), 4 (moderate), and 7 (strongly conservative) are equivalent to standardized scores of −1.69, 0.02, and 1.74, respectively. The raw PO variable had a mean value 3.96, with an SD of 1.75 (these can be used to convert between raw and standardized scores). Similar plots to Figure 4 are presented for the other outcome measures in Figure S10 of the Supplementary material.
***$p < .001$.
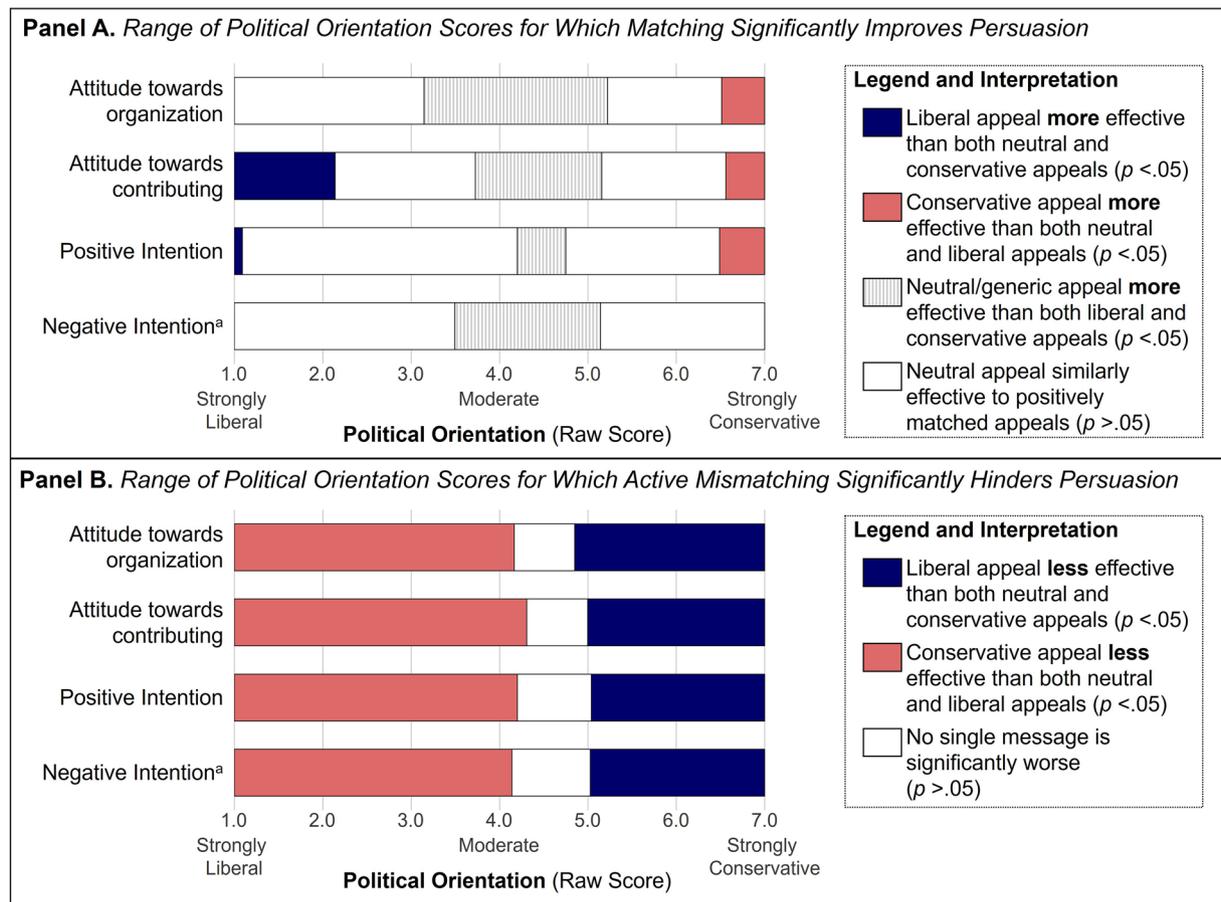
Figure 5. Study 2 Comparison of matching versus active mismatching effects using regions of significance ($N = 1101$).
[a]The negative intention outcome is coded in the reverse direction as the other outcomes when it comes to the effectiveness of different appeals (i.e. lower negative intentions indicate higher effectiveness of an appeal).

