



OPEN Enhancing curiosity with a wise intervention to improve political conversations and relationships

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Political, ideological, and religious ideas divide us all. Can we bridge that gap to promote more productive discussions? We think so. We present a multi-study research program in hopes of introducing greater curiosity and less defensiveness in political conversations. Here we show, first, that political curiosity is associated with indicators of positive political conversations, such as having goals to learn and a lesser desire to be socially distant from people with different views. Second, we identified an antecedent of political curiosity: perceiving others in one's political party as open-minded and intellectually humble. Regardless of political orientation (liberal or conservative), people showed a bias toward assuming their group was less open-minded and humble than reality. Third, we developed a social norm referencing intervention to minimize this bias. Our wise intervention (in a pre-registered initial study and pre-registered replication) led to a valuable finding: upon realizing that political ingroup members are more open-minded and humbler than assumed, people demonstrated an increase in political curiosity and greater motivation to converse with the goal of learning. The current work offers insights into factors contributing to a lack of curiosity in American political discourse and presents a brief, quick, targeted intervention for improving conversations.

Politics in the United States is characterized by high levels of animus and even dehumanization across party lines^{1,2}. Partisans desire social distance from their political outgroup and discriminate against them³. This nastiness gets in the way of people's willingness to engage with political topics and consider alternative views. Creating the conditions for people to have open, effective conversations about differing political views offers a promising change to ensure a better functioning democracy. Such dialogue enhances mutual understanding, reduces polarization, and fosters greater trust - each of which is an element that leads to healthier individuals and relationships in society⁴. In the current paper, we propose that fostering political curiosity may be an antidote to political division.

Wise interventions are defined by Walton (2014) as "novel in that they are psychologically precise, often brief, and often aim to alter self-reinforcing processes that unfold over time and, thus, to improve people's outcomes in diverse circumstances...they are special remedies for social problems and afford important implications for theory"⁵. In this research program, we tested a simple, brief, social norm recalibration intervention to boost curiosity (a wise intervention).

Curiosity and political discourse

Fostering curiosity may be beneficial for improving political discourse

When people feel curious, they explore, often asking questions, observing, and seeking out new information⁶. People who score higher on curiosity engage in lower levels of politically motivated reasoning and have more non-defensive listening goals^{7,8}. Considering the correlates and consequences, curiosity serves as a fruitful target to improve conversations among people with opposing views⁹.

Increasing curiosity may reduce some of the pitfalls associated with existing interventions to improve political discourse, including those targeting negative attitudes toward the political outgroup. Sometimes negative attitudes are deserved and reducing negativity toward the political outgroup does so at the expense of compromised ethics. An aim to moderate people's views may desensitize them to the distribution of evidence for a position, which when imbalanced, produces political views that run counter to high-quality evidence. By increasing curiosity, we hope to increase people's motivation to learn about others' views, while still discerning when those views are inaccurate¹⁰.

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Perceiving others as open-minded

When people perceive that others in their political ingroup value diverse views and are willing to update their views, they may become more curious for several reasons. First, when determining their own values, people often use information about what others care about¹¹. Believing that the norm is to be closed to alternative views may reduce the extent to which people value open-mindedness and exhibit intellectual humility - conceptual cousins of curiosity¹².

Past research reveals that misperceptions are common and influential in politics. For example, people tend to believe that political outgroup members dislike them more than they do, and this perception gap fuels outgroup hatred¹³. People also underestimate the extent to which political outgroup members are willing to learn about their views and this misperception leads to expectations of unproductive conflict¹⁰. Prior interventions have demonstrated that exposing members of political parties to their exaggerated meta-perceptions about others leads to less hostility and social distancing towards people with different political viewpoints¹⁴.

Traditional media outlets and social media may lead people to underestimate the extent others in their political party are open-minded and intellectually humble. Since the contentious 2000 United States Presidential election, the media increasingly portrayed the public as deeply divided over politics, leading people to perceive high levels of polarization¹⁵. Observers may infer that on average people are closed-minded concerning their political viewpoints¹⁶. Prior research demonstrated that correcting misperceptions by providing accurate information about how an outgroup thinks leads people to like the outgroup more, reducing affective polarization and increasing willingness to engage^{10,13,17}. This research offers the promise that related interventions might influence how people perceive members of their party who think differently. Being around people who think differently offers an opportunity to acquire unique information and perspectives. In this way, being curious, open, and humble to different views opens a potential portal to greater knowledge and wisdom¹⁸.

Research overview

We used three sequential studies to address three research questions. Question 1 (Study 1): Does curiosity predict positive attitudes toward diverse political viewpoints (i.e., open-mindedness) and a willingness to change personal beliefs (i.e., intellectual humility)? Curiosity may be a mutable treatment target but only if the relationship between curiosity and these important outcomes remains both positive and reliable.

Question 2 (Study 1): Do people accurately gauge their fellow political party members' attitudes toward diverse viewpoints (i.e., open-mindedness) and a willingness to change personal beliefs (i.e., intellectual humility)? Any discrepancy between self-ratings and other ratings indicates the potential target for a wise intervention that helps adjust these discrepancies.

