Perspective Mistaking: Accurately Understanding the Mind of Another Requires Getting Perspective, Not Taking Perspective

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Taking another person's perspective is widely presumed to increase interpersonal understanding. Very few experiments, however, have actually tested whether perspective taking increases accuracy when predicting another person's thoughts, feelings, attitudes, or other mental states. Those that do yield inconsistent results, or they confound accuracy with egocentrism. Here we report 25 experiments testing whether being instructed to adopt another person's perspective increases interpersonal insight. These experiments include a wide range of accuracy tests that disentangle egocentrism and accuracy, such as predicting another person's emotions from facial expressions and body postures, predicting fake versus genuine smiles, predicting when a person is lying or telling the truth, and predicting a spouse's activity preferences and consumer attitudes. Although a large majority of pretest participants believe that perspective taking would systematically increase accuracy on these tasks, we failed to find any consistent evidence that it actually did so. If anything, perspective taking decreased accuracy overall while occasionally increasing confidence in judgment. Perspective taking reduced egocentric biases, but the information used in its place was not systematically more accurate. A final experiment confirmed that getting another person's perspective directly, through conversation, increased accuracy but that perspective taking did not. Increasing interpersonal accuracy seems to require gaining new information rather than utilizing existing knowledge about another person. Understanding the mind of another person is therefore enabled by getting perspective, not simply taking perspective.

Keywords: egocentrism, empathy, interpersonal accuracy, perspective taking, social cognition

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Understanding the minds of others is essential for social functioning, but another person's mind is one of the most complicated systems that any person will ever think about. Just consider the numbers. The average human brain contains roughly one hundred billion neurons connected to anywhere between one thousand and 10 thousand other neurons through synapses that can be in a variety of excitatory or inhibitory states. Based on these figures, neuroscientists calculate that a human brain could be in more possible brain states than there are elementary particles in the known universe (Ramachandran, 2004, p. 3). Given the complexity of another person's mind, what strategy should people use to understand the mind of another person more accurately?

One strategy is so routinely endorsed that its effectiveness seems taken for granted: perspective taking. That is, to understand another person's mind accurately you have to overcome your own egocentric perspective, "put yourself in another person's shoes," and try to perceive a situation from another person's point of view. This suggestion appears in politics, as when Barack Obama argued before the United Nations, "the deadlock [between the Israelis and Palestinians] will only be broken when each side learns to stand in each other's shoes." It appears in best-selling wisdom about human relations, as when Dale Carnegie (1936) lists the principles that will teach you How to Win Friends and Influence People. Principle #8 is "a formula that will work wonders for you: . . . . Try honestly to see things from the other person's point of view." And, according to a survey we conducted, it appears so routinely in people's intuitions as to qualify as genuine common sense.

In this survey, 336 Amazon.com Mechanical Turk workers read about a series of experiments we conducted in which participants completed one of eight tests of interpersonal understanding (described later in detail). Four tests were taken from the existing scientific literature: The Mind in Eyes Test (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), the Diagnostic Analysis of Nonverbal Behavior for faces (DANVA-faces, Nowicki & Duke, 1994), the Diagnostic Analysis of Nonverbal Behavior for postures (DANVA-postures, Nowicki & Duke, 1994), and the Fake Smiles Test (BBC science website; e.g., Bernstein, Sacco, Brown, Young, & Claypool, 2010). Four additional tests were relatively

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routine social judgments: predicting a romantic partner's consumer attitudes, movie preferences, activity preferences, and joke preferences. Participants were randomly assigned to read a short description of just one of these tests and were presented with one sample item. Participants then predicted which of two groups of people was more accurate in an experiment: people in a control condition who simply completed the test without further instruction, or people in a perspective taking condition who were asked to complete the test while "trying to adopt the perspective of the other person, putting yourself into the other person's shoes as if you were that person." Participants predicted the outcome of the experiment by choosing one of three options: "Condition 1 (Control) did significantly better," "Condition 2 (Perspective Taking) did significantly better," or "No significant difference between the two conditions in performance on the test."

As shown in Figure 1, most participants predicted that participants in the perspective taking condition were more accurate than those in the control condition (67.75%). Few believed that participants in the control condition were more accurate (16%) or that participants in the two conditions differed in accuracy (16.25%). Even those who are unlikely to have ever read Dale Carnegie's book seem likely to believe in his "formula that will work wonders for you."

Despite a large scientific literature on the consequences of perspective taking in social interaction, whether perspective taking actually increases accurate insight into the mind of another person is unclear. Many experiments test how perspective taking affects social cognition or interpersonal interaction. Very few measure the accuracy of interpersonal judgments. Those that do provide inconsistent results, or confound egocentrism and accuracy, making it difficult to assess whether perspective taking merely shifts perspective or actually increases accurate insight. Here we report a large number of experiments that test whether perspective taking increases interpersonal accuracy, using the very same tests from the pretest described above plus several others. These experiments are important because they are the first to systematically examine the validity of a widely endorsed strategy for increasing interpersonal insight. They make an important theoretical advance by clarifying the nuanced consequences of a frequently studied topic in social psychology, thereby providing a better understanding of how perspective taking may affect interpersonal interactions. These experiments also offer practical advice about how to understand the mind of another person more accurately. Perspective taking may indeed work wonders for you in social life. Is increasing accurate insight into the mind of another person one of them?

Known Consequences of Perspective Taking

Each person views the world from a potentially unique vantage point, collecting information through physical senses and interpreting it through his or her own beliefs, attitudes, knowledge, experiences, and personality. Children become aware of their unique perspective as they age because they learn that others sometimes evaluate the world differently. This learning develops a highly sophisticated capacity to imagine another person's unique perspective in adulthood, a capacity for social cognition that seems unmatched by any other species (Herrmann, Call, HernándezLloreda, Hare, & Tomasello, 2007).

Having a capacity and using that capacity, however, are two very different things. Considering another person's perspective does not seem to be automatic and effortless, but instead requires time, motivation, and attentional resources to execute. Anything that reduces the time, inclination, or attention available for perspective taking increases reliance on a relatively automatic egocentric default in judgment (Epley, Keysar, Van Boven, & Gilovich, 2004; Epley, Morewedge, & Keysar, 2004; Karniol, 2003). Likewise, explicitly encouraging perspective taking, by instructing people to "put themselves in another person's shoes" and imagine another's thoughts and feelings as if they were this other person, reliably

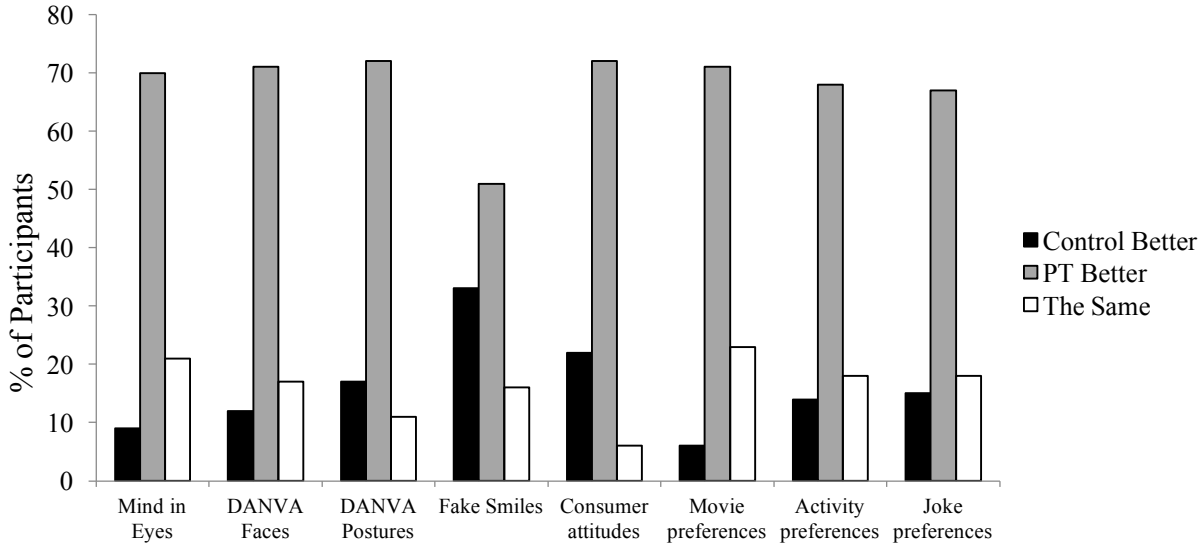

Figure 1. Percentage of participants who predicted that accuracy would be higher in the perspective taking condition, higher in the control condition, or equally the same in both conditions (Pretest).

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affects peoples' inferences and actions toward others compared with receiving no explicit encouragement.

