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Targeting our Blind Spot: A Metacognitive Intervention Ameliorates Negative Feelings, Evaluations, and Stereotypes Towards Conservatives in a Liberal Sample

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Abstract

Political polarization between conservatives and liberals threatens democratic societies. Ameliorating liberal research participants' negative feelings, evaluations, and stereotypes towards conservatives might be one step into the direction of a political depolarization. In a sample of U.S.-American liberal research participants recruited via Amazon's Mechanical Turk (N = 271), we randomly assigned participants in a pre-post-design either to a clinical-psychological, metacognitive-intervention (MCT), an educational, or a no-treatment-no-pre-measurement-control-condition. In the MCT-condition, participants were first asked seemingly simple questions that frequently elicited incorrect responses, followed by corrective information. In the educational condition, information was conveyed in a simple narrative form. MCT was significantly more effective in ameliorating liberal participants' negative feelings, evaluations, and stereotypes towards conservatives compared to the other two control-conditions. Further, MCT-participants significantly reduced their negative feelings, negative evaluations, and perceptions of threat from pre- to post-measurement, significantly more than participants in the educational condition. The results of our preliminary study and its implications are discussed, and recommendations for further research are made.

Keywords: metacognitive training, political polarization, liberals, conservatives, stereotypes

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Ongoing societal polarization processes pose the risk of divided, non-communicating, and thus vulnerable un-democratic societal conditions (Hare & Poole, 2014; Pew Research Center, 2014). With regard to the political sphere, polarization processes inhere a dangerous potential as the political opponent is increasingly associated with negative emotions, disapproved of, perceived as threatening, and stereotyped (Cohn, 2014; Iyengar & Krupenkin, 2018; Pew Research Center, 2014, 2016, 2017). Symptoms of these political polarization processes can be currently observed in the U.S.: Whereas the conservative U.S. President Donald Trump has claimed that

“Democrats are the party of crime” (“Trump calls Democrats the ‘party of crime’”, 2018), the former liberal U.S. president Barack Obama claims that “[t]he politics of division and resentment and paranoia has unfortunately found a home in the Republican Party” (Stracqualursi, 2018). Both statements align with social psychological research indicating that, indeed, people are prejudiced toward groups holding a different political or ideological worldview (attitudinal dissimilarity-prejudice-link; Brandt, 2017; Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014; Crawford & Pilanski, 2014; Voelkel, Brandt, & Colombo, 2018).

Social-psychological explanations of ongoing political polarization processes address the importance of group polarization – characterized by people adopting more extreme positions after discussion – facilitated by the rise of social media (Thomas, McGarty, & Mavor, 2016). Social media act as self-referring “echo chambers” (Bakshy, Messing, & Adamic, 2015) that pave the way through their social validating environments both for group polarization as well as for political polarization. For example, Facebook users are more likely to receive information in an ideological like-minded way. In the same vein, a network analysis on U.S.-American Twitter messages containing moral and emotional language and their retweet-activity showed an increased diffusion *within* a political ingroup (conservatives or liberals) and less between political group-members (Brady, Wills, Jost, Tucker, & Van Bavel, 2017). That is, social media such as Facebook or Twitter offer the possibility of classical group and political polarization conditions because they facilitate a social validating environment.

Polarization in Conservatives and Liberals

Longitudinally, politicization predicts polarization both on an affective as well as on a cognitive level in such diverse samples as (conservative) Tea-Party members or (liberal) members of the LGBT-community (Simon, Reininger, Schaefer, Zitzmann, & Krysz, 2019). The dangerous potential of the ongoing polarization of the two most prevalent political groups in the United States of America – conservatives and liberals – is thus not only plausible in light of the aforementioned social-psychological research, but also from an applied perspective: Conservatives increasingly disapprove of liberals, and liberals increasingly disapprove of conservatives (Gentzkow, 2016; Pew Research Center, 2014, 2016, 2017). Notwithstanding its importance, there is little research on the group of liberals in social psychology and how tensions can be overcome or soothed (Crawford & Jussim, 2018; Duarte et al., 2015).

Origins of the Attitudinal Dissimilarity-Prejudice-Link

Social-psychological explanations – as Voelkel and colleagues (2018, pp. 57-58) summarize – name three origins of the attitudinal dissimilarity-prejudice-link:

1. A social cue-based automatized human capacity for identifying friends and foes. According to this concept, “[p]eople who are perceived as holding dissimilar political beliefs are [...] flagged as foes and, thus, met with prejudice” (Voelkel et al., 2018, p. 57).
2. A reaction to incongruity, which means that if people’s desire to understand the world is frustrated due to (other) groups with different attitudes and opinions than theirs, they “derogate those with different attitudes and values in an attempt to bolster the validity of their own way of viewing the world.” (Voelkel et al., 2018, p. 58)
3. An overconfidence of one’s attitudes, opinions, and worldviews implying that others holding different ones are wrong. This means that “people who are overconfident think that they have reasons to be prejudiced toward others with dissimilar views.” (Voelkel et al., 2018, p. 58)

A Metacognitive, Counter-Stereotypical Approach to Reduce Overconfidence

In the present preliminary study, we will adopt a new counter-stereotypical information providing approach, entitled *metacognitive training* (MCT), an intervention that has previously been applied in clinical psychology for reducing overconfidence in clinical populations. Metacognitive training has first been used in psychosis patients targeting fixed overconfident held false beliefs before it has been transposed to other mental disorders. Meta-analyses have proven its effectiveness in reducing delusional symptoms (Eichner & Berna, 2016; Liu, Tang, Hung, Tsai, & Lin, 2018) and it has been entered into treatment guidelines in Germany and Australia.