Question 3 (Studies 2 and 3): Can a "wise intervention" effectively boost people's political curiosity, open-mindedness, and intellectual humility? A simple intervention that targets discrepant views might lead to greater curiosity and, in turn, open-mindedness and humility.

These three questions build a rationale for the intervention administered herein but the results may generalize to other wise interventions. Because this program targets curiosity in the political domain, we explored whether the main tests of each question are invariant across political ideology (i.e., liberals and conservatives). Three studies - one cross-sectional study and two pre-registered randomized controlled trials - served as the data sources to address each question above. All samples were from professionally curated online resources (i.e., CloudResearch Prime Panels and Prolific). Each question and study is detailed below. All analyses reported below came from analyses using the lavaan package in R¹⁹.

Does curiosity predict open-mindedness and intellectual humility? (Study 1)

Despite a growing body of research on curiosity, there has been a relative absence of work in the domain of politics and politically charged interactions^{7,20}. Curiosity may be one of many reasonable predictors of political open-mindedness and intellectual humility; assuming it to be so might be premature for this research program. Instead, we chose to empirically test the relationship as a baseline effect to be compared across multiple studies. To address this first question, we recruited a nationally representative sample from CloudResearch Prime Panels ($n_{obs} = 1465$; $n_{analyzed} = 1238$) and administered to the participants a battery of measures pertaining to political ideology and beliefs. Additionally, we asked participants to complete a curiosity instrument adapted for political interests that included five dimensions: the pleasure of uncovering new political information (Joyous Exploration), seeking to bring closure to an undesirable state of not knowing politically relevant information (Deprivation Sensitivity), managing the discomfort of information inconsistent with political views (Stress Tolerance), seeking alternative political perspectives (Social Curiosity), and taking risks to gain political knowledge (Thrill Seeking)⁶. We later asked about their openness to learning in political conversation (e.g. "When discussing politics, I seek to understand where others are coming from"), openness to being close to people who hold different views (e.g. "I would be happy to have someone of a different political party [as my roommate/neighbor/someone I would personally date]"), and their sense of intellectual humility in conversations (e.g., "I am open to revising my important beliefs in the face of new information")^{10,21,22}.

Across four of five dimensions (the exception was stress tolerance), people with greater curiosity were more likely to be open to learning in political conversations (e.g., learning goals) ($r_s = 0.30$ to 0.52) and open to more social contact with political outgroup members ($r_s = 0.14$ to 0.23). People with greater curiosity also showed evidence of greater intellectual humility in conversations ($r_s = 0.18$ to 0.46). These correlations were no different when examined by political ideology ($0.36 < p < 0.93$); thus, the correlates of curiosity remained stable across political ideology.

Research indicates that individuals tend to be more helpful towards those they consider part of their ingroup, and using ingroup pronouns like "we" and "us" activates positive associations with people deemed similar to the self^{23,24}. When these social categorizations of ingroup and outgroup are prominent, and other elements of the

person are not (e.g., personality, life history), people often act more selfishly and less trusting towards anyone in the “other” group²⁵. Building on this social identity literature, our work suggests that increasing political curiosity without increasing people’s attachment to their identities might be a fruitful approach to intervene and produce healthier political disagreements and a greater appreciation of minority viewpoints in groups²⁶.

Do people accurately gauge fellow political party members’ open-mindedness and intellectual humility? (Study 1)

To test this question, we asked participants for their perceptions of fellow political party members’ open-mindedness (toward diverse views) and intellectual humility (that is, a willingness to update views) (e.g., “Other people in my political party are open to revising their important beliefs in the face of new information;”)²⁷. With these same items, participants rated their own valuing of diverse views and willingness to update them so that we could compare the average of participants’ responses to assumptions about others. We found support for misperceptions such that people tended to believe most people in their political party had a lower interest in diverse views than in reality ($M_{\text{Self}} = 5.57 (1.47) > M_{\text{Others}} = 5.06 (1.42)$; $t(1292) = 13.81$, $p < 0.001$, $d = 0.28$). Upon examination, we found no difference between liberals and conservatives ($F(1,1291) = 1.55$, $p = 0.21$). That is, the perceptions made about one’s political party remained stable across political affiliation.

To test the viability of a social norm calibration intervention, we examined whether perceptions of the open-mindedness of political party members are correlated with curiosity. Perceptions that others in one’s political party valued diverse views and were willing to update views were both positively related to all curiosity dimensions (r s with joyous exploration = 0.31–0.33, r s with deprivation sensitivity = 0.21–0.24, r s with social curiosity = 0.27, r s with thrill seeking = 0.22–0.28) except stress tolerance (r s = –0.08 and –0.09). These results provide initial evidence for an assumption of this research program: perceiving others as more open-minded and humbler might increase one’s own curiosity.

To summarize the results of the first two research questions, using a nationally representative sample, political curiosity was generally associated with healthier inferences about themselves, others, and social situations. We demonstrated that people underestimate how much others in their political party value diverse views and are willing to update their views. Finally, we found positive relations between political curiosity and perceptions that members of one’s political party are open-minded, providing evidence that it may be fruitful to shift these perceptions as a means of increasing curiosity. Notably, curiosity effects were stable across political affiliation, suggesting that an intervention based on these findings might also be invariant across political affiliation.