Existing research on perspective taking typically does not assess interpersonal accuracy, but instead measures intrapersonal consequences that follow directly from being asked to shift from an egocentric perspective to an allocentric perspective. For instance, people who are explicitly instructed to attend to another's perspective are more likely to engage in deliberate thinking (e.g., Epley et al., 2004; Todd, Bodenhausen, Richeson, & Galinsky, 2011; Todd, Galinsky, & Bodenhausen, 2012), mimic another person (Chartrand & Bargh, 1999; Genschow, Florack, & Wanke, 2013), report empathizing with another person's emotional state (Batson, Early, & Salvarni, 1997; Davis, 1983; Maner et al., 2002; cf. Vorauer & Sasaki, 2009), take on another person's stereotypic attributes (Galinsky, Wang, & Ku, 2008), and rely less on egocentric defaults in judgment (Caruso, Epley, & Bazerman, 2006; Savitsky, Van Boven, Epley, & Wight, 2005; Steffel & LeBoeuf, 2014; WadeBenzoni, Tenbrunsel, & Bazerman, 1996; Yaniv & ChoshenHillel, 2012; Zhang & Epley, 2009). Imagining oneself as another person also increases a sense of similarity with the other person (Davis, Conklin, Smith, & Luce, 1996), reduces the use of groupbased stereotypes when evaluating others (Galinsky & Moskowitz, 2000), and reduces prejudice toward outgroups (Todd et al., 2011). In negotiations, perspective taking can increase coordination and cooperation, improving outcomes for both sides in contexts where a purely self-focused approach is detrimental (Galinsky, Maddux, & Gilin, & White, 2008; Gilin, Maddux, Carpenter, & Galinsky, 2013; Trötschel, Huffmeier, Loschelder, Schwartz, & Gollwitzer, 2011). All of these results suggest that being told to put oneself into another's perspective may result in increased interpersonal accuracy. First, deliberation increases accuracy on many decisions (e.g., Payne, Bettman, & Johnson, 1988, but see Ambady & Gray, 2002 and Hall et al., 2009). Second, mimicking another's facial expression or body language could increase emotion recognition accuracy (e.g., Niedenthal, Brauer, Halberstadt, & Innes-Ker, 2001; Oberman, Winkielman, & Ramachandran, 2007; Stel & van Knippenberg, 2008; cf., Hess & Blairy, 2001; Cheung, Slotter, & Gardner, 2015). Third, shifting attention to another's perspective (Yaniv & Choshen-Hillel, 2012; Zhang & Epley, 2009) may lead perceivers to focus on cues that yield more accurate judgment. Fourth, perspective taking can create a merging of one's cognition, emotion, motivation, and action with those of another person (Davis et al., 1996), thereby increasing the sense of similarity to that person and strengthening relational bonds (Galinsky, Ku, & Wang, 2005).

Unknown Consequences of Perspective Taking

At first glance, merging of self and another by reducing egocentrism and decreasing stereotyping would seem to qualify as evidence of more accurate insight. However, most existing experimental research examines the psychological consequences of perspective taking only in the mind of the perspective taker. Without measuring the mind of the person whose perspective was taken, researchers cannot tell whether perspective taking increases accuracy in judgment or not. Perspective taking may increase the tendency to feel the pain another person is presumed to be feeling (Batson et al., 1997), but does it increase the accuracy of recognizing how much pain another person is actually feeling? Adopting an adversary's perspective in a negotiation could improve outcomes in some specific settings (Galinsky et al., 2008; Gilin et al., 2013), but does it do so by increasing insight into the other side's sophisticated preferences or through some other mechanism (such as an increased willingness to cooperate, or incorporating another person's known preferences into one's own behavior)? Reducing a bias like egocentrism or stereotyping is not the same as increasing accuracy in judgment, even though evidence of the former could easily be mistaken for direct evidence of the latter. A bias in judgment is a systematic tendency that departs from a normative standard. The normative standard could be logical, rational, or moral, but it need not be accuracy. Likewise, reducing an egocentric bias or reliance on a stereotype could increase accurate insight into the mind of another person, but it does not have to. For instance, one of the most reliable egocentric biases in judgment is a tendency to assume that others' attitudes and preferences are relatively similar to one's own (Ross, Greene, & House, 1977). If two people actually have very different attitudes, then reducing egocentrism through perspective taking should logically increase accuracy at predicting another person's beliefs, not necessarily because a person has achieved genuinely greater insight into the mind of another person but rather because they have simply relied less on a known source of error. If, however, two people actually have very similar attitudes, then reducing egocentrism to an equivalent degree through perspective taking could decrease accuracy. In one experiment consistent with the latter possibility, married couples would have been more accurate predicting each other's preferences if they simply projected their beliefs completely onto their partner (Hoch, 1987). Decreasing egocentrism in this experiment could have decreased accuracy because married couples tend to have very similar beliefs.

Reducing reliance on stereotypes also does not necessarily increase accuracy (Jussim, Crawford, & Rubinstein, 2015). When beliefs about a group (that is, a stereotype) contain some degree of accuracy, such as believing that tigers are dangerous but rabbits are not, then reducing reliance on it could decrease the overall accuracy of judgments about a specific individual. For instance, perspective taking in one experiment reduced the tendency of relatively young participants to rely on stereotypes about the elderly when evaluating a relatively old person (Galinsky & Moskowitz, 2000). However, age-related stereotypes appear to contain a large degree of accuracy, qualifying as perhaps the most accurate stereotype that psychologists have identified (Chan et al., 2012). Reducing a young person's use of an agerelated stereotype when thinking about an elderly person does not necessarily mean that she will evaluate an elderly person more accurately. In fact, she might evaluate an elderly person less accurately. A person standing in front of a wild tiger who fails to consult his tiger stereotype is unlikely to gain more insight into the tiger's likely behavior. Without measuring the actual attitudes or experience of an elderly person, or the behavioral proclivities of a tiger, a researcher cannot tell whether reducing reliance on a stereotype increases the accuracy of judgment or not. Unfortunately, existing experiments often subtly confound a reduction in bias with an increase in accuracy because researchers purposely study contexts in which people's perspectives are known to diverge. These

include known perspective gaps between buyers and sellers (Galinsky et al., 2008), givers and receivers (Adams, Flynn, & Norton, 2012; Baskin, Wakslak, Trope, & Novemsky, 2014; Cavanaugh, Gino, & Fitzsimons, 2015; Flynn & Adams, 2009; Gino & Flynn, 2011; Teigen, Olsen, & Solås, 2005; Zhang & Epley, 2009, 2012), Republicans and Democrats (Van Boven, Judd, & Sherman, 2012), speakers and listeners (Stinson & Ickes, 1992), actors and observers (Davis et al., 1996; Pronin & Ross, 2006), or negotiators with opposing incentives (Epley, Caruso, & Bazerman, 2006; Galinsky & Mussweiler, 2001; Trötschel et al., 2011). In these nonrandomly selected situations where there is a known egocentric bias that creates a systematic error in judgment, reducing an egocentric bias will increase accuracy by necessity in much the same way that decreasing a bias to pick "tails" in a coin flip would increase accuracy in predicting a two-headed coin. For instance, if Republicans and Democrats are known to have opposing views on an issue, and researchers select only this issue to study instead of a randomly sampled set of issues that vary in the degree of opposition, then reducing egocentrism by encouraging perspective taking would increase accuracy by necessity even if a person does not actually gain any new insight into the mind of the opposition. Increased accuracy from perspective taking would be reflected in an ability to differentiate between attitudes that truly differ and attitudes that do not. Testing whether explicit perspective taking actually increases understanding of another's mind requires measuring sensitivity to the actual mental states of another person in cases where two minds are not already known to have systematically opposing viewpoints.

The surprisingly few published experiments that actually do measure interpersonal accuracy following perspective taking yield inconsistent results. In one involving a dictator game (Gilin et al., 2013), the authors report that encouraging perspective taking increased participants' ability to accurately identify good potential game partners from bad ones (defined as partners who were likely to be generous vs. selfish) based on cognitive appeals, compared with participants who were asked to empathize with their partner. However, the "partners" in the one experiment that measured accuracy (Study 4) were hypothetical rather than real, and accuracy was defined as agreement with the authors' assessment of these hypothetical appeals rather than agreement with actual behavior of real people. Nevertheless, these results suggest that perspective taking might focus attention on cues that increase accuracy in judgment.

Other results suggest no increase in accuracy following perspective taking or even a decrease in accuracy. In two different experiments, participants were asked to predict how attractive a member of the opposite sex would evaluate them. Being explicitly asked to adopt an observer's perspective did not significantly increase people's ability to accurately predict others' evaluations of them (Eyal & Epley, 2010). In a series of competitive negotiations, adopting the perspective of an opponent led participants to overestimate how selfish their partners would be compared with a control condition, suggesting less accuracy following perspective taking (Epley et al., 2006). In a study of close relationships, encouraging perspective taking increased the tendency to overestimate how transparent one's values, preferences, traits, and feelings were to a close relationship partner (Vorauer & Sucharyna, 2013).