During MCT, participants are posed seemingly easy questions that elicit overconfidence in incorrect (stereotypical) responses. Exposure with corrective information (i.e., unexpected information) is aimed at self-correction, particularly the reduction of confidence and seeking of more information. MCT aims to plant the “seeds of doubt” (Moritz et al., 2014) and it has been verified that its effects on delusions is mediated by a reduction of overconfidence (Köther et al., 2017), that is, MCT induces doubt and uncertainty in overconfidently held false judgements. Importantly, and unlike classical educative intervention approaches that only provide corrective information, MCT first raises questions with seemingly easy answers. That is, participants are asked and can familiarize with a particular topic and rate their own confidence. In MCT, after having answered a question and rated one’s confidence, one is provided with (corrective) information. As an example, a psychosis patient might be asked in a MCT session: “What do you think? How often were the following symptoms/experiences endorsed by individuals from the general population?” The patient is then asked to guess the amount of people, who endorsed the item “Did you ever think people can communicate telepathically?”. In fact, the amount of people from the general population who endorse this item is 61% (Moritz, Krieger, Bohn, & Veckenstedt, 2017). Here, one is likely to underestimate the amount of individuals from the general population endorsing this item, and this underestimation is especially true of psychosis patients. After having guessed the amount of people, having rated one’s confidence, the true amount of 61% is then being displayed. The display of the underestimated judgments plants “the seeds of doubt” and patients learn to withhold strong self-stigmatizing judgments until sufficient evidence has been collected, and to consider counter-arguments as well as alternative views. In other exercises, patients are shown snapshots of photos that lure into false assumptions. After participants provide their responses and the confidence herein, the correct answer is revealed which frequently deviates from the responses and in case of overconfident incorrect judgements aims to induce “aha” experiences.

A logical control-condition related to this specific kind of metacognitive training is to provide participants with the corrective information only (i.e., education condition). In a recent study, Moritz, Lasfar, Reininger, and Ohls (2018) transferred MCT from the clinical to the political and religious context. They observed in a subsample of Muslims that MCT improved tolerance and approval of religious outgroups (Christians, Jews, and Atheists) compared to an education control-condition. Here, 298 participants were first asked about their attitudes toward Judaism, Christianity, and Islam before they were randomly assigned to either the metacognitive intervention ($n = 136$) or the education control-condition ($n = 162$). In the latter, information was conveyed in a simple narrative. In the MCT condition, participants were first asked apparently simple questions that frequently elicited incorrect responses followed by corrective information. As a result, both Christian and Muslim participants appraised their own religion as the most peaceful and tolerant. The educational approach was more effective in reducing stereotypes about Islam among non-Muslims, whereas MCT was more successful in lessening prejudice about Christianity among Muslims. As mentioned above, the education control-condition only included the (corrective, at least non-stereotypical) information and did not include any question aiming to familiarize participants with the respective topic.

Our goal was to transfer the clinical intervention-strategy of MCT from the clinical (e.g., Moritz et al., 2014) and the religious sphere (Moritz et al., 2018) to the political, polarized area of intergroup contacts between liberals and conservatives. By doing so, we aimed to ameliorate negative evaluations, feelings, and stereotypes towards conservatives in liberal research participants. Therefore, similar to intergroup intervention approaches providing participants with new knowledge or counter-stereotypical information, we included counter-stereotypical information (i.e., corrective information) about the conservative outgroup in the metacognitive training. As mentioned above, providing counter-stereotypical information has been proven to be effective in reducing prejudice (e.g., Brewer, 1999; Brown & Hewstone, 2005). First familiarizing liberal research participants with questions regarding the conservative outgroup should – after confronting them in the metacognitive training with respective counter-stereotypical information about the conservative outgroup – plant the seeds of doubt. This, in turn, may cause participants to reduce their negative feelings, and finally question and overcome their in-group favoritism and their outgroup-derogation (specifically: their evaluation of conservatives, their stereotypes with regard to conservatives, and their claim of national threat due to conservative policies).

Applying the specific method of MCT (as opposed to only exposing liberal research participants to counter-stereotypical information or as opposed to exposing liberal research participants to no treatment), should more effectively lead liberal research participants to ameliorate their negative feelings, evaluation, and stereotypes. Accordingly, only exposing participants with counter-stereotypical information (i.e., education condition) should be more effective than exposing them to no treatment.

As one example of the political sphere, one currently held (wrong) stereotype towards conservatives in the general population and especially in liberals is an overestimation of the percentage of rich people in the Republican Party, or a respective underestimation of the amount of black people (Ahler & Sood, 2018)¹. First, answering to a given question in a stereotypical way paves the way for a familiarized interaction with the given topic (e.g. social structure of the Republican Party): Participants share their worldview with the researcher who asks the question regarding the social-structure of the Republican Party. After having given one's rating(s) on various questions, MCT is construed to display the questions again, the respective participant's response, and then to provide feedback whether the participant was right or wrong on that particular question. Next, the briefed participant can process the true (corrective, at least counter-stereotypical) information on that particular topic (e.g. a correct information on the prevalence of rich or black party members within the Republican Party with a respective scientific reference). Thus, the participant is given the possibility to process the (counter-stereotypical) information. This process is likely to evoke anti-stereotypical attitudes and ameliorated feelings regarding conservatives in a liberal research participant.

Even though our research group currently works on a similar MCT intervention for conservatives, we wanted to present data targeting our 'social psychological blind spot', namely focusing on ameliorating *liberals'* emotions, evaluation, perception of threat, and stereotypes with regard to the conservative outgroup. That is why we present data of a MTurk based study with liberals recruited via *TurkPrime*. We defined liberals as those MTurk users, who placed themselves on the scale "Where on the following scale of political orientation would you place yourself?" ranging from 1 (*extremely liberal*) to 3.5 (*moderately liberal*) to 5 (*neither*) to 7.5 (*moderately conservative*) to 10 (*extremely conservative*) as 1, 2, or 3, i.e., as very or extremely liberal.

