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Intellectual Humility and Perceptions of Political Opponents

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Abstract

Objective: *Intellectual humility* (IH) refers to the recognition that personal beliefs might be wrong. We investigate possible interpersonal implications of IH for how people perceive the intellectual capabilities and moral character of their sociopolitical opponents and for their willingness to associate with those opponents.

Method: In four initial studies ($N=1,926$, $M_{\text{age}}=38$, 880 females, 1035 males), we measured IH, intellectual and moral derogation of opponents, and willingness to befriend opponents. In two additional studies ($N=568$, $M_{\text{age}}=40$, 252 females, 314 males), we presented participants with a specific opponent on certain sociopolitical issues and several social media posts from that opponent in which he expressed his views on the issue. We then measured IH, intellectual and moral derogation of the opponent, participants' willingness to befriend the opponent, participants' willingness to "friend" the opponent on social media, and participants' willingness to "follow" the opponent on social media.

Results: Low-IH relative to high-IH participants were more likely to derogate the intellectual capabilities and moral character of their opponents, less willing to befriend their opponents, and less willing to "friend" and "follow" an opponent on social media.

Conclusions: IH may have important interpersonal implications for person perception, and for understanding social extremism and polarization.

Keywords: intellectual humility, ethics, person perception, politics, polarization

Intellectual Humility and Perceptions of Political Opponents

When confronted with disagreements over social and political issues, many people are highly motivated to maintain their own prior beliefs at the expense of attempting to understand why others hold opposing positions (Porter & Schumann, 2018; Stanley et al., in press; Lodge & Taber, 2013). Several pervasive biases play systematic roles in helping people to disregard reasons, arguments, and evidence for positions that conflict with their own beliefs (Kunda, 1990; Lodge & Taber, 2013; Taber & Lodge, 2006). For contentious, polarized issues (e.g., gun control; Taber & Lodge, 2006) and even for less-charged issues (e.g., standardized testing in public schools; Stanley et al., in press), these biases encourage people to be highly resistant to changing their views in the face of opposing reasons and arguments. Indeed, people's beliefs in the superiority of their own sociopolitical positions are commonly held with tremendous confidence (Lodge & Taber, 2013; Stanley et al., in press). This persistent and confident adherence to personal sociopolitical positions has stifled sincere, fact-based, and open discussion over the merits and problems accompanying the endorsement of certain positions.

However, people differ in the confidence with which they maintain their sociopolitical positions, and in the degree to which they are willing to entertain the possibility that their own positions might be inferior to alternative positions. The epistemic virtue of *intellectual humility* (IH) refers to the recognition that personal beliefs might be wrong and is accompanied by a willingness to consider the limitations in the evidentiary basis of one's own personal beliefs, as well as awareness of one's limitations in obtaining and evaluating information that can inform one's beliefs (Leary et al., 2017). Accordingly, low IH often manifests as unfounded confidence in the superiority of one's own views, and as an unwillingness to take seriously the reasons and arguments for opposing positions (Leary et al., 2017; Porter & Schumann, 2018). In contrast, high IH often manifests as even-handed, extensive deliberation over the strength of evidence for factual claims (Deffler, Leary, & Hoyle, 2016; Leary et al., 2017), along with an interest in listening to the reasons and arguments that favor opponents' views (Porter & Schumann, 2018).

IH is typically considered to be a relatively stable trait that promotes similar behaviors across different contexts and circumstances. Krumrei-Mancuso & Rouse (2016), for example, found IH to be relatively stable over 1- and 3-month periods, with correlations around .70 or higher. Nevertheless, IH

may systematically change as a function of the personal relevance of the information under evaluation (Leary et al., 2017).

By most psychological accounts, IH is fundamentally a cognitive *intrapersonal* construct reflecting people's private assessments of their beliefs and attitudes (Leary et al., 2017). There might, however, be important *interpersonal* consequences of differences in IH. We suggest that those low in IH (relative to high in IH) might be more likely to derogate the character, competence, and capabilities of their opponents when disagreements over sociopolitical beliefs arise, because they are exceedingly confident in the superiority of their views. If an individual is exceedingly confident in the superiority of their sociopolitical positions, then a plausible implication is that the individual will believe that those who hold opposing positions are unintelligent and even unethical. On this view, by regarding sociopolitical opponents as unintelligent and/or unethical, low-IH people then possess a justification for continuing to maintain their beliefs with high confidence, and for dismissing their opponents' reasons and arguments.

Providing indirect support for this proposal, those who exhibit lower IH tend to be less agreeable (Leary et al., 2017; Meagher, Leman, Bias, Latendresse, & Rowatt, 2015), less empathic (Krumrei-Mancuso, 2017), less open to ideas (Krumrei-Mancuso & Rouse, 2016), and less likely to generate respectful attributions for why opponents might disagree with them (e.g., because the issue is complex; Porter & Schumann, 2018). Relatedly, people who are lower in IH tend to be less accepting of those who hold different religious beliefs (Leary et al., 2017). Given these findings, low-IH people might derogate the character and intellect of sociopolitical opponents, which would allow them to more easily dismiss their opponents' reasons and arguments and, consequently, to continue to maintain their existing beliefs with high confidence.

If, in fact, people who are low in IH tend to derogate their sociopolitical opponents as unintelligent and unethical, then we might also expect them to be less willing to befriend people who hold opposing views, yet quite willing to befriend those with the same views. This might, in turn, create small communities of people who maintain the same sociopolitical views and preferentially seek out and exchange information that reinforces their views. And given the contemporary ubiquity and accessibility of social media platforms, there is no shortage of opportunities for people to create and find their desired communities (Barberá, et al., 2015; Williams, McMurray, Kurz, & Lambert,

2015; Del Vicario, et al., 2016). Such “cliques” would be shielded from conflicting views, along with the reasons, arguments, and evidence in favor of those conflicting views. This would not only stymie intellectual development, but it would also create an environment in which social extremism and political polarization flourish (Barbera, et al., 2015; Iyengar & Hahn, 2009).

Here, in four initial studies, we addressed two general hypotheses. First, we explored the possibility that individual differences in IH would predict how people perceive sociopolitical opponents. We hypothesized that those lower in IH (relative to those higher in IH) would derogate the intellectual capabilities and moral character of sociopolitical opponents, and that such low-IH people would have more negative overall impressions of their opponents. To address this hypothesis, we used both highly contentious, polarized sociopolitical issues (e.g., abortion; Study 1a) and less contentious, polarized sociopolitical issues (e.g., standardized testing in public schools; Study 1b). By varying the contentiousness of these issues, we could examine the extent to which the hypothesized outcome generalized across issues. To preview, in Studies 1a and 1b, we found that those lower in IH tended to derogate the intellectual capabilities and moral character of sociopolitical opponents for five of the six sociopolitical issues examined (however, we found no relationship between IH and overall impressions of opponents).

We then reasoned that if, in fact, low-IH individuals tend to derogate the intellectual capabilities and moral character of socio-political opponents, they might also be less willing to befriend those opponents. We hypothesized that those lower in IH (relative to those higher in IH) would be less willing to befriend people who hold opposing sociopolitical positions for highly contentious, polarized issues (Study 2a) as well as less contentious, polarized issues (Study 2b). To preview, for all six sociopolitical issues examined, we found that those lower in IH were indeed less willing to befriend those holding opposing sociopolitical positions.

Having found that IH is associated both with participants’ tendency to derogate opponents and with their unwillingness to befriend those holding opposing views, we next presented participants with a specific individual holding a position in opposition to their own position; we also presented participants with several social media posts in which that individual expressed his personal views on the issue. Similarly to Studies 1a and 1b, for both a contentious, polarized issue (Study 3a) and a less contentious, less polarized issue (Study 3b), we hypothesized that those lower in IH (relative to higher

in IH) would be more likely to derogate the intellectual capabilities and moral character of this specific individual holding the opposing view. We also hypothesized that those lower in IH (relative to higher in IH) would be less willing to befriend that individual and less willing to “friend” and “follow” this specific individual on social media. To preview, for both issues examined, we found that those lower in IH were indeed more likely to derogate the specific individual holding the opposing view, less willing to befriend that individual, and less willing to “friend” and “follow” that individual on social media.

All six studies were formally pre-registered (<https://osf.io/yudz7/>), and we report all exclusion criteria, all conditions included, and all independent and dependent measures.

Study 1a

In Study 1a, we investigated whether, for highly contentious and polarized issues, those lower in IH are more likely to derogate their sociopolitical opponents and more likely to have more negative overall impressions of those opponents.

