Individual Differences in Ideological Attitudes and Prejudice: Evidence From Peer-Report Data

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Our knowledge on the personality basis of ideological attitudes and prejudice, while based on a substantial body of research, suffers from a potentially serious methodological limitation: an overreliance on the method of self-reports. Across 2 studies (N = 193, 424), we examined associations between the Big Five personality dimensions, Right-Wing Authoritarianism (RWA), Social Dominance Orientation (SDO), and generalized prejudice, using both self-report and peer-report data stemming from 1 (Study 1) or 2 (Study 2) peer raters. Correlational and regression analyses as well as structural equation modeling showed that (a) the associations between personality dimensions, ideological attitudes, and prejudice were largely similar to previous research for both data sources; (b) RWA and prejudice showed a similar level of self-peer agreement to personality dimensions; (c) most of the known associations between personality, ideological attitudes, and prejudice were replicated also when measured by independent methods; (d) peer reports had some incremental validity in predicting ideological attitudes and prejudice; and (e) there was evidence that Openness to Experience and Agreeableness predicted prejudice directly and not only indirectly via RWA and SDO, respectively. Implications for the status of RWA, SDO, and prejudice as individual-difference constructs and for their bases in personality dimensions are discussed.

Keywords: personality, ideology, prejudice, multi-method assessment, correlated-trait–correlated-uniqueness model

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In light of the ubiquity of prejudice in its many forms, research on the sources of prejudice continues to thrive. Within this area a focus on personality influences and individual differences has recently seen a revival (e.g., Duncan, Peterson, & Zurbriggen, 2010). Ideological attitudes have been identified as an important mediator of personality influences on prejudice (Duckitt & Sibley, 2010). However, previous research from this perspective has overwhelmingly relied on self-report data. To our knowledge, not a single study has measured ideological attitudes directly using a method other than self-report. This is a serious limitation. Overreliance on one method is problematic due to of the possibility of common-method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and because self-reports have shortcomings that may be particularly relevant for such strongly evaluative constructs as ideological attitudes and prejudice. We go beyond this methodological limitation of previous research by systematically examining relationships among personality dimensions, ideological attitudes, and prejudice using self-report and peer-report data. This methodological strategy, which is well established in personality research (e.g., McCrae & Weiss, 2007), promises important insights as it allows assessing to what extent previous findings can be replicated with another source of data and analyzing the construct validity of ideological attitudes and prejudice as individual-difference constructs.

In the following, we summarize briefly what we know about personality, ideological attitudes, and prejudice from previous, self-report-based research. Next, we discuss why the overreliance on self-report data constitutes a potentially serious methodological limitation. Then, we summarize initial steps that have been taken to go beyond this limitation and introduce the method of peer report before we finally outline more specifically the research questions addressed in this article.

Personality, Ideological Attitudes, and Prejudice

Individual differences in prejudice have been examined since the classic work on the Authoritarian Personality (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950). Studies pitting different individual-difference variables against one another in predicting prejudice converged in identifying Right-Wing Author-
itarianism (RWA; Altemeyer, 1981) and Social Dominance Orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994) as the two variables that account for most of the variance (Altemeyer, 1998; McFarland, 2010).1 Both RWA and SDO have been argued to express ideological attitudes rather than to be direct indicators of personality (Duckitt, 2001; Sibley & Duckitt, 2008). This conceptual distinction from personality dimensions such as the Big Five (i.e., Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness; John & Srivastava, 1999) forms the basis of the dual process model of ideology and prejudice (Duckitt & Sibley, 2010; Duckitt, Wagner, du Plessis, & Birum, 2002).

The dual process model states that effects of personality dimensions on prejudice are mediated through RWA and SDO. It suggests that personality dimensions, in particular Openness to Experience and Agreeableness, predispose people to develop certain worldviews, motivational goals, and ideological attitudes that further lead them to be prejudiced (e.g., Sibley & Duckitt, 2008; Sibley, Harding, Perry, Asbrock, & Duckitt, 2010). In the case of RWA, people who tend to think in rigid and inflexible ways, dislike and avoid uncertainty and novelty, and are unwilling to consider values and moral rules different from their own tend to see the world as a dangerous and threatening place. Dangerous-world beliefs, in turn, cause them to develop goals for social cohesion, collective security, and stability. Right-wing authoritarian attitudes—encompassing conventionalism, authoritarian submission, and authoritarian aggression (Altemeyer, 1981)—result from these threat-driven goals and, in turn, provide the ideological background for developing prejudice. In the case of SDO, people who are tough-minded, ruthless, and manipulative in pursuing their own interests and who are not very agreeable and concerned for others’ interests or desires tend to see the world as a competitive place where the strong survive and the weak lose out. Competitive-world beliefs, in turn, cause them to develop goals for superiority and dominance. Social-dominance attitudes, reflecting a preference for hierarchical versus egalitarian relations between groups (Sidanius & Pratto, 1999), result from these competition-driven goals and, in turn, provide the ideological background for developing prejudice.

There is considerable evidence for these assumptions, both cross-sectional and longitudinal. In the meta-analysis by Sibley and Duckitt (2008), across 25–48 samples (depending on the pair of variables), Openness to Experience correlated negatively with RWA (average r = −.36), SDO (r = −.16), and prejudice (r = −.30); Agreeableness correlated negatively with SDO (r = −.29) and prejudice (r = −.22); and Conscientiousness correlated positively with RWA (r = .15). Both RWA (r = .49) and SDO (r = .55) correlated positively with prejudice.2 All other correlations were not reliable or of negligible magnitude. There was further evidence that the (negative) relation between Agreeableness and prejudice was fully mediated by SDO, and the (negative) relation between Openness and prejudice was partially mediated by RWA. Studies testing the relations between personality dimensions, ideological attitudes, and prejudice in the same sample have also found that the paths from Openness to Experience, Conscientiousness, and Agreeableness to prejudice were fully mediated by RWA and SDO (Duriez & Soenens, 2006; Ekehammar, Akrami, Gylje, & Zakrisson, 2004; see also Hodson, Hogg, & MacInnis, 2009).3

Ekehammar et al. (2004) found an additional positive relationship between Extraversion and prejudice, mediated by RWA.

In two longitudinal studies, negative cross-lagged effects of Openness to Experience on RWA (but not SDO) and of Agreeableness on SDO (but not RWA) were found over 1 year (Sibley & Duckitt, 2010; here also a positive effect of Extraversion on SDO was found) and over 9 months (Perry & Sibley, 2012). Similarly, Caprara, Vecchione, and Schwartz (2009, Study 2) found that Openness to Experience, Conscientiousness, and Agreeableness predicted ideological attitude (left vs. right) 6 years later, fully mediated by security and universalism values (which are related to RWA and SDO; e.g., Cohrs, Moschner, Maes, & Kielmann, 2005). Another study evidenced cross-lagged effects of RWA and SDO on prejudice over half a year (Asbrock, Sibley, & Duckitt, 2010). Taken together, these results provide good support for the assumption that personality dimensions—in particular Openness to Experience and Agreeableness, but possibly also Conscientiousness—predict prejudice, mediated through RWA and SDO.

Methodological Limitations of Self-Reports

Despite this evidence, there is a serious shortcoming in the literature reviewed so far. Virtually all of the studies on ideological attitudes and prejudice rely entirely on self-reports. It is well known that reliance on one method can lead to inflated estimates of associations between constructs due to common-method effects (Biderman, Nguyen, Cunningham, & Ghorbani, 2011; Campbell & Fiske, 1959; Podsakoff et al., 2003). Common-method effects are particularly likely for abstract constructs for which the assessment requires complex judgments (Doty & Glick, 1998), which ideological attitudes and prejudice clearly are.

