Abstract Thinking Increases Support for Affirmative Action[1]

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Abstract

Affirmative action is the proactive process of using resources to ensure that people are not discriminated against based on their group membership, such as gender or ethnicity. It is an effective way to reduce discrimination, but attitudes toward affirmative action are often negative, especially in groups implementing affirmative action. Previous research identified different influences on attitudes toward affirmative action, but mainly unchangeable ones. We focus on the influence of abstract thinking on support for affirmative action because abstract thinking is a changeable characteristic that can direct attention to the purpose of affirmative action policies. Across five studies with U.S. MTurk workers—focusing on women as the target group, but including other target groups as well—we show that thinking abstractly improves attitudes toward affirmative action. We observe this effect using correlational (Study 1, $n = 251$) and experimental (Studies 2–5, ns = 201–515) designs. Additionally, we test whether perceived discrimination increases the impact of abstract thinking on attitudes toward affirmation action (Studies 2–5). We report a meta-analysis across our studies. Overall, thinking abstractly about affirmative action clearly leads to more favorable attitudes toward it, and this effect is somewhat stronger when discrimination is perceived to be high. Consequently, companies and policymakers that would like to increase support for affirmative action policies could use abstract thinking to do so, for example by encouraging employees to think about and discuss why (vs. how) affirmative action policies are implemented.

Keywords: affirmative action, sex discrimination, abstraction, thinking, cognitive processes, construal level, quotas, gender

Abstract Thinking Increases Support for Affirmative Action

Imagine you are employed at a company. On the bulletin board, you see a colorful poster explaining a mentoring program for women. A flyer from the women's career center advertises different workshops on presentations, networking, and career development. However, no such workshops are offered for male employees. Similarly, after a job talk, you overhear someone saying that a female applicant will be hired because she was as qualified as the male applicant. Understandably, someone in this position could feel that male employees are given fewer opportunities than female employees and thus feel that the company treats men unfairly. However, if the employee would look at these policies from a more abstract perspective—taking into account the abstract picture of why such policies are implemented in the first place – they might realize that these policies are used to counter continuing discrimination against women in the workplace.

For example, women get less mentorship on average (Nolan, Buckner, Marzabadi, & Kuck, 2008), and are often considered less competent when they are equally qualified (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012; Sczesny, Spreemann, & Stahlberg, 2006). From this perspective, the employee might feel more positive about the affirmative action policies in their company. In the present paper, we argue exactly this: That certain mindsets that people adopt when they think about affirmative action will critically determine whether they support such measures or not. In other words, if people take a step back from their own position and think more abstractly about affirmative action—thereby appreciating its general purpose beyond any particular case—they will have more positive attitudes toward it.

Affirmative Action

Affirmative action can be defined as an action that "occurs whenever an organization devotes resources (including time and money) to making sure that people are not discriminated against on the basis of their gender or their ethnic group" (Crosby, Iyer, & Sincharoen, 2006, p. 587). Often, it also includes attempts to reduce prior historical discrimination, for example, of women or minorities (Harrison, Kravitz, Mayer, Leslie, & Lev-Arey, 2006). Affirmative action can also be based on memberships in other groups, such as having a disability or coming from a low social class (Beaton & Tougas, 2001; Cancian, 1998; Kravitz & Platania, 1993). As a proactive process, it is geared toward averting discrimination instead of eliminating it after-the-fact (Crosby et al., 2006).

Although the fundamental goal of affirmative action is to prevent discrimination (Aberson, 2007; Crosby, 1994; Crosby et al., 2006), it covers a range of different policies that include both equality- and equity-based measures. With regard to equality, common measures are quotas and different types of preferential hiring. For example, the members of a target groups can be hired preferentially when they have equal qualifications or are above a minimum qualification level (Bobocel, Son Hing, Davey, Stanley, & Zanna, 1998; Harrison et al., 2006; Levi & Fried, 2008; Linton & Christiansen, 2006; Zdaniuk & Bobocel, 2011). With regard to equity, common measures are recruitment programs and additional opportunities for training. For example, companies can increase efforts to advertise jobs in places where target group members are likely to see them, provide additional training for the target group, or implement mentoring programs (Aberson, 2007; Jackson & Garcia, 2010; Levi & Fried, 2008; Linton & Christiansen, 2006).

Affirmative action policies are often designed to be in place until equal representation or another set goal (e.g., 30% target group representation) is reached. Another possibility is that target group members are recruited and hired until the demographic make-up represents the make-up of the applicant pool (Harrison et al., 2006; Zdaniuk & Bobocel, 2011). It is important to note that the implementation of affirmative action policies also depends on cross-national differences in legal regulations. For example, whereas quotas are not legally allowed in the United States (Crosby et al., 2006), they are legal and common in Europe (Jourová, 2016).

Affirmative action is still badly needed, as women and minorities continue to be disadvantaged and underrepresented in the labor force. For example, in the United States, women run less than 5% of the 500 biggest companies, hold only 24% of STEM (science, technology, engineering, or math) jobs, and earn 21% less than men do when working full-time (DeNavas-Walt & Proctor, 2015; Fortune Editors, 2017; Noonan, 2017). However, attitudes toward affirmative action are often negative. The reason for this is that affirmative action is often perceived as unfair because norms of procedural fairness are violated when decisions are based on group membership (e.g., gender or ethnicity) instead of merit- and achievement-based criteria (Crosby et al., 2006; Harrison et al., 2006). For example, college students disagreed with affirmative action for various groups, and they found affirmative action to be unfair and ineffective (Murrell, Dietz-Uhler, Dovidio, Gaertner, & Drout, 1994). White management students, especially those higher in prejudice, perceived organizations with affirmative action as less attractive than those without (Walker, Feild, Giles, Bernerth, & Jones-Farmer, 2007).

Additionally, attitudes might be especially negative for managers and other majority members who would be responsible for implementing such policies (Crosby et al., 2006; Harrison et al., 2006). This is problematic because previous research found that the biggest

contributors to the effectiveness of affirmative action are a committed higher administration and receptive key employees (Hitt & Keats, 1984). Similarly, lack of support by the president of an organization or resistance against affirmative action by employees impedes the effectiveness of affirmative action (Berry, 2004). Therefore, it is important to know what predicts attitudes toward affirmative action and how these attitudes can be changed.

Attitudes Toward Affirmative Action

Research on attitudes toward affirmative action can be broadly grouped into two categories of influences: characteristics of the perceiver and features of the policy. With regard to characteristics of the perceiver, research has looked at the influence of more or less stable demographic features such as gender or race. Most of the following research is correlational due to this more or less stable nature. For example, studies found that women had more positive attitudes toward affirmative action than men had (Beaton & Tougas, 2001; Golden, Hinkle, & Crosby, 2001; Konrad & Hartmann, 2001; Konrad & Linnehan, 1995). Racial/ethnic minorities also usually had more positive attitudes toward affirmative action than Whites had, with African Americans having the most positive attitudes, whereas the attitudes of Hispanic Americans usually fell somewhere in between the attitudes of African Americans and White Americans (Kravitz & Klineberg, 2000; Kravitz & Platania, 1993; Levi & Fried, 2008; Parker, Baltes, & Christiansen, 1997). In line with this pattern, some researchers propose that attitudes toward affirmative action mirror self- or group-interests (Bobo, 1998; Bobo & Kluegel, 1993).

Research on perceiver characteristics also includes studying the broader category of people's world views, such as political orientation, racism, sexism, or perceived discrimination. Several studies found that conservatism is related to opposition to affirmative action (Kravitz & Klineberg, 2000; Kravitz et al., 2000; Sidanius, Pratto, & Bobo, 1996). Both racism and sexism

also lead to more negative reactions to affirmative action (Bobocel et al., 1998; Krings, Tschan, & Bettex, 2007; Little, Murry, & Wimbush, 1998; Tougas, Brown, Beaton, & Joly, 1995). For example, students who scored higher on racism measures were less supportive of affirmative action (Kravitz, 1995). With regard to sexism, the higher male managers scored on a measure of neosexism, the less they supported affirmative action (Tougas, Crosby, Joly, & Pelchat, 1995). Similarly, students with higher levels of modern sexism tended to more strongly oppose affirmative action (Son Hing et al., 2011).

Several findings also indicate that people who perceived that a group had been discriminated against had more positive attitudes toward affirmative action for this group (Aberson, 2007; Kravitz & Klineberg, 2000; Kravitz et al., 2000). For example, employees who perceived women to be disadvantaged in their company were more supportive of preferential treatment of women in their company (Tougas & Beaton, 1993). If supervisors referred to prior discrimination to explain preferential treatment for women, people rated that treatment to be fairer (Bobocel & Farrell, 1996). Overall, such perceiver characteristics seem to have a reliable influence on attitudes toward affirmative action. However, most of them, such as perceivers' own gender or prior discrimination against the target group, are rather stable, hence offering little possibility for attitude change. Nevertheless, these influences do not explain attitudes toward affirmative action completely, so other, more changeable influences are possible.