Does a “wise intervention” boost people’s curiosity in conversations? (Study 2)

Based on Study 1 results, we designed an intervention to increase curiosity. We drew from the notion that people seem to underestimate the open-mindedness of their political ingroup and sought to shift perceived social norms in the direction of more open-mindedness. If people had more accurate views about open-mindedness in their political party this could increase political curiosity, along with downstream consequences for increasing learning goals in conversations, likely leading to more productive exchanges¹⁰. To determine whether the intervention worked for people of varying political affiliations, we recruited 200 self-identified Republicans and 200 self-identified Democrats from Prolific. After data cleaning, we ended with a final sample of 398.

Prior to the intervention, participants were randomly assigned to treatment or control conditions. Our curiosity intervention used the same framework as successful social belonging interventions^{28,29}.

First, we provided participants with quantitative data supporting the targeted belief (in our case, open-mindedness). Participants read that we conducted a survey of Americans (Study 1), which resulted in three findings: (1) most people disagree with their political party on some issues, (2) people underestimate how much others in their political party value diverse views and were willing to update their views, and (3) most people feel better when expressing rather than suppressing their views during disagreements.

Second, these data were then supported with personal anecdotes to emphasize social validation for these beliefs. Specifically, participants read true stories reported by other research participants who expressed conflicts with their political ingroup and a preference for open-mindedness. After reading these stories, participants shared ways the themes resonated with their own experience. For example, they were asked, “*Have there been times when you thought someone wasn’t going to listen when you disagreed with their views, and yet were surprised at how well the conversation went?*”

Third, participants were asked to write their own letter to help someone else (i.e., future study participants). This is consistent with literature that it is better to make people feel they offer rather than require help. Engaging in self-persuasion can effectively change and strengthen beliefs³⁰. In this letter, participants were then asked to provide advice to a target who wanted to engage in a political discussion with someone holding a different, seemingly offensive political view³¹.

Participants in the control condition received materials similar to the intervention, but rather than focusing on politics, dealt with other people’s openness to living in different places. We adapted this from the social belonging intervention literature, which often uses “challenges adjusting to new physical environments” as a control condition³².

After receiving intervention or control materials, participants completed outcome measures - identical to Study 1 - including the Five-Dimensional Political Curiosity Scale and motivation to learn in political conversations. In terms of results, the intervention significantly increased perceptions that people in one’s political party valued diverse views (Fig. 1, Study 2). The intervention significantly increased joyous exploration and social curiosity (Fig. 1, Study 2), but did not influence deprivation sensitivity, stress tolerance, or thrill seeking. There was also a significant effect of the intervention on Openness - indirect in Study 2 (Condition → Joyous Exploration → Openness, $b = 0.04$, $se = 0.02$, $z = 2.03$, $p = 0.04$) and direct in Study 3 (Control vs. WISE → Openness at Time 2, $\beta = 0.07$, $b = 0.18$, $se = 0.09$, $z = 1.97$, $p = 0.04$; see Fig. 1; Studies 2 & 3, respectively and Tables 1 and 2).

Condition	Openness		Joyous exploration		General social curiosity	
	Mean	SD	Mean	SD	Mean	SD
Control	5.35	1.01	3.99	1.51	3.50	1.45
Intervention	5.61	0.92	4.32	1.31	3.79	1.40

Table 1. Observed study 2 means of relevant variables by Condition. Open = Openness to Learning; JE = Joyous Exploration; GSC = General Social Curiosity.

Effect	Beta	b	SE	z	p
Condition → Openness	0.07	0.14	0.08	1.72	0.085
Condition → Joyous Exploration (JE)	0.11	0.32	0.14	2.31	0.021
Condition → General Social Curiosity (GSC)	0.11	0.35	0.16	2.24	0.025
Condition → JE → Openness	NA	0.04	0.02	2.03	0.043
Condition → GSC → Openness	NA	0.07	0.03	2.15	0.031

Table 2. Study 2 wise intervention effects on primary outcomes.

Effect	Beta	b	SE	Z	p
Joyous Exploration T1 → Openness T1	0.298	0.269	0.038	7.014	0.000
General Social Curiosity T1 → Openness T1	0.309	0.249	0.034	7.273	0.000
Control vs. Wise Treatment → Joyous Exploration T2	0.031	0.087	0.098	0.891	0.373
Control vs. Attention → Joyous Exploration T2	-0.062	-0.171	0.094	-1.813	0.070
Joyous Exploration T1 → Joyous Exploration T2	0.697	0.671	0.027	24.652	0.000
Control vs. Wise Treatment → GSC T2	0.055	0.171	0.108	1.585	0.113
Control vs. Attention → GSC T2	-0.018	-0.053	0.104	-0.503	0.615
General Social Curiosity T1 → GSC T2	0.685	0.640	0.026	24.379	0.000
Control vs. Wise Treatment → Openness T2	0.074	0.175	0.089	1.974	0.048
Control vs. Attention → Openness T2	0.006	0.013	0.086	0.154	0.877

Table 3. Study 3 wise intervention effects on primary outcomes. Control = Control Group. Attention = Attentional Control Group.