These results do not invalidate the common wisdom and occasional experimental evidence that perspective taking increases accuracy in social judgment, but these results along with methodological confounds and potential misinterpretations suggest that the common wisdom about putting oneself in another person's shoes deserves systematic empirical attention. On the one hand, being explicitly asked to engage in perspective taking could increase accuracy in interpersonal judgment by highlighting accurate information that a person might otherwise overlook. On the other hand, being explicitly asked to engage in perspective taking might have no meaningful effect on accuracy if the information people consult is not systematically more accurate than the information they would have consulted without being asked to engage in perspective taking. In general, we would expect interpersonal accuracy to increase only when people get additional information about another person that is more accurate than what they would have consulted otherwise. Our current experiments test whether perspective taking does this reliably across many different contexts, or not. Answering this question is essential for developing accurate theories of the consequences of perspective taking in social interactions.

Preview of Current Experiments

We report the results of a long process of testing many different methods and measures to examine whether or not perspective taking systematically increases interpersonal accuracy. We began by using direct tests of interpersonal accuracy taken from the empirical literature that both our pretest participants and existing psychological theory predict would increase accuracy. From our very first experiments, we identified reliable effects of perspective taking on some measures, including increased self-reported effort to take another person's perspective, increased mental effort (e.g., greater response times), and occasionally, increased confidence in judgment. However, we found no reliable increases in accuracy. If anything, accuracy was somewhat worse (and sometimes significantly worse) among perspective takers than among control participants. These initial results led us on a long empirical trail of testing whether any theoretically relevant measure of accuracy would benefit from perspective taking. Our selection of experimental stimuli was guided by presumed mechanisms by which perspective taking could increase accuracy in an effort to be as comprehensive as possible, using both standardized measures from the existing literature as well as more naturalistic tests derived for our purposes. Our experiments tested accuracy among strangers, acquaintances, friends, and spouses. Our experiments found no evidence that the cognitive effort of imagining oneself in another person's shoes, studied so widely in the psychological literature, increases a person's ability to accurately understand another's mind. Of course, it is always possible that our experiments failed to test just the right measure, or the precise context in which perspective taking could increase accuracy. We simply note that our experiments involved contexts in which we, and our pretest participants, expected that perspective taking could plausibly increase accuracy. Indeed, our pretest participants predicted significantly more accurate judgments in the perspective taking condition on every measure we asked them about.

Because of the large number of experiments we conducted, the main text will describe each of the 25 experiments in general terms and report only the primary analyses for the comparison between perspective taking and control conditions. The Supplemental Materials describe details for each experiment including additional conditions, measures, and secondary analyses. All data are publically available online (https://osf.io/4k7tv/).

We divide our experiments into three groups. The first group (Experiments 1–15) includes standard interpersonal accuracy tests between strangers taken largely from the existing experimental literature that could be affected by perspective taking based on current theorizing. The second group (Experiments 16 –24) includes more naturalistic tests between people who were familiar with each other, or who had meaningful information about another person's potentially unique perspective. In these cases, someone engaging in perspective taking might have more information about another person's perspective to guide their thinking and might therefore benefit more from considering another person's perspective. These relationships included romantic partners, friends, spouses, or strangers following a get-acquainted conversation who were trying to predict another person's attitudes, preferences, or beliefs in a variety of different domains. Because each of these experiments included a comparison between a perspective taking condition and a control condition, we report the primary results from these two sets of experiments in two meta-analyses (plus a meta-analysis of all experiments in the General Discussion). We report additional experiment-specific analyses in the Supplemental Materials.

A final experiment (Experiment 25) compares perspective taking to a more direct approach to increasing accuracy, which we refer to as perspective getting (see also Majka, & Epley, 2017). This experiment demonstrates that it is indeed possible to increase interpersonal accuracy, tests the degree to which people are aware of the effectiveness of different prediction strategies, and suggests a subtle distinction that is critical for both scientific theorizing about the consequences of perspective taking and for attempting to understand the mind of another person more accurately in everyday life.

Experiments 1-15: Standard Tests of Interpersonal Accuracy

Participants completed standard tests that assess people's ability to determine others' mental states by viewing their eyes

Table 1. Demographics and meta-analysis on manipulation check for perspective taking versus control conditions, Experiments 1-15.

									Meta-Analysis Results			
Experiment	**Task**	Location (N)	Mean age	# of women	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
1	**DANVA Faces**	Non-US U. (57)	23.23 (1.46)	46	4.14 (1.58)	5.55 (.99)	1.07	.28	.52	1.63	3.79	.001
2	**DANVA Postures**	Non-US U. (124)	23.42 (1.65)	81	5.03 (1.45)	5.38 (1.28)	.26	.18	-.10	.61	1.42	.156
3	**DANVA Faces**	Non-US U. (62)	23.78 (2.07)	72	5.19 (1.72)	5.45 (.85)	.19	.26	-.31	.69	.75	.452
4	**DANVA Faces**	US U. #1 (88)	19.91 (3.01)		5.29 (2.91)	7.44 (1.89)	.87	.22	.44	1.31	3.91	.001
5	**DANVA Faces**	Non-US U. (80)	23.00 (.91)	72	5.03 (1.54)	5.55 (1.24)	.37	.23	-.07	.81	1.65	.099
6	**DANVA Faces**	Non-US U. (61)	24.80 (1.69)	33	4.61 (1.84)	5.77 (.94)	.79	.27	.27	1.31	2.97	.003
7	**DANVA Faces**	MTurk (109)	29.61 (9.34)	33	6.74 (2.66)	8.62 (2.32)	.75	.20	.36	1.14	3.79	.001
8	**DANVA Faces**	Non-US U. (57)	24.19 (1.73)	33	4.89 (1.47)	5.69 (1.31)	.57	.27	.04	1.10	2.12	.034
9	**Mind in the Eyes**	Non-US. U (76)	24.77 (4.36)	39	5.24 (1.15)	5.63 (.94)	.37	.23	-.08	.83	1.61	.109
10	**Mind in the Eyes**	Non-US. U (37)	25.11 (1.87)	21	5.42 (.90)	5.94 (.73)	.63	.34	-.03	1.29	1.88	.060
11	**Mind in the Eyes**	Community (85)	38.35 (14.87)		7.64 (1.99)	8.19 (2.07)	.27	.22	-.16	.70	1.24	.217
11	**DANVA Faces**	Community (84)	38.35 (14.87)		6.02 (2.29)	7.24 (2.17)	.55	.22	.11	.98	2.48	.013
12	**Fake Smiles**	Community (70)	33.93 (13.09)	36	6.61 (2.60)	7.56 (1.85)	.42	.24	-.06	.89	1.73	.083
13	**Fake Smiles**	Community (61)	34.52 (13.47)	33	6.39 (2.57)	7.13 (2.36)	.30	.26	-.21	.80	1.16	.245
14	**Fake Smiles**	Non-US U. (55)	23.16 (1.53)	41	7.11 (2.52)	8.14 (1.11)	.53	.27	-.01	1.07	1.94	.052
15	**Detecting Lies**	Community (81)	39.46 (15.32)	40	7.20 (2.53)	7.83 (2.00)	.28	.22	-.16	.71	1.24	.217
Total							.49	.06	.37	.62	7.90	.001

***Note*.** Participants made their ratings on a 7-point scale in Experiments 1-3, 5, 6, and 8-10 and on an 11-point scale in Experiments 4, 7, and 11-15. Participants did not report their gender in Experiments 4 and 11.

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(the Mind in the Eyes Test, Baron-Cohen, et al., 2001), facial expressions (DANVA-faces, Nowicki & Duke, 1994; Fake Smiles, Bernstein, et al., 2010), or body postures (DANVA-postures; Nowicki & Duke, 1994). Participants also completed a test of lie detection using a standard experimental procedure. We chose commonly used tests from the existing interpersonal accuracy literature (e.g., Bernstein et al., 2010; Castelli et al., 2010; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Nowicki & Duke, 1994; Ruben & Hall, 2013; Van Doesum, Van Lange, & Van Lange, 2013).