The Present Research

In this preliminary study, we aimed to transfer the clinical intervention strategy of MCT to the political psychological context, as did Moritz, Lasfar, Reininger, and Ohls (2018). However, we go beyond the study by Moritz et al. (2018) in two important ways. On the one hand, we not only include an education control-condition, but also a further no-treatment control-condition. On the other hand, our conceptual replication focuses on a specific group of research participants: U.S.-American liberals. We aimed at ameliorating this group's negative emotions, evaluations, stereotypes, and perceptions of fear with regard to the outgroup of U.S.-American conservativesⁱⁱ.

Specifically, MCT (as opposed to the education and the no-treatment control-condition) should ameliorate polarization, that is, liberal research participants' negative feelings, evaluations, and stereotypes. In the same vein, when comparing the pre- and post-intervention measures, MCT should be more effective in ameliorating polarization compared with the education condition.

Method

Power Analysis

We based our power analysis on the assumption that the three conditions Metacognitive Training vs. education vs. no-treatment would exert a medium effect (i.e., $f = .25$) on the dependent variables as meta-analyses on the clinical effects of MCT conclude "that MCT exerts a small to moderate effect" (Eichner & Berna, 2016, p. 952). We applied this effect size to an a priori power analysis for three groups within an ANOVA. The power analysis indicated that approximately 252 participants would be needed to achieve 95% power ($1 - \beta$) at a .05 alpha level ($\alpha = .05$). To account for potential study dropouts, we recruited 320 adults claiming to be 'very liberal' online using convenience sampling via *TurkPrime* (Litman, Robinson, & Abberbock, 2017), which draws on previously screened participants from *Amazon's Mechanical Turk* (Buhrmester, Kwang, & Gosling, 2011). A total of 11 participants were excluded because they answered less than 88% questions of the whole study, 37 participants were excluded because they showed on a 10-point Likert-scale ranging from 1 (*extremely liberal*) to 10 (*extremely conservative*) values greater than 3, and one participant who claimed to be a Republican. Thus, our total sample included 271 participants. Our study follows the principles of the Declaration of Helsinki and was approved by the local ethic committee of the University Medical Centre Hamburg-Eppendorf (LPEK-0045), Germany.

Participants

The final sample consisted of 271 participants (191 female, 79 male, 1 other), all sociodemographic characteristics can be seen in Table 1.

Table 1

Sociodemographic Characteristics

Variable	MCT (<i>n</i> = 101)		Education (<i>n</i> = 89)		No treatment (<i>n</i> = 81)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sex						
Female	72	71.3	60	67.4	59	72.8
Male	28	27.7	29	32.6	22	27.2
Other	1	1.0	0	0.0	0	0.0
Ethnicity						
Asian/Asian-American	2	2.0	3	3.4	3	3.7
Black/African American	10	9.9	3	3.4	4	4.9
Latino/Hispanic American	6	5.9	3	3.4	8	9.9
Caucasian American	80	79.2	78	87.6	65	80.2
Other	0	0.0	1	1.1	0	0.0
More than one race	3	3.0	1	1.1	1	1.2
Education						
High school no diploma	1	1.0	0	0.0	1	1.2
High-school diploma	6	5.9	3	3.4	3	3.7
Some college	23	22.8	17	19.1	20	24.7
Associate degree	9	8.9	15	16.9	8	9.9
Bachelor's degree	39	38.6	33	37.1	34	42.0
Master's degree	16	15.8	17	19.1	11	13.6
Professional degree or doctorate degree	7	6.9	4	4.5	4	4.9
Age^d	38.35 (12.08)		38.35 (11.58)		39.20 (13.19)	

^a $\chi^2(4) = 2.42, p = .660$. ^b $\chi^2(10) = 10.59, p = .391$. ^c $\chi^2(12) = 7.04, p = .855$. ^d $F(2, 268) = 0.11, p = .897$.

Design

We applied a between-subjects design with three conditions by randomly assigning participants (using true randomization with the automated Randomizer in Qualtrics) either to the Metacognitive Training (MCT) condition ($n = 101$), the education condition ($n = 89$), or to the no-treatment condition ($n = 81$). Not surprisingly, attrition was only observed in both experimental conditions with 6 participants in the MCT condition and 4 participants in the education condition. Attrition did not differ across conditions. In both experimental conditions (i.e., in the MCT and the education condition), we applied a pre-post-design, whereas the no-treatment condition was in fact a true baseline, no-treatment-no-pre-measurement-control-condition. In both experimental conditions (i.e., in the MCT and the education condition), we applied a pre-post-design, whereas the no-treatment condition was in fact a true baseline, no-treatment-no-pre-measurement-control-condition. Using this design, we were first able to compare both experimental conditions from pre- to post-intervention, and we could also compare both experimental conditions with a third, baseline, no-treatment-no-pre-measurement-control-condition. Pre-post-designs are commonly applied in clinical psychology. If the pre-measurement affected post-measurements, this should be true of both experimental conditions.

Procedure

Informed Consent and Initial Questions

Participants completed the study on Qualtrics, a web-based tool for creating surveys. Before Mechanical Turk users were randomly assigned to each condition, they provided informed consent and answered measures of political orientation. Participants assigned to both intervention conditions (i.e., MCT and education) then were given the baseline measures, whereas participants in the no-treatment control-condition were directly led to the post-intervention measures.

Baseline Measures

Before being exposed to the experimental treatment, research participants in both intervention conditions (i.e., MCT and education) were asked questions regarding their evaluation of the outgroup of conservatives, their perception of being threatened by the outgroup of conservatives, stereotypes towards conservatives, and (negative) feelings towards conservativesⁱⁱⁱ.