Study 2 supported the effectiveness of our intervention in increasing political joyous exploration, social curiosity, and conversational learning goals in a highly powered pre-registered study (Fig. 1, Study 2). The effects estimated in the figure are based upon raw means and standard deviations observed in the data as shown in Table 1.

Does our “wise intervention” replicate using stringent comparison groups? (Study 3)

We sought to replicate the intervention effect and provide a stronger, attentional control condition with the standard control condition. In an initial session, participants completed measures of political party identification, curiosity, and learning goals. Nine days later, participants were contacted for a follow-up study. Participants were randomly assigned to the intervention (same as Study 2) or one of the two control conditions - a “positive conversation” and “assessment-only.” We designed the “positive conversation” control condition to be similar to the intervention structure. The materials communicated that normatively, people prefer to focus on areas of political agreement rather than disagreement and keep political conversations positive. Although this condition targets politics-relevant beliefs, we did not anticipate that emphasizing these norms would increase political curiosity. In the “assessment-only” control condition, participants simply completed measures in the first and second sessions. Participants completed the same outcome measures as Study 2 with the addition of a perceived norm of willingness to update views. Same as Studies 1 and 2, other measures included perceived normative valuing of diverse views, the Five-Dimensional Political Curiosity Scale, and political learning goals.

We recruited 250 participants for each of the three conditions (Total $N=750$). Due to technical difficulties within the Prolific software, our final sample had approximately 13% missingness by case and assumed to be missing at random. The errors occurred within the data collection process and all missing observations were distributed evenly across the three groups ($N_{TX} = 217$; $N_{ATT} = 216$; $N_{CTL} = 218$; $N_{Total} = 651$).

To replicate the previous study, we examined whether joyous exploration and social curiosity mediated the effect of the intervention on political learning goals. This represented a strong test for two reasons. By including an assessment-only control, we ensured results were due to the intervention rather than whatever activity was

chosen for the control condition. By including a control condition relevant to politics with common advice on productive disagreements, we ensured the intervention was not due to discussing politics.

With the inclusion of two control conditions, our intervention had a direct, robust effect on conversational learning goals ($\beta = 0.12$, $se = 0.06$, $z = 2.91$, $p = 0.004$; Table 2; Figs. 1 and 2). Using these stringent tests, our intervention increased social curiosity ($b = 0.16$, $se = 0.08$, $z = 2.91$, $p = 0.004$; Figs. 1 and 2), which significantly increased in prior studies, suggesting that our intervention can increase social curiosity. The intervention effect on joyous exploration was only marginal (unlike the statistically significant effect in Study 2; see Table 2). It is possible that the changes made to streamline the intervention unintentionally weakened the effect on joyous exploration. It is also possible that the results reflect sampling error or another statistical artifact. From what is known about curiosity, another explanation for marginal joyous exploration effects is that there are two perceptions that determine the onset of state or momentary curiosity: the belief that the stimuli one is exposed to is novel and complex along with the belief that one can handle this novelty. The presence of high levels of both cognitive appraisals is what leads to curious moments, in particular, joyous exploration (Silvia, 2005, 2008). Both the intervention and the positive conversation condition might have met both criteria: a novel information-processing task for individuals with sufficient instructions to feel efficacious. As such, the intervention effects might be larger if the comparison condition were less novel and manageable.

For a second time, we found evidence that the intervention boosts curiosity and learning goals among Democrats and Republicans (i.e., no political party moderation effects). This points to the generalizability of our wise intervention.

General discussion

Our findings offer a rare point of optimism in a political climate marked by entrenched animosity and widespread misperceptions of closed-mindedness^{1,35}. Across three studies, we demonstrate that political curiosity - a willingness to explore novel and diverse viewpoints - is associated with greater open-mindedness and intellectual humility, and even more promising, can also be effectively increased through a brief, targeted intervention (extending the self-persuasion ideas used by prior researchers)²⁹. In line with our initial rationale, we show that correcting misperceptions about political ingroup members' openness fosters greater curiosity, validating the idea that perceived social norms can meaningfully shape psychological attitudes about the importance of critical thinking, love of learning, and wisdom^{36,37}.

Our results directly address the pressing need for interventions that do not compromise ethical standards by indiscriminately dampening political negativity but instead cultivate motivated, discerning citizens willing to be non-conformist dissenters when helpful¹⁸. In doing so, our work contributes to a scalable, evidence-based strategy for strengthening democratic discourses by nurturing political curiosity: a gateway for both personal and societal wisdom.

Our research points to a few key results. First, Study 1 documented that political curiosity is associated with more productive political intergroup outcomes such as decreased desire for social distance from political outgroups and a motivation to learn in political conversations (i.e., open-mindedness). Second, we demonstrated

