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Disliked but free to speak:

**Cognitive ability is related to supporting freedom of speech for groups across the
ideological spectrum**

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Abstract

Freedom of speech for all citizens is often considered as a cornerstone of democratic societies. In three studies, we examined the relationship between cognitive ability and support for freedom of speech for a variety of social groups across the ideological spectrum (N_1 varies between 1373 and 18719, $N_2 = 298$, $N_3 = 395$). Corroborating our theoretical expectations, although cognitive ability was related to more affective prejudice towards relatively conservative groups, and less affective prejudice towards relatively liberal groups (Study 2), people with higher levels of cognitive ability were more in favor of freedom of speech for *all* target groups (Study 1 – 3). The relationship between cognitive ability and freedom of speech support was mediated by intellectual humility (pre-registered Study 3). These results indicate that, cognitive ability contributes to support for the democratic right of freedom of speech for all social-ideological groups.

Keywords: Freedom of Speech; Cognitive ability; Intellectual Humility; Prejudice; Intergroup attitudes

The present series of studies investigates the support for freedom of speech - a fundamental right in democratic societies that is protected by both national (e.g. US Constitution) and international (e.g. UN General Assembly, 1948) law. In many countries, people attach great value to freedom of speech (Pew Research Center, 2019), and it is often described as key to a well-functioning democracy. However, calling upon freedom of speech rights can be used strategically, such as when there is a tension between protecting freedom of speech and protecting people from prejudiced discourse (White & Crandall, 2017). For example, in the context of hate speech, Roussos and Dovidio (2018) showed that people holding anti-black bias were more likely to consider hurtful acts targeting Black people as protected by free-speech rights. Similarly, White and Crandall (2017) demonstrated that racial prejudice is a reliable predictor of the “free speech defense” of racist expression, but not of free speech in general. As such, recent research on freedom of speech support has often focused on group-specific reasons and beliefs about whether freedom of speech of particular groups should be promoted or curbed. However, in the present research, we aimed for a broader perspective by examining cognitive ability as a general predictor of support for freedom of speech for a wide variety of social groups.

Over the past decades, cognitive ability has been demonstrated to play an important role in a broad range of social phenomena, including social judgments. Notably, a recent meta-analysis by Onraet et al. (2015), spanning more than sixty years of empirical research, revealed a negative association between cognitive ability and prejudice. However, using a large, representative US sample, Brandt and Crawford (2016) demonstrated that higher cognitive ability was indeed related to less affective prejudice towards the traditionally studied groups (replicating the meta-analytic results of Onraet et al. 2015), but also to *more* affective prejudice towards conservative groups like Christian fundamentalists and the military, leading them to conclude that: “*people with both relatively higher and lower levels*

of cognitive ability show approximately equal levels of intergroup bias but toward different sets of groups” (p. 884).

These findings raise the question about how cognitive ability is related to support for freedom of speech for groups *across* the ideological spectrum. Does this relationship mimic the group-dependent relationship between cognitive ability and affective prejudice? Or is cognitive ability associated with support for freedom of speech across the ideological spectrum, even for disliked ideological groups? We expect the latter to be true. Indeed, although people with higher (versus lower) cognitive abilities may relatively dislike certain conservative groups (as per Brand and Crawford, 2016), we argue that they are also more appreciative of the virtues of open debates with a free flow of information, divergent ideas, and criticism, to foster knowledge and informed decision making. Indeed, cognitive ability is positively related to intellectual humility (Zmigrod, Zmigord, Rentfrow, & Robbins, 2019). Intellectual humility is defined by a person’s independence of intellect and ego, openness to revising one’s viewpoint, respect for others’ viewpoints, and a lack of intellectual overconfidence, and is therefore argued to promote human thriving through tolerance of other’s ideas, collaboration, and civil discourse (Krumrei-Mancuso & Rouse, 2016). Indeed, people with higher levels of intellectual humility are less inclined be judgmental of people with whom they disagree (Leary et al. 2017). Hence, if people high in cognitive ability show more genuine openness and respect for other viewpoints compared to people lower in cognitive ability, they should display an overall stronger support for any group to exercise its freedom of speech. Therefore, as the key hypothesis of this research, we expected a positive association between cognitive ability and tolerance towards all groups, *both* relatively liberal and conservative, to express and disseminate their ideas in society.

Study 1

We analyzed 21 waves of data from the General Social Survey, collected between 1974 and 2018 in the US, to examine the relationship between cognitive ability and attitudes towards freedom of speech for various social groups across the ideological spectrum.

Method

Sample.