Participants were randomly assigned to one of several different conditions across these experiments. In each experiment, one group was asked to take the target's perspective, following the standard instructional manipulation used in the existing psychological literature (e.g., Batson et al., 1997; Galinsky & Moskowitz, 2000). A control group in each experiment received no special instructions. Other groups across experiments were asked to apply a different strategy that we selected for a specific theoretical reason (e.g., encouraging participants to think hard, to mimic the target's expressions, to rely on their own feelings or intuitions). We chose comparison conditions that we believed would help explain our observed results, either because of patterns we observed in our data (e.g., perspective taking increased effort compared with control, so we encouraged participants in one condition to think hard) or because of assumptions in the literature about how perspective taking operates (e.g., via mimicry). We also included one test that measures egocentrism directly (and confounds it with accuracy): a false-belief task (Birch & Bloom, 2007). We included this test simply to confirm, consistent with past research, that explicit perspective taking can reduce egocentric biases in judgment. It was not included in the meta-analysis on accuracy because it is confounded with a reduction in egocentrism.

Method

Participants. We sampled participants in Experiments 1–15 (N 1476) from a wide range of populations: Undergraduate students from a non–American university (non-US U.), undergraduate students from an American university (US U. #1), people in the community (Community), and MTurk workers (See Table 1 for sample sizes and demographics for each experiment). Our first experiments targeted sample sizes of typically 30 participants per cell, but we used larger sample sizes in later experiments to test the robustness of a null result. The only exception for this rule is a sample of 37 participants in Experiment 10 for which we stopped data collection before completion due to technical problems, and include it here for the sake of completeness. We sought to maximize power by running multiple experiments with varied samples all utilizing the same experimental manipulation of perspective taking. We present results only for the perspective taking and control conditions in the main text (N 1103). Results of other conditions are presented in the Supplemental Materials.

Interpersonal accuracy measures. Participants completed the experiments individually in a laboratory, except for Experiment 7 that was conducted online. To measure interpersonal accuracy, participants completed standard tests in which they were asked to identify people's feelings, thoughts, and intentions by watching a target's picture or video. All participants completed one test, except for Experiment 11 in which participants completed both the DANVA-faces and the Mind in the Eye Test, Experiments 4, 5, and 8 in which participants completed the DANVA-faces and the false-belief task, and Experiment 13 in which participants completed both the Spot the Fake Smiles Test and the false-belief task. All tasks were computerized, except for the false-belief task. We describe each test below.

Diagnostic analysis of nonverbal accuracy (DANVA, Nowicki & Duke, 1994). We used two subtests of the DANVA: faces and postures. The DANVA consists of 24 pictures of male and female faces (Experiments 1, 3– 8, 11) or body postures (Experiment 2) expressing one of four basic emotions: happiness, sadness, anger, or fear. Participants indicated the emotion the person in the picture feels.

Reading the mind in the eye (ME, Baron-Cohen et al., 2001, Experiments 9 –11). This test consists of 36 black and white pictures of the area around the eyes of males and females. The actual task was preceded by one practice trial. Participants indicated which of 4 words (e.g., serious, ashamed, alarmed, bewildered) described what the person in the picture was thinking or feeling.

Spot the fake smile (Experiments 12–14). This task was obtained from the BBC science website (http://www.bbc.co.uk/science/humanbody/mind/surveys/smiles) and has been used previously in experiments (e.g., Bernstein et al., 2010). The test consists of 20 videos, approximately 4 seconds long, showing an individual (13 men and 7 women) with an initially neutral expression that shifts into a smiling expression and then returns to a neutral expression (10 Duchenne and 10 non-Duchenne smiles of 20 different models trained to activate the Zygomaticus muscles involved in genuine smiles or not). For each video, participants indicated whether the smile was genuine or fake. Each video was shown only once.

Lie detection (Experiment 15). We created this task based on a standard procedure for testing lie detection in the existing experimental literature (Bond & DePaulo, 2006). This test consisted of 10 videos of individuals (6 men and 4 women) answering a question posed by a research assistant about their experiences and preferences (e.g., "What is your happiest childhood memory? Please describe it briefly," "What celebrity would you most like to meet? What would you say to them?"). Following the video, participants were reminded of the question the participant in the video was asked and then indicated whether they thought the answer was true or false. The order of videos was fixed. Half of the answers were true and half were false.

False-belief task (Experiments 4 –5, 8, 13). To test whether perspective taking reliably reduces egocentric biases in judgment, consistent with consi derable amounts of prior research, we used a modified version of the false-belief task designed by Birch and Bloom (2007). Participants were handed two pictures, one at a time. The first picture portrayed a girl playing the violin beside a sofa. There were four containers in different sizes and colors (red, purple, blue, and green) in front of her. Participants read: "This is Vicki. She finishes playing her violin and puts it in the blue container. Then she goes outside to play." The second picture portrayed a different girl holding a violin beside a different array of the same containers. Participants read: "While Vicki is outside playing, her sister, Denise, moves the violin to the red container. Then, Denise rearranges the containers in the room

until the room looks like the picture below." Participants indicated the likelihood that Vicki would first look for her violin in each of the four containers. The percentage participants assign to the red box is an indication of egocentrism, because participants know that the violin has been moved to the red box but Vicki in the scenario does not know this.

Independent variables. Each experiment included a perspective taking condition and a control condition in which participants were given no specific instructions. This served as our primary comparison in each experiment, and the focus of this paper. Seven experiments included additional conditions that tested the impact of other strategies. We added these additional conditions based on the results of our initial experiments that found a negative impact of perspective taking on accuracy. Because they did not yield very meaningful insights, we will describe these conditions briefly in the main text and present them in detail in the Supplemental Materials. Participants in each condition received a brief description of the experimental task, and then were given additional instructions depending on their experimental condition.

Perspective taking conditions. Our primary manipulation asked participants to engage in perspective taking using instructions taken from the existing literature (e.g., Batson et al., 1997; Galinsky & Moskowitz, 2000). In particular, participants in the perspective taking conditions read: "While watching the pictures [videos], please think about the person in the picture [video]. Try to adopt the perspective of the person in the picture [video] as if you were the person who is answering the question. Do your best to adopt his or her perspective, putting yourself into the other person's shoes as if you were that person. Remember that the person in the picture [video] may have a different perspective than you do as the viewer of the picture [video]." The perspective taking instructions for the false-belief task (Experiments 4, 5, 8, 13) were adapted to fit details of the task: "When answering the question, we would like you to do your best to adopt Vicki's perspective, putting yourself into Vicki's shoes as if you were her. Remember that Vicki may have a different perspective than you do."

Additional conditions. Our initial results from Experiments 1 and 2 suggested that perspective taking might diminish accuracy. We therefore introduced several additional conditions across experiments to explore this potential negative effect in more detail. These included instructions to consult one's own feelings (Experiment 3), to think especially hard (Experiment 3), to rely on one's intuitions (Experiments 4, 14), to personally display the facial expressions posed in the pictures before guessing the emotions expressed (Experiment 6), to empathize with the person in each photo (Experiment 7), to consider similarities or differences (Experiment 8), to predict how most people would answer the question (Experiment 11), and to mimic the target's facial expressions while observing each picture (Experiment 13). None of these conditions significantly increased accuracy compared with the control condition, but two conditions significantly decreased accuracy compared with the control condition (consult one's own feelings in Experiment 3 and follow your intuition in Experiment 4). These experimental conditions did not prove to be especially informative. We therefore highlight notable findings from these additional conditions in the General Discussion and report these results in full in the Supplemental Materials.

Additional measures. We also collected several additional measures to provide further tests of reliable consequences of perspective taking:

Manipulation check. Participants completed a manipulation check to assess how hard they tried to adopt the other person's perspective. We used a 7-point scale (1 not at all, 7 very much) in Experiments 1–3, 5, 6, and 8 –10. We used an 11-point scale (1 not at all, 11 extremely) in Experiments 4, 7, and 11–15. Participants in some experiments completed additional manipulation checks consistent with the conditions we added to our basic perspective taking versus control comparison. These are described in the Supplemental Materials.

Difficulty. Participants reported how difficult they found the task to be. We used a 7-point scale (1 = *not at all*, 7 = *very much*) in Experiments 1–3, 5, 6, and 8 –10 and an 11-point scale (1 = *not at all*, 7 = *extremely*) in Experiments 4, 7, and 11–15.

Response times. We measured participants' response times to complete the computerized tasks in all but Experiment 7 to provide an indirect measure of mental effort (with more time indicating more effort expended).

Confidence. Participants reported their confidence in judgment by indicating the number of responses they thought they predicted accurately. In Experiments 12–14, participants rated how confident they were with their answer after every one of the 20 predictions they made (1 = *just guessing*, 11 = *absolutely certain*) and we computed an average confidence score.