Additional insights comparing matching to active mismatching can be gleaned by plotting regions of significance as in Figure 5. Here, Panel A shows the range of scores for which one message (e.g. the matched message) significantly outperformed all other messages. For example, people who self-identified as strongly conservative—with mean scores around 6.5 or more on our seven-point political orientation measure—showed significantly higher attitudes and positive intentions when viewing the conservative appeal than when viewing any other appeal type. Panel B shows the range of scores for which one message (the actively mismatched message) significantly *under*performed all others. For example, participants who self-identified as having at least a slight conservative leaning (political orientation scores ≥ 5.0) showed worse scores on all persuasion outcomes when viewing the liberal appeal than any other appeal.

Overall, Figure 5 shows that matching effects were generally confined to extreme political orientation scores; liberals responded significantly more favorably to liberal appeals only when strongly liberal, and conservatives responded significantly more favorably to conservative appeals only when strongly conservative. For most of the political spectrum, neutral appeals were either the most effective (gray stripped portions of Panel A), or non-significantly different from matched messages (white portions of Panel A). In contrast, active mismatching effects (Panel B) occurred across nearly the full range of political orientations.

Taking these findings in conjunction with Figure 4, we see that active mismatching effects (e.g. conservatives viewing a liberal appeal) were larger in magnitude (showed larger deviations in persuasive outcomes compared to the neutral appeal) than were matching effects (e.g. conservatives viewing a conservative appeal). For instance, our modelling (Figure 4) predicted that 'moderate liberals' (those scoring a two on our seven-point political orientation measure, equivalent to a standardized score of −1.1) would show a 1.05 standard deviation decrease in attitudes from active

mismatching (viewing a conservative rather than neutral appeal), whereas the same group would only show a 0.07 standard deviation increase in attitudes from matching (viewing a liberal rather than neutral appeal).

Summary

Study 2 provides further evidence of the detrimental effects of active mismatching, this time in relation to people's political orientation. Moreover, our comparisons were able to leverage the fact that the same message (e.g. conservative appeals) can be a match (for strong conservatives), a non-match (for political moderates), and an active mismatch (for liberals). Importantly, there was clear evidence that active mismatching exerted a substantially larger effect than matching. For example, strong liberals receiving conservative appeals consistently led to reductions in persuasion greater than $d > 1.00$ (compared to seeing neutral messages), whereas receiving liberal appeals for this group never led to matching effects beyond $d = .50$. Similarly, active mismatching effects were obtained for a considerably wider range of political orientation scores than matching effects (Figure 5). Active mismatching effects further operated in a pronounced gradient. For example, with regards to people's attitudes towards the organization, those with a small leaning towards liberal views (e.g. at $SD = -0.25$ in Figure 4) showed relatively smaller mismatching effects ($d = 0.62$, $p < 0.001$, using simple slopes analyses), whereas those with larger liberal leanings (e.g. at $SD = -1.25$) showed considerably larger effects ($d = 1.23$, $p < 0.001$). Lastly, Study 2 showed that active mismatching not only reduced persuasion, but also increased people's motivation to react against the organization being promoted (an outcome that was not significantly impacted by matching).

General discussion

Motivational matching is a widely used evidence-based persuasive technique (Joyal-Desmarais et al., 2022), and studies generally assume that the effectiveness of matching is due to matches exerting an enhancing effect on persuasion. Yet, according to the Continuum of Matching Effects, a second explanation exists: matches can outperform mismatches due to the latter exerting a detrimental effect on persuasion. Specifically, the framework proposes a distinction between two types of mismatches: *active mismatches*, influence attempts that conflict with people's underlying motivations, and *non-matches*, influence attempts that neither conflict with nor support people's motivations. Whereas non-matches are presumed to generally have an inert impact on persuasion, active mismatches are theorized to increase resistance to persuasion.

In two experiments, we demonstrate that active mismatches indeed increase resistance to persuasion relative to non-matches. This finding builds on a recent meta-analysis (Joyal-Desmarais et al., 2022) which—though it did not directly compare active mismatches to non-matches—found evidence for active mismatching by showing that matched messages led to larger persuasive benefits when compared to active mismatches than to non-matches. Our studies provide direct evidence and add that active mismatching effects can be substantial in magnitude, with strong active mismatches consistently exceeding magnitudes of $d = 0.80$ in Study 1 and $d = 1.00$ in Study 2. Effects of these magnitudes are considered large to very large in psychological research (Funder & Ozer, 2019) and are likely to have important practical consequences. The impact of active mismatching also operated in a gradient in both studies, with effects becoming increasingly pronounced as a function of participants' motivational orientations. This dose-response pattern, along with our experimental designs, provide strong evidence of the causal operation of active mismatching (Guyatt et al., 2013; Hill, 1965). Lastly, Study 2 also found active mismatching effects to occur for a wide range of the population, covering nearly the full breadth of the political spectrum. These patterns strongly support the need for researchers to consider the presence of active mismatching effects. This is particularly salient when we note that, had we omitted the neutral condition from Study 2 (e.g. in Figure 4), we would reproduce a cross-over pattern traditionally (but in this case misleadingly) interpreted as supporting solely the positive impacts of matching.