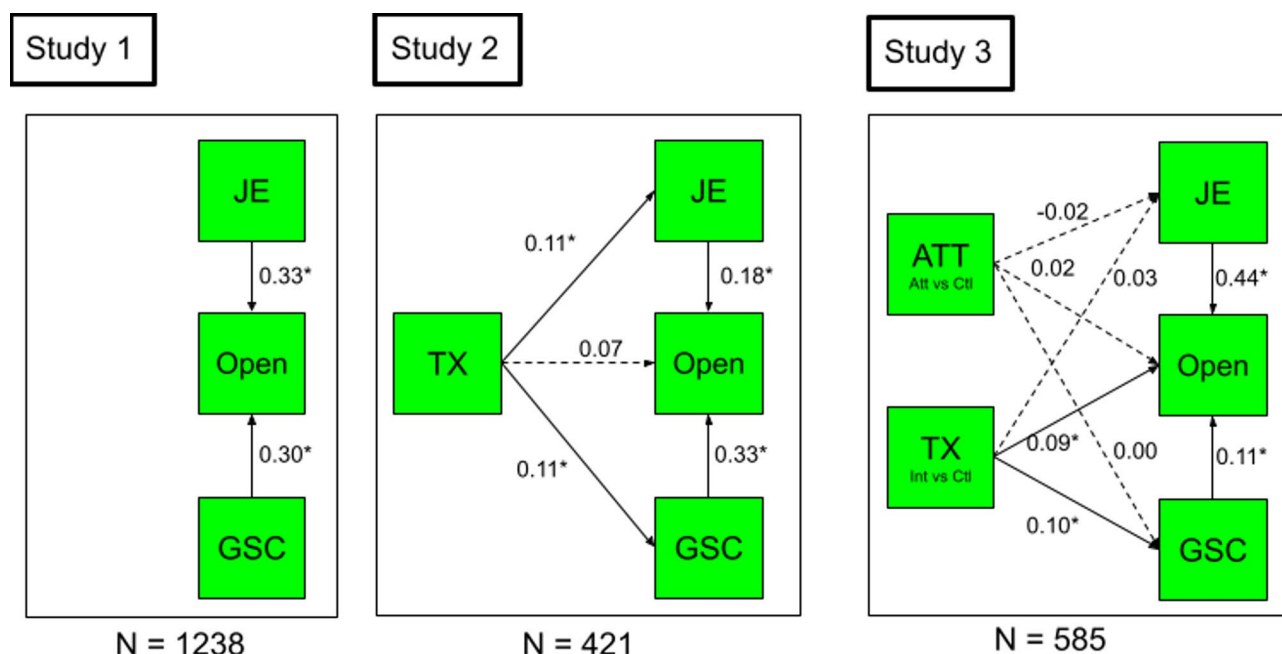


Fig. 1. Three-study design and estimated standardized effects. JE = Joyous exploration. Open = Openness to learning in political conversations (e.g., learning goals). GSC = General social curiosity. TX = Wise Intervention vs. Control Group. ATT = Attentional Control vs. Control Group. Standardized beta effects statistically. Significant at $p < 0.05$ are noted with an asterisk (*).