Method and Materials

Participants. Four-hundred sixty American residents with at least 50 completed human intelligence tasks (HITs) and an approval rating above 90% voluntarily participated in this study on Amazon’s Mechanical Turk (AMT) for monetary compensation. Seventeen participants failed at least one of two attention checks described below, so data were analyzed with the remaining 443 individuals ($M_{\text{age}} = 39$ years, $SD = 13$, $\text{range}_{\text{age}} = [19, 76]$, 174 females, 267 males). Each of our six studies was run in a single wave of data collection, and data were analyzed only after the required sample size target was met in each study. The sample size was determined prior to data collection in each study. Our primary analyses in Studies 1a, 1b, and 2a, involve Pearson’s correlation coefficients, and we aimed to recruit 145 participants per issue (after exclusions) to have 95% power to detect medium-sized effects ($r = \pm .30$). We were unsure about the size of the effects prior to participant recruitment, so we attempted to ensure that we would have adequate power to at least detect medium-sized effects. De-identified data for all studies are available at <https://osf.io/yudz7/>. All studies reported herein were approved by the Duke Campus IRB.

Materials and procedure. Participants completed two different measures of IH, and the order in which the two scales were administered was randomized across participants. The first IH scale

includes 6 items and was developed by Leary and colleagues (2017). Sample items include, for example, “I accept that my beliefs and attitudes may be wrong” and “I recognize the value in opinions that are different from my own.” Participants rated each item on a 5-pt scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses were averaged to obtain IH scores (**Table 1**), and higher scores reflect greater IH.

We also administered a second scale, the *Comprehensive Intellectual Humility Scale* (CIHS), which includes 22-items (Krumrei-Mancuso & Rouse, 2016). This was included to ensure that we obtained converging results with both IH scales. (See **Supplementary Table 1** for CIHS descriptive statistics and reliabilities.) Our first attention check was embedded within the CIHS. For this attention check, participants were provided with this additional item: “Please select ‘4’ on the scale so that we know you are paying attention.”

The two IH scales were correlated ($r(441) = .69, p < .001$) and shared similar relationships with all other variables. In the interest of concision, in the main text below, we report results associated with the IH scale from Leary and colleagues (2017), and we report results associated with the CIHS in the **Supplementary Results** (see **Supplementary Tables 1-6** for all statistics and results).

After completing the two IH scales, participants were randomly assigned to consider one of three contentious, polarized political issues: abortion, concealed carry of firearms, or immigration. Participants first read neutral background information about the issue, after which they were instructed to take an initial position by making a binary choice. For example, in the immigration condition, participants could choose between the following: (1) I support the position that immigrants currently living in the United States illegally should be eligible for full United States citizenship if certain requirements are met, or (2) I support the position that immigrants currently living in the United States illegally should not be eligible for full United States citizenship no matter what.

Participants were then asked to answer questions about their perceptions of those who chose the opposing position on the issue. Participants were asked to what extent they agree or disagree that a political opponent is (1) unintelligent, (2) irrational, and (3) ignorant on 5-pt scales (1 = *strongly disagree*, 5 = *strongly agree*). Responses to these three questions were averaged to form a composite measure indexing *perceived intellectual capabilities* (see **Table 1** for descriptive statistics and

reliabilities). Participants were also asked to what extent they agree or disagree that a political opponent is (1) unethical, (2) immoral, and (3) of bad moral character on 5-pt scales (1 = *strongly disagree*, 5 = *strongly agree*). Responses to these three questions were likewise averaged to form a composite measure indexing *perceived moral character* (see **Table 1** for descriptive statistics and reliabilities). Note that all six characteristics are *negatively framed*, meaning that we expect a negative correlation between IH and both perceived intellectual capabilities and perceived moral character. Finally, participants provided a rating of their overall impression of people who chose the other position on the issue (1 = *very negative*, 5 = *very positive*; see **Table 1** for descriptive statistics).

Next, participants were asked to report their age, gender, and level of education (1 = *did not complete high school*, 2 = *high school degree or equivalent*, 3 = *Associate's degree*, 4 = *Bachelor's degree*, 5 = *Graduate or Professional degree*), after which they responded to questions about their politics. Specifically, for the politics questions, participants were asked to indicate how liberal or conservative they are (1 = *very liberal*, 7 = *very conservative*), their party affiliation (Democrat, Republican, Other), and how important their party affiliation is to their own personal identity (1 = *not at all important*, 7 = *very important*). Responses to demographics and politics questions were used as variables to control for in hierarchical regression models. At the end, we presented the second attention check: "Do you feel that you paid attention, avoided distractions, and took the survey seriously?" Participants responded by selecting one of the following: (1) no, I was distracted; (2) no, I had trouble paying attention; (3) no, I didn't take the study seriously; (4) no, something else affected my participation negatively; or (5) yes. Participants were ensured that their responses would not affect their payment or their eligibility for future studies. Only those participants who selected (5) were included in the analyses. Upon completion, participants were given monetary compensation for their time.

Results and Discussion

Zero-order correlations. First, bivariate, zero-order correlation analyses were conducted between IH and the three measures assessing the perception of political opponents, split by issue (abortion, concealed carry, immigration; see **Table 1**). Notably, for all three political issues, IH was significantly related to the perceived intellectual capabilities and moral character of opponents (all $ps < .004$). For all three issues, those lower in IH were more likely to believe that people who chose the

opposing position were lacking in both intellectual capabilities and moral character. However, we found a significant correlation between IH and overall impressions of opponents only for the abortion issue and not for concealed carry or immigration.

Hierarchical regression analyses. We next computed hierarchical hierarchical mixed-effects models to further investigate the relation between IH and the perceived intellectual capabilities and the moral character of opponents, respectively. (We did not compute hierarchical hierarchical mixed-effects models to investigate the relationship between IH and overall impressions of opponents because there was *only* a significant correlation between IH and overall impressions of opponents for the abortion issue. It is unlikely that IH is related to the overall impressions of opponents across issues in a generalizable way.) In these models, issue (abortion, concealed carry, immigration) was included as a random effect. All mixed-effects models reported across all studies were computed with the ‘lme4’ package in R (Bates et al., 2014). Then, we conducted separate mixed-effects hierarchical regressions for each issue.

First, in Step 1, only IH was included as a fixed-effects term predicting the *perceived intellectual capabilities* of opponents. See **Supplementary Table 7**. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional fixed effects. Finally, in Step 3, we included the three political variables as fixed effects in the model: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step, IH continued to be a strong, significant predictor of the perceived intellectual capabilities of opponents (all $ps < .001$).

This same process was then repeated separately for each issue. For each issue, IH remained a strong, significant predictor of the perceived intellectual capabilities of opponents after each step in the hierarchical regression (see **Table 2**).

Next, only IH was included as a fixed-effects term predicting the *perceived moral character* of opponents in Step 1. Issue was included as a random effect in all models. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional fixed effects. Finally, in Step 3, we included in the model the three political variables as fixed effects: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party

affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step, IH was a robust, significant predictor of the perceived moral character of opponents (all $ps < .001$). See **Supplementary Table 8** for full results.

This same process was then executed for each issue, separately. For each issue, IH remained a strong, significant predictor of the perceived moral character of opponents, even after each step (see **Table 3**).

Taken together, these results largely corroborate our first hypothesis: for highly contentious, polarized sociopolitical issues, low-IH individuals were more likely to derogate the intellectual capabilities and moral character of those who hold opposing views. These effects held at a similar magnitude even after statistically controlling for several demographics variables (gender, age, and education) and several variables assessing participants' political beliefs and orientations. However, for the relationship between IH and overall impressions of opponents, we did not find consistent effects across the three issues. Specifically, there was a significant, positive correlation between IH and overall impressions of opponents for the abortion issue, but there was no significant relationship for concealed carry or immigration. This might suggest that IH is more narrowly related to perceptions of specific traits and qualities of opponents. Presumably, other factors beyond intellectual capabilities and moral character inform the overall impressions that people have about others; many of these other traits and qualities may be unrelated to IH.

Study 1b

Having found that those lower in IH tend to derogate the intellectual capabilities and moral character of sociopolitical opponents for polarized, contentious issues, in Study 1b we investigated whether these effects generalize to less polarized, less contentious issues (drone strikes on military targets overseas, fracking, and standardized testing in schools).¹

Method and Materials

Participants. Four-hundred sixty American residents with at least 50 completed HITs and an approval rating above 90% voluntarily participated in this study on Amazon's Mechanical Turk (AMT) for monetary compensation. Seventeen participants failed at least one of two attention checks

¹ Note that these data were collected prior to the drone strikes killing Iranian General Qassim Suleimani.

described below, so data were analyzed with the remaining 443 individuals ($M_{\text{age}}=38$ years, $SD=21$, $\text{range}_{\text{age}}=[18,78]$, 226 females, 215 males).