(Negative) feelings towards conservatives — As one important dependent variable, we assessed our liberal research participants' negative feelings towards the conservative outgroup. We asked them "Do conservatives/conservative leaners make you feel afraid?" as well as "Do conservatives/conservative leaners make you feel angry?" with a 10-point Likert-scale ranging from 1 (*not at all*) to 10 (*very much*). We averaged both items, $r(188) = .532$, $p < .001$, to create a "Negative-Feelings-Scale". We chose these two negative feelings of *feeling afraid* and *feeling angry* in order to encompass a broad indicator of negative feelings. From a basic emotion perspective, we missed to assess sadness, but chose those two basic emotions to represent both a negative internalizing or a negative externalizing reaction to an opponent.

Evaluation of conservatives — We assessed our participants' evaluation of the conservative outgroup with two items. The first one has a clear midpoint and derives from research on tolerance-development towards disapproved but respected outgroups (Simon, 2017; Simon, Eschert, et al., 2019; Simon & Schaefer, 2016): "Do you regard the following beliefs and practices as something bad or something good? – Conservatives" with a 7-point-Likert-scale ranging from -3 (*clearly bad*) to +3 (*clearly good*). The second item evaluating conservatives derives from the Pew Research Center (2014): "Would you say your overall opinion of conservatives/conservative leaners is...?" with a 4-point Likert-scale ranging from 1 (*very unfavorable*) to 4 (*very favorable*). In order to condense both items, $r(188) = .426$, $p < .001$, to a small scale, we z-transformed both values and calculated a mean for our "Evaluation-Scale (z-score)".

Perception of being threatened by conservatives — We assessed our liberal research participants' feelings of being threatened by conservatives with the item: "Would you say the Republican Party's policies are so misguided that they threaten the nation's well-being?" with the options 0 (*no*) and 1 (*yes*), a question used by the Pew Research Center (2014).

Stereotype towards conservatives — We assessed a commonly endorsed liberal stereotype regarding conservatives (Pew Research Center, 2016) beginning with "Compared to other Americans, would you say conservatives/conservative leaners are more..." followed by the 10-point Likert-scale ranging from 1 (*closed-minded*) to 10 (*open-minded*).

Experimental Conditions

Metacognitive Training condition — In the Metacognitive Training condition we asked three questions which included – from the perspective of liberal research participants – correct stereotypical information (filler questions) such as “What was Martin Luther King, Jr. fighting for?” with four choices whereas one is obviously the correct one (“Civil rights movement”; for all items in the MCT condition, see Table 2).

Table 2

Questions, Responses, and Endorsement in the Metacognitive Training Condition

Question / Response option	Endorsement present study (%)
1. What was Martin Luther King, Jr. fighting for? [filler question]	
Independence of America	0.0
Civil rights movement [correct]	100.0
Votes for women	0.0
Separation between Catholic and Protestant church	0.0
2. Which of the following groups has the highest number of supporters for the minimum wage of \$15? [filler question]	
People over 65 years	0.0
Donald Trump supporters	3.0
People with a family income of over \$75,000 a year	1.0
Hillary Clinton supporters [correct]	96.0
3. How many of 11,994 published scientific papers about climate research agree on Anthropogenic Global Warming, meaning that global warming is extremely likely to be primarily caused by human activities? [filler question]	
19.2%	2.0
37.7%	1.0
67.5%	20.8
99.3% [correct]	76.2
4. How many people supporting Republicans earn over \$ 250,000 a year?	
2.2% [correct]	21.8
18.2%	25.7
32.2%	24.8
42.2%	27.7
5. What was the common ground for the formation of the Republican Party?	
Abolition of slavery [correct]	52.5
Elimination of Native Americans	7.9
Votes for women	1
Independence of America	38.6
6. Who said that he sees “no reasons why today on the streets citizens should be carrying loaded weapons”?	
Bill Clinton	11.9
Ronald Reagan [correct]	30.7
Barack Obama	51.5
George W. Bush	5.9

Question / Response option	Endorsement present study (%)
7. How many people supporting Republicans are over 65 years old?	
3.2%	2.0
21.3% [correct]	28.7
46.7%	38.6
67.2%	30.7
8. Which of the following is a correct statement about air strikes (largely carried out by drones) in relation to the covert action against terrorism?	
There were 10 times more air strikes during Bush's Presidency than during Obama's Presidency	17.8
There were no air strikes during Obama's Presidency	5.0
There were 10 times more air strikes during Obama's Presidency than during Bush's Presidency [correct]	50.5
There was approximately the same amount of air strikes during the presidencies of Bush and Obama	26.7
9. Which abortion method has the smallest risk of complications for the mother occurring during or after the abortion, if the abortion is post 20 weeks of gestation?	
Taking medicine that kills the fetus inside the mother's womb like Misoprostol	40.6
Inducing labor	25.7
Having a c-section	11.9
Pulling out the fetus with its legs first and sucking out its brain (dilatation and extraction) [correct]	21.8
10. How many Republicans and Republican leaners favor same-sex marriage in 2017?	
3%	26.7
11%	31.7
36%	28.7
47% [correct]	12.9
11. The NRA (National Rifle Association) opposes the idea of background checks for private gun sales. How many of gun-owning households in the U.S. that are members of the NRA favor background checks for private gun sales?	
6%	24.8
25%	20.8
41%	19.8
74% [correct]	34.7
12. How many of Republicans say there should be a way for undocumented immigrants to stay in the country, if certain requirements are met?	
7%	32.7
14%	26.7
37%	27.7
56% [correct]	12.9
13. Police chiefs in the U.S. were asked about their priorities for fighting violent crime. Which of the following did they name last?	
Reducing drug abuse	20.8
Better economy and more jobs	27.7
Expand the use of death penalty [correct]	36.6
Simplifying court rules	14.9

Afterwards, participants in the MCT condition were given ten questions, which were designed to pave the way for counter stereotypical response-behavior. For example, we asked our liberal research participants “How many people supporting Republicans earn over \$ 250,000 a year?” knowing that usually the percentage in the general population as well as in liberals is significantly overestimated (Ahler & Sood, 2018). Giving the possibilities “2.2%” [this is the correct answer], “18.2%”, “32.2%”, and “42.2%”, we again paved the way for an overestimation. We

also asked participants for their confidence in their response: “How sure are you about your answer?” with the alternatives „guessing“, “rather unsure”, “rather sure”, and “100% sure”.