Consequently, other research has focused on the features of the affirmative action policy. This research is mostly experimental in nature. Affirmative action policies differ on how much weight they give to the target group's membership in decisions. This plays a crucial role for attitudes toward these policies, with people opposing policies that do not take merit into account, and judging those policies to be less fair (Kravitz, 1995; Kravitz et al., 2000; Tougas, Crosby, et

al., 1995). For example, with regard to affirmative action policies for women, people had more positive attitudes toward policies that enhanced the opportunities of target groups, which take merit into account more. They had less positive attitudes toward policies treating target groups with equal qualifications preferentially, which take merit into account less (Krings et al., 2007). Similarly, for different human resources' activities such as hiring, promotion, training, and layoffs, people reacted more positively to weak affirmative action policies (e.g., more outreach programs for the target group) than to moderate ones (e.g., preferential treatment when qualifications are equal), as well as more positively to moderate than to strong ones (e.g., quotas, Levi & Fried, 2008).

In addition to supporting weak policies more, people also perceived the same policy more positively if they perceived affirmative action in general to be fairer, that is, when they perceived that these policies do not give women or minorities an unfair advantage (Kravitz & Klineberg, 2000). Furthermore, if people were able to identify others (even hypothetically) who would be negatively affected by the affirmative action policy, they supported it less (Ritov & Zamir, 2014). In contrast to the previously mentioned perceiver characteristics, the features of a policy seem changeable. However, changing them might be undesirable as it would mean that other, weaker measures than planned are taken. Therefore, it is important to look for characteristics that are changeable, but changeable in such a way that the effectiveness of the affirmative action policy is not compromised.

Influence of Abstract Thinking

What may be other ways of influencing people's attitudes toward affirmative action if perceivers' characteristics and features of the policy itself seem impossible or undesirable to change? In the current research, we propose that turning to social-cognitive research in the

domain of mindsets—that is, how people cognitively construe certain issues—might offer a fruitful path. Specifically, adopting an abstract view when contemplating affirmative action policies might shape perceivers' attitudes toward such policies. But, why should people who think abstractly about affirmative action be more likely to endorse such policies?

According to construal-level theory (CLT; Trope & Liberman, 2003, 2010), increasing a person's psychological distance from an object or issue (e.g., by taking a detached abstract perspective) involves thinking in abstract terms about said object or issue. Such abstract information processing, in turn, facilitates extracting the core aspects about an event or object (e.g. Smith & Trope, 2006) —that is, the deeper meaning or essence of a stimulus or issue at hand. Note that both a task, and the mindset when thinking about a task, can be either concrete or abstract. In the present paper, we refer to the mindset. For example, an identical action can be described and thought of in concrete terms (e.g., hitting the keys of a computer keyboard) or in abstract terms (e.g., writing a paper). This distinction corresponds to action-identification theory, which posits that actions can be described in terms of low-level identities (i.e., *how* the action is performed) and high-level identities (i.e., *why* or with what effect the action is performed; Vallacher & Wegner, 1989). In line with this view, perceivers may construe information about an affirmative action policy in more concrete terms (e.g., implementing a specific quota or other restrictions that will prevent some men from being promoted for a certain position) or in more abstract terms (e.g., increasing fairness by reducing discrimination against women in the job market).

In the present research, we argue that the latter kind of mindset (i.e., abstract thinking) can increase support for affirmative action. This prediction might seem counterintuitive because previous research has shown that high-level construal can lead to more self- and other-

stereotyping (McCrea, Wieber, & Myers, 2012), whereas attending to concrete features of a person reduces stereotyping (Fiske & Neuberg, 1990). However, consistent with theorizing, goal-directed activities such as an affirmative action policy, are represented by the desirability of the action's end state (e.g., reduced discrimination) at a high-level construal (Liberman & Trope, 1998; Trope, Liberman, & Wakslak, 2007). Therefore, abstract thinking can direct perceivers' attention to the underlying meaning of these policies (i.e., to reduce previous and continuing discrimination against women and racial/ethnic minorities). In contrast, a low-level construal leads to a focus on the feasibility of attaining a certain end state (e.g., implementing a specific quota as low-level construal, Liberman & Trope, 1998; Trope et al., 2007). Thus, adopting a more concrete state of mind should entail a focus on details of affirmative action policies, such as individual actions that need to be implemented and that might have tangible consequences for individuals. This concrete mindset, in turn, might then distract from the deeper purpose of affirmative action policies by putting emphasis on the details that these policies entail.

Previous empirical research in the domain of abstract thinking is consistent with this idea. For instance, construing an action in abstract terms (i.e., high-level construal) can reduce the perceived boundaries between groups. Specifically, people who represent actions in terms of a high-level construal perceive greater similarity within and across groups, which in turn can increase important pro-social outcomes such as empathy and helping behavior (Levy, Freitas, & Salovey, 2002). Thinking in abstract terms has also been found to facilitate psychological processes that render it more likely that perceivers take action, presumably because they do not occupy themselves too much with the difficulties and details of a course of action, as opposed to perceivers who think in terms of low-level construals (Liberman & Trope, 1998; Semin, Higgins, de Montes, Estourget, & Valencia, 2005). Consistently, abstract thinking is associated with

elevated levels of subjective power (Smith, Wigboldus, & Dijksterhuis, 2008) and an internal locus of control (Vallacher & Wegner, 1989), which in turn are linked to optimism and action orientation (Anderson & Galinsky, 2006; Galinsky, Gruenfeld, & Magee, 2003).

In sum, those who think abstractly (vs. concretely) about an issue or an action extract its deeper meaning and are more prone to focus on desired end states (vs. preoccupying themselves with details and difficulties of its execution). Consequently, in the present research, we contend that such an abstract mindset can increase support of affirmative action policies because those adopting that mindset tend to focus on desirable end states.

Although there are numerous ways to experimentally manipulate abstract (vs. concrete) thinking via psychological distance (e.g., temporal or social distance), these manipulations might not be suited well for the present context. For example, previous research has used temporal distance to manipulate abstract thinking (e.g., Lammers, 2012). Participants who think about a temporally distant (vs. close) event or action tend to represent that event or action more abstractly (vs. concretely). Similarly, thinking about an event or action in the context of a socially distant (vs. close) target person or group increases abstract (vs. concrete) thinking (e.g., Liberman & Trope, 1998). However, in the context of investigating potential interventions to increase positive attitudes toward affirmative action policies, it does not seem feasible to manipulate when or to whom such policies would apply. Such manipulations would change the core of the policy, therefore posing a serious confound.

In an attempt to avoid these problems, we opted for a straightforward and commonly used task from the (mostly experimental) literature on construal-level theory to manipulate abstract (vs. concrete) thinking: the how vs. why task (Freitas, Gollwitzer, & Trope, 2004; Liberman, Trope, McCrea, & Sherman, 2007; Siddiqui, May, & Monga, 2014; Smith et al.,

2008; Williams, Stein, & Galguera, 2014). This task relies on the idea that abstract thinking is associated with an attentional focus on desirability (why) over feasibility (how) of an action, and it can be well integrated into the presentation of affirmative action policies. Accordingly, having participants think about why (vs. how) an affirmative action is implemented should lead to more abstract, high-level thinking by directing the focus to the desirability (vs. feasibility) of that action. This task is well suited for the present context because it leaves the description and core content of the presented affirmative action policies unchanged and only varies whether participants think about why (vs. how) these are implemented, thereby offering a simple but elegant intervention.

Hypotheses

Our main hypothesis is that thinking abstractly (vs. concretely) about an affirmative action policy increases support for this policy. Additionally, we examine perceived discrimination as a potential moderator. Previous research already established that perceived discrimination leads to more support for affirmative action (Aberson, 2007; Bobocel & Farrell, 1996; Kravitz & Klineberg, 2000; Kravitz et al., 2000; Tougas & Beaton, 1993). Abstract thinking leads people to focus on the meaning of affirmative action policies, which is to reduce previous and continuing discrimination against underrepresented groups. Therefore, the effect of abstract thinking on support for affirmative action might be moderated by perceived discrimination: If people perceive that underrepresented groups such as women or African Americans are discriminated against, considering the abstract picture of the policy should lead them to realize that affirmative action is used to rectify this discrimination. In turn, this should lead to more positive attitudes. However, if people do not perceive these groups to be subjected to discrimination, such an abstract mindset might not lead to more positive attitudes for

affirmative action because people are less likely to perceive any discrimination that needs to be remedied. However, it is also possible that abstract thinking increases support for affirmative action, independent of inter-individual differences in perceived discrimination, by focusing on the positive end goal of a discrimination-free company, university, or society. A secondary hypothesis then is that the positive effect of thinking abstractly about an affirmative action policy on support for that policy is moderated by perceived discrimination.