Materials and procedure. The materials and procedure in Study 1b were the same as in Study 1a, with one key difference: in Study 1b, we used three new political issues—drone strikes on military targets overseas, fracking, and standardized testing in schools—that are less-charged and less contentious than those used in Study 1a. Although these three new political issues are topically relevant, they are not constantly in the news, and many citizens may have unsettled opinions about them (Stanley et al., in press). The only other difference between Studies 1a and 1b was that, whereas in Study 1a we administered both Leary et al.'s (2017) IH scale and Krumrei-Mancuso and Rouse's (2016) CIHS scale, in Study 1b we administered only Leary et al.'s IH scale. The rationale for this was that, in Study 1a, the two scales provided a high degree of overlap and the same pattern of relationships with our other variables of interest. The same attention check item originally embedded in the CIHS in Study 1a was placed in the IH scale from Leary and colleagues in Study 1b.

Results and Discussion

For the key variables of interest, **Table 4** provides descriptive statistics and reliabilities split by political issue.

Zero-order correlations. First, bivariate, zero-order correlations were computed between IH and the three measures assessing the perception of political opponents, split by issue (drone strikes, fracking, standardized testing; see **Table 4**). Notably, for both drone strikes and standardized testing issues, IH was significantly related to the perceived intellectual capabilities and moral character of opponents (all $ps < .03$). For these issues, participants lower in IH were more likely to believe that people who chose the opposing position were lacking in both intellectual capabilities and moral character than those higher in IH. However, for the issue of fracking, IH was not significantly related to the perceived intellectual capabilities or moral character of opponents (all $ps > .20$).

Hierarchical regressions. We next computed hierarchical hierarchical mixed-effects models to investigate the relation between IH and the perceived intellectual capabilities and moral character of opponents, respectively. (We do not compute hierarchical hierarchical mixed-effects models to further investigate the relationship between IH and overall impressions of opponents, because there was *only* a significant correlation between IH and overall impressions of opponents for the drone

strikes issue. IH was not related to the overall impressions of opponents across issues in a generalizable way.) In these models, issue (drone strikes, fracking, standardized testing) was included as a random effect. Next, we conducted separate hierarchical regressions for each issue. This same general process was implemented in Study 1a.

In Step 1, only IH was included as a fixed-effects term predicting the perceived intellectual capabilities of opponents. In all models, issue was included as a random effect. See **Supplementary Table 9** for all results. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional fixed effects. Finally, in Step 3, we included, as fixed effects in the model, the three political variables: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step, IH was strongly and significantly predictive of the perceived intellectual capabilities of opponents (all $ps < .001$).

We then repeated this process for drone strikes and standardized testing, separately, because IH was significantly related to the perceived intellectual capabilities of opponents for each issue. For both issues, IH strongly and significantly predicted the perceived intellectual capabilities of opponents after each step (see **Table 5**).

Next, only IH was included as a fixed-effects term predicting the perceived moral character of opponents in Step 1. Issue was included as a random effect in all models. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional fixed effects. Finally, in Step 3, we included the three political variables as fixed effects in the model: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step, IH was strong, significant predictor of the perceived moral character of opponents (all $ps < .001$). See **Supplementary Table 10** for full results.

We then repeated this process for drone strikes and standardized testing, separately, because IH was significantly related to the perceived moral character of opponents for these two issues. For both issues, IH was robustly and significantly predictive of the perceived moral character of opponents after each step (see **Table 6**).

Taken together, these results extend our findings from Study 1a by using a set of less contentious/polarized sociopolitical issues. For the issues concerning drone strikes on military targets overseas and standardized testing, we found that low-IH individuals were more likely to derogate the intellectual capabilities and moral character of those who hold opposing views. These effects held at a similar magnitude even after statistically controlling for several demographics variables and several variables assessing participants' political beliefs and orientations. However, we found no relationship between IH and the perceived intellectual capabilities or moral character of opponents for attitudes toward fracking. It is possible that we found no significant relationships for the fracking issue because people know less about fracking than any of the other issues, and therefore, were less hostile toward opponents on the issue.² Indirectly supporting this possibility, Stanley et al. (in press) found that participants were less familiar with the reasons and arguments for either side of the fracking issue relative to the drone strikes and standardized testing issues. Lastly, as was the case in Study 1a, we did not find a consistent relationship across issues for the relationship between IH and reported overall impressions of opponents.

Study 2a

In Study 2a, we investigated whether those lower in IH are less willing to befriend people who hold opposing sociopolitical positions for highly contentious, polarized issues.

Method and Materials

Participants. Four-hundred sixty American residents with at least 50 completed HITs and an approval rating above 90% voluntarily participated in this study on Amazon's Mechanical Turk (AMT) for monetary compensation. Nineteen participants failed at least one of two attention checks described below, so data were analyzed with the remaining 441 individuals ($M_{\text{age}}=35$ years, $SD=10$, $\text{range}_{\text{age}}=[19,74]$, 188 females, 251 males).

Materials and procedure. The materials and procedure in Study 2a were the same as in Study 1a, with one key difference: instead of answering questions assessing the perceived intellectual capabilities, moral character, and overall impressions of political opponents, we asked participants to report their willingness to be friends with political opponents. Specifically, participants indicated the extent to which they agreed or disagreed with the statement, "I could still be friends with someone

² We thank an anonymous reviewer for this suggestion.

who chose the position that I did not choose,” by responding on a 5-pt scale (1=*strongly disagree*, 5=*strongly agree*). The only other difference between Studies 1a and 2a was that, in Study 2a, only the intellectual humility scale developed by Leary and colleagues (2017) was administered to participants (not the CIHS from Krumrei-Mancuso & Rouse, 2016). The same attention check item originally embedded in the CIHS in Study 1a was placed in the intellectual humility scale from Leary et al. (2017) in Study 2a.

Results and Discussion

For the key variables of interest, **Supplementary Table 11** provides descriptive statistics and reliabilities split by political issue.

Zero-order correlations. First, bivariate, zero-order correlation analyses were conducted to examine the relations between IH and the friendship measure, split by issue (abortion, concealed carry, immigration). IH was significantly related to participants’ willingness to be friends with political opponents for abortion ($r(145) = .23, p = .005$), concealed carry ($r(149) = .48, p < .001$), and immigration ($r(141) = .24, p = .004$). For all three issues, those higher in IH tended to report an increased willingness to befriend political opponents.

Hierarchical regressions. We next computed hierarchical mixed-effects models to further investigate the effects of IH on participants’ willingness to befriend political opponents. In these models, issue (abortion, concealed carry, immigration) was included as a random effect. Then, we computed separate hierarchical regressions for each issue, separately.

First, only IH was included as a fixed-effects term predicting participants’ willingness to be friends with political opponents in Step 1. In all models, issue was included as a random effect. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional fixed effects. Finally, in Step 3, we included the three political variables as fixed effects in the model: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step, IH continued to be strongly, and significantly predictive of participants’ willingness to be friends with political opponents (all $ps < .001$). See **Supplementary Table 12** for full results.

This same process was then repeated, within a multiple regression framework, for all three issues, separately. The results suggest that, for all three issues, and after each step in the hierarchical

regression, IH was a strong, significant predictor of participants' willingness to be friends with political opponents (see **Table 7**).

Collectively, these results corroborate our second hypothesis that, at least for highly contentious, polarized sociopolitical issues, low-IH individuals are less willing than high-IH individuals to befriend those who hold opposing sociopolitical views. Even after statistically controlling for several demographics variables and several variables assessing participants' political beliefs and orientations, these effects held at a similar magnitude.

Study 2b

Having found those lower in IH are less willing to befriend their sociopolitical opponents for polarized, contentious issues, in Study 2b we next investigated whether these effects generalize to the less polarized, less contentious issues.

Method and Materials

Participants. Six-hundred twenty American residents with at least 50 completed HITs and an approval rating above 90% voluntarily participated in this study on Amazon's Mechanical Turk (AMT) for monetary compensation. In Study 2b, we increased the sample size because we expected the effects of IH on participants' willingness to be friends with political opponents to be smaller for less charged/contentious issues than for the polarized, contentious issues. The sample size was determined prior to running the study, as noted in the pre-registration (<https://osf.io/yudz7/>). Twenty-one participants failed at least one of two attention checks described below, so data were analyzed with the remaining 599 individuals ($M_{\text{age}}=38$ years, $SD=13$, $\text{range}_{\text{age}}=[18,88]$, 292 females, 302 males).