The General Social Survey (GSS; Smith, Davern, Freese, & Morgan, 2019) is the largest national public opinion survey of the US (Caplan & Miller, 2010). The data are collected by the National Opinion Research Centre at the University of Chicago. Since 1972, thirty-two (cross-sectional) waves of data have been collected. To maximize the robustness of our findings, we included all waves in our analyses that included measures for both cognitive ability and attitudes towards freedom of speech for at least one specific social group. The sample size varied between $N = 1,373$ and $N = 18,719$, depending on the specific social group, and is presented in Table 1. A power sensitivity test demonstrated that our smallest sample had 80% power to detect standardized odds ratios > 1.20 or < 0.83 .

Measures.

Cognitive ability. In all retained waves of GSS, a vocabulary test (i.e., Wordsum) was included as a measure of cognitive ability. In this test, participants are presented with ten target words, and each target word is accompanied by a lists of five words. Participants are instructed to select a word from the list with a meaning closest to the target word. For all reported analyses, Cronbach's α varied between .62 and .72, and the mean of correct answers varied between 5.98 ($SD = 2.11$) and 6.06 ($SD = 2.21$). Since it has repeatedly been demonstrated that vocabulary knowledge is highly related to general intelligence (e.g. Pearson, 2012), many investigations, including the Brandt and Crawford (2016) study that advanced the affective bias symmetry hypothesis, have used the number of correct answers on

this specific test as a proxy of cognitive ability or intelligence (see also e.g., Caplan & Miller, 2010; De keersmaecker & Roets, 2017).

Freedom of speech. We identified three types of questions in the GSS that tap into attitudes towards freedom of speech for seven different social groups.¹ Participants were presented with these social groups, and were asked for each social group: a) whether or not a member of this social group should be allowed to speak in the participant's community, b) whether or not a member of this social group should be allowed to teach in a college or university, and c) whether or not a book that favors the ideas of this social group should be allowed in the library. Participants answered all questions dichotomously. For waves that also included a measure of cognitive ability, the following social groups were included in the GSS: two groups that are generally perceived as politically conservative: racists (20 waves between 1976 and 2018) and militarists (20 waves between 1976 and 2018), and four groups that are generally perceived as politically liberal: homosexuals (21 waves between 1974 and 2018), socialists (1 wave in 1974), anti-religionists (21 waves between 1974 and 2018) and communists (21 waves between 1974 and 2018). Finally, six waves (between 2008 and 2018) also included Muslim clergymen who preach hatred of the US.

All verbatim questions and data are available at <https://osf.io/w3knb/>.

Results

The relationships between cognitive ability and attitudes towards freedom of speech for racists, militarists, homosexuals, anti-religionists and communists were examined through Generalized Linear Mixed Modelling. In each model, we included a fixed effect of cognitive ability, and a random intercept for time of measurement. Models with a random slope for cognitive ability yielded virtually identical results, but did not converge for some

¹This study thereby goes well beyond Carl's (2014) analysis of cognitive ability and 'social liberal beliefs' which included one item for three selected groups as part of a broader set of items.

groups because the cognitive ability – outcome association was highly stable across years. The simultaneous inclusion of both cognitive ability and attitudes towards freedom of speech for socialists was limited to only one wave, and the relationship between cognitive ability and attitudes towards freedom of speech of anti-American Muslim clergymen was too similar across years to converge a model with a random effect of year. Therefore, attitudes towards freedom of speech for socialists and for anti-American Muslim clergymen were examined using Logistic Regression Modelling (without the random effect of time of measurement). Analyses were conducted with the `Lmer4` (Bates, Maechler, Bolker, & Walker, 2015) and `LmerTest` (Kuznetsova, Brockhoff, & Christensen, 2017) packages in *R*.

The odds ratio's (OR) of the analyses for all target groups are reported in Table 1. All variables were (re)coded as such that an $OR < 1$ indicates that higher levels of cognitive ability are related to weaker support for free speech, whereas $OR > 1$ indicates that higher levels of cognitive ability are related to stronger support for free speech. Table 1 represents the overall results across years. The results revealed that, when participants' levels of cognitive ability increase, the odds for allowing members of a particular social group to give a speech in the community, for allowing books that favor the ideas of the social group in the library, and for allowing members of the social group to teach, significantly increase, and this is the case for *every* specific target group. All OR were significant at $p < .001$. The LogOdds, *S.E.*, *Z*-scores, and random effects of year (if applicable) of these analyses are available on OSF. Moreover, as illustrated by Panel A and Panel B of Figure 1, the relationships between cognitive ability and supporting free speech were stable across years: Panel A represents the detailed results by year for the relationship between cognitive ability and allowing militarists to speak, whereas Panel B represents the relationship by year between cognitive ability and allowing anti-religionists to speak. Separate results for each year and each group on all individual outcome measures are available at OSF.