Results

Meta-analyses. Our primary interest was testing whether perspective taking increases interpersonal accuracy. To ease presentation of such a large number of experimental results, we present only the primary comparisons between the perspective taking and control conditions on our primary outcomes: the manipulation check, accuracy, confidence, perceived difficulty, and response times. Because the experiments were run on diverse populations and used different tests of interpersonal accuracy, we conducted random effects meta-analyses using the Comprehensive Metaanalysis 2 software (Borenstein, Hedges, Higgins, & Rothstein, 2010) to identify the robust effects across all experiments. We did not observe reliable gender differences on accuracy or the impact of perspective taking in these 15 experiments, or those we report in the remainder of this paper. We therefore do not discuss gender differences further.[1]

[1] We observed significant gender effects in only four of these 25 Experiments, and even these effects were inconsistent across experiments. In Experiment 5 we observed a significant gender X perspective taking interaction, $F(1,71) = 4.05$, $p = .048$, $n_p^2 = .05$. There was a marginally significant gender effect in the perspective taking condition—women were more accurate than men, ($Ms = 17.58$ and 13.50, $t(38) = 1.84$, $p = .078$, $d = 0.60$), but no gender effect in the control condition ($Ms = 18.82$ and 19.50, $t(38) = -0.62$, $p = .54$, $d = -0.20$). This difference might be driven by the small number of men compared with women in this sample (8 vs. 72). In Experiment 7 we observed a marginally significant main effect for gender such that women were more accurate than men ($Ms = 19.98$ and 19.15), $F(1,155) = 21.40$, $p = .072$, $n_p^2 = .02$. In Experiment 20 there was a marginally significant gender perspective taking interaction, $F(1, 81) = 3.58$, $p = .062$, $n_p^2 = .04$. Women were more accurate than men in the perspective taking condition ($Ms = 1.13$ and 1.38, $t(38) = 1.74$, $p = .090$, $d = 0.56$) but not in the control condition ($Ms = 1.20$ and 1.11, $t(43) = -0.80$, $p = .43$, $d = -0.24$). Finally, in Experiment 21 there was a marginally significant main effect for gender, $F(1, 85) = 3.61$, $p = .061$, $n_p^2 = .04$, but this effect was qualified by a significant gender X perspective taking interaction, $F(1, 85) = 6.08$, $p = .016$, $n_p^2 = .07$. Women were more accurate than men in the perspective taking condition ($Ms = 2.13$ and 2.68, $t(42) = 3.09$, $p = .004$, $d = 0.95$) but not in the control condition ($Ms = 2.19$ and 2.12, $t(43) = -0.40$, $p = .69$, $d = -0.12$). Given that we observed no reliable gender differences across our experiments, we do not discuss it further.

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Table 2. Meta-analysis on accuracy (number of correct responses) for perspective taking versus control conditions, Experiments 1-15.

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
1	**DANVA Faces**	Non-US U. (57)	19.14 (2.29)	17.89 (2.41)	-.53	.27	-1.06	-.00	-1.97	.049
2	**DANVA Postures**	Non-US U. (124)	16.54 (2.55)	15.94 (2.35)	-.25	.18	-.60	.11	-1.36	.174
3	**DANVA Faces**	Non-US U. (62)	18.48 (2.71)	17.74 (2.75)	-.27	.26	-.77	.23	-1.06	.288
4	**DANVA Faces**	US U. #1 (88)	18.89 (2.17)	17.91 (2.74)	-.40	.22	-.82	.02	-1.86	.065
5	**DANVA Faces**	Non-US U. (80)	18.93 (2.47)	17.38 (3.14)	-.55	.23	-1.00	-.10	-2.41	.016
6	**DANVA Faces**	Non-US U. (61)	19.52 (1.63)	18.40 (2.81)	-.49	.26	-1.00	.02	-1.88	.060
7	**DANVA Faces**	MTurk (109)	19.75 (1.95)	19.06 (3.20)	-.26	.19	-.64	.11	-1.37	.172
8	**DANVA Faces**	Non-US U. (57)	18.38 (2.67)	18.17 (3.02)	-.07	.27	-.59	.45	-.28	.781
9	**Mind in the Eyes**	Non-US U. (76)	23.60 (4.02)	22.58 (3.60)	-.27	.23	-.72	.18	-1.16	.246
10	**Mind in the Eyes**	Non-US U. (37)	25.42 (4.77)	24.83 (4.56)	-.13	.33	-.77	.52	-.38	.701
11	**Mind in the Eyes**	Community (85)	25.11 (4.46)	23.65 (5.58)	-.04	.22	-.46	.39	-.16	.873
11	**DANVA Faces**	Community (84)	18.24 (2.43)	18.14 (3.27)	-.29	.22	-.72	.14	-1.32	.188
12	**Fake Smiles**	Community (70)	13.72 (2.17)	12.24 (2.09)	-.69	.25	-1.18	-.21	-2.82	.005
13	**Fake Smiles**	Community (61)	12.42 (2.93)	14.13 (2.54)	.62	.26	.11	1.14	2.38	.018
14	**Fake Smiles**	Non-US U. (55)	13.63 (2.31)	12.68 (2.04)	-.44	.27	-.97	.10	-1.60	.110
15	**Detecting Lies**	Community (81)	4.93 (1.62)	4.80 (1.51)	-.08	.22	-.52	.35	-.37	.709
Total					-.26	.07	-.40	-.12	-3.74	.001

***Note*.** There are 24 items in DANVA, 36 items in the Mind in the Eyes, 20 items in the Fake Smiles, and 10 items in Detecting Lies.

Manipulation checks. Participants seemed to do as they were instructed. Those in the perspective taking conditions reported considering others' perspective more than those in the control conditions across Experiments 1–15, $d = 0.49$, 95% CI [0.37, 0.62], $z = 7.90$, $p < .001$ (see Table 1). This significant result is important for understanding the consequences of perspective taking on accuracy that we discuss next, because it demonstrates that participants were indeed attempting to follow the critical experimental manipulation.

Accuracy. Participants in the perspective taking conditions were not significantly more accurate across Experiments 1–15 than participants in the control conditions. In fact, participants in the perspective taking conditions were significantly less accurate overall than participants in the control conditions, $d = 0.26$, 95% CI [0.40, 0.12], $z = 3.74$, $p < .001$. As can be seen in Table 2, this negative effect of perspective taking on accuracy, compared with the control conditions, was not especially robust across individual experiments. It was statistically significant in 4 of 17 instances, but even these 4 significant results were not reliable across replications of the same procedure.[2] The Fake Smiles Test, for instance, produced one of the five significant negative effects of perspective taking on accuracy (Experiments 12), but one replication yielded a significant result in the opposite direction (Experiment 13). Although these experiments do not provide especially reliable evidence that perspective taking systematically decreases accuracy, they provide no evidence whatsoever that perspective taking systematically increases accuracy.[3]

Perceived difficulty and response times. Those in the perspective taking conditions reported that their task was more difficult than those in the control conditions across Experiments 1–15, $d = 0.16$, 95% CI [0.04, 0.27], $z = 2.69$, $p < .007$ (see Table 3). Participants in the perspective taking conditions were also slower in their responses compared with participants in the control conditions, $d = 0.40$, 95% CI [0.28, 0.52], $z = 6.50$, $p = .001$ (see Table 4). Results on these two measures, along with the manipulation check, suggest that participants in the

[2] We conducted heterogeneity tests to examine whether the effect sizes for accuracy obtained in the meta-analyses are more variable than expected from normal sampling variation. We obtained nonsignificant effects of heterogeneity in Experiments 1-15, $Q(15) = 21.07$, $p = .14$, $I^2 = 28.80$, Experiments 16-24, $Q(12) = 14.88$, $p = .25$, $I^2 = 19.34$, and also in all 25 experiments, $Q(29) = 38.27$, $p = .12$, $I^2 = 24.23$, indicating that dispersion in the effects of perspective taking on accuracy across experiments is not due to real differences in the experiments other than random error.

[3] In Experiments 12–14 (Fake Smiles Test) and Experiment 15 (Lie Detection) we also computed accuracy using a detection theory sensitivity measure (d-prime, representing the difference between the proportion of hits and false alarms). The analyses yielded similar results to those obtained perspective taking effects on number of correct responses. In Experiments 12 and 14 the d-prime was directionally lower in the PT condition compared with control (Experiment 12: $t(68) = -1.28$, $p = .204$; Experiment 14: $t(53) = -0.70$, $p = .485$. In Experiment 13 the d-prime was significantly higher in the PT condition compared with control, $t(59) = -2.62$, $p = .011$. For the Lie Detection Test (Experiment 15) perspective taking did not have an effect on d-prime, $t(79) = 0.53$, $p = .60$.