Practical and theoretical Implications for motivational matching research

From a practical viewpoint, matching-based interventions are often both costly and complex to implement. As such, they are most useful when there are substantial gains to be achieved from matching. Fortunately, meta-analyses (such as that of Joyal-Desmarais et al., 2022) showcase that this is often the case, supporting the general use of matching. However, the results of the present work demonstrate that there can be important exceptions, even when matched influence attempts outperform mismatched ones at first glance. Specifically, when the 'benefits' of matching are mostly attributed to avoiding active mismatches (rather than achieving matches), interventionist should consider whether generic messages can be designed to be non-matches for most of a population. Our findings from Study 2 showcase the promise and possible efficiency of this alternative as neutral messages were generally just as effective as matches. That said, the presence of active mismatching effects may not necessarily preclude the impact of matching effects. Instead, matching interventions may have their greatest benefits when both forces are in operation.

Theoretically, the Continuum of Matching Effects offers an organizational framework to discuss and extend our understanding of how matching effects operate. In the model, the success of matched messages is attributed to their ability to mobilize motivational systems in a positive manner (i.e. by signaling opportunities to fulfill one's motivations). This is theorized to trigger appetitive goal-directed responses, such as by enhancing emotions, directing attention towards the message, promoting greater engagement and elaboration, increasing feelings of personal relevance (particularly if social-identity motivations are at play), and eliciting greater intentions to comply. These are all mechanisms commonly discussed in the literature (Dijkstra, 2008; Joyal-Desmarais et al., 2025; Rimer & Kreuter, 2006), with an implicit understanding that mismatched messages fail to promote such processes.

The Continuum extends this by specifying that whereas non-matched messages may fail to engage a person's motivations, active mismatches may disrupt persuasion by mobilizing motivational systems in a negative manner (i.e. due to signaling threats to one's motivations). This may involve inhibitory mechanisms towards the processes engaged by matching (e.g. reducing positive emotions) or anxiety-based responses to avoid and disengage with a possible threat (e.g. directing attention away from the message). Notably, the threats posed by active mismatches can also initiate combative reactions such as increased anger, counterarguing, source derogation, as well as intentions to counter the message. These processes are less commonly discussed in the matching literature, but have been tied to resistance effects (e.g. Dillard & Shen, 2005; Joyal-Desmarais et al., 2025; Rains, 2013). Though the current work was not designed to formally evaluate these processes, our results support of their operation. For example, active mismatches increased negative affect (e.g. anger, frustration) in Study 1, and increased intentions to counteract the message source in Study 2. These findings are consistent with the Continuum of Matching Effects, but generally poorly accounted for by dominant perspectives in message matching research. Future work should therefore pay close attention to how messages across the Continuum uniquely interact with such mechanisms.

Additionally, using the Continuum to clarify persuasion-related processes can also be used to complement other theories of persuasion to generate novel predictions. For example, Regulatory Focus research has maintained that matched messages amplify people's affective reactions to influence attempts (Lee & Higgins, 2009). Work using this perspective argues that when distressing information is presented (e.g. when discussing health diagnoses), matching can amplify distress and increase resistance, and that 'mismatches' may be preferable (Fridman et al., 2016). Our framework posits that this benefit might only arise from non-matches. Active mismatches could still activate motivational reactions, direct people's attention, and intensify experiences—particularly negative affect (e.g. as in Study 1). Consequently, whereas some mismatches (non-matches) are expected to reduce distress, other types (active mismatches) may amplify it.

These are but a few implications suggested by the Continuum of Matching Effects. Yet, given that our findings were grounded on specific behavioral (volunteerism/charity), cultural (United States), and motivational (volunteer functions, political orientation) contexts, understanding the scope of these implications will benefit from further efforts to delineate when and how matching and active mismatching effects operate beyond these settings, and using a wider variety of influence attempts. The relative

importance of matching and active mismatching effects is likely to vary according to these factors, and the Continuum of Matching Effects could be a useful tool for unpacking differential effects. For instance, our studies were explicitly designed to elicit mismatching effects, either directly threatening motives (Study 1) or bringing to mind values and identities associated with opposing political ideologies/groups (Study 2). Though such circumstances are reflective of many daily scenarios (e.g. political polarization in the United States), not all types of messaging, even in related domains, would be expected to lead to the same dynamic.