After having answered the 13 questions, our participants finally were presented with feedback (their given response and the correct answer) and were provided with information about the correct answer. For example, participants were displayed (at least for 10 seconds):

“2.2% of the people supporting Republicans earn over \$250,000 a year. However, research shows that people overestimate the amount of money Republican supporters have. On average, people who took part in the survey thought that 38.2% of Republican supporters would earn over \$250,000 a year.

Source: Ahler, D. J., & Sood, G. (2018). The parties in our heads: Misperceptions about party composition and their consequences. *The Journal of Politics*, 80(3), 964-981.”

Education control-condition — Participants in the educational condition were not asked the 13 questions listed in Table 2. Instead, only the correct 13 answers provided in the metacognitive condition were displayed for at least 10 seconds to convey the messages without the question-and-answer format and without any rating of confidence in the responses.

No-treatment control-condition — Participants in the no-treatment control-condition did not answer baseline measures, instead they were directly asked to respond to the dependent measures.

Dependent Measures

As post-intervention measures, we re-assessed all baseline measures and added one more item to the scales assessing (negative) feelings, the perception of threat, and stereotypes, respectively.

(Negative) feelings towards conservatives — Next to the items encompassing negative feelings regarding conservatives (i.e., feeling angry and afraid), $r(269) = .596, p < .001$, we additionally assessed participants' feelings towards conservatives using the “Feeling-Thermometer” (Henry & Sears, 2002). Specifically, participants were asked: “Use the ‘feeling-thermometer’ to indicate whether you have positive or negative feelings about Conservatives/conservative leaners in the U.S.” with a slider ranging from 0 (*negative/cold feelings*) to 100 (*positive/warm feelings*).

Evaluation of conservatives — We assessed participants' evaluation of the conservative outgroup with the same two items used in the pre-test, $r(269) = .550, p < .001$.

Perception of being threatened by conservatives — In addition to the items focusing on the perceived misguidance of Republican Party's policies, we added as post-intervention measure the item: “Are the following people a threat to U.S. society? Conservatives/conservative leaners in the U.S.” ranging from 0 (*not at all*) to 4 (*absolutely*). We also condensed both items, $r(269) = .367, p < .001$, into a “Threat-Scale (z-scores)” with the mean of the two z-transformed values.

Stereotypes towards conservatives — As a post-intervention measure, we assessed two stereotypes (Pew Research Center, 2016): “Compared to other Americans, would you say conservatives/ conservative leaners are more...” followed by the 10-point Likert-scale ranging either from 1 (*closed-minded*) to 10 (*open-minded*) or from

1 (*dishonest*) to 10 (*honest*). Again, we summarized these to a “Stereotype-Scale” indicating positive stereotypes of honest, open-minded (i.e., liberal-like) outgroup-members, averaging both items, $r(269) = .489$, $p < .001$.

Results

In our results, we first describe the bigger picture of our preliminary study, analyzing the post-intervention-measures across the three conditions (i.e., the Metacognitive Training (MCT) condition, the education condition, or to the no-treatment condition). Second, we compare the two active, experimental conditions and their effects over time from pre- to post-intervention.

Specifically, we first were interested in whether MCT would ameliorate our liberal research participants’ negative feelings, evaluations, and stereotypes towards the conservative outgroup. Therefore, we first compared the post-intervention measures between the MCT condition and the two control-conditions (i.e., education and no-treatment condition). Second, we conducted a repeated-measures analysis in a 2 (pre- vs. post-measures) within-subjects \times 2 (MCT vs. education) between-subjects design in order to investigate whether MCT significantly ameliorated negative feelings, evaluation, and perception of threat compared to the education control group. We followed up this analysis by investigating the development of participants in both intervention conditions comparing pre- and post-measures in the MCT as well as in the education condition.

Comparison of the Post Intervention Measures (MCT vs. Education vs. No Treatment)

We submitted the post intervention measures (dependent measures) to an analysis of variance (ANOVA) with condition (MCT vs. education vs. no-treatment) as fixed between-subject factor (Table 3, Figure 1 and Figure 2). As post-hoc analysis, we calculated the least-significant difference (LSD).

Table 3
Comparison of the Post-Intervention-Measures (MCT vs. Education vs. No Treatment) – Study 1 (N = 271)