Materials and procedure. The materials and procedure in Study 2b were the same as in Study 2a, with one key difference: in Study 2b, we used the three less charged/contentious political issues—drone strikes on military targets overseas, fracking, and standardized testing in schools—that were used in Study 1b, instead of the more polarized/contentious political issues used in Studies 1a and 2a.

Results and Discussion

For the key variables of interest, **Supplementary Table 13** provides descriptive statistics and reliabilities split by political issue.

Zero-order correlations. First, bivariate, zero-order correlations were computed between IH and the friendship measure, split by issue (drone strikes, fracking, standardized testing). IH was significantly related to the participants' willingness to be friends with political opponents for drone strikes ($r(199) = .35, p < .001$), fracking ($r(197) = .24, p = .001$), and standardized testing ($r(197) = .16, p = .024$). For all three issues, those higher in IH were consistently more willing to befriend political opponents.

Hierarchical regressions. We next computed hierarchical hierarchical mixed-effects models to further investigate the effects on IH on participants' willingness to be friends with political opponents. In these models, issue (drone strikes, fracking, standardized testing) was included as a random effect. Then, we computed separate hierarchical hierarchical regressions for each issue separately.

In Step 1, only IH was included as a fixed-effects term predicting participants' willingness to be friends with political opponents. In all models, issue was included as a random effect. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional fixed effects. Finally, in Step 3, we included the three political variables as fixed effects in the model: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step, IH was a robust, significant predictor of participants' willingness to be friends with political opponents (all $ps < .001$). See **Supplementary Table 14** for full results.

This same process was then repeated, within a multiple regression framework, for all three issues, separately. For all three issues, and after each step in the regression, IH continued to significantly predict participants' willingness to befriend political opponents (see **Table 8**).

These results extend our findings from Study 2a using a set of less contentious, less polarized sociopolitical issues. For all three issues, low-IH participants were less willing than high-IH participants to befriend those who hold opposing views. These effects held at a similar magnitude even after statistically controlling for several different demographics variables and several variables indexing participants' political beliefs and orientations. Moreover, the effects of IH on willingness to befriend those with opposing views were qualitatively smaller, on average, for the non-polarized issues used in Study 2b than for the more charged, more polarized issues used in Study 2a.

Nevertheless, we found significant effect of IH on willingness to befriend opponents for all six issues examined.

Study 3a

In Study 3a, participants were presented with a specific individual holding a position that opposed their own position on the concealed carry issue; participants were also presented several social media posts from that individual in which he expressed his views on the issue. We investigated whether those lower in IH are more likely to derogate the specific individual holding the opposing view and less willing to “friend” and “follow” that individual on social media.

Method and Materials

Participants. Three-hundred American residents with at least 50 completed HITs and an approval rating above 90% voluntarily participated in this study on AMT for monetary compensation. Nineteen participants failed at least one of the two attention check questions (see below for details); so, data were analyzed with the remaining 281 individuals ($M_{\text{age}}=41$ years, $SD=13$, $\text{range}_{\text{age}}=[21,72]$, 124 females, 156 males).

Materials. As in the previous studies, we administered the IH scale developed by Leary and colleagues (2017). Participants rated each item on the same 5-pt scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses were averaged to obtain IH scores (**Table 9**) with higher scores reflecting greater IH. Our first attention check was embedded within the IH scale. As before, participants were provided with this additional item: “Please select ‘4’ on the scale so that we know you are paying attention.”

Procedure. The concealed carry of firearms issue used in Studies 1a and 2a was also used in Study 3a. As before, participants read neutral background information about the issue, after which they were instructed to take an initial position by making a binary choice. On the next page, participants were presented with a headshot of an individual (white male, neutral expression) and told that this individual would choose the *other* possible position on the issue (i.e., whatever the participant did not choose). Note that participants saw the same image of the same individual regardless of their position. In addition, participants were shown three fabricated tweets from the individual expressing support for his position. For example, a participant who responded that Americans should be permitted to carry concealed handguns in public would see the following three

tweets from the depicted individual endorsing the opposing view: (1) *The United States would be way better off banning people from carrying concealed firearms*; (2) *We should stop allowing people to carry concealed firearms*; and (3) *Allowing people to carry concealed firearms is a huge mistake*. In contrast, a participant who responded that Americans should be banned from carrying concealed handguns in public would see the following three tweets from the depicted individual holding the opposing view: (1) *The United States would be way better off allowing more people to carry concealed firearms*; (2) *We should stop banning so many people from carrying concealed firearms*; and (3) *Preventing people from carrying concealed firearms is a huge mistake*. The tweets for each side of the concealed carry issue were closely matched for wording. Participants were told that the experimenters are interested in how people perceive and think about actual social media posts. We took steps to ensure that these tweets were as realistic and believable as possible. Specifically, we used a tweet generator (<https://www.tweetgen.com/>) to ensure that each post provided to participants looked like a real tweet from a real person. All materials are publicly available on OSF (<https://osf.io/yudz7/>).

After reading the tweets, participants rated the extent to which they agree or disagree that the pictured individual who holds the other possible position on the concealed carry issue is (1) unintelligent, (2) irrational, and (3) ignorant on 5-pt scales (1 = *strongly disagree*, 5 = *strongly agree*). As in Studies 1a and 1b, responses to these three questions were averaged to form a composite measure indexing *perceived intellectual capabilities* (see **Table 9**). Participants were also asked the degree to which they agree or disagree that the pictured individual who holds the other possible position on the concealed carry of firearms issue is (1) unethical, (2) immoral, and (3) of bad moral character on 5-pt scales (1 = *strongly disagree*, 5 = *strongly agree*). As in Studies 1a and 1b, responses to these three questions were averaged to form a composite measure indexing *perceived moral character* (see **Table 9**). Finally, participants were asked to indicate the extent to which they agree or disagree with the following three questions (1 = *strongly disagree*, 5 = *strongly agree*): (1) I would be willing to befriend the person pictured above; (2) I would “friend” the person pictured above on social media; and (3) I would “follow” the person pictured above on social media. Across participants, we randomized the order in which these questions were presented.

Participants then responded to the same demographics questions as in the previous studies. As in the previous studies, participants were also asked the same attention-check question at the end, and we excluded participants who reported being distracted, having trouble paying attention, failing to avoid distractions, and not taking the survey seriously. Upon completion, participants were monetarily compensated for their time.

Results and Discussion

Table 9 provides descriptive statistics and reliabilities for all variables of interest.

Zero-order correlations. First, bivariate, zero-order correlation analyses were conducted to examine the relations between IH and the other variables. Those lower in IH were more likely to believe that the individual who would choose the opposing position was lacking in both intellectual capabilities ($r(279) = -.25, p < .001$) and moral character ($r(279) = -.15, p = .015$). In addition, those lower in IH were less willing to befriend the opponent ($r(279) = .28, p < .001$), less willing to “friend” that opponent on social media ($r(279) = .17, p = .004$), and less willing to “follow” that individual on social media ($r(279) = .13, p = .026$). All correlation coefficients between all variables are presented in **Table 9**.

Hierarchical regression analyses. We next computed hierarchical regression models to further investigate the relation between IH and the perceived intellectual capabilities of the opponent, the perceived moral character of the opponent, the willingness to befriend the opponent, the willingness to “friend” the opponent on social media, and the willingness to “follow” the opponent on social media, respectively.

First, in Step 1, only IH was included as a predictor of each of the respective outcome variables. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional predictors in the models. Finally, in Step 3, we included the three political variables as predictors in the model: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step in the models, IH continued to be a strong, significant predictor of the perceived intellectual capabilities of the opponent, the perceived moral character of the opponent, the willingness to befriend the opponent, the willingness to “friend” the opponent on social media, and the willingness to “follow” the opponent on social media, respectively. See **Table 10** for full results.

Overall, these results support our hypothesis that, for the concealed carry issue, those lower in IH would be more likely to derogate the specific individual holding the opposing view, less willing to befriend that individual, and less willing to “friend” and “follow” that individual on social media.

Study 3b

Having found that those lower in IH are more likely to derogate a specific individual holding the opposing view and less willing to “friend” and “follow” that individual on social media, in Study 3b we next investigated whether these effects generalize to a less polarized, less contentious issue (standardized testing in public schools).