Table 1. Results of Study 1.

Target group	Allowing to speak		Allowing books in library		Allowing to teach	
	OR [95% CI]	N	OR [95% CI]	N	OR [95% CI]	N
Racists	1.233 [1.214, 1.252]	17155	1.261 [1.241, 1.281]	16967	1.158 [1.141, 1.176]	16895
Militarists	1.297 [1.276, 1.318]	17138	1.338 [1.316, 1.360]	16992	1.218 [1.199, 1.237]	16803
Homosexuals	1.402 [1.376, 1.428]	18422	1.347 [1.325, 1.370]	18401	1.338 [1.315, 1.361]	18314
Socialists	1.270 [1.194, 1.351]	1401	1.338 [1.260, 1.421]	1381	1.177 [1.118, 1.238]	1373
Anti-religionists	1.374 [1.351, 1.397]	18719	1.356 [1.334, 1.378]	18463	1.271 [1.252, 1.290]	18269
Communists	1.402 [1.379, 1.426]	18429	1.399 [1.376, 1.423]	18298	1.264 [1.245, 1.284]	17850
Anti-US Muslim clergy	1.396 [1.347, 1.447]	4298	1.412 [1.363, 1.464]	4303	1.356 [1.307, 1.408]	4275

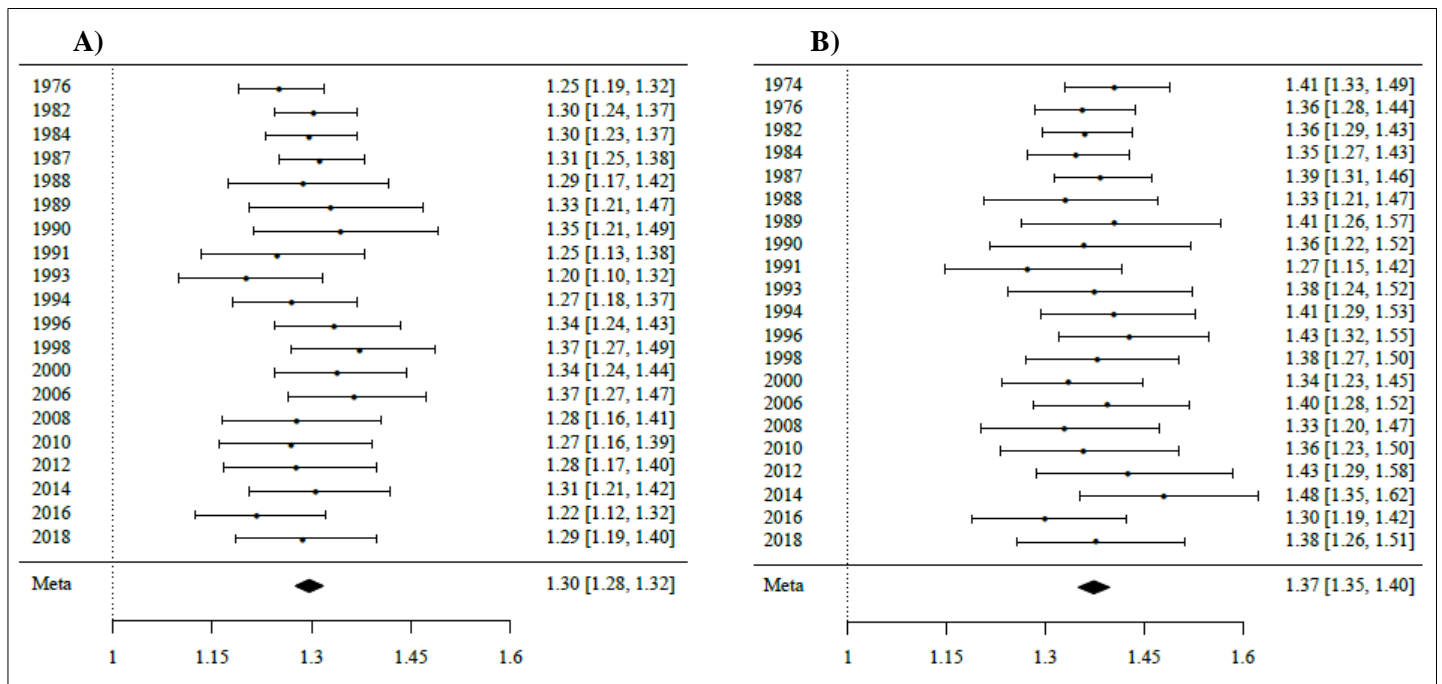


Figure 1. Detailed results by year for the relationship between cognitive ability and allowing militarists to speak (Panel A), and allowing anti-religionists to speak (Panel B), with 95% confidence intervals.