Item/Scale	No treatment (n = 81)		Education (n = 89)		MCT (n = 101)		F (2, 268)	p	η ²	No treatment vs. MCT		
	M	SD	M	SD	M	SD				p ^a	p ^a	
Evaluation												
Do you regard the following beliefs and practices as something bad or something good? (-3 clearly bad to +3 clearly good)	-1.85	1.09	-1.80	1.04	-1.48	1.23	3.08	.048	.02	.026	.050	
Would you say your overall opinion of conservatives/conservative learners is...? (1 very unfavorable to 4 very favorable)	1.54	0.59	1.56	0.58	1.75	0.54	3.92	.021	.03	.014	.022	
Evaluation-Scale (z-scores)	-0.14	0.87	-0.10	0.86	0.21	0.87	4.53	.012	.03	.008	.015	
Perception of threat												
Would you say the Republican Party's policies are so misguided that they threaten the nation's well-being? (0 No to 1 Yes)	0.95	0.22	0.98	0.15	0.89	0.31	3.22	.041	.02	.099	.014	
Are the following people a threat to U.S. society? - Conservatives/conservative learners in the U.S. (0 not at all to 4 absolutely)	2.95	1.15	2.91	1.11	2.59	1.16	2.76	.065	.02	.037	.058	
Threat-Scale (z-scores)	0.09	0.76	0.13	0.65	-0.19	0.97	4.24	.015	.03	.023	.008	
Stereotypes												
Compared to other Americans, would you say conservatives/conservative learners are more... (1 closed-minded to 10 open-minded)	1.86	1.29	2.28	1.52	2.68	1.90	5.79	.003	.04	.001	.088	
(1 dishonest to 10 honest)	2.99	1.97	3.91	2.11	4.39	2.33	9.59	<.001	.07	<.001	.130	
Stereotype-Scale (1 closed-minded/dishonest to 10 open-minded/moral)	2.43	1.49	3.10	1.59	3.53	1.73	10.58	<.001	.07	<.001	.063	
(Negative) feelings												
Do conservatives/conservative learners make you feel afraid? (1 not at all to 10 very much)	6.01	3.16	5.85	3.09	4.98	3.28	2.87	.059	.02	.031	.060	
Do conservatives/conservative learners make you feel angry? (1 not at all to 10 very much)	7.63	2.53	7.57	2.67	6.67	2.95	3.64	.028	.03	.020	.025	
Negative-Feelings-Scale	6.82	2.55	6.71	2.58	5.83	2.76	4.04	.019	.03	.012	.022	
Feeling-Thermometer	12.40	15.00	15.10	17.78	19.65	20.34	3.80	.024	.03	.007	.084	
Use the 'feeling-thermometer' to indicate whether you have positive or negative feelings about Conservatives/conservative learners in the U.S. (0 negative/cold feelings to 100 positive/warm feelings)												

^aApplying LSD-Posthoc-Tests.

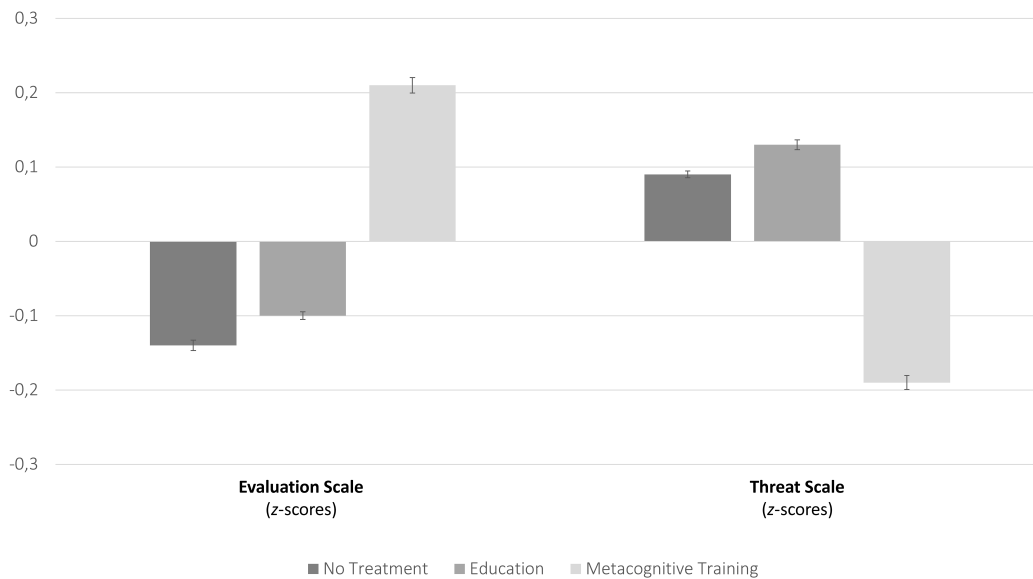


Figure 1. Comparison of the post-intervention-measures (MCT vs. education vs. no treatment): Means (and 95% confidence intervals as error bars) of the Evaluation-Scale and Threat-Scale.

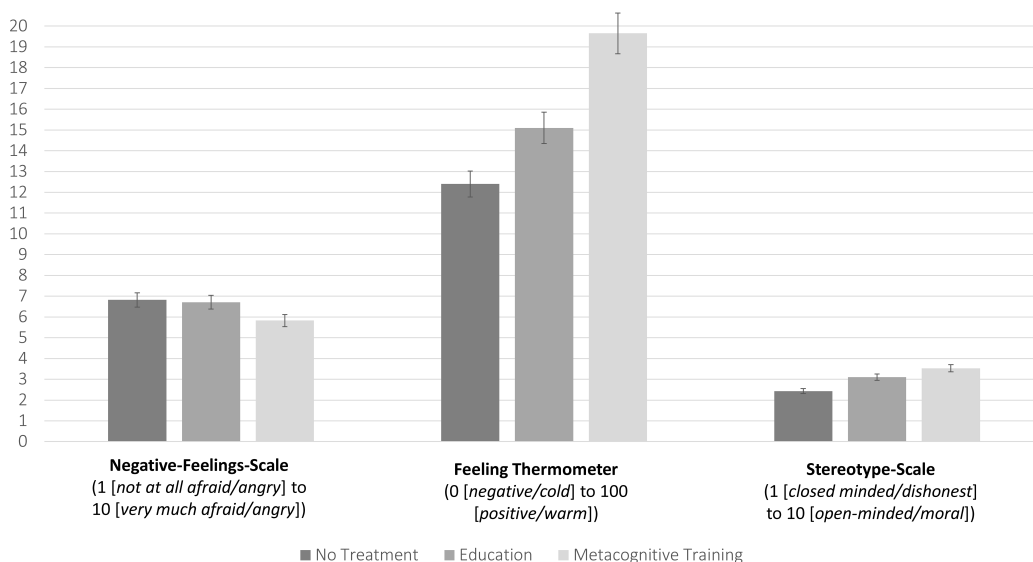


Figure 2. Comparison of the post-intervention-measures (MCT vs. education vs. no treatment): Means (and 95% confidence intervals as error bars) of the Negative-Feelings-Scale, Feeling Thermometer, and Stereotype-Scale.