Current Research

In five studies, we test whether adopting an abstract view on affirmative action leads to more positive attitudes toward affirmative action due to its presumed focus on the desired end state. Study 1 provides first evidence for this prediction in a correlational design. Studies 2 through 5 manipulate abstract thinking to establish the causal impact of abstract thinking on support for affirmative action. Study 2 examines whether thinking abstractly about affirmative action increases support for it. Study 3 replicates Study 2 and examines resource allocation. Studies 4 and 5 use different affirmative action policies and company descriptions to replicate the main effect of abstract thinking. Additionally, Studies 2 and 3 test whether perceived discrimination increases the effect of abstract thinking on affirmative action. Studies 4 and 5 then examine whether perceived discrimination in a specific company has the same effect.

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the studies. All studies were run on Amazon's Mechanical Turk (MTurk). Participants on MTurk are more attentive to instructions than college students, and are more representative of the U.S. population than most convenience samples (Berinsky, Huber, & Lenz, 2012; Buhrmester, Kwang, & Gosling, 2011; Hauser & Schwarz, 2015). Furthermore, research with MTurk workers often leads to results similar to findings with

nationally representative samples (Mullinix, Leeper, Druckman, & Freese, 2016). To ensure high data quality, only MTurk workers from the United States with an approval rate higher than 90% could participate, and only in one of the five studies.

Study 1

In Study 1, we used a correlational design to establish evidence for our hypothesis that abstract thinking would be associated with more positive attitudes toward affirmative action. To do so, we focused on two common measures of abstract thinking. The first measured attention toward details of an object vs. the whole of an object and its relationships with the context. The second measured whether actions are identified at lower or higher levels of representation. We also used two measures of support toward affirmative action. The first examined support for affirmative action in general. The second more specifically tested support for workers hired through affirmative action so that we could test whether any predictive effects of abstract thinking would generalize from general support to support for specific workers. Data for all studies can be found at: osf.io/jk3cx.

Method

Ethics statement. The present studies were approved (in their present or a similar form) and funded through a junior researcher grant awarded to Alexandra Fleischmann and Pascal Burgmer by the research unit *FOR 2150 Relativity in Social Cognition* of the German Research Foundation. The research reported here was conducted in accordance with ethical standards for the treatment of human participants at the University of Cologne and in accordance with the ethical standards of the German Psychological Society.

Participants and design. We recruited 251 U.S. American MTurk workers (118 women, 130 men, 3 other; M_{age} = 35.83, SD_{age} = 11.32; 83% White American [n = 209], 5% [n = 12]

African American, 6% [*n* = 14] Asian American, 4% [*n* = 11] Hispanic American, 2% [*n* = 5] other) for a compensation of $0.35. Sample size was set a priori to 250 because correlations tend to stabilize around 250 participants (Schönbrodt & Perugini, 2013).

Materials and procedure. Participants read that they would be asked about their opinion on several different topics and first completed the two scales measuring abstract thinking: the Locus of Attention (LOA) subscale of the Analysis-Holism-Scale (Choi, Koo, & Choi, 2007) and the Behavior Identification Form (BIF, Vallacher & Wegner, 1989). The Analysis-Holism scale measures preferences for analytic versus holistic thinking. In particular, the LOA subscale measures the location of people's attention. That is, it tests whether people focus on the whole or the parts of something in their lives. It includes six items such as "It is more important to pay attention to the whole context rather than the details" (Cronbach's $\alpha = .83$) (Choi et al., 2007). Participants rated the LOA items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

The BIF measures whether people describe specific actions, such as cleaning the house or locking a door, on a higher, more abstract level or on a lower, more concrete level of representation. A higher-level description focuses on the reasons behind an action, thinking about its motives and larger meanings. In contrast to that, a lower-level description focuses on the implementation of the action, thinking about its details and means to execute it. The BIF includes 25 forced-choice items. Participants have to decide whether to describe an action in a lower or higher level of representation. For example, participants decide whether to describe the action "Making a list" either as "Getting organized" (higher level, 1 point) or as "Writing things down" (lower level, 0 points) (Cronbach's $\alpha = .91$).

After that, participants rated the two scales measuring attitudes toward affirmative action: the Attitude Toward Affirmative Action Scale (ATAAS, Kravitz & Platania, 1993) and the Attitude Toward Affirmative Action Workers Scale (ATAAW, Susskind, Brymer, Kim, Lee, & Way, 2014). The ATAAS is a widely used scale that measures participants' general approval toward affirmative action. It includes six items—for example, "Affirmative action is a good policy" (Cronbach's $\alpha = .91$) (Kravitz & Platania, 1993). The ATAAW measures a more specific approval, namely the approval of workers hired due to affirmative action programs. It includes five items—for example, "Workers hired through affirmative action programs tend to be less qualified than those hired without affirmative action" (Cronbach's $\alpha = .90$) (Susskind et al., 2014). By using both scales, we could examine whether any predictive effect of abstract thinking on support for affirmative action would also generalize to support for workers hired through affirmative action. Participants rated both the ATAAS and the ATAAW on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). After that, to make sure that participants were familiar with the affirmative action concept, they indicated whether they knew what affirmative action was, with the answer possibilities "Yes," "A little bit," and "No" and then briefly described affirmative action. Finally, participants answered demographic questions.

Results

Most participants indicated that they knew ($n = 182$, 73%) or knew a little ($n = 53$, 21%) about what affirmative action was. We recoded reversed items for the LOA, the ATAAS, and the ATAAW, and calculated the mean, so that higher scores indicated higher locus of attention on the whole, higher approval of affirmative action, and higher approval of workers hired through affirmative action, respectively. For the BIF, we summed all items, so that values ranged

between 0 (all answers on lower, concrete level) to 25 (all answers on higher, abstract level). For means and standard deviations, see Table 1.

In line with our predictions, seeing the whole rather than the details (LOA) positively correlated with approval of affirmative action (ATAAS), however, not with approval of workers hired through affirmative action (ATAAW; see Table 1). Contrary to our predictions, describing actions on a more abstract level (BIF) did not correlate with approval of affirmative action in general (ATAAS) or approval toward workers hired through affirmative action in particular (ATAAW), but it also did not correlate with seeing the whole rather than the details (LOA) (see Table 1). When we repeated the analyses without participants who indicated that they did not know what affirmative action was, our results remained the same.

Discussion

Study 1 provides first evidence that an abstract mindset, operationalized as holistic thinking, is related to more support for affirmative action. However, this did not extend to support for workers hired through affirmative action policies or to abstract thinking operationalized with the BIF. Although ATAAS and ATAAW measure similar constructs (as seen by their high correlation), it is possible that people refrain from generalizing their attitudes toward affirmative action to attitudes toward specific people hired through affirmative action. Therefore, other influences might play a bigger role here, explaining the lack of relationship between LOA and ATAAW. Note that we also cannot rule out small correlations for these variables, but our sample size gave us 80% power to find a correlation greater than .17. With regard to the BIF as another measure of abstract thinking, holistic thinking and the BIF also did not correlate, so the two scales seem to measure distinct features of abstract thinking: Whereas the LOA measures general tendencies to see the whole picture, the BIF measures specific

instances of abstract thinking that might not generalize to thinking about affirmative action. In Study 2, we therefore used an established task to directly manipulate abstract (vs. concrete) thinking about affirmative action. Furthermore, manipulating abstract thinking to establish causality is the first step in the direction of developing a theory-based intervention.

Study 2

Study 1 examined whether general tendencies of abstract thinking are related to support for affirmative action and provided first correlational evidence for this relationship. Extending the results of Study 1, Study 2 tested the causal impact of abstract thinking on attitudes toward affirmative action more precisely. To do so, we experimentally manipulated abstract thinking with the commonly used how versus why task (e.g., Liberman et al., 2007; Siddiqui et al., 2014; Williams et al., 2014). This task is based on the idea that thinking about why (vs. how) an action is implemented results in more abstract, high-level thinking via an attentional shift to desirability (vs. feasibility) of that action. We used a strong affirmative action policy that includes the equality-based measure of preferential hiring because attitudes toward strong policies are especially negative (Aberson, 2007; Levi & Fried, 2008).

Study 2 also included a potential moderator: perceived discrimination against the target group of the affirmative action policy. *Perceived discrimination* measures whether people believe that disparities in the workplace are based on previous discrimination—for example due to stereotypes or a biased selection process. Based on previous research (Aberson, 2007; Kravitz & Klineberg, 2000; Kravitz et al., 2000), we assumed that the effects of abstract thinking on attitudes toward affirmative action might be more pronounced for those who perceive higher discrimination in the first place. To test this, Study 2 assessed participants' perceived discrimination against the target group.