Study 2

Study 1 provided support for our hypothesis that cognitive ability is positively related to support for freedom of speech for various groups across the ideological spectrum. However, given that the GSS includes a greater number of presumably relatively ‘liberal’ groups than ‘conservative’ groups, we conducted a second study to examine the association between cognitive ability and freedom of speech with a more balanced set of social groups, adding the ‘conservative’ groups for which Brandt & Crawford (2016) reported the strongest positive associations between cognitive ability and affective prejudice: Christian fundamentalists, members of the big business industry, and the Tea Party. Additionally, we included measures of affective prejudice to confirm Brandt & Crawford’s (2016) observation that cognitive ability is indeed related to more prejudice towards conservative groups, and to less prejudice towards liberal groups.

Method

Participants. To obtain a power of $> .90$ to detect effects of $r = .20$, three-hundred US citizens whose native language is English were requested on Amazon Mechanical Turk. Two hundred ninety-eight participants completed the study ($M_{age} = 39.59$ years, $SD_{age} = 12.03$, 51.0% female, 49.0% male). Of the participants, 0.7% indicated grade school or less as their highest obtained degree, 11.1 % indicated high school, 30.6% indicated to attended some college (13 grades or more but no degree), and 57.6% indicated to have obtained a college or advanced degree. Furthermore, 80.2% identified as White, 7.4% as Black, 5.4% as Asian or Pacific Islander, 0.3% as American Indian or Alaska Native, 1.7% as Hispanic, and 4.7% as ‘other’ or identification with multiple groups.

Procedure and measures. After completion of the demographic variables, and the same measure of cognitive ability as in Study 1 ($M = 7.01$, $SD = 1.79$, Cronbach’s $\alpha = .64$), participants were presented with the following social groups: 1) racists, 2) Christian

fundamentalists, 3) people who belong to the big business industry, 4) members of the Tea Party, 5) militarists, 6) socialists, 7) homosexuals, 8) anti-religionists, 9) communists, and 10) anti-American Muslim clergymen. Each social group was accompanied by the following description and questions (adapted from GSS): “There are always some people whose ideas are not shared by other people. For example, [social group] with very outspoken ideas. 1) If such a person wanted to make a speech in your city/town/community about his/her ideas, should (s)he be allowed to speak, or not? 2) Should such a person be allowed to teach in a college or university, or not? 3) If such a person wrote a book about his/her ideas, should it be allowed in the public library of your community, or not?” All questions were answered on 5 point Likert scales (1= absolutely not allowed, 5 = absolutely allowed), and for each social group responses were combined into an internally consistent scale (see Table 2).

Next, we also measured affective prejudice using Brandt & Crawford’s (2016) procedure. Participants rated the 10 social groups on feeling thermometers ranging from 0 = unfavorably and cold, to 100 = favorably and warm. Similar to Brandt and Crawford (2016), responses were recoded so that higher scores indicate more affective prejudice (see Table 2).

Thereafter, participants were again presented with the social groups, and were asked to indicate how they perceive the overall ideological position of each social group on 7-point Likert scales (1 = Strongly liberal, 7 = Strongly conservative) (See Table 2). These additional items served to check whether, and to what degree, the particular groups were indeed perceived as ‘liberal’ or ‘conservative’. Finally, participants also reported their own ideological position on a 7-point Likert scale (1 = very liberal to 7 = very conservative; $M = 3.55$, $SD = 1.86$).

All verbatim questions, correlation tables with all variables, and data are available at OSF.

Results

Main analyses. As reported in Table 2, perceptions of the social groups included in our study ranged from being strongly liberal to strongly conservative. Replicating the results of Brandt and Crawford (2016), cognitive ability was associated with less affective prejudice towards social groups that are perceived as liberal, (i.e., socialists, homosexuals, and anti-religionist), whereas cognitive ability was associated with more affective prejudice towards social groups that are perceived a conservative (i.e., militarists, people who belong to the big business industry, members of the Tea Party, and Christian fundamentalists). Notably, cognitive ability was not significantly related to affective prejudice towards the social groups who received the highest levels of affective prejudice in general while also being perceived as not particularly liberal or conservative (i.e. communists, anti-American Muslim clergymen, and racists). Because these groups were generally (very) disliked, ceiling effects may explain the lack of significant relationships between cognitive ability and prejudice towards these groups.

Most importantly and similar to Study 1, cognitive ability was positively related to supporting the freedom of speech for *each* social group. That is, irrespective of the perceived ideological position (liberal-conservative) of the social group, and even for social groups that are the targets of more affective prejudice by people with relatively higher levels of cognitive ability, cognitive ability was positively related to supporting their freedom of speech.