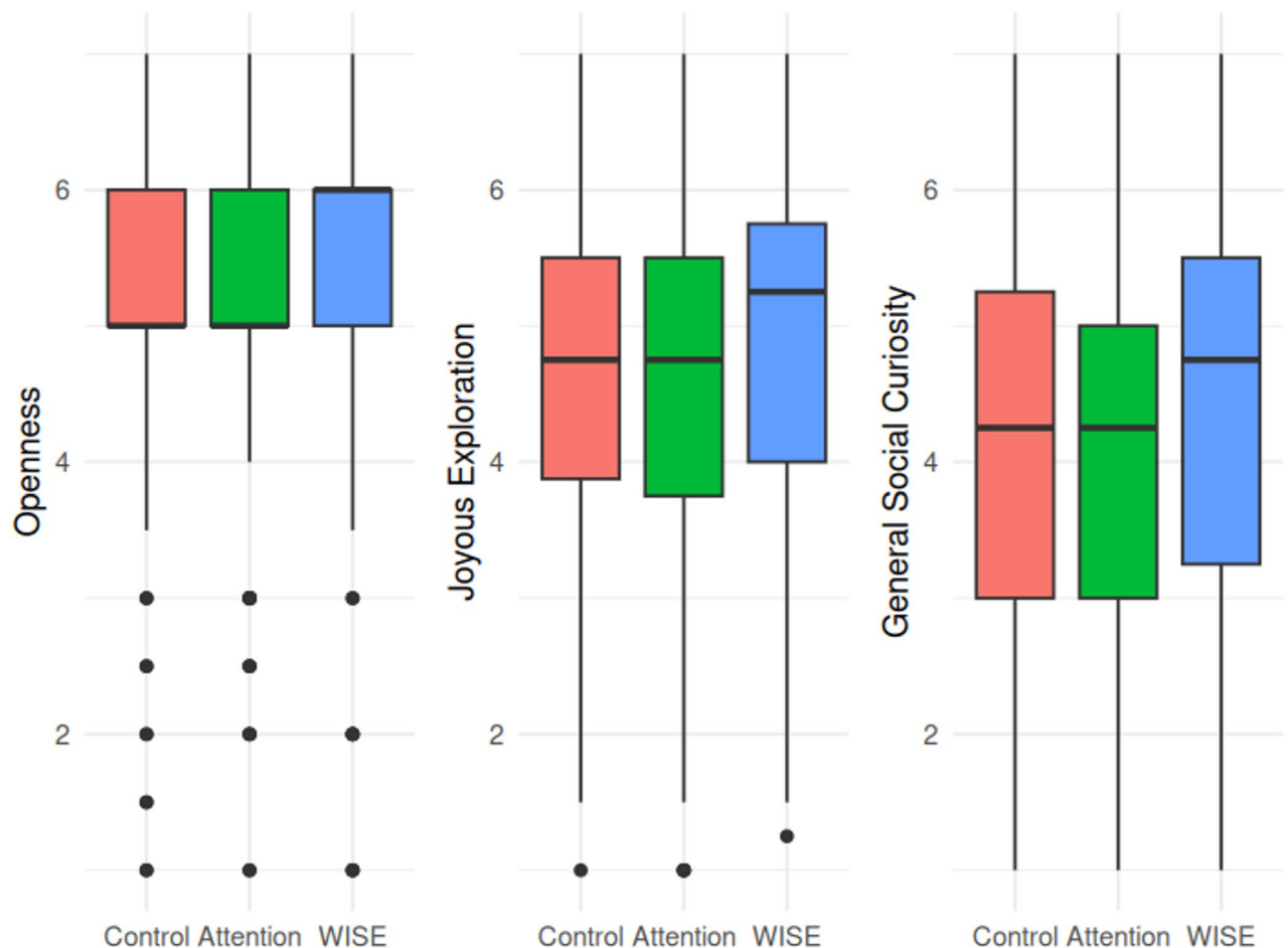


Fig. 2. Predicted values of joyous exploration, social curiosity, and learning goals for the intervention versus control conditions. Conditions: “Control” = No Treatment/No Attention Control Group, “Attention” = Attentional Control Group, and “WISE” = The Curiosity “Wise Intervention” Group. Lines represent the full range. Boxes represent interquartile range around the median (dark line in center).

Condition	Openness		Joyous exploration		General social curiosity	
	Mean	SD	Mean	SD	Mean	SD
Control	5.20	1.11	4.63	1.33	3.61	1.31
Attention	5.22	1.17	4.57	1.40	3.66	1.32
Intervention	5.55	1.19	4.89	1.37	3.94	1.35

Table 4. Observed study 3 means and standard deviations of relevant variables by Condition.

that people underestimate how much fellow members of their political party value diverse views and are willing to update their views. Third, we demonstrated that political curiosity was associated with perceptions that members of one’s political party are open-minded and intellectually humble. Studies 2 and 3 introduced a novel social norm calibration intervention targeting open-mindedness and intellectual humility within one’s political party. This intervention increased people’s openness to learning in political conversations, social curiosity, and joyous exploration (albeit small effects). In sum, this work makes important contributions to basic science on political relations – by documenting associations between curiosity and positive political discourse, and misperceptions of open-mindedness and humility in political parties; and to applied research tackling political conflict and polarization – with a new curiosity boosting intervention.

Theoretical contributions and implications

Curiosity as a psychological strength

Although the benefits of curiosity have been documented, we introduce politics-specific curiosity. Curious people demonstrate greater information and perspective gathering, cognitive flexibility, creative problem-solving, and perseverance^{38,39}. Each of these positive outcomes of curiosity would serve people well in navigating the political domain. Indeed, the current program demonstrated that curiosity is positively associated with several beneficial political outcomes.

Efforts to avoid negativity may result in people avoiding political conversations altogether or focusing on areas of agreement. Interventions that focus on cultivating positive attitudes toward the political outgroup may make people insensitive to well-deserved negativity or to the skewed distribution of information for a position. That is, sometimes political actors and parties engage in unethical behavior or take positions that are only supported by weak evidence. In these situations, efforts to simply increase positivity may undercut rational reactions. Cultivating curiosity motivates people to learn about others' perspectives while still being discerning about unethical behavior or unsupported political positions⁷.

In-group misperceptions

Prior intervention work found that targeting inaccurate metaperceptions involving political ingroup norms accounted for 52% of the variance in affective polarization whereas targeting metaperceptions involving outgroups accounted for 0%. These findings justify our research program targeting ingroup political norms in hopes of improving desirable social outcomes such as greater curiosity, openness, and the motivation to learn instead of persuade in politically-charged conversations⁵⁰. Whereas previously documented political misperceptions concern people's perceptions of their political outgroups or the state of politics, the current work introduces the notion that people may have misperceptions about their own political groups and that these misperceptions contribute to hostile political relations^{17,40}. Past work suggests that people's ingroups function as a potent source of information about what to value and how to behave¹¹. Understanding whether people have accurate perceptions of their own groups' beliefs and behavior offers insights into an understated problem.

Curiosity interventions

The current findings suggest that shifting beliefs about how open-minded and humble others are in the political domain can increase politically relevant curiosity. It may be that targeting perceived norms of others' open-mindedness and humility may be a useful way to bolster curiosity. After all, we are social creatures and, in general, curiosity is viewed as a quality that is socially valued such that people in possession of high curiosity are deemed socially attractive⁴¹. Clarifying the presence and appreciation of open-mindedness and humility builds on prior curiosity interventions targeting the personally-relevant meaningfulness of information, tasks, or people⁴². One benefit of our intervention is it does not require us to intervene on each specific stimulus for which we'd like to increase curiosity; rather, we can bolster curiosity across the domain of politics by shifting perceived norms. Future research could examine whether our intervention can be fruitful for boosting curiosity in other domains (e.g., classrooms, workplace, sports).