Method

Participants and design. We recruited 201 U.S. American MTurk workers (87 women, 113 men, 1 other; M_{age} = 36.29, SD_{age} = 12.10; 80% [n = 161] White American, 4% [n = 8] African American, 6% [n = 11] Asian American, 7% [n = 14] Hispanic American, 4% [n = 7] other) for a compensation of $0.40. Using GPower (Faul, Erdfelder, Lang, & Buchner, 2007), sample size was set a priori to 200 to obtain 80% power (Cohen, 1992) for a small-to-medium effect of Cohen's d = .40 (~ the average effect size in social psychology, Richard, Bond, & Stokes-Zoota, 2003). Participants were randomly assigned to one of two conditions (thinking: abstract vs. concrete; between-subjects). In the abstract condition, participants had to think about an affirmative action policy abstractly, whereas in the concrete condition, participants had to think about an affirmative action policy concretely (more detailed description follows).

Materials and procedure. Participants read that we were interested in how questions influence opinions on policies. Then, they read an affirmative action policy (the preferential treatment policy by Zdaniuk & Bobocel, 2011). This policy included an equality-based measure, namely setting a minimum qualification and hiring target group members that met this minimum qualification until the demographic make-up of the company corresponded to the demographic make-up of the applicant pool. In particular, participants read:

> Corporation A's affirmative action policy seeks to ensure that target-group members (e.g., women, visible minorities, and the physically challenged) are not underrepresented in the organization (relative to the demographic make-up of the applicant pool). When considering employees for hiring and promotion, a new procedure is used with Corporation A's affirmative action policy. A minimum, yet adequate, qualification level for each position has been set. The most qualified

> applicant above this level receives the available position unless there are any target-group members (e.g., women, visible minorities, and the physically challenged) above the minimum qualification level. In this case, the target-group applicant is selected before a potentially better qualified non-target group employee (Zdaniuk & Bobocel, 2011, p. 348).

To manipulate abstract versus concrete thinking about the affirmative action policy, we relied on the established how versus why task (e.g., Liberman et al., 2007; Siddiqui et al., 2014; Williams et al., 2014). Depending on condition, the heading stated: "How [Why] is Company's A policy implemented?" Participants in the concrete condition were then asked to think about how the policy was implemented, whereas participants in the abstract condition were asked to think about why the policy was implemented. Participants in both conditions then briefly wrote down their thoughts. Although participants in both conditions thus thought about the affirmative action policy, they either adopted a concrete or an abstract state of mind while doing so.

Next, participants answered the perceived discrimination scale (Linton & Christiansen, 2006). The perceived discrimination scale measures how much discrimination people perceive in a hiring process and how much they believe that workplace disparities are a result of previous discrimination. People who score higher on the perceived discrimination scale believe that Whites have an advantage over African Americans in being hired due to stereotypes and biased selection systems. People who score lower on the perceived discrimination scale believe that the selection process is fair and African Americans are likely to be hired if they are qualified. The perceived discrimination scale includes 15 items—for example, "The current system discriminates against African Americans" or "If an African American is qualified for the job, chances are that he/she will be hired" (reverse coded). We also adapted the scale to measure

perceived discrimination against women by changing African American to women, Whites to men, and race to gender. Participants were instructed to answer these scales for the United States in general, and they rated both scales on a 7-point scale from 1 (*disagree completely*) to 7 (*agree completely*) (Cronbach's $\alpha = .92$ for perceived discrimination against African Americans and Cronbach's $\alpha = .93$ for perceived discrimination against women).

After that, participants indicated their approval for the affirmative action policy, by answering the following three questions: "To what extent do you agree with this program?," "To what extent do you agree with the program's goal?," and "To what extent do you agree with measures taken to achieve this goal?" (Tougas, Crosby, et al., 1995). Participants answered the questions on a 7-point scale from 1 (*not at all*) to 7 (*very much*) (Cronbach's $\alpha = .92$). Finally, participants filled out demographic questions and indicated whether they filled out the study carefully and their data should be used (Aust, Diedenhofen, Ullrich, & Musch, 2013).

Results

All participants indicated we should use their data, so no participants were excluded. We first examined whether thinking abstractly about affirmative action lead to more support for affirmative action. Descriptive statistics can be found in Table 2a. Contrary to our main hypothesis, when participants thought abstractly about the affirmative action policy, their attitudes toward the policy were not different than when other participants thought concretely about it, $t(199) = 0.29$, $p = .773$, $d = 0.04$, 95% CI [-0.24, 0.32].

Next, we tested whether there was a moderation by perceived discrimination against women and African Americans, using Model 1 of the PROCESS macro v2.16 for SPSS (Hayes, 2013) with 10.000 bootstrapped samples. In line with our secondary hypothesis, perceived discrimination against women moderated how thinking abstractly about affirmative action

influenced approval for it (see Table 3). Thinking abstractly about affirmative action led to more approval for it (compared to thinking concretely about affirmative action) only when participants perceived women to be highly discriminated against (one standard deviation above the mean for perceived discrimination; see Table 3). The pattern for perceived discrimination against African Americans was very similar: Thinking abstractly (vs. concretely) about affirmative action lead to more positive attitudes toward affirmative action when participants perceived African Americans to be highly discriminated against (more than one standard deviation above the mean for perceived discrimination; see Table 3).

Because the affirmative action policy targeted women and minorities, we tested whether the results differed for men and women as well as for Whites and People of Color. A 2 (thinking: abstract vs. concrete) x 2 (gender: male vs. female) x 2 (ethnicity: Whites vs. People of Color) factorial ANOVA showed no main effect for condition, gender, or ethnicity (all Fs < 1.64, ps ≥ .202, $\eta_p^2 < .01$). Furthermore, neither of the three two-way interactions was significant (all Fs ≤ 0.30, ps ≥ .583, $\eta_p^2 < .01$), and the three-way interaction was not significant as well, $F(1, 192) = 2.19$, $p = .141$, $\eta_p^2 = .01$.

Discussion

Study 2 yielded mixed results: Overall, abstract thinking about affirmative action did not increase support for affirmative action policies. However, abstract thinking did improve attitudes toward affirmative action policies for people who perceived higher discrimination against the target groups of affirmative action (women or African Americans) in society. This speaks to the idea that abstract thinking might be able to increase a focus on the reasons for affirmative action, including prior and continuing discrimination, as well as the purpose of affirmative action in combating these disadvantages. Our data further suggest that this may be particularly true for

those who perceive higher levels of discrimination to start. If this was indeed the case, an intervention with abstract thinking might not add much because people who perceive higher discrimination already support affirmative action more. To examine the moderating role of perceived discrimination in more detail, we conducted Study 3.

Study 3

Study 3 served several purposes. First, we examined whether the effect of abstract thinking extends to downstream consequences, namely the allocation of resources. We wanted to test whether abstract thinking would not only improve attitudes toward affirmative action, but also increase what people would (hypothetically) invest to establish affirmative action. Second, we replicated Study 2 to test whether individual differences in perceived discrimination would again emerge as a meaningful moderator of the effect of abstract thinking on support for affirmative action. Finally, the affirmative action policy in Study 2 referred to several target groups, therefore mixing attitudes about affirmative action policies for different groups. In Study 3, we focused on only one target of affirmative action, namely women.

Method

Participants and design. We recruited 292 U.S. American MTurk workers (155 women, 137 men; M_{age} = 35.92, SD_{age} = 12.06; 77% [n = 226] White American, 9% [n = 26] African American, 6% [n = 17] Asian American, 6% [n = 17] Hispanic American, 2% [n = 6] other) for a compensation of $0.40. As we wanted to replicate Study 2 and wanted to ensure to detect a possible effect, sample size was set a priori to 290 to allow 90% power for the moderation of Study 2, using GPower (Faul et al., 2007). Again, participants were randomly assigned to either an abstract or concrete condition.

Materials and procedure. Participants again read that we wanted to know how questions influence policies. Then, they read about the affirmative action policy, which was the same policy as in Study 2 (Zdaniuk & Bobocel, 2011) but narrowed to the target group of women. "Target-group members" was replaced with "women," "target-group applicant" with "female applicant," and "non-target group employee" with "male applicant," and the description of the target group members in brackets was deleted. The manipulation of abstract thinking was again the how versus why task (Liberman et al., 2007; Siddiqui et al., 2014; Williams et al., 2014). After filling out the task, participants completed the perceived discrimination scale adapted for discrimination against women in the United States (Linton & Christiansen, 2006) and the same measure for approval of affirmative action (Tougas, Crosby, et al., 1995) as in Study 2.

Complementing our previous measures, we also assessed whether people would invest resources (time, money) for a non-governmental organization (NGO) that advocated for affirmative action goals (based on Baldwin & Lammers, 2016). Participants learned about two NGOs, *People first* and *Together for everyone* (see Figure 1, see also the online supplement for the original color version), that were randomly presented on the left or right side of the computer screen. Additionally, one NGO was randomly paired with an affirmative action goal ("Our mission is to achieve that the companies in this state have an affirmative action plan and actively avoid discrimination against women!") and the other with a different worker-friendly plan ("Our mission is to achieve that the companies in this state offer flexible working hours and home office possibilities for their employees!"). People read that they had 100 hours of free time in the next month (time measure) and then that they had $100 to spend on something (money measure). They were told that they decided to volunteer their free time/spend their money on one of the two NGOs, but that they could also decide to have free time (time measure) or buy something

nice for themselves (money measure). Then, they had to allocate their time and money between the NGO with an affirmative action goal, the NGO with the flexible working hours-goal, and themselves. Finally, participants provided demographics and indicated whether we should discard their data due to inattention.