Method and Materials

Participants. Three-hundred American residents with at least 50 completed HITs and an approval rating above 90% voluntarily participated in this study on Amazon’s Mechanical Turk (AMT) for monetary compensation. Thirteen participants failed at least one of the two attention check questions (see below for details); so, data were analyzed with the remaining 287 individuals ($M_{\text{age}}=39$ years, $SD=12$, $\text{range}_{\text{age}}=[20,70]$, 128 females, 158 males).

Materials and procedure. As in the previous studies, we administered the IH scale developed by Leary and colleagues (2017). Responses were averaged to obtain IH scores (see **Table 11**). As before, participants were provided with this additional attention check within the IH scale: “Please select ‘4’ on the scale so that we know you are paying attention.”

Study 3b was the same as Study 3a but with a different issue and with different sets of tweets. In Study 3b, we used the standardized testing issue that was used in Studies 1b and 2b. In addition, a participant who responded that standardized testing should be required in primary schools in the United States would see the following three tweets from the depicted individual holding the opposing view: (1) *Standardized testing is useless, it has ruined our school system*; (2) *Our education system would be better off without standardized testing*; and (3) *It’s shameful that schools require students to take standardized tests*. In contrast, a participant who responded that standardized testing should not be required in primary schools in the United States would see the following three tweets from the depicted individual holding the opposing view: (1) *Standardized testing is useful, it’s improved our school system*; (2) *Our education system is better off without standardized testing*; and (3) *It’s wonderful that schools require students to take standardized tests*.

Results and Discussion

Table 11 provides descriptive statistics and reliabilities for all variables of interest.

Zero-order correlations. First, bivariate, zero-order correlation analyses were conducted to examine the relations between IH and the other variables. Those lower in IH were more likely to believe that the individual who would choose the opposing position was lacking in both intellectual capabilities ($r(285) = -.12, p = .036$) and moral character ($r(285) = -.25, p < .001$). In addition, those lower in IH were less willing to befriend the individual opponent ($r(285) = .23, p < .001$), less willing to “friend” that opponent on social media ($r(285) = .15, p = .011$), and less willing to “follow” that individual on social media ($r(285) = .15, p = .009$). All correlation coefficients between all variables are presented in **Table 11**.

Hierarchical regression analyses. We next computed hierarchical regression models to further investigate the relation between IH and the perceived intellectual capabilities of the opponent, the perceived moral character of the opponent, the willingness to befriend the opponent, the willingness to “friend” the opponent on social media, and the willingness to “follow” the opponent on social media, respectively.

First, in Step 1, only IH was included as a predictor of each of the respective outcome variables. In Step 2, we included age, gender (0 = male, 1 = female), and education as additional predictors in the models. Finally, in Step 3, we included the three political variables as predictors in the model: political leaning (1 = *very liberal*, 7 = *very conservative*), party affiliation (Democrat, Republican, Other), and importance of party affiliation to personal identity (1 = *not at all important*, 7 = *very important*). At each step in the models, IH continued to be a strong, significant predictor of the perceived moral character of the opponent, the willingness to befriend the opponent, the willingness to “friend” the opponent on social media, and the willingness to “follow” the opponent on social media, respectively. However, the relationship between IH and perceived intellectual capabilities of the opponent was rendered non-significant in the final step. See **Table 12** for full results.

Overall, these results support our hypothesis that, for the standardized testing issue, those lower in IH are more likely to derogate the specific individual holding the opposing view, less willing to befriend that individual, and less willing to “friend” and “follow” that individual on social media.

General Discussion

In Studies 1a and 1b, we investigated a possible way in which people who are low in IH might be overconfident in their beliefs and particularly unwilling to seriously engage with opponents' views. For five of the six sociopolitical issues examined, we found that participants lower in IH tended to derogate the intellectual capabilities and moral character of sociopolitical opponents more than participants higher in IH. By believing that opponents are unintelligent and unethical, it may become easier to dismiss others' views and to believe in the superiority of one's own views. Studies 2a and 2b examined whether participants lower in IH are less willing to befriend people with opposing views. For both highly contentious, polarized issues, and less contentious, polarized issues, those lower in IH were indeed less willing than those higher in IH to befriend people who hold opposing positions.

Then, in Studies 3a and 3b, we introduced participants to a specific individual who would choose the *other* possible position on the concealed carry issue or the standardized testing issue (i.e., whatever the participant did not choose) and several fabricated social media posts from that individual voicing his support for his position on the issue. For both issues examined (concealed carry and standardized testing), we found that participants lower in IH were more likely to derogate the intellectual capabilities of the opponent, more likely to derogate the moral character of the opponent, less willing to befriend the opponent, less willing to "friend" the opponent on social media, and less willing to "follow" the opponent on social media.

There has been a recent surge of research on IH, much of which has been devoted to IH scale development and validation (e.g., Haggard et al., 2018; Krumrei-Mancuso & Rouse, 2016; Leary et al., 2017). By most psychological accounts, IH is fundamentally a cognitive *intrapersonal* construct reflecting people's private assessments of their beliefs and attitudes (Leary et al., 2017). There are, however, important *interpersonal* consequences of differences in IH. Other research has found that those higher in IH tend to be more forgiving (Lavelock et al., 2014), generous (Exline & Hill, 2012), and empathic (Krumrei-Mancuso & Rouse, 2016). Our research expands upon these findings by identifying an interpersonal consequence of differences in IH, namely that those low in IH tend to both derogate sociopolitical opponents and express an unwillingness to associate with people who hold opposing sociopolitical views.

Our finding that IH predicts the degree to which people derogate sociopolitical opponents and express an unwillingness to befriend them may have significant implications for social extremism and

political polarization. Derogating opponents and being unwilling to befriend them might create cliques of people, with the same views, who collectively seek out and share information that reinforces their shared views (i.e., “echo chambers”). With contemporary social media, there is no shortage of opportunities for people to create and find their desired echo chambers. In fact, echo chambers comprised of people discussing sociopolitical issues and events have been identified on Twitter (Barberá, et al., 2015; Williams, McMurray, Kurz, & Lambert, 2015), Facebook (Del Vicario, et al., 2016), and various blogs (e.g., Suhay, Blackwell, Roche, & Bruggeman, 2015). Critically, the results of our final two studies suggest that low-IH individuals are less likely to want to associate with those who voice support on social media of sociopolitical positions in opposition to their own. These might be the same individuals who tend to seek out and belong to echo chambers on social media. Future work will further explore this possibility.

Disagreements over sociopolitical issues can be useful and fruitful. Such disagreements offer the potential for understanding the perspectives of others, generating creative solutions to significant problems, and growing intellectually. However, the extent to which disagreements are useful depends on the willingness of opposing sides to try to understand opposing positions (de Wied, Branje, & Meeus, 2007; Stone, Patton, & Heen, 2010). Promoting IH as an epistemic virtue worth cultivating—and psychological research on IH—has the potential to reduce social extremism, polarization, and the frequency of unresolvable disagreements over time.

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References

- Barberá, P., Jost, J. T., Nagler, J., Tucker, J. A., & Bonneau, R. (2015). Tweeting from left to right: Is online political communication more than an echo chamber?. *Psychological Science*, 26, 1531-1542.
- Bates, D., Maechler, M., Bolker, B., & Walkers, S. (2014). lme4: Linear mixed-effects models using Eigen and S4. Retrieved from <https://cran.r-project.org/package=lme4>
- de Wied, M., Branje, S. J., & Meeus, W. H. (2007). Empathy and conflict resolution in friendship relations among adolescents. *Aggressive Behavior*, 33, 48-55.
- Del Vicario, M., Vivaldo, G., Bessi, A., Zollo, F., Scala, A., Caldarelli, G., & Quattrociocchi, W. (2016). Echo chambers: Emotional contagion and group polarization on facebook. *Scientific Reports*, 6, 37825.
- Deffler, S. A., Leary, M. R., & Hoyle, R. H. (2016). Knowing what you know: Intellectual humility and judgments of recognition memory. *Personality and Individual Differences*, 96, 255-259.
- Exline, J. J., & Hill, P. C. (2012). Humility: A consistent and robust predictor of generosity. *The Journal of Positive Psychology*, 7, 208-218.
- Haggard, M., Rowatt, W. C., Leman, J. C., Meagher, B., Moore, C., Fergus, T., ... & Howard-Snyder, D. (2018). Finding middle ground between intellectual arrogance and intellectual servility:

- Development and assessment of the limitations-owning intellectual humility scale. *Personality and Individual Differences*, 124, 184-193.
- Iyengar, S., & Hahn, K. S. (2009). Red media, blue media: Evidence of ideological selectivity in media use. *Journal of Communication*, 5, 19-39.
- Krumrei-Mancuso, E. J. (2017). Intellectual humility and prosocial values: Direct and mediated effects. *The Journal of Positive Psychology*, 12, 13-28.
- Krumrei-Mancuso, E. J., & Rouse, S. V. (2016). The development and validation of the comprehensive intellectual humility scale. *Journal of Personality Assessment*, 98, 209-221.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108, 480-498.
- Lavelock, C. R., Worthington Jr, E. L., Davis, D. E., Griffin, B. J., Reid, C. A., Hook, J. N., & Van Tongeren, D. R. (2014). The quiet virtue speaks: An intervention to promote humility. *Journal of Psychology and Theology*, 42, 99-110.
- Leary, M. R., Diebels, K. J., Davisson, E. K., Jongman-Sereno, K. P., Isherwood, J. C., Raimi, K. T., ... & Hoyle, R. H. (2017). Cognitive and interpersonal features of intellectual humility. *Personality and Social Psychology Bulletin*, 43, 793-813.
- Lodge, M., & Taber, C. S. (2013). *The rationalizing voter*. Cambridge University Press.
- Meagher, B. R., Leman, J. C., Bias, J. P., Latendresse, S. J., & Rowatt, W. C. (2015). Contrasting self-report and consensus ratings of intellectual humility and arrogance. *Journal of Research in Personality*, 58, 35-45.
- Porter, T., & Schumann, K. (2018). Intellectual humility and openness to the opposing view. *Self and Identity*, 17, 139-162.
- Stanley, M. L., Henne, P., Yang, B. W., & De Brigard, F. (*in press*). Resistance to position change, motivated reasoning, and polarization. *Political Behavior*.
- Stone, D., Heen, S., & Patton, B. (2010). *Difficult conversations: How to discuss what matters most*. Penguin.
- Suhay, E., Blackwell, A., Roche, C., & Bruggeman, L. (2015). Forging bonds and burning bridges: Polarization and incivility in blog discussions about Occupy Wall Street. *American Politics Research*, 43, 643-679.

Taber, C. S., & Lodge, M. (2006). Motivated skepticism in the evaluation of political beliefs. *American Journal of Political Science*, 50, 755-769.

Williams, H. T., McMurray, J. R., Kurz, T., & Lambert, F. H. (2015). Network analysis reveals open forums and echo chambers in social media discussions of climate change. *Global Environmental Change*, 32, 126-138.

Tables

Table 1. Means, SDs, reliabilities, and zero-order correlations in Study 1a.

Issue	Measure	Mean	SD	α	(1)	(2)	(3)
Abortion ($n = 145$)	(1) IH (Leary et al.)	3.87	.65	.84	-		
	(2) Intellectual Capabilities of Opponents	3.09	1.18	.89	-.25**	-	
	(3) Moral Character of Opponents	2.83	1.24	.95	-.30***	.76***	-
	(4) Overall Impression of Opponents	2.34	1.01		.18*	-.39***	-.24**
Concealed Carry ($n = 150$)	(1) IH (Leary et al.)	3.92	.81	.85	-		
	(2) Intellectual Capabilities of Opponents	2.61	1.19	.91	-.37***	-	
	(3) Moral Character of Opponents	2.31	1.13	.92	-.49***	.78***	-
	(4) Overall Impression of Opponents	2.67	.86		.05	-.24***	-.17*

Immigration (<i>n</i> = 148)	(1) IH (Leary et al.)	3.92	.69	.88	-		
	(2) Intellectual Capabilities of Opponents	2.70	1.08	.83	-.31***	-	
	(3) Moral Character of Opponents	2.60	1.14	.90	-.24**	.69***	-
	(4) Overall Impression of Opponents	2.47	.88		.04	-.29***	-.34***

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 2. Results from hierarchical regressions models split by issue in Study 1a with the perceived intellectual capabilities of opponents as the outcome variable.

Issue	Variables	Step 1		Step 2		Step 3	
		<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI	<i>b</i> (SE)	95% CI
Abortion	IH	-.45(.15)**	[-.75, -.16]	-.46(.14)**	[-.74, -.17]	-.45(.14)**	[-.73, -.17]
	Age			-.03(.01)**	[-.04, -.01]	-.02(.01)**	[-.04, .00]
	Gender			.18(.19)	[-.19, .56]	.09(.19)	[-.28, .46]
	Education			.00(.09)	[-.18, .17]	-.03(.08)	[-.20, .14]
	Political Leaning					-.09(.06)	[-.20, .03]
	Party Affiliation					-.55(.25)*	[-1.06, -.05]

Table 3. Results from hierarchical regressions models split by issue in Study 1a with the perceived moral character of opponents as the outcome variable.

Issue	Variables	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Abortion	IH	-.58(.15)***	[-.88,-.27]	-.62(.15)***	[-.92,-.32]	-.60(.15)***	[-.90,-.31]
	Age			-.02(.01)*	[-.04,.00]	-.01(.01)	[-.03,.00]
	Gender			-.20(.20)	[-.60,.19]	-.27(.20)	[-.66,.13]
	Education			-.10(.09)	[-.28,.08]	-.12(.09)	[-.30,.06]
	Political Leaning					-.03(.06)	[-.15,.10]
	Party Affiliation [T. Republican]					-.55(.27)*	[-1.09,-.01]
	Party Affiliation [T. Other]						
	Political Identity					.07(.06)	[-.05,.18]
Concealed Carry	IH	-.68(.10)***	[-.88,-.48]	-.69(.10)***	[-.89,-.49]	-.68(.10)***	[-.88,-.47]
	Age			-.01(.01)	[-.02,.00]	-.01(.01)	[-.02,.00]
	Gender			.11(.17)	[-.23,.44]	.06(.18)	[-.29,.42]
	Education			.05(.08)	[-.10,.20]	.04(.08)	[-.12,.19]
	Political Leaning					.04(.06)	[-.08,.16]
	Party Affiliation [T. Republican]					-.08(.26)	[-.60,.44]
	Party Affiliation [T. Other]					.09(.25)	[-.40,.59]
	Political Identity					.11(.05)*	[.00,.21]
Immigra- tion	IH	-.40(.13)**	[-.66,.13]	-.46(.13)***	[-.72,-.20]	-.47(.13)***	[-.73,-.22]
	Age			-.02(.01)*	[-.03,.00]	-.02(.01)*	[-.03,.00]
	Gender			-.27(.18)	[-.63,.10]	-.30(.17)	[-.65,.04]
	Education			-.09(.08)	[-.25,.08]	-.10(.08)	[-.26,.06]
	Political Leaning					-.12(.06)	[-.24,.00]
	Party Affiliation [T. Republican]					.06(.24)	[-.48,.59]
	Party Affiliation [T. Other]					.01(.24)	[-.48,.49]
	Political Identity					.14(.05)**	[.04,.25]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. The outcome variable in all models is the perceived moral character of opponents. All 95% CIs are around beta-estimates.

Table 4. Means, SDs, reliabilities, and zero-order correlations in Study 2a.

Issue	Measure	Mean	SD	α	(1)	(2)	(3)
Drone Strikes ($n = 145$)	IH (Leary et al.)	3.97	.70	.86	-		
	Intellectual Capabilities of Opponents	2.05	.93	.86	-.25**	-	
	Moral Character of Opponents	2.14	1.04	.92	-.19*	.77***	-
	Overall Impression of Opponents	2.84	.72		.22**	-.40***	-.39***
Fracking ($n = 148$)	IH (Leary et al.)	3.94	.61	.80	-		
	Intellectual Capabilities of Opponents	2.30	.91	.84	-.10	-	
	Moral Character of Opponents	2.23	.97	.91	.04	.69***	-
	Overall Impression of Opponents	2.71	.73		-.08	-.29***	-.31***
Standardized Testing ($n = 150$)	IH (Leary et al.)	3.97	1.08	.83	-		
	Intellectual Capabilities of Opponents	2.06	1.03	.87	-.34***	-	
	Moral Character of Opponents	1.75	.99	.92	-.34***	.79***	-
	Overall Impression of Opponents	2.89	.77		.13	-.17*	.06

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 5. Results from hierarchical regressions models split by issue in Study 1b with the perceived intellectual capabilities of opponents as the outcome variable.