Extending wise interventions

Our research program can be described as the evaluation of a wise intervention, targeting inferences that get in the way of desired outcomes. Past work on wise interventions often occurs in the context of reducing racial achievement gaps in education^{5,43}. We extended this approach to politics. As Study 3 demonstrated, targeting any belief about politics will not suffice to improve motivation and cognition in political conversations. We must target specific beliefs demonstrated to interfere with desired outcomes. Our work highlights how curiosity can be enhanced through theoretically sound mechanisms.

Interpretative caveats

Although the present findings support the interpretation that recalibrating perceived ingroup norms of open-mindedness increases curiosity, alternative explanations remain plausible. Participants may also have inferred that their political ingroup is in the opinion-minority relative to the broader public, which could independently heighten curiosity or willingness to learn from others. Because multiple components of the intervention were presented together, future work should isolate these elements to determine which mechanisms operate, for whom, and when.

Conclusion

In today's heated political environment, marked by polarization and intolerance, our research tested whether curiosity led to greater civility. We found that people mistakenly believe that those who share their political beliefs are closed off to different viewpoints (low open-mindedness). This belief limits people's willingness to explore new perspectives or alter views when faced with compelling evidence (low intellectual humility). However, when people understand that their political group is more open-minded and intellectually humble than assumed, they become more curious. They start to approach political discussions with the goal of learning, and do not physically distance themselves from others with different views. This change in attitude, triggered by a simple, quick adjustment of social norms, improves political conversations. Curiosity is a promising catalyst for more open-minded political communication regardless of political ideology.

Methods

Study 1 methods

Participants

We used CloudResearch Prime Panels to obtain a nationally representative sample on the dimensions of age, gender, race, ethnicity, and political party. We collected data from 1,169 participants. Based on the same attention check and exclusionary criteria as Study 1, we excluded 213 participants, leaving 956 participants for analyses. Ethics approval was obtained from the Institutional Review Board of George Mason University. All respondents provided informed consent. All methods were performed in accordance with the relevant guidelines and regulations by Nature Scientific Reports.

Materials and procedure

Participants were asked about their political party identification. Participants reported their perceptions of how much others in their political party valued diverse views. They reported their perceptions of other political party members' willingness to update views with two items, such as "Other people in my political party are open to revising their important beliefs in the face of new information," both adapted from the Openness to Revising Viewpoints subscale of the Comprehensive Intellectual Humility Scale²⁷. With these same items, they also rated their own valuing of diverse views and willingness to update views. Whether people rated themselves or others first was counterbalanced. Participants then completed the Five-Dimensional Political Curiosity Scale.

Participants also completed measures of constructs related to more positive political interactions. These measures included participants' goals to learn and persuade. Participants also reported their desire to maintain social distance from people who did not share their political views with ten items asking about different social roles (e.g. "I would be happy to have someone of a different political party [as my roommate/neighbor/someone I would personally date]"²¹). They additionally reported their affective polarization, measured by subtracting attitudes toward the political ingroup from the political outgroup, "How do you feel about [Democrats/Republicans]?"⁴⁹.

Study 2 methods

Participants

We determined the sample size by using the observed effect size ($r \sim 0.20$; $d \sim 0.40$) of the intervention on social curiosity in a pilot study, Study S2, reported in the Online Supplement. Power tables from Cohen (1992) suggested we would need about 100 participants per cell to detect our effect of interest⁴⁴. We were also interested in examining moderation by political party affiliation and were concerned that the observed effect size was optimistic, given the potential of sampling variability with small sample sizes⁴⁵. Therefore, we recruited 400 participants total from Prolific: 200 self-identified Republicans and 200 self-identified Democrats. This study was run in October of 2021, after a TikTok video about using Prolific had gone viral, resulting in a large influx of young women to the platform. To avoid sampling bias, we limited our recruitment to participants who had joined the platform before July 31, 2021, before the video had gone viral. We obtained results from 404 participants, 6 of whom we excluded for failing the attention check, leaving 398 participants for analyses. Ethics approval was obtained from the Institutional Review Board of George Mason University. All respondents provided informed consent. All methods were performed in accordance with the relevant guidelines and regulations by Nature Scientific Reports.

Materials and procedure

Before receiving the intervention, participants reported their political party identification. Participants were randomly assigned to receive the treatment or control materials. Complete intervention and control materials are available in the Online Supplement. The structure of the intervention was based on successful social belonging interventions^{28,29,46}. In the same way that our intervention targets beliefs we anticipated would interfere with political curiosity, typical belonging interventions target beliefs that prevent students of color from feeling a sense of belonging in college⁴⁷. These "wise" interventions provide quantitative data supporting the desired belief, which are then supported with personal anecdotes from peers to emphasize social consensus around these beliefs. Additionally, participants are asked to write an essay in the form of a letter to help someone else. In this letter, participants endorse the targeted beliefs as a means of engaging in self-persuasion^{43,48}. Given the success of social belonging interventions, we adapted this same structure and wise intervention approach for our purposes. In the experimental condition, participants read that we had conducted a survey of Americans, which resulted in three core findings: (1) most people disagree with their political party on some issues, (2) people underestimate how much people in their political party value diverse views and are willing to update their views, and (3) most people feel authentic when expressing their views during disagreements, rather than self-silencing. Of note, we based these statements on the findings of Study 1 in this package, so all these statements are true.