Moreover, self-reports have some specific problems (Podsakoff & Organ, 1986; Podsakoff et al., 2003). First, they are susceptible to social desirability effects and thus self-deception and impression management tendencies (Cook & Sellitz, 1964; Paulhus & Reid, 1991). Such effects are stronger with greater evaluative connotations of the attribute in question (John & Robbins, 1993; Saucier, Ostendorf, & Peabody, 2001). This problem is relevant to ideological attitudes and prejudice. RWA is related to self-

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1 Consistent with notions that prejudice typically generalizes across different target groups (e.g., Akrami, Ekehammar, & Bergh, 2011; Altemeyer, 1998; Ekehammar, Akrami, Gylje, & Zakrisson, 2004; McFarland, 2010; Zick et al., 2008), we focus on generalized prejudice rather than prejudices toward specific groups.

2 These correlations were based on only 10 and 9 studies, respectively.

3 A recent study using the HEXACO model rather than the Big Five model of personality also showed full mediation of the relationship between personality traits and prejudice by RWA and SDO (Sibley et al., 2010). Specifically, RWA was related to low Openness to Experience and high Honesty-Humility (which combines aspects of Big Five Agreeableness and aspects of fairness and sincerity vs. manipulation in social relations), whereas SDO was related to low Emotionality (with combines aspects of Big Five Neuroticism and Agreeableness), low Openness to Experience, and low Honest-Humility (see also Lee, Ashton, Ogunfowora, Bourdage, & Shin, 2010).
righteousness, which implies a tendency to deny unwanted information about oneself (Altemeyer, 1988). SDO correlates with narcissism (Carnahan & McFarland, 2007; Hodson et al., 2009), which is related to exaggerated views of oneself (John & Robins, 1994). Also, in liberal democracies people are generally motivated to appear less prejudiced (e.g., Akrami, Ekehammar, & Araya, 2000; Plant & Devine, 1998) and possibly, because of the anti-liberal and anti-egalitarian connotations of RWA and SDO, less authoritarian and social-dominance-oriented than they actually are. Self-reports of RWA, SDO, and prejudice may thus reflect subjective experience and public expression more than actual levels of ideological attitudes and prejudice (Crandall & Eshleman, 2003). Because at least Agreeableness correlates with socially desirable responding (e.g., Ekehammar & Akrami, 2007; Ekehammar et al., 2004), the associations of Agreeableness with SDO and prejudice may be weaker than suggested so far.

Second, self-reports can be affected by tendencies to reduce inconsistencies about oneself and to maintain a coherent view of oneself (e.g., Markus, 1977). Associations between ideological attitudes and prejudice may thus partly reflect justifications. For example, Rigby (1986) found greater consistency between attitudes toward institutional authorities and authority-related behavior for self-report than for (possibly less affected) peer-report data. Previous findings of RWA and SDO fully mediating the relations between personality dimensions and prejudice may be partly explainable by individuals’ motivation to provide an ideological justification for their prejudice to appear consistent to themselves and to others.

Finally, although self-reports can be based on privileged information about oneself that other methods of assessment cannot reach, they can be affected by informational deficits resulting from the particular perspective one has on oneself (Dunning, Heath, & Suls, 2004; Kolar, Funder, & Colvin, 1996). Thus, using an additional source of data that accesses unique information about target persons may increase the predictive power to explain ideological attitudes and prejudice.

Although the exact implications of such considerations for the associations among personality dimensions, ideological attitudes, and prejudice are difficult to predict, research relying only on self-reports may have resulted in biased estimates. These concerns further gain in importance in light of claims that ideological attitudes and prejudice may not actually exist as relatively stable individual-difference variables but are phenomena that depend on the salient intergroup context and the group and intergroup processes arising from it (Kreindler, 2005; Lehmiller & Schmitt, 2007; Reynolds & Turner, 2006; Reynolds, Turner, Haslam, & Ryan, 2001; Schmitt, Branscombe, & Kappen, 2003). In Kreindler’s (2005) view, for example, RWA expresses the tendency to differentiate normatively among individuals and/or subgroups within one’s group in situations where the norms of the group are under threat, and SDO expresses the tendency to differentiate one’s own group positively from other groups in situations where the status position of one’s group is precarious. These tendencies may occur as general social psychological processes, largely independent of personality. If this was true, personality dimensions would be expected to show weaker associations with ideological attitudes and prejudice if methods other than self-report were used.
Peer-Report Data

Reports by acquaintances (peers) are an important source of information often used in personality psychology to complement self-reports (e.g., Cattell, 1950; Hofstee, 1994). Being (potentially) able to access and integrate information from a wide range of situations in real-world contexts, acquaintances can usually judge others’ personal attributes quite accurately. They may also be less prone to a social desirability bias (McCrae & Weiss, 2007; however, other researchers have suggested that close acquaintances and especially friends may also be motivated to evaluate the target person positively; Borkenau & Ostendorf, 1989; Konstabel, Aavik, & Allik, 2006). The validity of peer reports is evident in substantial levels of agreement among multiple judges and with self-reports as well as in predictive validity for behavior (Funder, 1995). For personality dimensions, self-peer agreement for the Big Five usually ranges between .30 and .60 and is often higher than .50, depending on the number of peer raters (McCrae & Costa, 2003; McCrae & Weiss, 2007). Also, the correlations between the Big Five and other constructs are highly similar regardless of whether self- or peer reports are used (McCrae & Costa, 2003).

The degree of validity of peer reports is subject to several moderating conditions (see Paunonen & O’Neill, 2010; Vazire, 2010). In general, peer reports of a target’s attribute become more accurate under conditions where the target shows behavior that is informative about the attribute in question and the judge has access to this behavioral information, detects it, and utilizes it correctly in forming the judgment (Funder, 1995). These conditions are likely met for ideological attitudes and prejudice. Convergent validity of self- and peer reports has been shown for domains related to ideological attitudes and prejudice, namely values (Bernard, Gebauer, & Maio, 2006), aggression (O’Connor, Archer, & Wu, 2001), and authoritarian behavior (Rigby, 1987). For ideological attitudes, Lippa and Arad’s (1999) study suggests that the validity of peer reports may be as high as for Extraversion (usually the most “judgable” of the Big Five factors, followed by Openness to Experience; Connolly, Kavanagh, & Viswesvaran, 2007). Interindividual differences in RWA and SDO were judged quite accurately from participants’ interview behavior in a laboratory. For prejudice, Lippa and Arad did not report levels of self–other agreement, but ratings of prejudice were reliable across four judges and correlated meaningfully with self-reported ideological attitudes. Also, one laboratory study found that participants with stronger implicit prejudice toward Blacks were judged to behave more negatively in social interactions with a Black experimenter (McConnell & Leibold, 2001). Prejudice may thus be inferable from overt behavior. Also, if acquaintances or friends rather than strangers act as peer raters, they can use information stemming from the target person’s verbal reports about their own thoughts and feelings (Andersen, 1984). Thus, peer reports can be a useful source of data not only for personality dimensions but also for ideological attitudes and prejudice.

The Present Research

In the present research, we examined personality dimensions, ideological attitudes, and prejudice using self- and peer reports. This methodological strategy allowed examining four research questions. First, we tested whether the relationships among the Big Five dimensions, RWA, SDO, and prejudice that had been found with self-report data, in particular the distinct personality correlates of RWA (Openness to Experience and Conscientiousness) and SDO (Agreeableness), would replicate using a different method, namely peer reports. This is important to assess the generalizability of findings across methods, but the method of peer reports is likely to show biases just as self-reports.

Second, in a multitrait–multimethod analysis (Campbell & Fiske, 1959), we examined the construct validity of RWA, SDO, and prejudice across self- and peer-report data. The issue of construct validity is important in light of the claims that RWA, SDO, and prejudice are outcomes of the salient intergroup context and general (inter)group processes rather than consistent individual-difference constructs (e.g., Kreindler, 2005; Lehmann & Schmitt, 2007; Reynolds et al., 2001). If this criticism was true, self- and peer reports would be interrelated less for RWA, SDO, and prejudice than for the Big Five dimensions, at least if self- and peer reports are obtained independently in different contexts. This analysis also allowed testing whether the relationships among the Big Five dimensions, RWA, SDO, and prejudice that had been found with self-report data would replicate across methods, that is, with common-method effects minimized.