Results

Descriptive statistics can be found in Table 2b. First, we looked at approval of affirmative action. In line with our main hypothesis, thinking abstractly about affirmative action increased participants' approval of affirmative action compared to thinking concretely about it, $t(290) = 3.33$, $p = .001$, $d = 0.39$, 95% CI [0.16, 0.62]. We also tested whether the manipulation varied by gender with a 2 (thinking: abstract vs. concrete) x 2 (gender: male vs. female) factorial ANOVA. Again, in line with our main hypothesis, thinking abstractly increased support for affirmative action, $F(1, 288) = 10.89$, $p = .001$, $\eta_p^2 = .04$, 90% CI [.01, .08]. (Note that we report 90% confidence intervals for *F*-tests based on the recommendation by Steiger, 2004). As expected by previous research, women agreed more with affirmative action than men did, $F(1, 288) = 6.52$, $p = .011$, $\eta_p^2 = .02$. 90% CI [<.01, .06]. Most importantly, the manipulation did not interact with gender, $F(1, 288) = 0.90$, $p = .343$, $\eta_p^2 < .01$, 90% CI [.00, .02], so that we can assume that the manipulation worked for men and women similarly.

Then, we looked at downstream consequences, namely the allocation of time and money. The results were weaker than the effect on the measure of support for affirmative action. Thinking about affirmative action abstractly did not lead participants to volunteer significantly more time for the affirmative action NGO, $t(290) = 1.89$, $p = .060$, $d = 0.22$, 95% CI [-0.01, 0.45], or donate more money to the affirmative action NGO, $t(290) = 0.69$, $p = .489$, $d = 0.08$, 95% CI [-0.15, 0.31], than thinking about it concretely. To rule out that abstract thinking leads to

a general increased tendency of volunteering or donating, we repeated the analyses for time and money with time and money given to the other NGO as a covariate. Results were the same as without the covariate.

Next, we tested whether the effect of abstract thinking was moderated by perceived discrimination against women with the PROCESS macro for SPSS (Hayes, 2013), Model 1 with 10.000 bootstrapped samples. How much discrimination people perceived against women in the United States did not moderate the effect of abstract thinking on support for affirmative action (see Table 4). However, in line with our secondary hypothesis, perceived discrimination against women played a role in whether people who thought abstractly about affirmative action volunteered more time than people who thought concretely about it (see Table 4). When people perceived lower to average amounts of discrimination (one standard deviation below the mean and at the mean for perceived discrimination), they did not volunteer more time for the affirmative action NGO when thinking about affirmative action abstractly. Yet, when people perceived higher amounts of discrimination (one standard deviation above the mean for perceived discrimination), they did volunteer more time for the affirmative action NGO when thinking about it abstractly than concretely (see Table 4). Perceived discrimination did not moderate whether abstract thinking increased money donated to an affirmative action NGO (see Table 4). Again, we also analyzed the data with the resources for the other NGO as a covariate, yielding the same results as without the covariate. Six participants indicated to probably or definitely not use their data due to inattention. Results without these participants remained the same.

Discussion

In line with our main hypothesis, Study 3 found that thinking abstractly about affirmative action lead to more support for affirmative action. However, with regard to downstream consequences, the effects were weaker. Specifically, abstract thinking did not lead to significantly more intentions to volunteer time for the affirmative action NGO for all people, but only for those who perceived high levels of discrimination against women. Abstract thinking did not lead to a significant effect on intentions to allocate money. Furthermore, in contrast to Study 2, we found that perceiving discrimination against women only moderated the effect of abstract thinking on time volunteered for the affirmative action NGO, but not on overall attitudes or money spent. To identify whether perceiving discrimination is a necessary prerequisite for abstract thinking to increase support for affirmative action, we manipulated perceived discrimination in Study 4.

Study 4

The results of previous studies were inconsistent: In Study 3, we found a main effect of abstract thinking, but we did not find this effect in Study 2. Furthermore, we found that perceived discrimination moderated the effect of abstract thinking in Study 2, but in Study 3 we only found that perceived discrimination moderated the effect for time volunteered, but not for attitudes in general or for money spent. Furthermore, because we only measured perceived discrimination, we cannot rule out that participants who perceived higher discrimination differed on other characteristics as well. Therefore, in Study 4, we manipulated perceived discrimination to test whether abstract thinking would only increase support for affirmative action if perceived discrimination was high.

Method

Participants and design. We recruited 201 U.S. American MTurk workers (89 women, 112 men; M_{age} = 37.83, SD_{age} = 12.91; 84% [n = 168] White American, 6% [n = 12] African American, 5% [n = 9] Asian American, 3% [n = 6] Hispanic American, 3% [n = 6] other) for a compensation of $0.50. Participants were randomly assigned to one condition of a 2 (thinking: abstract vs. concrete; between-subjects) x 2 (discrimination: no vs. yes, within-subjects) mixed design. We also varied which company (discrimination vs. no-discrimination) was presented first to account for order effects. Sample size was set a priori to 200 to obtain 80% power to find a small effect of f = .10 for the between-within interaction and to ensure that even small effects would have a high possibility to be detected.

Materials and procedure. Participants read that we were interested in how questions influence opinions on company programs and that they would get to know two companies that differed but had introduced the same program. Then, participants were randomly presented either with the company with or without discrimination first. To manipulate discrimination, we adapted the low and high prior discrimination company versions by Levi and Fried (2008). Participants read that women were underrepresented at each company (named Company X and Company Y). For the company without discrimination, participants read that the demographic make-up of the company's labor market had changed and different factors unrelated to discrimination prevented the company's demographic make-up from changing as fast. For the company with discrimination, participants read that the underrepresentation of women was the result of discriminatory practices.

Then, as a manipulation check, participants indicated how much women were discriminated against in this company by answering the first four items of the perceived

discrimination against women scale (see Studies 2 and 3), all rated on a 7-point scale from 1 (*completely disagree*) to 7 (*completely agree*). After this, they read the affirmative action policy introduced by the company. The policy was an adapted version of the strong affirmative action policy by Levi and Fried (2008), with an added part similar to the last sentence of the description of the prior discrimination by the companies. The policy again included an equality-based measure, namely a quota for women with a minimal qualification requirement. Changes from the original policy are given in brackets. In particular, participants read:

> In response to the low percentage of [female employees at Company X], […] top management [designed] an affirmative action recruitment program […] to increase the number of qualified [women] for its job openings. [In particular, preferences are given to women in the company's affirmative action hiring program]. Specifically, [Company X] has set aside a certain number of jobs for women who are at least minimally qualified. (Levi & Fried, 2008, p. 1129).

Depending on condition, participants then thought about it concretely or abstractly (using the same how vs. why task as in Studies 2 and 3), and afterwards they rated their approval on the same measure as in Studies 2 and 3. After that, the procedure was repeated for the other company. In the end, participants answered demographics and indicated whether we should discard their data due to inattention.

Results

Two participants indicated that we should probably not include their data because they did not fill out the study attentively. Results remain the same without these participants, and we present the results for the whole sample. Descriptive statistics can be found in Table 2c. To control for order effects, we analyzed all measures with a 2 (thinking: abstract vs. concrete;

between-subjects) × 2 (discrimination: no vs. yes; within-subjects) × 2 (presentation order: discrimination first vs. no-discrimination first; between-subjects) repeated-measures ANOVA. First, we examined the manipulation check: Participants perceived that women were discriminated against more in the company with discrimination than in the company with no discrimination, $F(1, 197) = 819.59$, $p < .001$, $\eta_p^2 = .81$, 90% CI [.77, .83]. No effects of abstract thinking or order of presentation on discrimination or any higher interactions were significant (all Fs < 1), making our manipulation of prior discrimination successful.

Next, we looked at approval of affirmative action. In line with our main hypothesis, we found an effect of thinking: Participants approved more of affirmative action if they thought about it abstractly than if they thought about it concretely, $F(1, 197) = 6.09$, $p = .014$, $\eta_p^2 = .03$, 90% CI [.00, .08]. However, contrary to our secondary hypothesis and Study 2, and instead more in line with Study 3, there was no interaction of thinking with discrimination—that is, this was the case for both companies regardless of discrimination, $F(1, 197) = 0.54$, $p = .465$, $\eta_p^2 < .01$, 90% CI [.00, .03]. Moreover, there was no effect of discrimination, that is, participants did not approve significantly more of affirmative action if the company discriminated against women, $F(1, 197) = 3.82$, $p = .052$, $\eta_p^2 = .02$, 90% CI [.00, .06]. To test whether abstract thinking influenced men and women similarly, we repeated the same ANOVA with gender as an additional factor, and we found no significant effect of participants' gender, $F(1, 193) = 1.37$, $p = .243$, $\eta_p^2 = .01$, 90% CI [.00, .04], and, more importantly, no interaction of gender with abstract/concrete thinking, $F(1, 193) = 0.01$, $p = .904$, $\eta_p^2 < .01$, 90% CI [.00, <.01].