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Table 3. *Meta-analysis on perceived difficulty for perspective taking versus control conditions, Experiments 1-15.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
1	**DANVA Faces**	Non-US U. (57)	2.79 (1.55)	3.24 (1.83)	.27	.27	-.26	.79	1.00	.319
2	**DANVA Postures**	Non-US U. (124)	3.56 (1.43)	3.46 (1.55)	-.07	.18	-.42	.29	-.37	.709
3	**DANVA Faces**	Non-US U. (62)	3.35 (1.79)	3.65 (1.58)	.18	.26	-.32	.68	.70	.485
4	**DANVA Faces**	US U. #1 (88)	5.20 (2.38)	5.51 (2.00)	.14	.21	-.28	.56	.66	.510
5	**DANVA Faces**	Non-US U. (80)	2.78 (1.33)	3.60 (1.41)	.60	.23	.15	1.05	2.62	.009
6	**DANVA Faces**	Non-US U. (61)	2.74 (1.63)	3.50 (1.53)	.48	.26	-.03	.99	1.85	.064
7	**DANVA Faces**	MTurk (109)	4.23 (2.40)	4.63 (2.38)	.17	.19	-.21	.54	.87	.384
8	**DANVA Faces**	Non-US U. (57)	2.86 (1.41)	3.21 (1.54)	.24	.27	-.28	.76	.89	.373
9	**Mind in the Eyes**	Non-US U. (76)	3.84 (1.41)	4.03 (1.67)	.12	.23	-.33	.57	.54	.592
10	**Mind in the Eyes**	Non-US U. (37)	3.84 (1.43)	4.33 (1.68)	.32	.33	-.33	.96	.95	.341
11	**Mind in the Eyes**	Community (85)	6.79 (2.20)	7.09 (2.40)	.13	.22	-.30	.56	.59	.555
11	**DANVA Faces**	Community (84)	5.52 (2.11)	5.50 (2.30)	-.01	.22	-.43	.42	-.04	.967
12	**Fake Smiles**	Community (70)	6.14 (2.36)	6.59 (2.12)	.20	.24	-.28	.68	.83	.409
13	**Fake Smiles**	Community (61)	6.81 (2.27)	6.50 (2.30)	-.14	.30	-.72	.45	-.45	.649
14	**Fake Smiles**	Non-US U. (55)	6.52 (2.17)	6.75 (2.19)	.11	.28	-.45	.66	.38	.707
15	**Detecting Lies**	Community (81)	7.59 (2.10)	7.68 (2.19)	.04	.22	-.39	.48	.19	.850
Total					.16	.06	.04	.27	2.69	.007

Note. Participants made their ratings on a 7-point scale in Experiments 1-3, 5, 6, and 8-10 and on an 11-point scale in Experiments 4, 7, and 11-15.

perspective taking conditions were indeed trying harder to consider another person's perspective than participants in the control conditions.

Confidence and overconfidence. Not only were participants in the perspective taking condition less accurate, they also believed they predicted fewer of their partner's responses accurately compared with participants in the control conditions across Experiments 1–15, d = -0.20, 95% CI [-0.32, -0.09], z = -3.48, p = .001 (see Table 5). This negative effect of perspective taking on confidence may be because participants had no knowledge about the targets they tried to mind read that they could use when encouraged to take their perspective, beyond the minimal information that appeared in the picture or video.

Having both accuracy and predicted accuracy measures allows us to calculate whether participants were systematically overconfident in their evaluations. To assess overconfidence, we subtracted the number of accurate responses from the predicted number of accurate responses. Overall, participants were underconfident in their performance on these measures, d = -0.17, 95% CI [-0.30, -0.03], z = -2.39, p = .017. This was the case in all experiments but one (Experiment 15), in which participants were significantly overconfident, d = 0.80, 95% CI [0.55, 1.05], z = 6.27, p = .001. In addition, perspective taking did not significantly affect overconfidence, d = -0.03, 95% CI [-0.14, 0.09], z = -0.45, p = .65.

Reducing egocentrism: The false-belief test. Consistent with prior research, perspective taking reliably decreased egocentric biases in the four experiments that included the false-belief task (see Table 6). Perspective taking participants indicated that it was significantly less likely for the protagonist to look in the location suggested by an egocentric perspective than participants in the control condition, d = -0.28, 95% CI [-0.51, -0.05], z = -2.35, p = .019.

Discussion

In a series of 15 experiments, using standard tests of interpersonal accuracy, an explicit instruction to engage in perspective taking reliably altered judgments in a manner consistent with the explicit instruction to shift perspective from their own to another's perspective. Consistent with past research (Todd et al., 2012), this shift in perspective leads to more deliberation reflected in our studies by increased response time and greater perceived difficulty. This reliable shift in perspective, however, does not systematically increase

Table 4. *Meta-analysis on response times for perspective taking versus control conditions, Experiments 1-15.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
1	**DANVA Faces**	Non-US U. (57)	78.95 (21.35)	102.37 (37.50)	.76	.27	.23	1.30	2.78	.005
2	**DANVA Postures**	Non-US U. (124)	101.17 (45.36)	122.23 (52.48)	.43	.18	.07	.79	2.36	.018
3	**DANVA Faces**	Non-US U. (62)	91.53 (42.59)	126.43 (71.32)	.59	.26	.09	1.10	2.29	.022
4	**DANVA Faces**	US U. #1 (88)	63.64 (12.59)	91.14 (45.94)	.83	.22	.39	1.26	3.71	.001
5	**DANVA Faces**	Non-US U. (80)	115.67 (48.30)	142.89 (55.37)	.52	.23	.08	.97	2.30	.021
6	**DANVA Faces**	Non-US U. (61)	76.65 (19.72)	76.71 (23.97)	.00	.26	-.50	.51	.01	.991
8	**DANVA Faces**	Non-US U. (57)	93.47 (32.28)	109.62 (38.32)	.46	.27	-.07	.98	1.70	.089
9	**Mind in the Eyes**	Non-US U. (76)	263.42 (83.01)	288.11 (126.01)	.23	.23	-.22	.68	1.01	.315
10	**Mind in the Eyes**	Non-US U. (37)	251.88 (87.60)	279.32 (89.23)	.31	.33	-.34	.96	.94	.348
11	**Mind in the Eyes**	Community (85)	133.96 (42.91)	143.32 (54.25)	.19	.22	-.24	.62	.88	.382
11	**DANVA Faces**	Community (85)	102.01 (32.45)	121.33 (42.88)	.51	.22	.08	.94	2.30	.021
12	**Fake Smiles**	Community (70)	154.87 (21.02)	161.28 (23.78)	.29	.24	-.19	.76	1.19	.234
13	**Fake Smiles**	Community (61)	159.27 (21.21)	163.98 (31.12)	.18	.26	-.33	.68	.69	.489
14	**Fake Smiles**	Non-US U. (55)	191.41 (59.15)	200.42 (53.54)	.16	.27	-.37	.69	.59	.554
15	**Detecting Lies**	Community (81)	27.05 (12.28)	35.30 (23.71)	.44	.23	-.00	.88	1.95	.051
Total					.40	.06	.28	.52	6.50	.001

***Note*.** We report the sum of the response times in seconds across the task. We did not measure response time in Experiment 7.

accuracy except in cases where egocentrism and accuracy are necessarily confounded (such as in the false-belief task). These findings suggest that the benefits of perspective taking for increasing accuracy may be very circumscribed, increasing accuracy only when an egocentric bias is known to be producing error.

Experiment 1–15 tested the impact of perspective taking on interpersonal accuracy using standardized measures of interpersonal accuracy taken from the existing experimental literature. Although both existing theory and intuition (as indicated by our pretest) suggest that perspective taking could increase accuracy on these tests, our experiments indicate that perspective taking increased mental effort and decreased egocentrism but did not reliably increase accurate insight into the mind of another person. These standardized tests enable precise and reliable accuracy measurement, but they are also abstracted from everyday life in a way that makes it difficult to take the perspective of the targets being evaluated. For instance, participants knew nothing about the targets or about the thoughts, feelings, attitudes, or context that targets were actually in. Perspective taking might have been especially ineffective in these contexts because there was no unique information that participants could access when they shifted attention to the targets' perspective. We next explore whether the weak negative relationship between perspective taking and accuracy generalizes to more naturalistic contexts.

Experiments 16-24: Naturalistic Tests of Interpersonal Accuracy

Experiments 16 –24 tested the impact of perspective taking on interpersonal accuracy using judgments that people are more likely to make in everyday life, including predictions of others' sense of humor, opinions, and preferences. They also involved predictions of actual interaction partners. Some involved evaluations of targets who were generally well known to our participants, such as a friend or spouse, and others involved evaluations of strangers after a brief get-to-know-you activity. These experiments involved contexts where participants were likely to have at least some knowledge of their partners' preferences, either because of existing relationship knowledge (e.g., a spouse's preferences for going bowling or doing dishes) or group-based stereotype knowledge (e.g., a male or female partner's reactions to movies, videos, or jokes targeted toward a stereotypically male or female audience).