Third, we examined whether using peer reports in addition to self-reports can incrementally predict self-reported ideological attitudes and prejudice. To the extent that peer raters can access unique information about target persons that the persons themselves cannot due to their particular perspective, peer reports may explain variance in ideological attitudes and prejudice over and above self-reports. We also conducted the corresponding analyses testing whether the self-reports can incrementally predict peer-reported ideological and prejudice over and above the peer reports.

Finally, we tested whether the mediational role of RWA and SDO in predicting prejudice specified by Duckitt et al.’s (2002) dual process model can be established independent of the methods used. To address this question, we used a variant of the correlated-trait–correlated-unique-ness model (Kenny, 1979; Marsh, 1989) in which the self-report- and peer-report-specific method effects were removed from the substantive relationships between constructs. An analysis of the correlated uniquenesses in this model also allowed examining method-specific deviations from the substantive relationships.

We conducted two conceptually similar studies, which are presented together (but separately so that the stability of findings across studies can be assessed). In Study 1, we used data from one acquaintance per participant in addition to self-report data. Although this allowed analyzing all research questions, the peer reports may be specific to the idiosyncratic view of the particular peer rater, and thus social desirability or leniency biases (Borkenau & Ostendorf, 1989; Konstabel et al., 2006) or consistency effects may not be eliminated. This would affect correlations among peer reports but not correlations between self- and peer reports. In Study 2, we used data from two independent acquaintances per participant. Averaging the reports of two peers yields data that are more reliable and represent shared views of the participants. It seems less likely that two independent peers will exhibit the same leniency biases or consistency effects in assessing the participant.
Method

Participants and Procedure

For Study 1, the sample was recruited in a region in the Eastern part of Germany from the general population through opportunity sampling. The second author and additional research assistants invited acquaintances, neighbors, and so forth to participate, with the aim of achieving a representation of participants of different ages as well as different educational and social backgrounds. For Study 2, the sample stemmed from the Jena Twin Registry, which is based partly on registers of multiple births and data from registration offices (41%) and partly on a volunteer sample approached by media calls and twin clubs (59%; Stößel, Kämpfe, & Riemann, 2006). Participants were offered a personality profile and a compensation of €12 for participation. About 20% of the twin pairs also participated in the Bielefeld twin study (Spinath, Angleitner, Borkenau, Riemann, & Wolf, 2002), and about 13% were also registered in the Berlin Twin Registry (Busjahn, 2006).

Participants were provided with one self-report and one (or two in Study 2) peer-report questionnaire forms, marked with a unique shared code to allow independent completion and anonymous return of the materials. Participants were instructed to give the peer-report form(s) to a friend or an acquaintance and request completion of the questionnaire for them. Both the participants and the peer raters were reassured that their data would be treated confidentially and were instructed to respond spontaneously, honestly, and (the peer raters only) to the best of their knowledge as to how the participant would really be. Peer raters were invited to return the completed questionnaires directly to the researchers or, if they preferred to return them via their friend or acquaintance, to enclose the materials in an envelope that was provided to ensure confidentiality. These instructions were aimed to minimize response tendencies due to leniency effects on the part of the peer raters.

For Study 1, because we measured prejudice in relation to gay men and lesbians, people with disabilities, and foreigners (see below), only data from participants who indicated that they were of German nationality, did not live with a disability, and had a heterosexual orientation were kept for the analyses. Peer reports were obtained for 200 of these participants. This sample was further reduced to N = 193 because of missing values in some of the measures. The final sample included 125 women and 64 men (four participants did not report their gender) between 18 and 67 (M = 34, SD = 12) years of age. Less than half of the participants were students. The peer raters were 95 women and 97 men (one rater did not report her/his gender) between 13 and 73 (M = 34, SD = 13) years of age. Most peers reported that they knew the target person very well (n = 115) or well (n = 71); four chose little, and none chose very little (four raters did not answer this question).

For Study 2, one twin was selected from each pair of twins, either that one for whom more peer-report data were available or, if there was no difference, randomly. Only participants for whom at least one peer report was available were kept for the analyses. One outlier case with an extreme Mahalanobis distance score was additionally removed. The remaining sample of N = 436 was further reduced to N = 424 because of missing values in some of the measures. This final sample included 103 men and 321 women between 18 and 82 (M = 34, SD = 13) years of age. Two peer reports were available for 371 of the 424 participants, and one peer report was available for the remaining 53 participants. The peer raters were 554 women and 224 men (17 raters did not report their gender) between 14 and 85 (M = 34, SD = 14) years of age. They had known the target person for 1–58 (M = 11, SD = 10) years and reported that they knew the target person very well (n = 215) or well (n = 464); 90 chose neither well nor little, and none chose little or hardly (26 raters did not answer this question).

Instruments

In Study 1, the Big Five personality dimensions were measured with the German version of the NEO Five Factor Inventory (Borkenau & Ostendorf, 1993), using response scales ranging from 1 (not true at all) to 4 (neither/nor) to 7 (completely true). In Study 2, the German version of the NEO Personality Inventory–Revised (NEO-PI-R; Ostendorf & Angleitner, 2004) was used, with response scales ranging from 1 (reject very much) to 5 (agree very much). To reduce content overlap between the Openness to Experience and RWA scales (Jugert, Cohrs, & Duckitt, 2009; Sibley & Duckitt, 2008), one item was removed in both studies. In Study 2, two more items were removed after an exploratory factor analysis (see Van Hiel, Cornelis, & Roets, 2007) because they loaded more strongly with the authoritarianism items than with the other Openness to Experience items.

To measure RWA, we used the 12-item RWA3D scale by Funke (2005), which is based on Altemeyer’s (1988) conceptualization. It is balanced with regard to direction of wording (pro- vs. contrai) and the three facets of conventionalism, authoritarian submission, and authoritarian aggression. To avoid content overlap with the measure of prejudice (see below), one item was excluded. In Study 2, one additional item was removed because of a very poor item-total correlation in both the self- and the peer-report data. To measure SDO, we used a slightly shortened version of the SDO6 scale (Pratto et al., 1994), translated into German by the researchers. In Study 1, one item was excluded because of a very poor item-total correlation in both the self- and peer-report data. In Study 1, responses scales ranging from 1 (do not agree at all; he/she does not agree at all) to 4 (neither/nor) to 7 (agree completely; he/she agrees completely) were used. In Study 2, response scales ranging from 1 (reject very much; he/she rejects very much)

4 Data on nationality, sexual orientation, or disability were not available in Study 2, so we could not restrict the sample according to these criteria.

5 The item “I believe [he/she believes] we should look to our religious authorities for decisions on moral issues” was excluded in both studies. The items “I believe [he/she believes] that loyalty to one’s ideals and principles is more important than ‘open-mindedness’” and “I believe [he/she believes] that the ‘new morality’ of permissiveness is no morality at all” were excluded in Study 2.

6 The item “Homosexual long-term relationships should be treated as equivalent to marriage” was excluded in both studies. The item “People should develop their own personal standards about good and evil and pay less attention to the Bible and other old, traditional forms of religious guidance” was excluded in Study 2.

7 This was the item “Sometimes other groups must be kept in their place.”
Prejudice was measured for three target groups: gay men and lesbians, foreigners, and people with disabilities. For each target group, items were developed based on existing instruments (Fridlind, Funke, & Waldzus, 1996; Rippl & Seipel, 1998). Following a multifaceted conceptualization of prejudice, the items referred to cognitive aspects, threat perceptions, affective reactions, and behavioral tendencies (readiness for discriminatory behavior) regarding each target group. Both protrait and contrait items were used. Prejudice toward gay men and lesbians was measured with 11 items in Study 1, of which seven were kept in Study 2 but were reworded to refer to gay men only. Prejudice toward foreigners was measured with 11 items in Study 1. For Study 2, new items were devised, of which seven referred to support for discrimination of Turks, and two referred to rejection of foreigners in Germany. Turks are the largest non-German ethnic group in Germany, and it has been shown that the majority population in Germany responds to items about “Turks” in much the same way as to items about “foreigners” (Asbrock, 2010; Asbrock, Lemmer, Wagner, Becker, & Koller, 2009). For prejudice toward people with disabilities, in Study 1, 10 items mentioned “disabled people” in general, but two items referred specifically to “mentally disabled people.” For Study 2, these items were modified, and new items were devised in such a way that seven items referred to “mentally disabled people,” and seven items referred to “wheelchair users.” In both studies, response scales were the same as for the Big Five. The (translated) items of the prejudice scales and descriptive statistics can be found in Appendix A. Because we were interested in generalized prejudice and the three prejudice scales were sufficiently interrelated (Study 1: .31–.45 for the self- and .36–.54 for the peer reports; Study 2: .35–.38 for the self- and .44–.45 for the peer reports), second-order scales were calculated by averaging the three target-specific scales. Findings for specific prejudices are mentioned only where they deviated from those for generalized prejudice.