For instance, in moral reframing research (Feinberg & Willer, 2015), messages are commonly altered to appeal to either 'individualizing' values (e.g. fairness; thought to appeal to liberals) or 'binding' values (e.g. purity; thought to appeal to conservatives). Yet, the correspondence and division between political ideology and moral values is imperfect. Notably, conservatives and liberals each tend to express some endorsement for *both* types of values, and conservatives may even endorse individualizing and binding values to similar extents (Graham et al., 2013). Such a dynamic may make matching effects less salient, leading to less pronounced and more mixed effects (e.g. Luttrell & Trentadue, 2024). Further, appeals to binding versus individualizing appeals may be less likely to create active mismatches, which require messages conflicting with a value, not simply promoting orthogonal (but compatible) values. If conservatives and liberals hold both individualizing and binding (just to different degrees), moral reframing may commonly be comparing matches to non-matches (or weak matches), not active mismatches. This may account for findings, such as by Kidwell et al. (2013), where 'mismatched' conditions tended to perform similarly to and sometimes even outperformed neutral messages. Active mismatching effects might still operate in moral reframing, but may be limited to subgroups that perceive the values to be more opposed (e.g. liberals show more differentiated attitudes than conservatives, and Luttrell & Trentadue, 2024, found tentative evidence of active mismatching for liberals but not conservatives). In this manner, Study 2 differs importantly from moral reframing works (e.g. Feinberg & Willer, 2015; Luttrell & Trentadue, 2024) by constructing messages appealing directly to liberal and conservative positions and social identities, leveraging more strongly conflicting motivations, particularly in the context of the United States where liberal and conservative positions are highly polarized (Westfall et al., 2015). Thus, our active mismatching effects are likely more pronounced than one would expect in moral reframing (e.g. Luttrell & Trentadue, 2024).

The Continuum of Matching Effects offers valuable language for capturing distinctions like this across studies, and can be used to generate further predictions. We may wonder, for instance, whether bipolar motivational traits (e.g. risk-seeking vs. aversion, political orientation) are generally more likely to create mismatching effects than unipolar concepts (e.g. mastery motivation; dimensions of moral foundation). Addressing such questions will be invaluable as theorists and interventionists seek to improve their ability to understand and develop effective influence strategies.

Implications beyond motivational matching

Finally, although the Continuum of Matching Research was derived from motivational matching research, we highlight that the framework can also be applied to other areas of persuasive matching, tailoring and personalization (see Joyal-Desmarais et al., 2025 for elaboration). For example, many interventions in the health domain tailor messages to demographic variables like gender and race. The Continuum encourages researchers and interventionists to consider the motivational dimensions underlying these decisions. Here, the success of tailoring to a person's ethnic background will depend on social identity motivations, including whether the background represents an important identity to the person, and whether they wish to affiliate with other members of that group. If not, messages may shift from being a match to a non-match. This is consistent with findings that demographic tailoring (to race and ethnicity) becomes less effective as a function of acculturation into other groups (e.g. Webb, 2008). Under certain contexts, 'tailored' messages could even become active mismatches when a demographic variable used for tailoring conflicts with a person's valued identity (e.g. highlighting a person's recognized citizenship when they are part of a separatist group). In providing greater nuance in constructing messages, guided by a motivational analysis, the Continuum of Matching Effects thus offers a valuable tool for the broader message matching literature.

Author contributions

KJD and MS contributed to the conceptualization of Study 1. All authors contributed to the conceptualization of Study 2. KJD conducted all data collection and analysis. KJD drafted the manuscript with support from MS and AJR. All authors read and approved the final manuscript.

Disclosure statement

Study 2 was adapted from KJD's doctoral dissertation (Joyal-Desmarais, 2020). The research was supported by funds awarded to KJD through the University of Minnesota's: Center for the Study of the Individual and Society; Doctoral Dissertation Fellowship Program; Department of Psychology Graduate Student Research and Travel Award; and the Mark Snyder Social Psychology Research Support Fund. The studies were approved by the Institutional Review Board of the University of Minnesota. The authors report there are no competing interests to declare.

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Open scholarship

This article has earned the Center for Open Science badges for Open Data, Open Materials, Preregistered and Preregistered+. The data and materials are openly accessible at https://doi.org/10.17605/OSF.IO/USFZ7, and the Study 2 preregistration is available at https://osf.io/yqmsd.

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Data availability statement

The data, codebooks, and analysis script files that support the findings of these studies are openly available on the Open Science Framework at: https://osf.io/usfz7/.

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