Each experiment used a perspective taking manipulation similar to those in Experiments 1–15, and several provided instructions asking participants to take their target's

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Table 5. *Meta-analysis on confidence (predicted number of correct responses) for perspective taking versus control conditions, Experiments 1-15*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
1	**DANVA Faces**	Non-US U. (57)	17.75 (2.78)	17.17 (3.58)	-.18	.27	-.70	.34	-.68	.496
2	**DANVA Postures**	Non-US U. (124)	16.48 (3.86)	15.97 (3.91)	-.13	.18	-.48	.22	-.73	.465
3	**DANVA Faces**	Non-US U. (62)	17.61 (3.99)	16.39 (3.79)	-.31	.26	-.81	.19	-1.23	.220
4	**DANVA Faces**	US U. #1 (88)	17.31 (4.21)	16.23 (4.02)	-.26	.21	-.68	.16	-1.22	.221
5	**DANVA Faces**	Non-US U. (80)	18.38 (3.26)	16.83 (4.31)	-.41	.23	-.85	.04	-1.80	.073
6	**DANVA Faces**	Non-US U. (61)	18.77 (2.49)	18.07 (3.05)	-.25	.26	-.76	.25	-.98	.327
7	**DANVA Faces**	MTurk (109)	19.33 (3.13)	18.04 (3.31)	-.40	.19	-.78	-.02	-2.07	.038
8	**DANVA Faces**	Non-US U. (57)	18.68 (2.53)	17.24 (3.93)	-.44	.27	-.96	.09	-1.63	.103
9	**Mind in the Eyes**	Non-US U. (76)	23.11 (5.78)	21.59 (6.15)	-.26	.23	-.71	.20	-1.11	.269
10	**Mind in the Eyes**	Non-US U. (37)	25.37 (5.69)	22.39 (5.87)	-.52	.33	-1.17	.14	-1.54	.123
11	**Mind in the Eyes**	Community (85)	21.40 (7.45)	21.16 (6.12)	-.04	.22	-.46	.39	-.16	.871
11	**DANVA Faces**	Community (84)	16.81 (3.90)	17.27 (4.18)	.11	.22	-.31	.54	.52	.602
12	**Fake Smiles**	Community (70)	12.88 (3.26)	11.41 (4.43)	-.38	.24	-.85	.09	-1.57	.116
13	**Fake Smiles**	Community (61)	12.17 (4.28)	10.91 (5.12)	-.27	.27	-.80	.26	-.98	.325
14	**Fake Smiles**	Non-US U. (55)	11.98 (3.65)	11.43 (3.00)	-.16	.26	-.67	.34	-.64	.522
15	**Detecting Lies**	Community (81)	6.39 (1.72)	6.95 (1.69)	.33	.22	-.11	.77	1.47	.142
Total					-.20	.06	-.32	-.09	-3.48	.001

Note. There are 24 items in DANVA, 36 items in the Mind in the Eyes, 20 items in the Fake Smiles, and 10 items in Detecting Lies.

perspective in a somewhat different way. These variants allowed us to test whether our results were restricted to simply the most common experimental approach for encouraging perspective taking. Finally, all experiments except for Experiments 21 and 24 included an "egocentric" condition in which participants were asked to assume that the other person perceived the world exactly as they did themselves. This condition could provide a more extreme test of whether or not considering another's perspective increases accuracy by including a condition that does precisely the opposite. Because this is not our primary focus, we briefly discuss these results in the General Discussion and present these results in full in the Supplemental Materials.

Method

Participants. One thousand, one hundred thirty-two individuals participated in Experiments 16 –24. Participants were undergraduates from an American university (U. #2),

Table 6. *Meta-analysis on the mean ratings of the likelihood that Vickie will search in the red box first in the false-belief task for perspective taking versus control conditions, Experiments 1-15.*

					Meta-Analysis Results				
Experiment	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
4	US U. #1 (88)	20.62 (23.87)	16.90 (20.51)	-.17	.22	-.59	.26	-.78	.438
5	Non-US U. (80)	38.79 (29.03)	27.55 (22.19)	-.88	.23	-.88	.01	-1.92	.054
8	Non-US U. (57)	36.30 (30.93)	30.25 (26.26)	-.21	.27	-.73	.31	-.79	.428
13	Community (61)	27.13 (28.54)	19.61 (19.64)	-.31	.26	-.82	.20	-1.18	.237
Total				-.28	.12	-.51	-.05	-2.35	.019

Note. Larger percentages indicate smaller egocentric bias. Thus, a negative sign of d indicates smaller egocentric bias in perspective taking condition compared to control.

MBA students, and people in the community, from two locations (Community #1, Community #2; see Table 7 for sample sizes and demographics for each experiment). Targeted sample sizes were typically 30 participants per cell, but we increased our samples sizes in subsequent versions of our experiments to test the robustness of a null result. We made seven exclusions from the analyses: three participants received the wrong verbal instructions (Experiment 16), three participants did not have a partner (Experiment 21), and one participant's predictions of a stranger because he or she predicted the preferences of a hypothetical stranger (Experiment 23). We were also unable to calculate accuracy in 24 instances: 10 instances in which participants did not make predictions or their partners did not report own responses (Experiments 16, 19, 22, and 23) and 14 instances in which we could not match participants to a partner because they mis-entered their Participant ID or because they were part of a triplet and it was unclear whose preferences they predicted (Experiment 20). Additionally, we could not calculate correlational accuracy in nine instances in which participants or their partners gave the same response to all items (Experiments 19 and 20). We present results only for the perspective taking and control conditions in the main text (N 825), as we did for Experiments 1–15.

Participants completed each experimental session in pairs where each person served as both a "predictor" and a "target." The pairs varied in their relationship status across experiments. Some were romantic partners (Experiments 16, 17, and 22), and others were strangers who had a short introductory conversation (Experiments 18 –21, and 24). Pairs were strangers of the opposite sex in Experiments 19 and 20, and included both heterosexual romantic partners and strangers of the opposite sex in Experiment 23. There were a few exceptions to these rules: four participants were not of the opposite gender and six participants were not strangers (Experiment 19), 34 participants were not of the opposite gender or were part of a triplet and six participants could not be matched to a partner (Experiment 20), four participants were not romantic partners (Experiment 22), eight participants predicted a romantic partner who was not of the opposite gender, two participants predicted someone who was not a romantic partner, and eight participants predicted a stranger's preferences who was not of the opposite gender (Experiment 23). Excluding these additional participants does not change the results in any meaningful way, and so we report the results with these participants included.

Materials and procedure. Heterosexual romantic partners were recruited together in Experiments 16 –17 and 22. Individuals were recruited separately and paired with a stranger in Experiments 18 –21. Heterosexual romantic partners were recruited together and paired with another couple that they did not already know in Experiment 23. Experiments involving pairs of strangers began with a get-acquainted session in which each participant introduced himself/herself guided by a series of questions: "Where are you from?," "What are you doing in the lab/museum today?," and "What are you doing when you are not at the lab/museum?"

Participants in Experiments 16 –23 predicted their partner's responses and stated their own responses. Participants in Experiments 18 –20 also predicted the responses of an average man and an average woman. Participants in Experiments 16, 18 –19, and 22–23 first predicted their partner's responses for all of the items, and then stated their own responses for all of the items. We counterbalanced the order of these ratings in Experiments 17 and 21. Participants in Experiment 20 predicted their partner's responses, stated their own responses, predicted the responses of an average man, and predicted the responses of an average woman for each item before moving to the next. Participants in Experiment 24 first gave their own impressions based on the role they played and then predicted their partner's response based on the partner's role.

Interpersonal accuracy measures. These experiments assessed interpersonal accuracy on predictions of partners' responses to six different judgments: activities, movies, jokes, videos, art, opinions, and a performance appraisal simulation. We summarize each task below. All stimuli from questionnaires are publically available online at https://osf.io/4k7tv/.

Activities (Experiments 16 & 17). Participants rated how much their partner liked or disliked 37 activities on 7-point scales (1 = *dislike very much*, 4 = *neutral or don't know*, 7 = *like very much*) using a measure taken from Swann and Gill (1997; e.g., go to a bar or a pub, play tennis, visit with family, go bowling, do dishes).

Movies (Experiment 18). Participants saw posters for 16 movies targeted for female audiences (e.g., Pretty Woman, Legally Blonde) or male audiences (e.g., Casino Royale, Transformers). Participants rated how much they thought their partner would like each movie on 5-point scales (1 = *strongly dislike*, 5 = *strongly like*).

Jokes (Experiment 19). Participants read 12 sexist jokes targeted for female audiences (e.g., "Why are men like strawberries? Because they take a long time to mature and by the time they do most are rotten.") or male audiences (e.g., "What is the difference between a battery and a woman? A battery has a positive side."). Participants rated how funny they thought their partner would rate each joke on 5-point scales (1 = *not at all funny*, 5 = *extremely funny*).