There was no effect of presentation order, $F(1, 197) = 2.95$, $p = .087$, $\eta_p^2 = .02$, 90% CI [.00, .05]. However, presentation order and abstract thinking interacted, $F(1, 197) = 5.07$, $p = .025$, $\eta_p^2 = .03$, 90% CI [.00, .07]. If participants read about the company with no discrimination

first, they approved more of affirmative action if thinking about it abstractly (M = 5.09, SD = 1.48) than concretely (M = 4.02, SD = 1.80), $F(1, 197) = 11.09$, $p = .001$, $\eta_p^2 = .05$, 90% CI [.01, .11]. However, if participants read about the company with discrimination first, they generally approved of affirmative action, no matter whether they thought about it abstractly (M = 4.97, SD =1.52) or concretely (M = 4.92, SD = 1.60), $F(1, 197) = 0.02$, $p = .878$, $\eta_p^2 < .01$, 90% CI [.00, .01].

Discussion

Study 4 provides further evidence that thinking abstractly about affirmative action improves attitudes toward it. Interestingly, in contrast to prior research on perceived discrimination (Aberson, 2007; Kravitz & Klineberg, 2000; Kravitz et al., 2000), people did not approve significantly more of affirmative action when the company was described to have discriminated against women. Additionally, thinking abstractly about affirmative action lead to more positive attitudes regardless of whether the company was described as having discriminated against women or not. This contrasts Study 2, but is more in line with the main findings from Study 3. One reason for this might be that people read that women were underrepresented even in the company that did not discriminate against women, and might thus have perceived the affirmative action policy as an appropriate tool to increase women's representation at that company, regardless of the specific reason of the underrepresentation (i.e., discrimination or other causes).

Unfortunately, the effect of thinking abstractly also interacted with presentation order, so that thinking abstractly about affirmative action only improved attitudes when the company with no discrimination was presented first. When the company with discrimination was presented first, attitudes were generally already positive. This is in line with previous research on

discrimination (Aberson, 2007; Harrison et al., 2006; Kravitz & Klineberg, 2000). Providing clear evidence that discrimination exists and therefore affirmative action is needed might be a very efficient way to increase support for affirmative action. However, such clear evidence might be hard to accomplish, because it is inconsistent with actual real-world companies that are seldom found to explicitly discriminate against women. We address these issues in our final study.

Study 5

In Study 5, we replicated Study 4 with a different design, allowing us to address the issues we mentioned. To examine our main hypothesis, we again manipulated abstract versus concrete thinking. To examine our secondary hypothesis, we also manipulated perceived discrimination. To be able to do this more precisely, we changed two characteristics. First, we used a between-subject design to avoid influences of presentation order on the effect of abstract thinking and to ensure that effects hold when thinking about one specific company and affirmative action policy. Second, we altered our manipulation of discrimination to remove any perceived discrimination in the no-discrimination condition. Both companies were described to have 50% female applicants, and the company with no discrimination also had 50% female employees, making it clear that no discrimination occurred at the hiring stage. The company with discrimination, however, had 30% female employees, implying that hiring discrimination might have occurred. This manipulation mirrored real-world conditions as closely as possible because outcomes are often the only factor people can use to decide whether discrimination has occurred.

Method

Participants and design. We recruited 515 U.S. American MTurk workers (228 women, 281 men, 6 other; M_{age} = 35.89, SD_{age} = 11.32; 74% [n = 383] White American, 8% [n = 43]

African American, 7% [*n* = 37] Asian American, 6% [*n* = 32] Hispanic American, 4% [*n* = 20] other), who participated for a compensation of $0.25. Participants were randomly assigned to one condition of a 2 (thinking: abstract vs. concrete) x 2 (discrimination: yes vs. no) between-subjects design. Using GPower (Faul et al., 2007), sample size was set a priori to 512 to obtain 80% power for the interaction (expecting a medium effect of f = .25 for the discrimination condition and no effect in the no-discrimination condition, Simonsohn, 2014).

Materials and procedure. Participants again read that we were interested in how questions influenced policies. Then, they read one of two descriptions of Company A, which ran several hospitals and was quite popular with doctors due to good working conditions. In particular, participants in the no-discrimination condition read the following:

> Company A is a medium-sized organization that runs several hospitals across the state. It employs around six hundred doctors, and is well known for its good pay and benefits, and reasonable working hours, compared to other hospitals. Due to this good reputation, a lot of doctors usually apply to Company A if a position opens up. The applicant pool usually consists of around 50% female and 50% male doctors. A recent examination showed that from the doctors working at Company A, around 50% are female and around 50% are male.

Participants in the discrimination condition read the same description, except that the last sentence was the following: “A recent examination showed that from the doctors working at Company A, around 30% are female and around 70% are male.”

After reading about the company, participants also read about the affirmative action policy (an adapted version of the preferential treatment policy by Zdaniuk & Bobocel, 2011). This policy included an equality-based measure, namely hiring and promoting female doctors

that are above a minimum qualification to ensure that women are not underrepresented in the company relative to the application pool. Changes from the original policy are given in brackets. In particular, participants read:

> [Company A's] affirmative action policy seeks to ensure that [women] are not underrepresented in the company (relative to the demographic make-up of the applicant pool). [If female doctors are underrepresented], a new procedure is used with [Company A's] affirmative action policy [when considering doctors for hiring and promotion]. A minimum, yet adequate, qualification level for each position has been set. The most qualified applicant above this level receives the available position unless there are any [female applicants] above the minimum qualification level. In this case, the [female doctor] is selected before a potentially better qualified [male doctor]. (Zdaniuk & Bobocel, 2011, p. 348).

Then, participants filled out the same manipulation of abstract (vs. concrete) thinking as in previous studies. As a manipulation check, participants indicated how much women were discriminated against in the company by answering the first four items of the perceived discrimination against women scale (see Study 2), all rated on a 7-point scale from 1 (*completely disagree*) to 7 (*completely agree).* Then, they rated the same measure of approval of affirmative action as in previous studies. Finally, participants gave their demographics and answered whether we should discard their data due to inattention.

Results

Seven participants indicated that we should probably or definitely not use their data due to inattention; however, results remained the same when excluding these participants. We present the result with the full sample. Descriptive statistics can be found in Table 2d. Participants in the

discrimination condition indicated that women were discriminated against more at the company than participants in the no-discrimination condition, $t(513) = 22.89$, $p < .001$, $d = 2.02$, 95% CI [1.80, 2.23], so we considered our manipulation successful.

Supporting our main hypothesis, participants clearly approved more of affirmative action if they thought about it abstractly than concretely, $F(1, 511) = 21.59$, $p < .001$, $\eta_p^2 = .04$, 90% CI [.02, .07]. However, as in Study 4, abstract thinking did not interact with discrimination. Specifically, thinking abstractly enhanced support for affirmative action regardless of whether the company discriminated against women or not, $F(1, 511) = 1.29$, $p = .257$, $\eta_p^2 < .01$, 90% CI [.00, .01], contrary to our secondary hypothesis. In contrast to previous research, participants did not approve significantly more of affirmative action if the company discriminated against women, $F(1, 511) = 3.84$, $p = .051$, $\eta_p^2 = .01$, 90% CI [.00, .02]. To test whether abstract thinking influenced men and women similarly, we used participants' gender as an additional factor, and we found that women approved more of affirmative action than men did, $F(1, 501) = 11.26$, $p = .001$, $\eta_p^2 = .02$, 90% CI [.01, .05]. More importantly, we found no significant interaction of gender with abstract/concrete thinking, $F(1, 501) = 0.24$, $p = .622$, $\eta_p^2 < .01$, 90% CI [.00, .01].

Discussion

Again, in line with our hypothesis, we find that adopting an abstract view on affirmative action improves attitudes toward it. We also again do not find that people approve significantly more of affirmative action when a company is alleged to discriminate against certain groups, in contrast to prior research (Aberson, 2007; Bobocel & Farrell, 1996; Kravitz & Klineberg, 2000; Kravitz et al., 2000; Tougas & Beaton, 1993). More importantly, even though the no-discrimination condition described a company with equal representation of women and men, and the discrimination condition described a company with unequal representation (but made no

actual mention of discrimination), abstract thinking increased support for affirmative action in both cases.