For all variables, scale scores were computed by averaging the completed items of each scale unless more than 50% of the items were unanswered. Internal consistencies (Cronbach’s alpha) as well as descriptive statistics of the measures for the self- and peer-report data are reported in Table 1. In Study 1, mean levels of self- and peer reports were similar for Neuroticism, Extraversion, Agreeableness, and RWA (paired-sample t < 1.26, ps > .21). Participants rated themselves as higher than they were rated by their peers in Openness to Experience, t(192) = 2.73, p = .007, and lower than they were rated by their peers in Conscientiousness, t(192) = -2.99, p = .003; SDO, t(192) = -2.81, p = .006; and generalized prejudice, t(192) = -4.08, ps < .001. In Study 2, mean levels of self- and peer reports (averaged across the two peers) were similar for Agreeableness and RWA (paired-sample t < 1.24, ps > .21). Participants rated themselves as higher than they were rated by their peers in Neuroticism, t(423) = 7.82, and Openness to Experience, t(423) = 6.63, and lower than they were rated by their peers in Extraversion, t(423) = -4.21; Conscientiousness, t(423) = -8.09, ps < .001; SDO, t(423) = -2.77, p = .006; and prejudice, t(423) = -5.41, ps < .001. Thus, there was consistency across the two studies for all variables apart from Neuroticism and Extraversion (which may be due to the greater reliabilities and larger sample size in Study 2). The differences in

### Results

**Relationships Among Personality Dimensions, Ideological Attitudes, and Prejudice Within Methods**

The first research question—whether the associations among the Big Five dimensions, RWA, SDO, and prejudice that had been found with self-report data would replicate with peer-report data—was addressed initially through an inspection of the bivariate correlations among the variables within each method. Regarding the self-reports (see Table 2, first lines), in both studies, the correlations involving ideological attitudes and prejudice were generally very similar to those reported in Sibley and Duckitt’s (2008) meta-analysis. Openness to Experience correlated negatively with RWA and prejudice, Conscientiousness correlated positively with RWA, Agreeableness correlated negatively with SDO, and RWA and SDO correlated positively with prejudice. Compared to the meta-analytical results, the correlations between Openness to Experience and prejudice were relatively strong, and the correlations between SDO and prejudice were rather weak. Study 1 failed to find a negative correlation between Agreeableness and prejudice, and Study 2 failed to find a negative correlation between Openness to Experience and SDO. Also, a negative correlation between Extraversion and prejudice emerged, which was marginal in Study 1 (p = .083) and significant in Study 2.

The peer-report correlations (see Table 2, second lines) involving ideological attitudes and prejudice were generally very similar to those obtained for the self-reports. There were only a few exceptions. In Study 1, the correlations of Openness to Experience with RWA and prejudice were smaller than for the self-reports, and the correlation between Conscientiousness and RWA was not significant. Also, the correlations of Agreeableness with SDO and prejudice were larger than for the self-reports (for which the correlation with prejudice was not significant), and there was a negative correlation between Extraversion and SDO. In Study 2, there was a negative correlation between Openness to Experience and SDO (which was not significant for the self-reports), and the negative correlation between Agreeableness and prejudice was somewhat larger than for the self-reports. In general, thus, the associations among the Big Five dimensions, RWA, SDO, and prejudice known from self-report research replicated well with peer-report data. The associations of Agreeableness with SDO and prejudice were very similar, or even higher, for the peer reports compared to the self-reports.

Next, we tested separately for the self-report and the peer-report data whether the relationships between the Big Five dimensions and prejudice were mediated by ideological attitudes. We used the procedure MEDIATE developed by Hayes and Preacher (2011; 8 When analyzed separately, there was no difference for prejudice toward foreigners in either study.)
available at http://www.afhayes.com/spss-sas-and-mplus-macro-and-code.html), which carries out regression analyses in analogy to Baron and Kenny’s (1986) strategy but allows taking into account multiple predictor variables (the Big Five dimensions) and multiple mediator variables (RWA and SDO). It also uses bootstrapped confidence intervals (CIs) instead of the Sobel test for testing the mediated effects for significance (Shrout & Bolger, 2002). In our analyses, we set the number of bootstrapped samples to 5,000.

The regression analyses revealed a high degree of similarity for the self-report and peer-report data, but there were some exceptions (see Table 3). In line with previous research, RWA was predicted negatively by Openness to Experience and was predicted positively by Conscientiousness in both studies and for both methods. However, in Study 1, there was an additional influence of Openness to Experience was mediated by ideological role. There were still direct effects of the Big Five dimensions that was mediated by ideological attitudes was 77%. For the peer reports, there were also additional influences of Neuroticism and Extraversion for the peer reports. Also in line with previous research, SDO was predicted negatively by Agreeableness in both studies and for both methods. However, in Study 1, there was an additional influence of Openness to Experience for the self-reports, and in Study 2, there were additional influences of Openness to Experience and Conscientiousness for the peer reports.

Regarding prejudice, in Study 1, for the self-reports there were indirect effects via RWA of Openness to Experience, $-0.17$ (95% CI $[-0.25, -0.10]$); Conscientiousness, $0.08$ (95% CI $[0.03, 0.14]$); and Neuroticism, $0.07$ (95% CI $[0.02, 0.13]$). SDO did not play a mediational role. There were still direct effects of the Big Five dimensions on prejudice, $R^2 = 0.04, F(5, 185) = 2.49, p = 0.033$, specifically of Openness to Experience. The proportion of the total effects of the Big Five dimensions that was mediated by ideological attitudes was 77%. For the peer reports, there were also additional influences of Neuroticism and Extraversion for the peer reports. Also in line with previous research, SDO was predicted negatively by Agreeableness in both studies and for both methods.

### Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study 1 ($N = 193$)</th>
<th>Study 2 ($N = 424$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self-report</td>
<td>Peer report</td>
</tr>
<tr>
<td></td>
<td>No. of items</td>
<td>$\alpha$</td>
</tr>
<tr>
<td>Neuroticism</td>
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<td>.84</td>
</tr>
<tr>
<td>Extraversion</td>
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<td>.72</td>
</tr>
<tr>
<td>Openness to Experience</td>
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<td>.73</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>12</td>
<td>.80</td>
</tr>
<tr>
<td>Agreeableness</td>
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<td>.74</td>
</tr>
<tr>
<td>Right-Wing Authoritarianism</td>
<td>11</td>
<td>.70</td>
</tr>
<tr>
<td>Social Dominance Orientation</td>
<td>13</td>
<td>.83</td>
</tr>
<tr>
<td>Generalized Prejudice</td>
<td>3</td>
<td>.61</td>
</tr>
</tbody>
</table>

Note. Response scales ranged from 1 to 7 in Study 1 and from 1 to 5 in Study 2. For Study 2, internal consistencies for peer-report data are based on the first peer rater, and means and standard deviations are based on ratings averaged across the two peer raters.

### Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study 1</th>
<th>Study 2</th>
</tr>
</thead>
<tbody>
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<td>4 5 6</td>
</tr>
<tr>
<td></td>
<td>7 8</td>
<td></td>
</tr>
<tr>
<td>1. Neuroticism</td>
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<td>- .30</td>
</tr>
<tr>
<td></td>
<td>- .35</td>
<td>- .30</td>
</tr>
<tr>
<td>2. Extraversion</td>
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<td>- .18</td>
</tr>
<tr>
<td></td>
<td>- .24</td>
<td>- .20</td>
</tr>
<tr>
<td>3. Openness to Experience</td>
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<td>.24</td>
</tr>
<tr>
<td></td>
<td>.35</td>
<td>.35</td>
</tr>
<tr>
<td>4. Conscientiousness</td>
<td>.29</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>.20</td>
<td>.20</td>
</tr>
<tr>
<td>5. Agreeableness</td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>.18</td>
<td>.18</td>
</tr>
<tr>
<td>6. Right-Wing Authoritarianism</td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td>7. Social Dominance Orientation</td>
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<td>8. Generalized Prejudice</td>
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<tr>
<td></td>
<td>-.04</td>
<td>-.04</td>
</tr>
</tbody>
</table>

Note. Below the diagonal: Study 1 ($N = 193$); above the diagonal: Study 2 ($N = 424$). Correlations in italics are non-significant ($p > .05$); correlations in bold are significant at $p < .001$ (two-tailed tests).
indirect effects via RWA of Openness to Experience, −0.10 (95% CI [−.17, −.04]), and Conscientiousness, .07 (95% CI [.01, .14]). SDO did not play a mediational role.9 There were still direct effects of the Big Five dimensions that was mediated by ideological attitudes was 56%.

In Study 2, for the self-reports, there were indirect effects via RWA of Openness to Experience, −.22 (99% CI [−.31, −.15]), and Conscientiousness, .09 (99% CI [.03, .16]), and SDO mediated the effect of Agreeableness, −0.06 (99% CI [−.11, −.02]). However, there were two additional effects specific to the peer-report data: an indirect effect via RWA of Extraversion, .12 (99% CI [.06, .19]), and an indirect effect via SDO of Openness to Experience, −.05 (99% CI [−.09, −.02]). There were still direct effects of the Big Five dimensions on prejudice, $R^2 = 0.09$, $F(5, 416) = 15.95$, $p < .001$, specifically of Openness to Experience and Agreeableness. The proportion of the total effects of the Big Five dimensions that was mediated by ideological attitudes was 67%. For the peer reports, the same indirect effects were observed: RWA mediated the effects of Openness to Experience, −.22 (99% CI [−.31, −.15]), and Conscientiousness, .09 (99% CI [.03, .16]), and SDO mediated the effect of Agreeableness, −0.06 (99% CI [−.11, −.02]). However, there were two additional effects specific to the peer-report data: an indirect effect via RWA of Extraversion, .12 (99% CI [.06, .19]), and an indirect effect via SDO of Openness to Experience, −.05 (99% CI [−.09, −.02]). There were still direct effects of the Big Five dimensions on prejudice, $R^2 = 0.09$, $F(5, 416) = 15.95$, $p < .001$, specifically of Openness to Experience and Agreeableness. The proportion of the total effects of the Big Five dimensions that was mediated by ideological attitudes was 71%.

Taken together, the main hypothesized mediation effects were present in both the self- and peer-report data, with the exception of the relationship between Agreeableness and prejudice, mediated by SDO, in Study 1. In both studies, direct effects were still observed. There was some evidence that the mediational role of ideological attitudes was less pronounced for peer reports than for self-reports in Study 1, but not in Study 2.

#### Relationships Among Personality Dimensions, Ideological Attitudes, and Prejudice Across Methods

To examine our second research question, relating to construct validity, we calculated cross-correlations for the Big Five dimensions, RWA, SDO, and prejudice as measured by self-report and peer report (averaged across the two peer raters in Study 2; see Table 4). This analysis allowed examining levels of self-peer agreement and whether the relationships among the Big Five dimensions, RWA, SDO, and prejudice found within methods (see above) would replicate across methods, that is, with common-method effects minimized.

Regarding convergent validity, levels of self-peer agreement (see Table 4, in the diagonal) for the Big Five dimensions ranged between .31 (Agreeableness) and .58 (Extraversion) in Study 1 and between .45 (Agreeableness) and .63 (Extraversion and Openness to Experience) in Study 2. The range and the rank order of constructs according the level of agreement are consistent with previous research (Connolly et al., 2007; McCrae & Costa, 2003). RWA showed the same level of self-peer agreement as two of the Big Five dimensions: Neuroticism and Conscientiousness. The levels of agreement for the Big Five and RWA were higher in

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9 When analyzed separately, for prejudice toward people with disabilities there were no indirect effects of Openness to Experience and Conscientiousness via RWA, but there was an indirect effect of Agreeableness via SDO.

10 When analyzed separately, the indirect effect of Agreeableness via SDO was limited to prejudice toward gay men and lesbians.
Study 2, as peer reports are more reliable when based on two raters rather than one rater. However, surprisingly, this was not the case for SDO and prejudice. SDO showed a level of agreement similar to Neuroticism and Conscientiousness in Study 1 but not in Study 2, where it dropped to .22. Prejudice showed a level of self-peer agreement similar to Extraversion (Study 1) and Neuroticism (Study 2). Thus, all constructs showed acceptable levels of self-peer agreement, with the exception of SDO in Study 2. In all cases, self-peer agreement was higher than the self-peer correlations with other constructs, evidencing convergent and discriminant validity (Campbell & Fiske, 1959).

The cross-correlation analyses further showed that consistent across the two studies and across the two directions of comparison, Openness to Experience correlated significantly negatively with RWA and prejudice, and RWA and SDO correlated significantly positively with prejudice. Conscientiousness correlated significantly positively with RWA (with the exception of peer-reported Conscientiousness and self-reported RWA in Study 2). Agreeableness correlated significantly negatively with SDO (with the exception of peer-reported Agreeableness and self-reported SDO in Study 2) and prejudice (with the exception of self-reported Agreeableness and peer-reported prejudice in Study 2).

Thus, the major relationships between personality, ideological attitudes, and prejudice identified previous for each method separately were replicated across self- and peer-report data. This was consistently the case for Openness to Experience, RWA, Conscientiousness, and prejudice, but to a lesser extent for the relationships involving SDO. Compared to the correlations within each method (see Table 2), the self-peer correlations dropped from (averaged across the four combinations of two studies and two methods) −.36 to −.28 for Openness to Experience and RWA, from −.39 to −.30 for Openness to Experience and prejudice, from .51 to .31 for RWA and prejudice, and from −.25 to −.17 for Agreeableness and prejudice, and even increased from .17 to .18 for Conscientiousness and RWA. In contrast, there were reductions from −.31 to −.15 for Agreeableness and SDO, and from .32 to .18 for SDO and prejudice. This shows that the latter two relationships were more strongly affected by common-method effects than the others.

**Prediction of Ideological Attitudes and Prejudice Across Methods**

To address our third research question, whether peer reports have incremental validity in predicting ideological attitudes and prejudice over self-reports due to the particular perspectives of the self and peer raters, we conducted regression analyses with the peer-report measures added as predictors to the regression models predicting self-reported ideological attitudes and prejudice reported in Table 3 (forward method; p < .05 for Study 1, p < .01 for Study 2).

In Study 1, there was no incremental prediction by the Big Five dimensions for RWA (p > .11). SDO was additionally predicted by Agreeableness (β = −.24, p = .002). Prejudice was also additionally predicted by Agreeableness (β = −.24, p < .001). These results showed that peer raters picked up additional variance in Agreeableness that predicted self-reported SDO and prejudice.

Note. Values are based on manifest variables. First value: Study 1 (N = 193); second value: Study 2 (N = 424). Correlations in italics are non-significant (p > .05); correlations in bold are significant at p < .001.
In Study 2, RWA was additionally predicted by Extraversion (β = .27, p < .001) and Openness to Experience (β = -.17, p = .005). SDO was additionally predicted by Agreeableness (β = .14, p = .008). Prejudice was additionally predicted by RWA (β = .15, p = .001). These results showed that the peer raters picked up additional variance in Openness to Experience that predicted self-reported RWA and additional variance in RWA that predicted self-reported prejudice, reemphasizing the known links between Openness to Experience, RWA, and prejudice. However, the additional prediction of self-reported SDO by peer-reported Agreeableness was positive. There was also one additional relationship that had not been observed in the self-report data, namely peer-reported Extraversion predicting self-reported RWA, suggesting that Extraversion may increase RWA.