Controlling for gender, ethnicity, and education did not meaningfully alter the associations between cognitive ability and support for freedom of speech. Also controlling for participants' ideology (separately or in addition to the demographic variables) did not meaningfully affect the associations. Partial correlations can be found at OSF.

Table 2. Results of Study 2.

Target group	Ideol. pos	Prejudice	FOS		CA - prejudice		CA - FOS	
	Mean (SD)	Mean (SD)	Cr. α	Mean (SD)	r [95% CI]	p	r [95% CI]	p
Socialists	2.01 (1.43)	54.54 (31.04)	.85	4.07 (0.96)	-.17 [-.28, -.05]	.004	.28 [.17, .39]	<.001
Homosexuals	2.09 (1.34)	31.82 (29.64)	.93	4.43 (0.89)	-.21 [-.33, -.10]	<.001	.31 [.20, .42]	<.001
Anti-religionists	2.51 (1.59)	53.59 (32.23)	.92	4.12 (1.11)	-.18 [-.29, -.07]	.002	.34 [.23, .44]	<.001
Communists	3.20 (2.01)	78.42 (24.12)	.88	3.62 (1.22)	-.10 [-.22, .01]	.075	.34 [.23, .45]	<.001
A.A. Musl. Clergy	4.34 (2.03)	88.99 (19.77)	.87	2.86 (1.37)	.08 [-.03, .20]	.161	.23 [.12, .34]	<.001
Racists	5.32 (1.84)	94.73 (11.95)	.83	3.01 (1.29)	.06 [-.05, .18]	.271	.20 [.09, .32]	<.001
Military	5.32 (1.18)	40.95 (32.21)	.85	3.71 (1.11)	.14 [.03, .25]	.014	.13 [.02, .25]	.022
Big Business	5.33 (1.57)	57.57 (28.05)	.86	4.28 (0.86)	.22 [.11, .33]	<.001	.20 [.08, .31]	.001
Tea Party	5.64 (1.59)	68.90 (28.40)	.87	3.97 (1.04)	.13 [.02, .25]	.023	.15 [.04, .27]	.009
Christ.Fund.	6.28 (1.37)	62.06 (31.69)	.83	3.79 (1.07)	.25 [.13, .36]	<.001	.13 [.02, .25]	.020

Perceived ideological position (Ideol. Pos), affective prejudice, support for freedom of speech (FOS), correlations between cognitive ability (CA) and affective prejudice, and correlations between cognitive ability and support for freedom of speech.

Additional analyses. Although positive relations between cognitive ability and freedom of speech were found for all groups, it may be interesting to explore whether the perceived ideology of the groups affected the magnitude of the relationships under study. Therefore, we ran a linear mixed model with random intercept for participants, with freedom of speech support as the outcome, and with centered versions of cognitive ability, average perceived outgroup ideology, and their interaction as predictors. Results revealed that in addition to the effect of cognitive ability ($\beta = .21, p < .001$) and perceived ideology of the target group ($\beta = -.14, p < .001$), a small, but significant interaction emerged ($\beta = -.05, p < .001$). Hence, although the relationship between cognitive ability and freedom of speech support was positive and significant for all groups (see Table 2), it was more pronounced for more liberal groups compared to more conservative groups.

Finally, to explore the potential moderating role of participant's own ideology, we ran a linear mixed model with random intercepts for participants and target groups, with freedom of speech support as the outcome, and with centered versions of cognitive ability, participants' ideology, and their interaction as predictors. This analysis revealed that cognitive

ability ($\beta = .25, p < .001$) and participants ideology ($\beta = .14, p < .001$) did not interact ($\beta = -.06, p = .085$) on supporting freedom of speech.

Study 3

Study 2 showed that although higher cognitive ability is related to less affective prejudice towards liberal groups, and more affective prejudice towards conservative groups (corroborating Brandt & Crawford, 2016), cognitive ability was related to supporting freedom of speech for all included social groups, thereby replicating the findings from Study 1. To further test the robustness of these relationships, we conducted a third, pre-registered study, in which we also tested whether the associations between cognitive ability and freedom of speech support are mediated by intellectual humility. (Pre-registration: <https://osf.io/9w5vp/>)