Participants then read stories ostensibly from prior participants, which emphasized the findings of the survey. These were based on real stories that we collected in pre-testing, but we edited them to ensure they communicated the intended message³². An example story was:

"I've always gotten the impression that talking about politics is really nasty. In my house, I was taught not to discuss 'religion or politics'. Recently, though, I recognized that not talking about big issues is a big problem. I didn't know enough about what people around me truly cared about. So, I tried it out. I just started asking friends about their political views, and respectfully sharing my own. It's going really well. It is uncomfortable sometimes, and we don't always agree. Yet, I am finding it really fulfilling to talk to friends about what matters to them. I am learning new information and that people's views aren't always what I would expect. I'm also realizing how many different perspectives are out there. We hear a lot about extremism and believing

fake news, but most of the people I talk to are really reasonable. They are trying to understand others and want to have accurate beliefs.”

After reading these stories, participants were asked to share ways in which the results resonated with their own experiences. For example, as part of the prompt they were asked, “Have there been times when you thought someone wasn’t going to listen when you disagreed with their views, and yet were surprised at how well the conversation went?” Consistent with the idea in the wise intervention literature that it is better to make participants feel like they are the helpers, rather than the ones being helped, they were told that their stories may be anonymously shared with others to help them in struggles they were having with their political party³². By having participants generate ways in which the findings resonated with their experiences, participants engaged in self-persuasion, which can effectively change and strengthen people’s beliefs³⁰. Participants were also asked to provide advice to a target who wanted to engage in a political discussion with someone who was expressing an unfamiliar, but seemingly offensive political view³¹.

Participants in the control condition received materials that were very similar to those in the intervention condition, but rather than being about politics, they were about dealing with challenges in different physical environments. We adapted this control condition from the social belonging intervention literature, which often uses “challenges adjusting to new physical environments” as a control condition³². We adapted this so it more closely paralleled our intervention condition and was about other people’s openness to living in different places.

After completing the intervention or control materials, participants completed outcome measures. This included a manipulation check: perceived normative valuing of diverse views, measured the same as in Study 1. Participants also completed the Five-Dimensional Political Curiosity Scale as the primary dependent variable, as well as political learning and persuasion goals as potential downstream consequences of effects we might observe on political curiosity.

Study 3 methods

Participants

We aimed to collect 250 participants for each of the three conditions in our design (Total $N=750$). Power tables suggested that sample size would provide 60% power to detect $d=0.20$ and over 90% power to detect $d=0.30$, consistent with the previous studies suggesting that the intervention would have an effect on social curiosity that ranged roughly between $d=0.20$ – 0.40 ⁴⁴. From Prolific we recruited United States citizens currently in the United States who had joined Prolific before July 22, 2021 and self-identified as Republicans or Democrats. Due to a technical glitch, we collected data from 806 participants (375 self-identified Democrats and 431 self-identified Republicans). Of participants who completed the pre-intervention measures at Time 1, 519 completed the intervention at Time 2, and we excluded 8 participants for failing the attention check, consistent with the previous studies and the pre-registration, leaving 511 participants for analyses. Ethics approval was obtained from the Institutional Review Board of George Mason University. All respondents provided informed consent. All methods were performed in accordance with the relevant guidelines and regulations by Nature Scientific Reports.

Materials and procedure

In an initial session, participants completed the same measures of political party identification, political curiosity, and learning and persuasion goals as in previous studies. Nine days after the initial study was launched, participants were contacted to complete a follow-up study. Participants were randomly assigned to either the intervention or one of the two control conditions. The intervention materials in this study were similar to the previous studies except that we removed the sections targeting beliefs that expressing disagreement could help foster authenticity. We designed the “typical politics advice” control condition to be as similar to the intervention as possible in terms of structure. The materials communicated that normatively, people prefer to focus on areas of political agreement rather than disagreement and to keep things positive rather than discussing topics that could be upsetting. Exact materials for each condition are available in the Online Supplement. In the assessment-only control condition, participants simply completed measures. Participants completed the same outcome measures as Study 2, but with the addition of a perceived norms of willingness to update views manipulation check. As above, the other measures included perceived normative valuing of diverse views, the Five-Dimensional Political Curiosity Scale, and political learning and persuasion goals.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request. Data, code, and materials for manuscript studies, as well as the pre-registrations for Studies 2 and 3 can be accessed here: [https://osf.io/na6m2/overview?view_only=1377187dfee441fd971ef6afe9a4459a]. Further, details concerning the measures, demographics, and missing data can be found in the online supplement. here: [<https://naturepoliticalcuriositywiseintervent.netlify.app/>]. Correspondence should be addressed to Todd Kashdan, email: [todd@toddkashdan.com].

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Author contributions

T.B.K. and P.E.M. contributed equally to the writing, procurement of funding, development of the research questions, empirical protocol, conceptual framework, data analytic plan and analyses; K.K. and L.C. led the data collection efforts and, along with M.G., assisted with the conceptual framework, writing, and literature review.

Declarations

Competing interests

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Additional information

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