We also conducted analogous regression analyses in which the self-report measures were added as predictors to the regression models predicting peer-reported ideological attitudes and prejudice reported in Table 3. In Study 1, RWA was additionally predicted by Openness to Experience (β = -.18, p = .036) and Conscientiousness (β = .16, p = .041). SDO was additionally predicted by Conscientiousness (β = .18, p = .013). Prejudice was additionally predicted by RWA (β = .20, p = .003). In Study 2, RWA was additionally predicted by Openness to Experience (β = -.15, p = .010). There was no incremental prediction of SDO. Prejudice was incrementally predicted by Openness to Experience (β = -.12, p = .009) and RWA (β = .11, p = .009). These results showed that the target persons themselves provided information in Openness to Experience (and, in Study 1 only, Conscientiousness) that was predictive of peer-reported RWA and information in RWA that was predictive of peer-reported prejudice. In Study 1, there also was an additional relationship not observed in the peer-report data, namely self-reported Conscientiousness predicting peer-reported SDO.

Correlated-Trait–Correlated-Uniqueness Model Predicting Prejudice

Our fourth research question—whether the mediational model of personality dimensions, ideological attitudes, and prejudice could be established independently of the method used—was addressed with a variant of the correlated-trait–correlated uniqueness model (Kenny, 1979; Marsh, 1989). This model allows testing the relationships between constructs as defined via the common variance that is shared across different methods—here, across the self- and peer reports. In a way, this integrates the analyses of our first three research questions. Covariation between traits that is specific to each method is modeled via correlated residuals and is thus removed from the substantive relationships between traits.

For this analysis, we used the program Amos 18 (Arbuckle, 2009), with maximum likelihood estimation of parameters. The scale scores for the self- and the peer reports were used as indicators for each latent variable, with the loadings of both indicators set to 1 to ensure local identification (Little, Cunningham, Shahar, & Widaman, 2002). All residual correlations within the self-reports and all residual correlations within the peer reports were freely estimated. These method-specific correlations, which represent associations between constructs that are not shared across both methods, are presented in Appendix B.

As a starting model, we included any path that was obtained in the self- and the peer-report data as reported in Table 3. To develop an adjusted model, paths that were non-significant (p > .05) were removed. We also inspected modification indices to test whether any modification would increase model fit significantly (p < .05 for Study 1; p < .01 for Study 2). The resulting models had excellent fit, Study 1: χ²(40) = 55.42, p = .053, root-mean-square error of approximation (RMSEA) = .045 (90% CI [.000, .071]), comparative fit index (CFI) = .981, standardized root-mean residual (SRMR) = .044; Study 2: χ²(38) = 68.97, p = .002, RMSEA = .044 (90% CI [.027, .060]), CFI = .987, SRMR = .039 (for information on fit indices, see, e.g., R. B. Kline, 2005).

In Study 1 (see Figure 1A), all paths that were significant in both the self-report and the peer-report data separately remained in the model: from Openness to Experience and Conscientiousness to RWA, from Agreeableness to SDO, and from RWA to prejudice. In addition, the direct path from Agreeableness to prejudice was significant (which had been obtained in the peer-report data only). In Study 2 (see Figure 1B), the same four paths were significant, plus additional paths from Extraversion to RWA and from Openness to Experience to prejudice. In both studies, all effects became somewhat more pronounced, and the amounts of explained variance increased relative to the separate method-specific models reported in Table 3, with one exception: In Study 2, the explained variance for SDO (.18) was smaller than in the peer-report data only (.21). Notably, there also was no direct path from SDO to prejudice in either study.

Discussion

Building on the literature on personality, ideological attitudes, and prejudice, but addressing the methodological shortcoming of overreliance on the method of self-report, we examined in two independent studies the interrelations among the Big Five dimensions, RWA and SDO, and generalized prejudice, using self-report and peer-report data. In the following, we summarize and comment on the results pertaining to our research questions and discuss some more general implications.

Replication of Relationships Among Personality Dimensions, Ideological Attitudes, and Prejudice Within Methods

The first research question focused on whether the associations with ideological attitudes and prejudice known from self-report research, including the mediation model suggested (e.g., Duckitt & Sibley, 2010; Ekehammar et al., 2004), would replicate using

13 When analyzed separately, there was no incremental prediction of peer-reported RWA for prejudice toward people with disabilities.

14 With the path from Agreeableness to prejudice omitted from the model, the path from SDO to prejudice was significant, Study 1: β = -.39, p < .001; Study 2: β = .45, p < .001, but model fit was worse, Study 1: RMSEA = .054, Akaike information criterion (AIC) = 286.51 (vs. 279.42); Study 2: RMSEA = .048, AIC = 302.63 (vs. 296.97). When analyzed separately, in Study 1, SDO did have a significant path to prejudice toward people with disabilities (while RWA did not), and in Study 2, SDO did have a significant path to prejudice toward gay men and lesbians.
another source of data (i.e., peer reports). The analyses of correlations within methods (see Table 2) revealed a high degree of similarity of the results for the self-report data and the previous findings summarized by Sibley and Duckitt (2008) and of the results obtained for the self-report and the peer-report data. In general, thus, our attempt to replicate findings with another method was successful, supporting the generalizability of previous research using self-reports. However, assuming that self-reports have problems such as social desirability and consistency biases, the high similarity means that these biases are either inherent in peer reports as well or have been replaced by similar biases of similar magnitude. For example, it has been noted that especially friends may be at least as motivated as target persons themselves to see them in a positive light and thus to be susceptible to influences of social desirability (Borkenau & Ostendorf, 1989; Konstabel et al., 2006).

Figure 1. Adjusted correlated-uniqueness models showing relationships between the Big Five dimensions, ideological attitudes, and prejudice across self- and peer-report data. Numbers represent standardized path weights and portions of explained variance. Manifest variables (not shown) were the self-report and peer-report scale scores. Unique variances (not shown) were allowed to correlate among all self-report indicators as well as among all peer-report indicators to remove method-specific covariation from the substantive relationships. Residual variances (not shown) were allowed to correlate between Right-Wing Authoritarianism and Social Dominance Orientation. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).
The regression and mediation analyses within each method separately (see Table 3) showed that most of the relationships were similar across the two data sources. This was the case consistently for the well-known relationships between Openness to Experience and RWA, Conscientiousness and RWA, Agreeableness and SDO, and RWA and prejudice. Less consistent were the relationships of Openness to Experience and Agreeableness with prejudice (in Study 1) and of Openness to Experience with SDO and SDO with prejudice (in both studies). There also were some additional relationships involving Neuroticism and Extraversion that were specific to one of the methods. Using only one method may therefore not only lead to inflated relationships due to common-method effects but may also lead to unstable results, possibly due to method-specific effects.

Construct Validity of Ideological Attitudes and Prejudice

The second research question focused on whether ideological attitudes and prejudice could be established as individual-difference constructs that demonstrate convergent (and discriminant) validity across methods. Addressing this question included an examination of whether the associations with ideological attitudes and prejudice would replicate across methods, with common-method effects minimized. The analyses of self-peer agreement (see Table 4) showed that for RWA and prejudice there was not much difference from four of the Big Five dimensions: Extraversion, Openness to Experience, Neuroticism, and Conscientiousness. The levels of agreement were thus well in the range of what would be expected for personality dimensions. The same was true for SDO in Study 1 but not in Study 2. However, in all cases, self–peer agreement was higher than the self–peer correlations with other constructs, evidencing convergent and discriminant validity (Campbell & Fiske, 1959). Because the items measuring RWA, SDO, and prejudice do not refer to clearly observable behavior and because this is an important moderator for higher levels of self-peer agreement (Paunonen & O’Neill, 2010), much of the self-peer agreement may be due to the participants’ verbal behavior, that is, their talking about their attitudes (Andersen, 1984).15

That SDO showed a rather low level of self-peer agreement in Study 2 should be considered when interpreting the other findings pertaining to SDO. This result does not mean that SDO was measured unreliably. For both the self-reports and the peer reports, SDO had acceptable internal consistencies and showed meaningful relationships with other variables. However, it does mean that the self- and peer raters had rather different assessments of the target persons’ levels of SDO. The common variance shared between the self- and peer raters was thus low, making it less likely to find meaningful relationships across methods.