Feelings towards conservatives: Negative-feelings-scale — Participants in the MCT condition, showed less negative feelings regarding conservatives, than those in the education condition, 95% CI [0.13, 1.64], $d = 0.33$, and those in the no-treatment condition, 95% CI [0.22, 1.77], $d = 0.37$. Participants in the education condition did not differ from those in the no-treatment condition, $p = .791$.

Feelings towards conservatives: Feeling thermometer — Participants in the MCT condition showed marginally significant more positive feelings regarding conservatives than those in the education condition, 95%

CI [-9.72, 0.61], $d = 0.24$, and significantly more than those in the no-treatment condition, 95% CI [-12.56, -1.96], $d = 0.40$. Participants in the education condition did not differ from those in the no-treatment condition, $p = .329$.

Evaluation of conservatives — Participants in the MCT condition showed a better evaluation of conservatives than those in the education condition, 95% CI [0.06, 0.56], $d = 0.35$, and those in the no-treatment condition, 95% CI [0.09, 0.60], $d = 0.40$. Participants in the education condition did not differ from those in the no-treatment condition, $p = .765$.

Perception of being threatened by conservatives — Participants in the MCT condition showed a lower perception of being threatened by conservatives than those in the education condition, 95% CI [0.08, 0.55], $d = 0.38$, and those in the no-treatment condition, 95% CI [0.04, 0.52], $d = 0.31$. Participants in the education condition did not differ from those in the no-treatment condition, $p = .764$.

Stereotypes regarding conservatives — Participants in the MCT condition showed marginally significant less negative stereotypes regarding conservatives than those in the education condition, 95% CI [-0.90, 0.02], $d = 0.26$, and significantly than those in the no-treatment condition, 95% CI [-1.58, -0.63], $d = 0.68$. Even though marginally significantly differing from participants in the MCT condition, participants in the education condition also differed from those in the no-treatment condition, $p = .008$, 95% CI [-1.16, -0.18], $d = 0.43$.

Investigating the Change of Attitudes in the MCT and the Education Condition (Pre vs. Post Intervention)

In order to compare attitude change from baseline to after the interventions between MCT and the education condition, we tested the effects of time (within-subject-factor: pre vs. post) and condition (between-subjects-factor: MCT vs. education) using analyses of covariance (ANCOVA). Methodological studies suggest that controlling for baseline scores is advantageous relative to conventional pre-post comparisons and usually leads to an increase in power (Borm, Fransen, & Lemmens, 2007; Vickers & Altman, 2001). Unlike mixed analysis of variance models, this type of analysis accounts for baseline differences and regression to the mean.

We observed that participants in the MCT group significantly ameliorated their negative feelings, evaluation, and perception of threat compared to the education control group (see Table 4). Only with regard to the stereotype-item, we observed a marginally significant small effect.

We followed up this analysis by comparing the pre- and post-intervention measures for the two intervention conditions separately. Note that we did not include the no-treatment condition, since we did not assess baseline measures in this condition. The detailed results of the paired t -test between the pre- and the post-intervention measures of participants in the MCT and the education condition can be seen in Table 4. Most importantly, (despite the only marginally significant threat-item,) our liberal research participants in the MCT condition significantly ameliorated their negative feelings, evaluation, and stereotypes with regard to the conservative outgroup. The effects of MCT ranged between Cohen's $d = 0.17$ and $d = 0.52$, that is, in a small to medium range. Similarly, participants in the education condition also ameliorated their negative feelings, evaluation (only one of the two items), and stereotypes, the effects ranged between Cohen's $d = 0.10$ and $d = 0.28$, that is, in a small range).

Table 4
 Change of Attitudes in the MCT and the Education Condition (Pre vs. Post Intervention) – Study 1 (N = 271)

Item/Scale	Education (n = 89)				MCT (n = 101)				Pretreatment vs follow-up group comparison controlling for baseline (ANCOVA)					
	M	SD	M	SD	M	SD	M	SD	f(88)	p	d	F(1, 187)	p	n ²
Evaluation														
Evaluation Scale (z-scores)	0.00	0.86	-0.10	0.86	1.50	.136	0.13	0.87	1.50	.044	0.26	4.48	.001	.056
Perception of threat														
Would you say the Republican Party's policies are so misguided that they threaten the nation's well-being? (0 No to 1 Yes)	0.97	0.18	0.98	0.15	-1.00	.320	0.07	0.31	-1.00	.058	0.17	5.63	.019	.029
Stereotype														
Compared to other Americans, would you say conservatives/ conservative learners are more... (1 closed-minded to 10 open-minded)	1.91	1.48	2.28	1.52	-2.33	.022	0.26	1.90	-2.33	<.001	0.52	3.78	.053	.020
(Negative) feelings														
Negative-Feelings-Scale	6.98	2.49	6.71	2.58	2.97	.004	0.11	2.76	2.97	<.001	0.24	4.59	.033	.024

Discussion

In our study, we observed that a short metacognitive intervention ameliorated liberal research participants' negative feelings, evaluations, perceptions of threat, and stereotypes towards conservatives compared to an education condition as well as compared to a no-treatment condition. Individuals in the metacognitive intervention significantly reduced their negative feelings, negative evaluations, perceptions of threat towards conservatives from pre- to post-measurement, significantly more than participants in the education condition, in which only counter-stereotypical information were presented.