Method

Participants. Power analysis revealed that, under the assumption that the independent variable (i.e. cognitive ability), mediator (i.e. intellectual humility), and outcome (supporting free speech) are interrelated at $r = .15$, 450 participants would provide a power of .80 to detect indirect effects. To anticipate a dropout of 10%, we requested 495 participants who lived in the US and whose native language is English on Mturk. A total of 515 participants started the study, and 495 completed the full study ($M_{age} = 38.23$ years, $SD = 11.66$; 51.5% female, 47.9% male, 0.6% non-binary). As pre-registered, these ‘additional participants’ were included in the analyses. Of the participants, 0.2% indicated grade school or less as highest degree, 8.7% indicated high school, 28.8% indicated to have attended some college (13 grades or more but no degree), and 62.0% indicated to have obtained a college or advanced degree. In the sample, 77.4% identified as White, 9.3% as Black, 4.6% as Asian or Pacific Islander, 0.4% as American Indian or Alaska Native, 3.6% as Hispanic, and 4.2% as ‘other’ or identification with multiple groups.

Procedure and measures. After responding to demographic questions, participants completed a (verbal) cognitive ability measure, i.e. the Ammons Quick Test (Ammons & Ammons, 1962). This test is more elaborate than the basic verbal ability test in Study 1 and 2, hence also serving to demonstrate the robustness of the results. Participants are presented with 4 pictures and 50 words, and are instructed to assign each word to one of the pictures (see e.g. De keersmaecker et al. 2019, and Hall, Holton, Öngür, Montrose, & Keshavan, 2019 for recent uses of the test). The amount of correct answers is used as an index for cognitive ability ($M = 39.56$, $SD = 6.44$, Cronbach's $\alpha = .89$). Next, on 5-point Likert scales, participants completed Krumrei-Mancuso and Rouse's (2016) 22-item Comprehensive Intellectual Humility Scale ($M = 3.67$, $SD = 0.59$, Cronbach's $\alpha = .91$), and the same measures for support for freedom of speech as in Study 2. Finally, participants indicated their political position on a 7-point Likert scale (1 = very liberal to 7 = very conservative; $M = 3.54$, $SD = 1.77$).

Correlation tables with all variables, and all data are available at OSF.

Results

Main analyses. We pre-registered two hypotheses. Hypothesis 1: Cognitive ability is positively related to supporting freedom of speech for all included target groups (i.e. total effect). Hypothesis 2: The predicted positive association between cognitive ability and supporting freedom of speech is mediated by Intellectual Humility (i.e. indirect effect). Using the Lavaan package (Version 0.5-23; Rosseel, 2012) in *R*, attitudes towards supporting freedom of speech for each target group was examined with a path model on the observed scores in which cognitive ability was included as an independent variable, and intellectual humility as a mediator. Standard errors were calculated using bootstrap analyses (1000 bootstrap samples). Table 3 presents the results of these analyses (standardized coefficients). As predicted, and similar to Study 1 and Study 2, for all target groups, a significantly positive association emerged between cognitive ability and support for freedom of speech (total

effect). Moreover, each association between cognitive ability and supporting free speech was significantly mediated by intellectual humility (indirect effect).

Controlling for gender, ethnicity, and education did not meaningfully alter the relationships between cognitive ability and support for freedom of speech, nor the mediation role of intellectual humility. Also controlling for participants' ideology (separately or in addition to the demographic variables) did not meaningfully alter the results, which can be found at OSF.

Table 3. Results of Study 3

Target group	Cr. α	FOS		Total effect		Direct effect		Indirect effect	
		Mean (SD)	β [95% CI]	p	β [95% CI]	p	β [95% CI]	p	
Socialists	.91	3.89 (1.06)	.31 [.24, .40]	<.001	.24 [.16, .33]	<.001	.08 [.05, .11]	<.001	
Homosexuals	.96	4.26 (1.07)	.32 [.24, .40]	<.001	.21 [.14, .30]	<.001	.10 [.07, .14]	<.001	
Anti-religionists	.95	3.94 (1.15)	.32 [.24, .40]	<.001	.22 [.15, .31]	<.001	.10 [.06, .13]	<.001	
Communists	.92	3.44 (1.29)	.31 [.23, .42]	<.001	.24 [.15, .34]	<.001	.07 [.04, .10]	<.001	
A.A. Musl. Clergy	.89	2.75 (1.32)	.14 [.06, .23]	.002	.07 [-.02, .16]	.142	.07 [.04, .10]	<.001	
Racists	.87	2.78 (1.28)	.12 [.04, .23]	.014	.06 [-.03, .17]	.257	.06 [.03, .10]	<.001	
Military	.90	3.53 (1.14)	.15 [.07, .23]	<.001	.07 [-.02, .15]	.111	.08 [.05, .12]	<.001	
Big Business	.91	4.07 (0.97)	.25 [.16, .34]	<.001	.18 [.09, .27]	<.001	.08 [.04, .11]	<.001	
Tea Party	.90	3.76 (1.07)	.21 [.13, .29]	<.001	.12 [.05, .21]	.003	.09 [.05, .13]	<.001	
Christ.Fund.	.87	3.70 (1.05)	.17 [.09, .26]	<.001	.11 [.02, .20]	.018	.06 [.03, .10]	<.001	

Support for freedom of speech, total effect of cognitive ability on support for freedom speech, the direct effect, and the indirect effect via intellectual humility (IH).