Meta-Analysis

To better estimate the size of our effects, we conducted two internal meta-analyses with R (R Core Team, 2017). The detailed calculations can be found here: osf.io/jk3cx. The first meta-analysis estimated the effect of thinking abstractly on support for affirmative action. We included Studies 2 to 5 (averaging over the approval for the company with and without discrimination). We computed Cohen's *d* and standard errors with BootES (Kirby & Gerlanc, 2013), and then computed a random-effects meta-analysis with metafor (Viechtbauer, 2010). In line with our main hypothesis, thinking abstractly about an affirmative action policy clearly lead to more support for it (Cohen's $d = 0.29$, $SE = .10$, $p = .003$, 95% CI [0.10, 0.48]).

The second meta-analysis estimated how perceived discrimination moderated the effect of thinking abstractly on support for affirmative action. We converted the effect sizes of Study 2 and Study 3 (moderation by perceived discrimination against women) to Cohen's *d* with the package esc (Luedecke, 2018) and converted the effect sizes of Study 4 and Study 5 (moderation by manipulated discrimination) to Cohen's *d* with the package compute.es (Del Re, 2013). Then, we conducted a random-effects meta-analysis with the package metafor (Viechtbauer, 2010). In line with our secondary hypothesis, perceived discrimination moderated the effect of abstract thinking on support for affirmative action, however, the effect was small (Cohen's $d = 0.16$, $SE = .06$, $p = .007$, 95% CI [0.04, 0.27]).

General Discussion

In five studies, we find that adopting an abstract view on affirmative action policies is related to more positive attitudes toward these policies. In Study 1, correlational evidence shows

that dispositional differences in holistic information processing (i.e., seeing the whole picture rather than its parts) predicts support for affirmative action (although individual differences in concrete versus abstract action representations did not emerge as predictor). Further, the relation between holistic thinking and support for affirmative action did not extend to support for workers hired through affirmative action. Studies 2 through 5 demonstrate that manipulating abstract thinking leads to more support for affirmative action. Study 2 indicates that only some people—those generally perceiving high discrimination against underrepresented groups in society—support affirmative action more after thinking abstractly about it. Study 3, however, finds a generally positive effect of abstract thinking across levels of perceived discrimination. Additionally, it suggests that abstract thinking might influence the allocation of time to support affirmative action policies for people who perceive high levels of discrimination against women. Finally, Studies 4 and 5 manipulate perceived discrimination, and they find that the positive effect of abstract thinking on support for affirmative action is independent of it. To better estimate the effect, we ran a meta-analysis on both the main effect of abstract (vs. concrete) thinking and the moderation by perceived discrimination. We found that thinking abstractly clearly increases support for affirmative action (main hypothesis) and that the moderation by perceived discrimination is also significant, but very small (secondary hypothesis).

Our findings that adopting an abstract view of affirmative action increases support for affirmative action are consistent with construal level theory, which predicts that thinking abstractly leads people to focus on the meaning of an action (Smith & Trope, 2006) and on the desirability of the action's end state (Liberman & Trope, 1998). Because affirmative action clearly entails a positive end state (i.e., to make sure that no discrimination occurs and to redress prior discrimination), focusing on its purpose creates more positive attitudes toward it. In

contrast to that, thinking concretely about affirmative action may shift the focus to the details and implementation of the policy, including potential negative side effects such as disadvantages for individual majority members. This focus, in turn, might induce more negative attitudes toward affirmative action because concrete identification of negatively affected individuals reduces support for affirmative action (Ritov & Zamir, 2014). This reasoning is also in line with research on diversity, which is considered desirable, but not very feasible. Therefore, diversity is preferred more under distant conditions (i.e., high-level construal)—for example, when creating a team for others—than under proximal conditions (i.e., low-level construal)—for example, when creating a team in which one participates (Jaffé, Rudert, & Greifeneder, 2018).

Our findings are also in line with research on the distinction between idealistic versus pragmatic considerations (Danziger, Montal, & Barkan, 2012; Kivetz & Tyler, 2007). For example, Danziger et al. (2012) argue that in a dilemma where pragmatic considerations need to be weighted with idealistic considerations, people give more idealistic advice, but choose more pragmatically themselves because people construe dilemmas more abstractly and focus more on the "why" when they advise others than when they choose themselves. Similarly, Kivetz and Tyler (2007) state that distal time perspectives, which activate more abstract construal, lead people to focus on their idealistic self and their identity, whereas proximal perspectives lead people to consider pragmatic considerations and their instrumental benefits more. In a similar vein, affirmative action can be construed as a dilemma, where some people might have worse outcomes now in order to guarantee that future discrimination is reduced and ultimately eliminated. Therefore, abstract thinking can help to focus on idealistic considerations (i.e., to eliminate discrimination) and on the idealistic self (i.e., one that wants fair treatment for

everyone) instead of pragmatic considerations of implementation or even threats to one's personal gains if belonging to the majority group.

With regard to previous research on the positive influence of perceived discrimination on support for affirmative action (Bobocel & Farrell, 1996; Harrison et al., 2006; Tougas & Beaton, 1993), our findings provide mixed evidence. The more people perceived that the target group was discriminated against in society in general (Studies 2 and 3), the more they concluded that affirmative action was desirable. However, when people perceived discrimination against the target group in a specific company (Studies 4 and 5), they did not approve significantly more of affirmative action. Normally, people vary on how much discrimination they perceive, but discrimination generally is perceived as unfair. Therefore, the more people perceive discrimination, the more they should want it to be addressed, and the more likely they are to find affirmative action fair (Bobocel & Farrell, 1996). In turn, perceiving affirmative action as fair predicts support for affirmative action (Kravitz & Klineberg, 2000). Future research should address the different influences of general perceptions of discrimination in society and specific perceptions of discrimination in a particular company.

Interestingly, perceived discrimination was not necessary for abstract thinking to improve support for affirmative action in three of four studies. Although the meta-analysis showed it was significant as a moderator, the effect was very small (Cohen's $d = 0.16$). Therefore, the results on perceived discrimination should be interpreted with caution. It seems that thinking abstractly about affirmative action does not merely amplify the effects of perceived discrimination on support for affirmative action. Instead, people who think abstractly about affirmative action might focus more on the desirable end states and the purpose of affirmative action, hence showing greater support for it—above and beyond perceived discrimination. Consistent with this

observed main effect of abstract thinking, we did not observe any moderation of our findings by group membership (i.e., whether or not participants belonged to the minority or majority group).

Limitations and Future Research Directions

We find that thinking abstractly (vs. concretely) about affirmative action increases support for it. However, the precise psychological underpinnings are not yet understood and remain an open question for future research. For example, how does abstract (vs. concrete) thinking about affirmative action change people's mental representation of a particular affirmative action policy? Do people in an abstract mindset focus on the abstract (minority) group as a whole that suffers from continuing discrimination, whereas those in a concrete mindset focus on single individuals that may suffer from detrimental consequences due to the policy? In line with this speculation, previous research has found that being able to identify those adversely affected by affirmative action decreases support for affirmative action (Ritov & Zamir, 2014). Or, does abstract thinking about affirmative action cognitively render salient the positive goals of affirmative action (i.e., to counter prior and current discrimination and avoid future discrimination; Crosby et al., 2006; Harrison et al., 2006) instead of the feasibility of implementing affirmative action (Liberman & Trope, 1998)? More research is needed to understand how precisely such mindsets and abstract perspectives affect the underlying psychological mechanisms responsible for attitude formation and attitude change regarding affirmative action policies.

Similarly, future research might try to disentangle the effects of abstract thinking and psychological distance (e.g., Williams et al., 2014). Under some conditions, less (rather than more) psychological distance could increase people's support for affirmative action. For example, those who have been hired via such a policy themselves, or who are close to those who

were hired, might be more likely to support affirmative action in general, including for distant others. Even though we relied on randomization to experimental conditions and therefore did not consider such previous experiences that participants might have had, considering these experiences within a personal-is-political mindset (e.g., Peterson & Lamb, 2012) may be a fruitful avenue for extensions of the present work.

In our research, we relied on the how/why task to induce thinking abstractly about affirmative action, a commonly used manipulation of construal level and abstract thinking (Liberman et al., 2007; Siddiqui et al., 2014; Williams et al., 2014). This task was successful in increasing support for affirmative action, but future research should employ other manipulations of abstract thinking to be able to generalize our findings. We chose to focus on the how vs. why task because, from the perspective of a theory-based intervention, other mindset-priming procedures can be rather artificial, whereas asking people to consider the "why" of such policies (e.g., on websites or from information brochures) seems a much more feasible way of increasing support for them. Additionally, Study 1 provides support for the predictive effect of an abstract mindset on support for affirmative action using a policy-independent and general measure of holistic thinking, thereby complementing the experimental findings that relied on the how/why task.