Replication of Relationships Among Personality Dimensions, Ideological Attitudes, and Prejudice Across Methods

The self–peer correlations further showed that the previously established associations among Openness to Experience, RWA, and prejudice could be confirmed. There was also some, albeit less consistent, evidence for the associations between Conscientiousness and RWA and between Agreeableness and prejudice. Moreover, whereas the correlations among Openness to Experience, Conscientiousness, RWA, and prejudice were only weakly attenuated compared to the correlations within each method, those involving SDO tended to be considerably smaller, especially in Study 2, which (by using two peer raters) controlled for desirability and consistency issues better than Study 1. These results provide evidence for the validity of previous research demonstrating relationships between Openness to Experience, Conscientiousness, RWA, and prejudice, as well as between Agreeableness and prejudice. The results also suggest that the associations between Agreeableness and SDO and between SDO and prejudice found in previous research may be due to common-method effects to a considerable extent.

Incremental Validity of Peer Reports in Predicting Ideological Attitudes and Prejudice

With convergent validity established, we could focus on the next research questions: whether peer reports would have incremental validity in the prediction of ideological attitudes and prejudice. This should be the case to the extent that the self and peer raters have unique perspectives or unique information available that informs their assessments of the target person. In general, there was some evidence for this assumption. In Study 1, peer raters picked up additional variance in Agreeableness that was predictive of self-reported SDO and prejudice, and in Study 2, peer raters picked up additional variance in Openness to Experience predicting self-reported RWA and additional variance in RWA predicting self-reported prejudice. These results were substantively consistent with results from previous research, reemphasizing known relationships. However, in Study 2, two novel findings were obtained. First, peer raters picked up additional variance in Extraversion that was predictive of self-reported RWA, pointing to a possible influence of Extraversion on RWA that had been overlooked previously (but see Ekhammar et al., 2004); we offer a possible interpretation for this finding below. Second, peer-reported Agreeableness predicted greater levels of SDO. Although this was not consistent with the results of Study 1, it again suggests a potential bias in the relationship between Agreeableness and SDO. If the relationship in the self-reports is inflated due to social desirability or consistency issues, peer-reported Agreeableness, assessed from a different perspective, may act as a “corrective” (even though the peer reports may themselves be subject to leniency or consistency issues). For example, a positive relationship between peer-reported Agreeableness and self-reported SDO would emerge if persons with low levels of self-reported SDO indicated to be more agreeable than their “true” Agreeableness scores would represent and the peer raters’ assessment of Agreeableness was less biased in this direction. That this was observed in Study 2, but not in Study 1, makes sense because the use of two peer raters controls for social desirability issues better than the use of only one peer rater.

The reversed analyses mainly showed that the self-reports provided additional information in Openness to Experience, Conscientiousness, and RWA that was valid in predicting peer-reported

15 This may also explain why the degree of similarity between romantic partners is particularly high for RWA (see Riemann, in press).
RWA and prejudice, respectively. This further increases the confidence we can have in the robustness of the associations between these constructs.

**Establishing a Model Predicting Prejudice Based on Variance Shared Across Methods**

The final research question focused on whether the mediation model suggested in previous research could be established based on the common variance shared between self- and peer reports. This was important because of the “unstable” associations within each method (see Table 3). To address this question, we used a variant of the correlated-trait–correlated-uniqueness model recommended by Marsh (1989), which allowed removing method-specific covariation from the substantive relationships between constructs, and thus estimating the mediation model based on the covariation shared across the self- and peer reports. The results may be closer to the true relationships than either the self- or the peer reports alone. In these analyses, all the relationships between constructs found in both the self-report and the peer-report data separately remained significant and became, in most cases, more pronounced. Openness to Experience and Conscientiousness predicted RWA, Agreeableness predicted SDO, and RWA predicted prejudice. However, inconsistent with many earlier studies, there was no path from SDO to prejudice, but there was a direct path from Agreeableness to prejudice instead. This may be a consequence of the low amount of variance in SDO that was shared between the self- and peer reports. Substantively, it may also be due to our focus on generalized prejudice rather than specific prejudices, which increases the explanatory power of personality dimensions relative to socio-cultural factors (Akrami, Ekehammar, & Bergh, 2011).

In addition, Study 2, Extraversion predicted RWA, and Openness to Experience had a direct path to prejudice. The relationship between Extraversion and RWA, which is in line with findings by Ekehammar et al. (2004), would have been overlooked in this study had only self-reports been used. One possible explanation for this relationship is that to some extent RWA may result from tendencies to engage in social activities and to experience positive emotions, as reflected in Extraversion (McCrae & Costa, 2003), if these tendencies focus on one’s in-groups rather than social contexts in general. It is worth commenting on the two relationships between personality dimensions (i.e., Agreeableness and Openness to Experience) and prejudice that were direct rather than (or in addition to) mediated by RWA and/or SDO, inconsistent with the full mediation findings of earlier research (Duriez & Soenens, 2006; Ekehammar et al., 2004; Sibley et al., 2010). These direct relationships were present (though not consistently across both studies) in the self- and the peer-report data separately, and they were confirmed through the correlated-uniqueness analysis. They suggest that the mediational role of ideological attitudes may not be so pronounced as previously assumed. First, regarding Agreeableness, prejudice may not only arise because of reduced motivational goals for superiority and dominance, associated competitive worldviews, and socially dominant ideological attitudes (Duckitt & Sibley, 2010), but also may arise due to direct implications of Agreeableness for self-regulatory processes that reduce socially unacceptable prejudice (Graziano & Habashi, 2010). That Agreeableness may have effects on prejudice independent of ideological attitudes is also consistent with McFarland’s (2010) finding that dispositional empathy, a trait falling into the Agreeableness domain, predicted prejudice over and above RWA and SDO. Second, Openness to Experience, which has previously been identified as a predictor of prejudice, may affect prejudice because of reduced motivational goals for social cohesion and collective security and stability and, in turn, authoritarian attitudes (Duckitt & Sibley, 2010). Sibley and Duckitt’s (2008) meta-analysis also suggested a direct relationship between Openness to Experience and prejudice, in addition to a mediated one. To explain this dual role of Openness, it may be useful to consider Onraet, Van Hiel, Roets, and Cornelis’s (2011) distinction between experiential and cognitive aspects of Openness to Experience. Onraet et al. found that although both components predicted prejudice, only the cognitive component predicted prejudice indirectly through RWA (see also Sibley & Duckitt, in press). Experiential openness may thus be predictive of prejudice for reasons independent of ideological attitudes, for example through reducing feelings of anxiety about prospective interactions with members of an outgroup (Stephan & Stephan, 1985).

**Conclusions**

First, using a multi-method design, our research could establish ideological attitudes and prejudice as individual-difference constructs showing convergent and discriminant validity. In particular for RWA and prejudice, the level of self-peer agreement was similar to that for established personality dimensions. Second, the well-known associations between Openness to Experience, Conscientiousness, RWA, and prejudice could be confirmed even if the variables were measured by different methods. However, only with some qualifications was this the case for the associations between Agreeableness and SDO and between SDO and prejudice. Taken together, these results confirm the distinction of RWA and SDO as highlighted, for example, in Duckitt’s (2001) dual-process model, which speaks against treating both variables as indicators of conservatism (e.g., Jost, Glaser, Kruglanski, & Sulloway, 2003). Third, the role of ideological attitudes as mediators of the relationships between personality dimensions and prejudice may be less pronounced than previously assumed. Direct relationships of Agreeableness and Openness to Experience with prejudice could be revealed, in particular through an analysis based on the covariation shared across self- and peer reports. These may have been overlooked had only self-reports been used. Our research thus echoes McFarland’s (2010) conclusion that “to fully understand individual differences in the propensity for generalized prejudice, it is necessary to move beyond the dual processes union of authoritarianism and social dominance” (p. 453). Perhaps self-raters have a motivation to justify prejudices ideologically, and this has led to an overestimation of the role of ideological factors in earlier self-report research.