Thus, although previous research has suggested that presentation of counter-stereotypical information helps to reduce stereotypes (e.g., Brewer, 1999; Brown & Hewstone, 2005), the MCT intervention was more effective than mere delivery of information in reducing negative feelings, evaluations, and stereotypes. The particular mechanism of MCT (i.e., exposing counter-stereotypical contents in a familiarizing way) is one prerequisite to reduce negative feelings, disapproval, perceptions of threat, and stereotypes. These results are in line with previous work focusing on religious stereotypes (Moritz et al., 2018). This observation is not trivial as it refers to work extremely important to our societies' ongoing (political) polarization. When disapproval can be reduced, we also confine disinhibited hostility. Other approaches fostering tolerance aim at confining disapproval with equality-based respect (and focus on the dynamics leading to equality-based respect (Reininger, Schaefer, Zitzmann, & Simon, 2020; Simon, 2017; Simon, Eschert, et al., 2019; Simon & Schaefer, 2016). However, these approaches take the disapproval (our research shows to be reducible via MCT) as a prerequisite.

In our study, we present data targeting our 'social psychological blind spot', namely *liberals'* negative evaluations, stereotypes, perception of threat, and emotions with regard to the conservative outgroup. We thereby targeted a population that so far has received little attention in social-psychological research (Duarte et al., 2015). Specifically, claims of a politicized social psychology skewing to the political left, being politically biased in their research and publishing practices, and excluding conservatives motivated our research (Crawford & Jussim, 2018; Stevens et al., 2018). Therefore, we presented data of an MTurk based study with liberals (i.e., individuals who identified as very or extremely liberal). Still, there is need to replicate our findings in a laboratory setting, because MTurk research participants "perform experiments frequently, are familiar with common experimental paradigms, and select into experiments. Further, they engage in some behaviors which might influence the integrity of the data that they provide: a significant proportion complete the same study multiple times, provide misleading information, find information regarding successful task completion online, and provide privileged information regarding studies to other participants, even when explicitly asked to refrain from cheating." (Necka, C. Cacioppo, Norman, & J. Cacioppo, 2016, p. 2). Second, there is a need to conceptually replicate our findings in other research participant populations – especially in the political opposite: Conservatives. In fact, our research group is currently developing a metacognitive approach in order to ameliorate conservatives' negative evaluations, stereotypes, and feelings regarding liberals. Future studies replicating and establishing our preliminary study should rule out the possibility that participants in the MCT condition could have been more likely to *pay attention* to (i.e., were more likely to conscientiously read and process) the counter-stereotypical information than were participants in the education condition. So far, we only controlled for a minimum amount of time (i.e., ten seconds), in which participants were displayed with the respective information.

Our intention is to find ways of depolarization and facilitating more superordinate identifications (Simon & Ruhs, 2008). Importantly, even when we observed significant reductions in negative feelings, evaluations, and stereotypes,

participants in the metacognitive condition still devalued the conservative outgroup, as indicated by their post-intervention scores on the dependent variables, which were still significantly different from a neutral evaluation^{iv}. We want to argue, however, that we did not expect liberals in the metacognitive intervention to show significantly positive feelings or evaluations towards conservatives. In contrast, we aimed to *ameliorate* negative feelings, evaluations, perceptions of threat, and stereotypes.

Research focusing on depolarization is an important endeavor, as within the self-referring „echo chambers“ (Bakshy et al., 2015), no counter-stereotypical information is provided as there is no communication between the political opponents (Brady et al., 2017), and even if this counter-stereotypical information was provided, this would not be enough: The specific mechanism of MCT, that is to first familiarize participants with a disapproved group and then to secondly sow the seeds of doubt results in political depolarization. Still there is a need to identify and test the particular underlying mechanisms of doubt, uncertainty about opponents, surprise at unexpected findings, or even intellectual humility (Reininger, 2018; Reininger & Krott, 2019)^v. In the same vein, there is a need to evaluate the effects observed here – will they affect participants' states or even be effective in the long-term? The strategy of MCT itself has shown to be effective in the long-term (e.g., 6 months for depression: Jelinek, Faissner, Moritz, & Kriston, 2019; 6 months to 3 years for psychosis: Moritz et al., 2014). That is, why we currently work on a similar MCT for conservatives aiming at ameliorating their negative feelings, evaluations, perceptions of threat, and stereotypes with regard to liberals, even though the amount of empathy might differ between the two groups (Morris, 2020). Similarly, we work on a meta-affective/affective-mentalization-based training aiming at reducing negative feelings towards disapproved outgroups.

Providing the results of our preliminary study, we hope that other researchers will build on this type of metacognitive intervention, which is a step towards exploring ways to integrate insights from clinical psychology to the polarized political sphere and to ameliorate societal polarization by targeting stereotypical beliefs.

Notes

- i) In the same vein, of course, conservatives also hold wrong stereotypes about liberals. For example, they overestimate the amount of black or lesbian/gay/bisexual members within the Democratic Party (Ahler & Sood, 2018).
- ii) As our research participants consist of U.S.-American liberals, our terminology of conservatives and members of the Republican Party seem interchangeable. Even though these two groups are not the same, they constitute a relevant outgroup to our research participants of U.S.-American liberals.
- iii) We also assessed further variables not important to the focus of this article. In general, we fixed the order of the scales presented, however, items within each scale were randomized.
- iv) Post-Evaluation Measures in all conditions differed from the scale's midpoint (i.e., 0 [‘Do you regard the following beliefs and practices as something bad or something good?’ Scale: -3 *clearly bad* to +3 *clearly good*] or 2.5, respectively [‘Would you say your overall opinion of conservatives/conservative leaners is...?’, Scale: 1 *very unfavorable* to 4 *very favorable*]), all $ps < .001$.
- v) We thank one of our reviewers for this theoretical reasoning.

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Competing Interests

The authors have declared that no competing interests exist.

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