Issue	Variables	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Drone Strikes	IH	-.33(.11)**	[-.54, -.12]	-.36(.11)***	[-.57, -.15]	-.36(.11)**	[-.58, -.14]
	Age			-.01(.01)	[-.03, .00]	-.01(.01)	[-.02, .00]
	Gender			-.08(.15)	[-.38, .21]	-.06(.16)	[-.37, .25]
	Education			-.13(.07)	[-.26, .01]	-.15(.07)*	[-.28, -.01]
	Political Leaning					.00(.06)	[-.12, .12]
	Party Affiliation					-.17(.26)	[-.69, .35]
	[T. Republican]						
	Party Affiliation					-.01(.20)	[-.40, .38]
	[T. Other]						
	Political Identity					.04(.04)	[-.04, .12]
Standardized Testing	IH	-.50(.12)***	[-.73, -.27]	-.49(.12)***	[-.73, -.26]	-.43(.12)***	[-.66, -.19]
	Age			.00(.01)	[-.01, .01]	.00(.01)	[-.02, .01]
	Gender			-.01(.16)	[-.33, .32]	-.08(.16)	[-.40, .24]
	Education			.04(.08)	[-.12, .20]	.00(.08)	[-.16, .16]
	Political Leaning					.14(.06)*	[.02, .26]
	Party Affiliation					-.21(.25)	[-.72, .29]
	[T. Republican]						
	Party Affiliation					.01(.24)	[-.46, .48]
	[T. Other]						
	Political Identity					.08(.05)	[-.01, .18]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. The outcome variable in all models is the perceived intellectual capabilities of opponents. All 95% CIs are around beta-estimates.

Table 6. Results from hierarchical regressions models split by issue in Study 1b with the perceived moral character of opponents as the outcome variable.

Issue	Variables	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Drone Strikes	IH	-.28(.12)*	[-.52, -.04]	-.29(.12)*	[-.53, -.06]	-.35(.12)**	[-.59, -.10]
	Age			-.02(.01)**	[-.03, -.01]	-.02(.01)*	[-.03, .00]
	Gender			-.16(.17)	[-.50, .17]	-.21(.18)	[-.56, .14]
	Education			-.02(.08)	[-.17, .13]	-.06(.08)	[-.21, .10]
	Political Leaning					-.11(.07)	[-.24, .02]
	Party Affiliation [T. Republican]					.10(.30)	[-.49, .68]
	Party Affiliation [T. Other]					.07(.22)	[-.37, .50]
	Political Identity					.03(.05)	[-.07, .12]
Standardized	IH	-.49(.11)***	[-.71, -.27]	-.50(.11)***	[-.72, -.27]	-.44(.11)***	[-.67, -.22]
Testing	Age			-.01(.01)	[-.02, .00]	-.01(.01)	[-.02, .00]

Gender	.11(.15)	[-.19,.42]	.04(.16)	[-.26,.35]
Education	.09(.08)	[-.07,.24]	.05(.08)	[-.10,.21]
Political Leaning			.11(.06)	[-.01,.23]
Party Affiliation			-.21(.24)	[-.69,.27]
[T. Republican]				
Party Affiliation			.01(.23)	[-.44,.46]
[T. Other]				
Political Identity			.08(.04)	[-.01,.17]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. Dependent variable in all models is the perceived moral character of opponents.
All 95% CIs are around beta-estimates.

Table 7. Results from hierarchical regression models split by issue in Study 2a.

Issue	Variables	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Abortion	IH	.37(.13)**	[.11,.63]	.41(.13)**	[.15,.67]	.37(.14)**	[.10,.64]
	Age			.00(.01)	[-.02,.02]	.00(.01)	[-.02,.02]
	Gender			-.12(.19)	[-.50,.26]	-.04(.19)	[-.41,.34]
	Education			-.14(.09)	[-.32,.03]	-.13(.09)	[-.30,.05]
	Political Leaning					.01(.06)	[-.11,.12]

	Party Affiliation					.44(.26)	[-.08,.97]
	[T. Republican]						
	Party Affiliation					.10(.27)	[-.44,.63]
	[T. Other]						
	Political Identity					-.10(.05)	[-.21,.00]
Concealed	IH	.55(.08)***	[.38,.71]	.55(.08)***	[.39,.71]	.56(.08)***	[.39,.72]
Carry	Age			.01(.01)*	[.00,.02]	.01(.01)*	[.00,.02]
	Gender			-.01(.11)	[-.24,.22]	.01(.11)	[-.22,.23]
	Education			-.11(.06)	[-.22,.00]	-.09(.06)	[-.20,.02]
	Political Leaning					.01(.04)	[-.07,.10]
	Party Affiliation					.24(.18)	[-.11,.59]
	[T. Republican]						
	Party Affiliation					-.01(.15)	[-.31,.29]
	[T. Other]						
	Political Identity					-.07(.03)*	[-.14,-.01]
Immigra-	IH	.41(.14)**	[.13,.68]	.41(.14)**	[.13,.68]	.36(.13)**	[.10,.62]
tion	Age			.00(.01)	[-.02,.02]	.01(.01)	[-.01,.02]
	Gender			-.11(.18)	[-.47,.25]	.01(.18)	[-.34,.36]
	Education			-.04(.08)	[-.21,.12]	-.05(.08)	[-.21,.11]
	Political Leaning					.13(.05)*	[.02,.23]
	Party Affiliation					-.10(.25)	[-.61,.40]
	[T. Republican]						
	Party Affiliation					-.13(.23)	[-.59,.33]
	[T. Other]						
	Political Identity					-.17(.05)***	[-.27,-.08]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. The outcome variable in all models is participants' willingness to be friends with political opponents. All 95% CIs are around beta-estimates.

Table 8. Results from hierarchical regression models split by issue in Study 2b.

Issue	Variables	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Drone Strikes	IH	.44(.08)***	[.28,.60]	.47(.08)***	[.31,.62]	.46(.08)***	[.30,.63]
	Age			.01(.00)	[.00,.02]	.01(.00)	[.00,.02]
	Gender			.11(.11)	[-.12,.33]	.13(.12)	[-.10,.36]
	Education			.07(.05)	[-.04,.17]	.08(.05)	[-.03,.19]
	Political Leaning					-.02(.05)	[-.11,.08]
	Party Affiliation [T. Republican]					.31(.21)	[-.09,.72]
	Party Affiliation [T. Other]					.21(.15)	[-.09,.50]
	Political Identity					-.01(.03)	[-.08,.05]
Fracking	IH	.28(.08)***	[.12,.45]	.27(.08)**	[.11,.43]	.26(.08)**	[.10,.43]
	Age			.01(.01)	[.00,.02]	.01(.00)	[.00,.02]
	Gender			-.29(.11)**	[-.51,-.07]	-.27(.11)*	[-.48,-.05]
	Education			-.07(.05)	[-.17,.04]	-.03(.05)	[-.14,.08]
	Political Leaning					.07(.05)	[-.02,.16]
	Party Affiliation [T. Republican]					.11(.21)	[-.31,.52]
	Party Affiliation [T. Other]					-.07(.15)	[-.36,.22]
	Political Identity					-.08(.03)*	[-.14,-.02]
Standardized Testing	IH	.16(.07)*	[.02,.29]	.14(.07)*	[.01,.28]	.14(.07)*	[.00,.29]
	Age			.00(.00)	[-.01,.00]	.00(.00)	[-.01,.00]
	Gender			.09(.09)	[-.08,.27]	.08(.09)	[-.09,.26]
	Education			-.01(.04)	[-.09,.07]	.00(.04)	[-.08,.08]
	Political Leaning					-.11(.04)*	[-.19,-.02]
	Party Affiliation [T. Republican]					.36(.19)	[-.01,.72]
	Party Affiliation [T. Other]					.25(.13)	[-.01,.50]
	Political Identity					.01(.03)	[-.04,.06]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. The outcome variable in all models is participants' willingness to be friends with political opponents. All 95% CIs are around beta-estimates.

Table 9. Means, SDs, reliabilities, and zero-order correlations in Study 3a.