Finally, our results revealed differences in the status of RWA versus SDO as individual-difference constructs. RWA “behaved” more like a personality trait than SDO did. This was reflected in different levels of self-peer agreement, in different portions of variance explained by the Big Five dimensions, and in a different degree of influence by common-method effects. In the same vein, Kandler, Bleidorn, and Riemann (2012) found that an ideological dimension of resistance to change (akin to RWA) was more strongly influenced genetically than a dimension of acceptance of inequality (akin to SDO). Just because a tradition has evolved somehow suggesting that RWA and SDO be analyzed together, perhaps initiated by Altemeyer...
We are confident that the methodological approach advanced in the present article will contribute to the emerging and exciting literature that goes beyond self-report studies of ideological attitudes and prejudice and will stimulate further research. The method of peer reports, which is well established in personality psychology, has some advantages over other non-self-report methods such as, for example, tendencies to agree with statements (Cooper et al., 1986; P. Kline & Cooper, 1984), ratings of “behavioral residues” in living and working spaces (Carney et al., 2008, Study 3), and neuropsychological or reaction-time based measures (Amorodio et al., 2007; Jost et al., 2008).

It has greater face validity and provides a more differentiated assessment of similar constructs, yields data on the same measurement scale that are thus directly comparable to self-report data, and can easily be used; it may even be practical to obtain peer reports in online studies (Vazire, 2006). Researchers interested in ideological attitudes and prejudice should make use of these possibilities and exploit them for addressing questions such as how ideological attitudes and prejudice are communicated to other people, how they are perceived by others, and how others respond and thereby contribute to their stabilization or modification. We are looking forward to such research endeavors.

References


Appendix A

Items of the Prejudice Scales (Translated)

Study 1

Prejudice toward foreigners (self: $\alpha = .85, M = 3.06, SD = 1.05$; peer: $\alpha = .84, M = 3.15, SD = 1.06$).

1. Germans should not marry foreigners.
2. Foreigners enrich our culture. [-]
3. Some foreigners just do not make enough effort; otherwise they could be as well off as the Germans.
4. Foreigners themselves provoke hostility toward them through their behavior.
5. The foreigners have jobs which actually we Germans should have.
6. How foreigners are dealt with in Germany is not how I [he/she] would like to be treated.
7. The foreigners who come to Germany first and foremost profit from our achievements.
8. Every foreigner should have the possibility to obtain the German citizenship. [-]
9. If an individual is treated unjustly because of his/her skin color and I do [he/she does] not intervene, I have [he/she has] a guilty conscience. [-]
10. I [he/she] would not move into a place where I [he/she] would have foreign neighbors.
11. I [he/she] would help a foreigner to orient himself/herself in Germany. [-]

Prejudice toward gay men and lesbians (self: $\alpha = .91, M = 2.44, SD = 1.24$; peer: $\alpha = .91, M = 2.75, SD = 1.20$).

1. I [he/she] would not like gay and lesbian people to go public with their sexuality.
2. I feel [he/she feels] homosexuality is something normal. [-]
3. Gay men and lesbians are just not able to have a proper relationship.
4. In my [his/her] view homosexuality is just a fashion of people who want to attract attention.
5. I like [he/she likes] it if people can act out their homosexuality. [-]
6. Homosexual people live a too excessive and uninhibited life.
7. I feel [he/she feels] homosexual people are annoying.
8. If I find [he/she finds] out that friends of mine are gay or lesbian, I break [he/she breaks] off the friendship.
9. If somebody tells me [him/her] that he/she is homosexual I [he/she] can handle this well. [-]
10. If I [he/she] was asked to share an office with a gay colleague at work, I [he/she] would ask for relocation.
11. If my [his/her] child confessed that he/she was gay/lesbian, I [he/she] would support him/her on this way. [-]

Prejudice toward people with disabilities (self: $\alpha = .73, M = 1.92, SD = 0.67$; peer: $\alpha = .71, M = 2.11, SD = 0.67$).

1. The money that the state currently spends on care for disabled people could be used better otherwise.
2. The needs of people with disabilities should be regarded even more. [-]
3. People with disabilities do not fit into my [his/her] image of society.
4. I think [he/she thinks] the measures to support people with disabilities are sensible. [-]
5. To have a disability often provides more advantages than disadvantages here in Germany.
6. People with disabilities should be treated like people without disabilities as much as possible. [-]
7. I think [he/she thinks] people with mental disabilities constitute a threat for us healthy people.
8. You can absolutely learn something from people with disabilities. [-]
9. If in a restaurant people with disabilities have dinner at the next table, I [he/she] cannot really enjoy my [his/her] food.
10. For my [his/her] child I [he/she] would prefer a day-care center where children with and without disabilities are looked after together. [-]
11. If an individual with a mental disability stared at me [him/her] at the bus stop, I [he/she] would rather walk.
12. To interact with people with disabilities is not difficult for me [him/her]. [-]
Study 2

Prejudice toward foreigners (self: $\alpha = .89$, $M = 2.43$, $SD = 0.86$; peer: $\alpha = .89$, $M = 2.46$, $SD = 0.73$).

1. Turks should be punished more harshly than Germans if they violate German law.
2. Turks should only get jobs in certain fields.
3. Turks should have the same standing in the society as Germans. [-]
4. Turks who are unemployed should receive less support than unemployed Germans.
5. Turks should be able to act out their culture as much as Germans. [-]
6. Turks should be controlled by the police more than Germans.
7. Turks should receive the same social benefits as Germans. [-]
8. Germans should stand up to reject those foreign fellow citizens who do not like Germany.
9. Foreigners who come to Germany to improve their quality of life should be sent home again, even if their home country has insufficient resources.

Prejudice toward gay men and lesbians (self: $\alpha = .88$, $M = 1.99$, $SD = 0.80$; peer: $\alpha = .88$, $M = 2.26$, $SD = 0.67$).

1. I would not like gay men to go public with their sexuality.
2. I feel homosexuality is something normal. [-]
3. Homosexual men are just not able to have a proper relationship.
4. I like it if gay men can act out their homosexuality. [-]
5. I feel gay men are annoying.
6. Homosexual men live a too excessive and uninhibited life.
7. If somebody tells me that he is gay I can handle this well. [-]

Prejudice toward people with disabilities (self: $\alpha = .82$, $M = 1.86$, $SD = 0.47$; peer: $\alpha = .85$, $M = 1.96$, $SD = 0.42$).

1. The money that the state currently spends on care for mentally disabled people could be used better otherwise.
2. The needs of people with mental disabilities should be regarded even more. [-]
3. People with mental disabilities do not fit into my image of society.
4. If in a restaurant people with mental disabilities have dinner at the next table, I cannot really enjoy my food.
5. For my child I would prefer a day-care center where children with mental disabilities and without disabilities are looked after together. [-]
6. I think people with mental disabilities constitute a threat for us healthy people.
7. You can absolutely learn something from people with disabilities. [-]
8. The needs of wheelchair users should be regarded even more. [-]
9. Paraplegic people do not fit into my image of society.
10. You can absolutely learn something from wheelchair users. [-]
11. Wheelchair users are often much too self-pitiful.
12. There is still much too little support for wheelchair users. [-]
13. The state almost worries more about wheelchair users than about health people.
14. Wheelchair users could achieve much more if they only wanted.

Note. [-] indicates reverse-scored items.

(Appendices continue)
Appendix B

Residual Correlations for All Constructs (Self-Report: Below the Diagonal; Peer Report: Above the Diagonal) in the Correlated Uniqueness Models

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<td>2. Extraversion</td>
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<td>6. Right-Wing Authoritarianism</td>
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<td>7. Social Dominance Orientation</td>
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Note. First value: Study 1 (N = 193); second value: Study 2 (N = 424). Correlations in italics are non-significant (p > .05); correlations in bold are significant at p < .001.