Additional analyses. In addition to our two pre-registered main hypotheses, we also pre-registered secondary analyses in which we explore the mediating role of the different facet scales of intellectual humility. Based on the correlation pattern between cognitive ability and the facet scales of intellectual humility previously revealed by Zmigrod et al. (2019), we expected that especially ‘openness to revising one’s viewpoint’ and ‘respect for other’s viewpoints’ would mediate the relationship between cognitive ability and support for free speech. These secondary analyses confirmed that these two facet scales, together with ‘independence of intellect and ego’ drove the mediating role of intellectual humility (see OSF).

Finally, we ran the two linear mixed models identical to those described in Study 2, to examine the moderating role of ideology.² These analyses yielded results that replicated those of Study 2. First, in addition to the effect of cognitive ability ($\beta = .21, p < .001$) and target groups' ideology ($\beta = -.14, p < .001$) on supporting freedom of speech, a small but significant interaction ($\beta = -.06, p < .001$) indicated that the association between cognitive ability and supporting freedom of speech was more pronounced for relatively liberal target groups compared conservative groups. Secondly, cognitive ability ($\beta = .21, p < .001$) and participants' ideology ($\beta = .02, p = .471$) did not interact ($\beta = .02, p = .504$) on support for freedom of speech.

Discussion

In a series of three studies, we examined the relationship between cognitive ability and attitudes towards a cornerstone of democratic societies: the freedom of speech for every citizen, irrespective of his or her ideological attitudes and beliefs. Data from the 21 waves of the GSS (1974 – 2018), as well as two additional studies that included an even greater variety of target groups, showed that cognitive ability is positively related to more support for freedom of speech for social groups across the ideological spectrum. Hence, individuals with higher cognitive abilities also advocate freedom of speech for the groups they dislike. In line with our theorizing, the pre-registered third study revealed that these associations are mediated by intellectual humility.

By identifying cognitive ability as a general predictor of free speech support across a wide array of ideological target groups, the present research complements previous work that identified specific mechanisms underlying free speech support towards specific outgroups. For example, Roussos & Dovidio (2018) demonstrated that the application of free speech

²The moderation analyses in both Study 2 and Study 3 were based on suggestions by the reviewers, and were therefore not pre-registered. The perceived ideological position of the target groups scores were derived from Study 2.

rights might in some circumstances be used as a strategic mean to permit the expression of prejudice in society (see also, White & Crandall, 2017). Indeed, in addition to cognitive ability as a general predictor of supporting free speech, specific mechanisms can additionally underlie free speech support for particular target groups. Such target specific mechanisms may explain why the association between cognitive ability and freedom of speech support for relatively liberal groups was somewhat more pronounced than for relatively conservative groups. As target groups may differ on many specific characteristics, such as the extent to which they are perceived to be marginalized or to disseminate hate in society, the consideration of both general and target group specific mechanisms seems warranted for a more complete understanding for why and when people support freedom of speech.

The present contribution does not invalidate Brandt & Crawford's (2016) observation that cognitive ability is related to more affective prejudice towards relatively conservative groups, and less affective prejudice towards relatively liberal groups. Indeed, this particular finding was replicated in Study 2. However, the present research provides a more detailed perspective on the relationship between cognitive ability and attitudes towards social groups, demonstrating that such a 'mirrored pattern' of relationships between cognitive ability and affective prejudice towards target groups across the ideological spectrum cannot be generalized to attitudes about their fundamental democratic right to freedom of speech.

The present investigation has some potential limitations. First, all studies relied on US samples, a context where freedom of speech is highly valued. It may, for example, be possible that the strength of the relationship between cognitive ability and support for freedom of speech is affected by the overall level of support for freedom of speech in a given country. Therefore, it may be warranted to test the generalizability of the effect in other socio-political contexts, with possibly other ideological groups. Furthermore, the measures of cognitive ability in the samples of the GSS as well as in Study 2 were brief, and although commonly

used in scientific research, their internal consistency was only passable. All results were replicated with another, more internally consistent measure of cognitive ability in Study 3, but future research may want to consider using more elaborate measures of cognitive ability. Finally, as most research on cognitive ability, the present investigation relied on correlation data, and we cannot rule out the potential role of third variables. Furthermore, the mediating role of intellectual humility was examined using a bootstrapping method, and it may be warranted in future research to further corroborate this effect in designs that manipulate the mediator (Spencer, Zanna, & Fong, 2005). Nevertheless, we believe that the present results are especially compelling because the positive relationship between cognitive ability and freedom of speech support for both relatively liberal and conservative groups was consistently found in representative samples covering a period of more than 40 years, as well as in additional, new samples including a wide variety of target groups, and with two different measures of cognitive ability.