One important question concerns the translation of our manipulation to an actual theory-based intervention. For example, how long would effects from such an intervention last and how often would the intervention need to be re-administered? Although lab-based interventions often do not test this longevity (Paluck & Green, 2009), it would be interesting for future research to follow up with participants days or weeks later to identify the perseverance of the manipulation. Furthermore, it would also be important to test such an intervention with actual employees at a

company with an affirmative action policy. Our studies were run with MTurk workers who are older than typical college samples and who usually are employed in addition to the work they do on MTurk (Buhrmester et al., 2011; Huff & Tingley, 2015). Nevertheless, they might still differ from those employees who currently deal with an affirmative action policy.

Practice Implications

From an applied perspective, inducing abstract thinking could be an effective way to increase support for affirmative action in universities, companies or government institutions. In our studies, we relied on construal-level theory, a widely established psychological theory (Trope & Liberman, 2003, 2010). We also employed the established how versus why task (Freitas et al., 2004; Liberman et al., 2007; Siddiqui et al., 2014; Smith et al., 2008; Williams et al., 2014), which is widely used and can easily be implemented. For example, when describing affirmative action policies, whether on company websites or in training manuals, the language should focus on the "why" behind the policies, explaining the bigger goals and the relevant background, such as previous discrimination, to gain more support for the policy. Similarly, in leadership trainings, employees could be asked to focus on the why of the policy and to state or write up reasons for the existence of the policy. By focusing on an established theory and a widely used manipulation, which at the same time can be easily implemented, we feel that our research is the first step toward a successful theory-based intervention. In general, the public debate about affirmative action policies seems to be mostly focused on the *how* (e.g., debates about whether or not quotas should be implemented), but policymakers should not forget about the *why* in order to sustain and increase people's and decision-makers' support of such policies.

Conclusion

Affirmative action is an effective policy that can redress prior discrimination and prevent future discrimination from happening. Unfortunately, attitudes toward affirmative action are often negative. These attitudes are influenced by characteristics of people and by their worldviews, which are hard or even impossible to change, and by features of affirmative action policies, which usually are not intended to be changed. Based on construal-level theory and the idea that thinking abstractly about affirmative action can enhance people's focus on the desired end-state of such policies (i.e., to eliminate discrimination), the present research introduces social-cognitive processes as a more flexible tool to increase support for affirmative action. Merely considering the abstract picture of affirmative action can increase support for it, thereby providing an efficient way of combating future discrimination.

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Table 1

Descriptive Statistics and Correlations among Study Variables, Study 1

Variable	*M* (*SD*)	95% CI	Correlations		
			2	3	4
1. Locus of Attention Subscale	4.90 (1.08)	[4.77, 5.03]	.063	.138*	.088
2. Behavior Identification Form	14.48 (6.81)	[13.65, 15.33]	--	.072	.080
3. Attitude Toward Affirmative Action	4.68 (1.52)	[4.49, 4.86]		--	.819***
4. Attitude toward Affirmative Action Workers	4.87 (1.58)	[4.67, 5.06]			--

*$p < .05$. ***$p < .001$.

Table 2

Descriptive Statistics for Dependent Variables within Experimental Conditions, Studies 2–5

	Abstract Thinking Condition			Concrete Thinking Condition		
Variable	*M*	*SD*	95% CI	*M*	*SD*	95% CI
			(a) Study 2			
Approval	4.06	2.06	[3.65, 4.44]	4.14	1.83	[3.78, 4.49]
PD of AA	3.94	1.40	[3.67, 4.21]	4.03	1.38	[3.75, 4.30]
PD of women	4.04	1.39	[3.77, 4.30]	4.24	1.37	[3.98, 4.51]
			(b) Study 3			
Approval	4.11	1.83	[3.81, 4.40]	3.39	1.86	[3.09, 3.69]
PD of women	4.32	1.30	[4.11, 4.53]	4.11	1.34	[3.88, 4.32]
Time	19.19	20.80	[16.01, 22.59]	14.77	19.05	[11.79, 17.94]
Money	15.95	17.52	[13.20, 18.80]	14.37	21.13	[11.07, 18.00]
			(c) Study 4			
Approval HD	5.18	1.71	[4.85, 5.51]	4.55	1.89	[4.17, 4.91]
Approval LD	4.87	1.75	[4.53, 5.21]	4.41	1.92	[4.04, 4.78]
			(d) Study 5			
Approval HD	4.43	1.76	[4.10, 4.73]	3.49	1.71	[3.19, 3.79]
Approval LD	3.92	2.07	[3.58, 4.28]	3.36	1.78	[3.06, 3.67]

Note. Approval = Approval of the affirmative action policy; PD of AA = perceived discrimination against African Americans; PD of women = perceived discrimination against women; Time = Time volunteered for affirmative action NGO; Money = Money volunteered for affirmative action NGO; Approval HD = Approval of the affirmative action policy in the high discrimination company; Approval LD = Approval of the affirmative action policy in the low discrimination company.

Table 3

Conditional Effects of Abstract (vs. Concrete) Thinking on Support for Affirmative Action, Study 2

Perceived discrimination against	*b*	SE	*p*	95% CI
Women[a,b]	0.40	0.16	.015	[0.08, 0.72]
2.76 (-1 SD)	-0.47	0.32	.141	[-1.09, 0.16]
4.14 (mean)	0.08	0.22	.714	[-0.36, 0.52]
5.53 (+1 SD)	0.63	0.32	.047	[0.01, 1.26]
African Americans[c,d]	0.39	0.16	.016	[0.07, 0.71]
2.60 (-1 SD)	-0.55	0.32	.083	[-1.17, 0.07]
3.98 (mean)	-0.01	0.22	.971	[-0.45, 0.43]
5.37 (+1 SD)	0.53	0.32	.091	[-0.09, 1.16]

Note. For perceived discrimination against women: $n = 31$ for ≤ 2.76, $n = 72$ for > 2.76 and ≤ 4.14, $n = 59$ for > 4.14 and ≤ 5.53, and $n = 39$ for > 5.53. For perceived discrimination against African Americans, $n = 34$ for ≤ 2.60, $n = 63$ for > 2.60 and ≤ 3.98, $n = 67$ for > 3.98 and ≤ 5.37, and $n = 37$ for > 5.37.

[a]Note that the values for women refer to the moderation of the effect of abstract thinking on support for affirmative action by perceived discrimination against women. [b]Johnson-Neyman significance regions show that thinking abstractly is negatively related to support for affirmative action when perceived discrimination against women is lower than 1.64 and a positively related when perceived discrimination is higher than 5.47. [c]Note that the values for African Americans refer to the moderation of the effect of abstract thinking on support for affirmative action by perceived discrimination against African Americans. [d]Johnson-Neyman significance regions show that thinking abstractly is negatively related to support for affirmative action when perceived discrimination against African Americans is lower than 2.12 and positively related when perceived discrimination is higher than 5.95.

Table 4

Conditional Effects of Abstract (vs. Concrete) Thinking on Support for Affirmative Action by Perceived Discrimination against Women in Study 3

Perceived discrimination against women	*b*	SE	*p*	95% CI
Attitudes toward affirmative action[a,b]	0.17	0.12	.176	[-0.07, 0.40]
2.89 (-1 SD)	0.30	0.23	.188	[-0.15, 0.75]
4.21 (mean)	0.52	0.16	.001	[0.20, 0.84]
5.54 (+1 SD)	0.74	0.23	.001	[0.29, 1.19]
Time for affirmative action[a,c]	3.43	1.69	.044	[0.10, 6.76]
2.89 (-1 SD)	-1.05	3.17	.742	[-7.29, 5.20]
4.21 (mean)	3.50	2.24	.119	[-0.91, 7.91]
5.54 (+1 SD)	8.05	3.17	.012	[1.82, 14.29]
Money for affirmative action[a]	1.64	1.67	.326	[-1.64, 4.93]
2.89 (- one SD)	-1.40	3.13	.656	[-7.56, 4.76]
4.21 (mean)	0.78	2.21	.724	[-3.57, 5.13]
5.54 (+ one SD)	2.96	3.12	.345	[-3.19, 9.11]

Note. $n = 55$ for ≤ 2.89, $n = 91$ for > 2.69 and ≤ 4.21, $n = 94$ for > 4.21 and ≤ 5.54, and $n = 52$ for > 5.54.

[a]Note that the values for attitudes toward affirmative action, time for affirmative action, and money for affirmative action refer to the moderation of the effect of abstract thinking on these variables by perceived discrimination against women. [b]Johnson-Neyman significance regions show that thinking abstractly is positively related to support for affirmative action when perceived discrimination against women is higher than 3.35. [c]Johnson-Neyman significance regions show that thinking abstractly is positively related to time for affirmative action when perceived discrimination against women is higher than 4.51.

Figure 1. The two hypothetical NGOs (nongovernmental organizations) used in Study 3. NGOs were randomly presented on the left or right side of the screen and randomly combined with an affirmative action or a flexible-working-hours goal.

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Figure 1s. Color version of the two hypothetical NGOs (nongovernmental organizations) used in Study 3. NGOs were randomly presented on the left or right side of the screen and randomly combined with an affirmative action or a flexible-working-hours goal.