Issue	Mean	SD	α	(1)	(2)	(3)	(4)	(5)
(1) IH (Leary et al.)	3.80	.73	.86	-				
(2) Intellectual Capabilities of Opponent	3.19	1.09	.87	-.25***	-			
(3) Moral Character of Opponent	2.75	1.17	.95	-.15*	.75***	-		
(4) Willingness to Befriend Opponent	2.57	1.30		.28***	-.41***	-.35***	-	
(5) “Friend” on Social Media	2.10	1.22		.17**	-.33***	-.19**	.65***	-
(6) “Follow” on Social Media	1.88	1.14		.13*	-.24***	-.11	.64***	.76***

Note. $N = 281$. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 10. *Results from hierarchical regression models in Study 3a.*

Outcome Variable	Predictors	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Intellectual Capabilities of Opponent	IH	-.38(.09)***	[-.55,-.21]	-.37(.09)***	[-.54,-.20]	-.35(.09)***	[-.52,-.17]
	Age			.00(.01)	[-.01,.01]	-.01(.01)	[-.02,.00]
	Gender			-.24(.13)	[-.49,.01]	-.29(.13)*	[-.55,-.03]
	Education			.06(.06)	[-.05,.17]	.04(.06)	[-.08,.15]
	Political Leaning					.00(.05)	[-.10,.10]
	Party Affiliation [T. Republican]					-.10(.22)	[-.54,.34]
	Party Affiliation [T. Other]					-.03(.20)	[-.41,.36]
	Political Identity					.09(.04)*	[.02,.17]
Moral Character of Opponent	IH	-.23 (.09)*	[-.42,-.05]	-.22(.09)*	[-.41,-.04]	-.19(.09)*	[-.38,-.01]
	Age			-.01(.01)	[-.02,.00]	-.01(.01)	[-.02,.00]
	Gender			-.26(.14)	[-.54,.01]	-.38(.14)**	[-.65,-.11]
	Education			.09(.06)	[-.04,.21]	.03(.06)	[-.09,.15]
	Political Leaning					.03(.05)	[-.07,.13]
	Party Affiliation [T. Republican]					-.52(.24)*	[-.99,-.05]
	Party Affiliation [T. Other]					-.26(.21)	[-.66,.15]
	Political Identity					.17(.04)***	[.09,.25]
Willingness to Befriend Opponent	IH	.50(.10)***	[.29,.70]	.50(.10)***	[.29,.70]	.55(.10)***	[.34,.75]
	Age			.00(.01)	[-.01,.01]	.00(.01)	[-.01,.01]
	Gender			.03(.16)	[-.28,.33]	.04(.15)	[-.26,.34]
	Education			.01(.07)	[-.12,.15]	.02(.07)	[-.12,.15]

	Political Leaning					.25(.06)***	[.13,.36]
	Party Affiliation					-.72(.26)**	[-1.24,-.20]
	[T. Republican]						
	Party Affiliation					-.25(.23)	[-.70,.21]
	[T. Other]						
	Political Identity					-.06(.04)	[-.15,.03]
"Friend"	IH	.28(.10)**	[.09,.48]	.29(.10)**	[.10,.49]	.39(.10)***	[.20,.58]
Opponent on	Age			-.01(.01)	[-.02,.00]	-.01(.01)*	[-.02,.00]
Social Media	Gender			.12(.15)	[-.17,.41]	.08(.14)	[-.20,.36]
	Education			-.04(.07)	[-.17,.09]	-.06(.06)	[-.18,.07]
	Political Leaning					.32(.05)***	[.21,.43]
	Party Affiliation					-1.01(.24)***	[-1.49,-.53]
	[T. Republican]						
	Party Affiliation					-.34(.21)	[-.76,.08]
	[T. Other]						
	Political Identity					.04(.04)	[-.04,.12]
"Follow"	IH	.21(.09)*	[.03,.39]	.23(.09)*	[.05,.41]	.31(.09)***	[.13,.49]
Opponent on	Age			-.02(.01)**	[-.03,.00]	-.02(.01)**	[-.03,-.01]
Social Media	Gender			.19(.14)	[-.08,.46]	.12(.14)	[-.14,.39]
	Education			.06(.06)	[-.06,.18]	.03(.06)	[-.09,.15]
	Political Leaning					.22(.05)***	[.12,.32]
	Party Affiliation					-.80(.23)***	[-1.26,-.34]
	[T. Republican]						
	Party Affiliation					-.42(.20)*	[-.82,-.01]
	[T. Other]						
	Political Identity					.08(.04)	[.00,.15]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. All 95% CIs are around beta-estimates.

Table 11. Means, SDs, reliabilities, and zero-order correlations in Study 3b.

Issue	Mean	SD	α	(1)	(2)	(3)	(4)	(5)
(1) IH (Leary et al.)	3.95	.68	.86	-				
(2) Intellectual Capabilities of Opponent	2.79	1.07	.88	-.12*	-			
(3) Moral Character of Opponent	2.24	1.04	.96	-.25***	.72***	-		
(4) Willingness to Befriend Opponent	3.13	1.13		.23***	-.30***	-.19**	-	
(5) "Friend" on Social Media	2.77	1.20		.15*	-.24***	-.08	.72***	-
(6) "Follow" on Social Media	2.46	1.21		.15**	-.20**	-.03	.65***	.75***

Note. $N = 287$. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 12. *Results from hierarchical regression models in Study 3b.*

Outcome Variable	Predictors	Step 1		Step 2		Step 3	
		<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI	<i>b</i> (<i>SE</i>)	95% CI
Intellectual Capabilities of Opponent	IH	-.20(.09)*	[-.38, -.01]	-.20(.09)*	[-.39, -.02]	-.10(.09)	[-.29, .08]
	Age			.00(.01)	[-.02, .01]	-.01(.01)	[-.02, .00]
	Gender			-.07(.13)	[-.32, .19]	-.08(.12)	[-.32, .17]
	Education			.10(.06)	[-.02, .22]	.07(.06)	[-.05, .19]
	Political Leaning					.15(.05)**	[.05, .24]
	Party Affiliation					.00(.22)	[-.44, .43]

	[T. Republican]						
	Party Affiliation					-.14(.18)	[-.49,.22]
	[T. Other]						
	Political Identity					.06(.04)	[-.02,.13]
Moral	IH	-.38(.09)***	[-.55,-.20]	-.36(.09)***	[-.54,-.19]	-.26(.09)**	[-.43,-.09]
Character of	Age			.00(.01)	[-.01,.01]	.00(.00)	[-.01,.01]
Opponent	Gender			-.05(.12)	[-.29,.19]	-.08(.11)	[-.31,.14]
	Education			.07(.06)	[-.05,.18]	.00(.06)	[-.11,.11]
	Political Leaning					.21(.04)***	[.12,.29]
	Party Affiliation					-.26(.20)	[-.65,.13]
	[T. Republican]						
	Party Affiliation					-.31(.17)	[-.64,.01]
	[T. Other]						
	Political Identity					.11(.03)**	[.04,.17]
Willingness	IH	.38(.10)***	[.19,.57]	.38(.10)***	[.19,.57]	.41(.10)***	[-.22,.61]
to Befriend	Age			.00(.01)	[-.01,.01]	.00(.01)	[-.01,.01]
Opponent	Gender			.11(.13)	[-.16,.37]	.10(.13)	[-.16,.36]
	Education			.07(.06)	[-.06,.19]	.04(.07)	[-.09,.17]
	Political Leaning					.05(.05)	[-.05,.15]
	Party Affiliation					.00(.23)	[-.46,.46]
	[T. Republican]						
	Party Affiliation					.12(.19)	[-.26,.50]
	[T. Other]						
	Political Identity					.09(.04)*	[-.02,.17]
"Friend"	IH	.27(.10)*	[.06,.47]	.26(.10)*	[.06,.47]	.34(.10)**	[.14,.55]
Opponent on	Age			-.01(.01)	[-.02,.01]	-.01(.01)	[-.02,.01]
Social Media	Gender			.17(.14)	[-.11,.45]	.16(.14)	[-.12,.43]
	Education			-.02(.07)	[-.15,.11]	-.08(.07)	[-.21,.06]
	Political Leaning					.12(.05)*	[.02,.23]
	Party Affiliation					-.08(.25)	[-.56,.41]
	[T. Republican]						
	Party Affiliation					.01(.20)	[-.39,.41]
	[T. Other]						
	Political Identity					.13(.04)**	[.05,.21]
"Follow"	IH	.28(.10)**	[.07,.48]	.27(.11)*	[.06,.48]	.35(.11)**	[.14,.55]
Opponent on	Age			-.01(.01)	[-.02,.01]	-.01(.01)	[-.02,.01]
Social Media	Gender			.12(.14)	[-.17,.41]	.10(.14)	[-.17,.38]
	Education			.00(.07)	[-.13,.14]	-.06(.07)	[-.20,.08]

Political Leaning	.13(.05)*	[.02,.23]
Party Affiliation	-.12(.25)	[-.61,.37]
[T. Republican]		
Party Affiliation	-.02(.21)	[-.43,.38]
[T. Other]		
Political Identity	.14(.04)***	[.06,.22]

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. All 95% CIs are around beta-estimates.