Hence, although rather strongly formulated, the famous words of Evelyn Beatrice Hall in *The Friends of Voltaire* (Tallentyre, 1906, p. 199) seem to represent a philosophy particularly embraced among individuals with higher cognitive abilities: *“I disapprove of what you say, but I will defend to the death your right to say it”*.

References

- Ammons, R. B., & Ammons, C. H. (1962). Quick Test. Oxford, England: Psychological Test Specialists.
- Bates, D., Maechler, M., Bolker, B., Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67, 1-48.
- Brandt, M. J., & Crawford, J. T. (2016). Answering unresolved questions about the relationship between cognitive ability and prejudice. *Social Psychological and Personality Science*, 7, 884-892.
- Caplan, B., & Miller, S. C. (2010). Intelligence makes people think like economists: Evidence from the General Social Survey. *Intelligence*, 38, 636-647.
- Carl, N. (2014). Verbal intelligence is correlated with socially and economically liberal beliefs. *Intelligence*, 44, 142-148.
- De keersmaecker, J., Dunning, D., Pennycook, G., Rand, D. G, Sanchez, C., Unkelbach, C., & Roets, A. (2019). Investigating the robustness of the illusory truth effect across individual differences in cognitive ability, need for cognitive closure, and cognitive style. *Personality and Social Psychology Bulletin*. Advance online publication. doi: 10.1177/0146167219853844
- De keersmaecker, J. & Roets, A. (2017). 'Fake news': Incorrect, but hard to correct. The role of cognitive ability on the impact of false information on social impressions. *Intelligence*, 65, 107-110.

- Hall, M. H., Holton, K. M., Öngür, D., Montrose, D., & Keshavan, M. S. (2019). Longitudinal trajectory of early functional recovery in patients with first episode psychosis. *Schizophrenia Research*, 209, 234-244.
- 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.
- Kuznetsova, A., Brockhoff, P.B., & Christensen R.H.B. (2017) lmerTest Package: Tests in Linear Mixed Effects Models. *Journal of Statistical Software*, 82, 1-26.
- 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.
- Onraet, E., Van Hiel, A., Dhont, K., Hodson, G., Schittekatte, M., & De Pauw, S. (2015). The association of cognitive ability with right-wing ideological attitudes and prejudice: a meta-analytical review. *European Journal of Personality*, 29, 599–621.
- Pearson. (2012). *WAIS-IV-NL: Technische Handleiding* [Dutch WAIS: Technical Manual]. Enschede: Printpartners Ipskamp.
- Pew Research Center (2019). European public opinion three decades after the fall of communism. Retrieved from <https://www.pewresearch.org>.
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48, 1-36.

Roussos, G., & Dovidio, J. F. (2018). Hate speech is in the eye of the beholder: the influence of racial attitudes and freedom of speech beliefs on perceptions of racially motivated threats of violence. *Social Psychological and Personality Science*, 9, 176-185.

Smith, T. W., Davern, M., Freese, J., & Morgan, S. L. (2019) *General Social Surveys, 1972-2018*. [machine-readable data file]. Principal Investigator, Tom W. Smith; Co-Principal Investigators, Michael Davern, Jeremy Freese and Stephen L. Morgan, NORC ed. Chicago: NORC, 2019. 1 data file (64,814 logical records) and 1 codebook (3,758 pp).

Spencer, S.J., Zanna, M.P., & Fong, G.T. (2005). Establishing a causal chain: Why experiments are often more effective than mediation analyses in examining psychological processes. *Journal of Personality and Social Psychology*, 89, 845-851.

Tallentyre, S. G. (1906). *The Friends of Voltaire*. London: Smith, Elder, & Co.

U.S. Constitution, Amendment 1.

UN General Assembly. (1948). *Universal declaration of human rights* (217 [III] A). Paris.

White, M. H., II, & Crandall, C. S. (2017). Freedom of racist speech: Ego and expressive threats. *Journal of Personality and Social Psychology*, 113, 413-429.

Zmigrod, L., Zmigrod, S., Rentfrow, P. J., & Robbins, T. W. (2019). The psychological roots of intellectual humility: The role of intelligence and cognitive flexibility. *Personality and Individual Differences*, 141, 200-208.