Videos (Experiment 20). Participants watched eight 2–3 min videos with humorous dating advice targeted for female audiences (e.g., "How to survive shopping with your boyfriend,") or male audiences (e.g., "How to tell her she looks terrible"). Participants rated how much their partner would like each video on 5-point scales (1 = *strongly dislike*, 5 = *strongly like*).

Art (Experiment 21). Participants viewed 18 pieces of art (paintings and photographs). They rated how much their partner would like each piece of art on 10-point scales (1 = *strongly dislike*, 10 = *strongly like*).

Opinions (Experiments 22 and 23). Participants read 21 opinion statements selected from Consumer Reports (taken from Hoch, 1987; e.g., "I would like to spend a year in London or Paris," "I have somewhat old-fashioned tastes and habits," "Police should use whatever force is necessary to maintain law and order"). They predicted how their partner would respond to each statement on 7-point scales (1 = *strongly disagree*," 4 = *neither agree nor disagree*, 7 = *strongly agree*).

Performance appraisal simulation (Experiment 24). MBA students were divided into pairs and assigned to the role of a partner in a firm (Stanley) or a manager being evaluated for promotion (Burke). In this simulation, Stanley has evaluated all the managers in the division and is prepared to give Burke

Table 7. *Demographics and meta-analysis on accuracy (absolute difference between predicted responses and actual responses) for perspective taking versus control conditions, Experiments 16-24.*

								Meta-Analysis Results					
Experiment	**Task**	Location (N)	# of women	Length of relationship (months)	Mean age	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
16	**Activities (partners)**	Community #1 (74)	37	103.18 (108.31)	32.65 (9.17)	1.21 (.31)	1.15 (.34)	-.17	.23	-.63	.29	-.74	.461
17	**Activities (partners)**	Community #1 (66)	33	133.70 (107.80)	37.06 (12.18)	1.13 (.26)	1.33 (.44)	.57	.25	.08	1.07	2.28	.023
18	**Movies (strangers)**	US U. #2 (80)	41		20.25 (1.65)	1.03 (.31)	1.20 (.41)	.49	.23	.05	.93	2.16	.031
19	**Jokes (strangers)**	Community #2 (78)	39		28.71 (11.35)	1.24 (.40)	1.46 (.50)	.47	.23	.02	.92	2.06	.039
20	**Videos (strangers)**	US U. #2 (85)	46		20.12 (1.57)	1.16 (.37)	1.26 (.48)	.24	.22	-.19	.66	1.08	.281
21	**Art (strangers)**	US U. #2 (92)	42		20.12 (1.81)	2.15 (.59)	2.31 (.64)	.26	.21	-.15	.67	1.24	.214
22	**Opinions (partners)**	Community #2 (82)	42	101.79 (117.44)	35.28 (11.68)	1.56 (.35)	1.52 (.42)	-.10	.22	-.53	.34	-.43	.664
23	**Opinions (partners)**	Community #2 (80)	38	131.84 (151.97)	38.81 (14.00)	1.71 (.50)	1.71 (.36)	-.01	.23	-.45	.44	-.02	.984
23	**Opinions (strangers)**	Community #2 (79)	37		38.57 (13.93)	1.97 (.42)	1.98 (.38)	.02	.23	-.43	.46	.08	.938
24	**Performance appraisal simulation Burke's chance**	MBA (101)				21.08 (16.60)	27.89 (19.05)	.38	.20	-.02	.78	1.89	.059
24	**Performance appraisal simulation Stanley's chance**	MBA (101)				22.04 (17.53)	24.92 (22.30)	.14	.20	-.25	.54	.72	.475
24	**Performance appraisal simulation Burke's impression**	MBA (101)				1.89 (1.62)	1.67 (1.68)	-.13	.20	-.53	.26	-.67	.506
24	**Performance appraisal simulation Stanley's impression**	MBA (101)				1.92 (1.91)	2.04 (1.70)	.07	.20	-.33	.46	.33	.740
Total								.16	.07	.03	.30	2.44	.015

Note. Larger absolute differences indicate less accuracy. In Experiment 24 participants did not report their age and gender.

his or her appraisal. Burke is certain that he or she outperforms the other managers and should be promoted to partnership in the firm. Stanley believes Burke has many strong points, but he also has many concerns and estimates Burke has only a 10% chance of making partner in the next two years. Participants first received 10 min to read one-page long background about the person he or she was role playing. Each pair then conducted the performance evaluation for 20 min. Finally, all participants answered four questions, according to their role. The first two questions were about their own impression: "According to the materials you received and your performance appraisal, what do you think is the likelihood that you (manager Burke) [your manager Burke] will be promoted to partner at the end of the next two years?", "What is your overall impression of yourself (Burke) [of Burke] as a manager?" Participants then made predictions regarding the thoughts of the other person: "What do you believe Stanley (the partner) thinks is the likelihood that you will be promoted to partner at the end of the next two years [What do you believe Burke thinks is his or her likelihood of making partner]?", "What do you believe is Stanley's (the partner) overall impression of you as a manager [What do you believe Burke thinks is your overall impression of him or her as a manager]?" Answers on questions 1 and 3 were given on a line ending with a % sign. Ratings on questions 2 and 4 were given on an 11-point scale (-5 = *very negative*, 0 = *neutral*, 5 = *very positive*).

Independent variables. All experiments shared a basic design of at least a perspective taking condition and a control condition. All experiments included a perspective taking condition that encouraged participants to imagine they were the other person ("partner's shoes condition"). Two experiments (Experiments 16 and 22) also included an additional perspective taking condition that encouraged participants to focus on the other person's thoughts and feelings ("partner's perspective condition"). All but Experiments 21 and 24 also included a condition that encouraged participants to base their predictions of their partners' responses on their own responses ("egocentrism condition," see Supplemental Materials).

Control conditions. Participants in Experiments 17–21 and 23–24 were told: "We would like for you to use whatever strategy you think is best." Participants in Experiments 16 and 22 received no instructions about how to predict the other person's responses.

Perspective taking (partner's shoes) conditions. Participants in Experiment 16 *(Activities)* were told: "When predicting your partner's responses, it is very important that you put yourself in your partner's shoes. Try to envision what your attitudes toward the following activities would be if you were your partner. Concentrate on how you would feel about each activity if you were your partner: i.e., whether you would like to do it or would not like to do it. Imagine how strongly you would feel. Circle the answers that best reflect the thoughts and feelings you would have about each activity if you were your partner."

Participants in Experiments 22 and 23 *(Opinions)* were told: "When predicting your partner's responses, it is very important that you put yourself in your partner's shoes. Try to envision how you would react to each of the statements if you were your partner. Concentrate on what you would think if you were your partner, i.e., whether you would agree or disagree with each statement. Imagine how strongly you would feel. Circle the answers that best reflect the reactions, thoughts, and feelings you would have if you were your partner."

Participants in Experiments 17–21 *(Activities, Movies, Jokes, Videos, Art)* were told: "When rating how much your partner would like the following [activities, movies, jokes, video, pieces of art], it is very important that you put yourself in your partner's shoes. Think carefully about what you know about your partner— consider their personality, their background, and their tastes. Imagine what they would like and dislike about each [activity, movie, joke, video clip, piece of art], and consider how that would influence their ratings of each activity [movie, joke, video clip, piece of art]."

Participants in Experiment 24 (Performance Appraisal Simulation) were told: "Try to adopt Stanley's perspective (the partner's perspective) [Burke's perspective (the manager's perspective)] as if you were him or her. Do your best to put yourself into Stanley's [Burke's] shoes, trying to understand your interaction through Stanley's [Burke's] eyes— considering what Stanley [Burke] is thinking, and what Stanley's interests and purposes are. Remember that Stanley [Burke] may have a different perspective than you do."

Perspective taking (partner's perspective) conditions. Participants in Experiment 16 *(Activities)* were told: "When predicting your partner's responses, it is very important that you consider what you know about your partner. The best way to do that is to think about your partner's behavior and visible reactions in the past. Try to think about which activities your partner has engaged in and how often he/she has engaged in those activities, or in activities that are similar to the ones below. Concentrate on what your partner has actually said to you about each activity: i.e. whether he/she has said that he/she likes to do it or does not like to do it. Circle the answers that best reflect what you think are your partner's preferences, based as much as you can on how your partner has behaved or responded in the past to these activities or to similar activities."

Participants in Experiment 22 *(Opinions)* were told: "When predicting your spouse's responses, it is very important that you consider your spouse's perspective. Try to envision his/her reactions to each of the statements. Concentrate on what your spouse thinks, i.e., whether your spouse agrees or disagrees with each statement. Imagine how strongly he/she feels. Circle the answers that best reflect your spouse's reactions, thoughts, and feelings."

Additional measures. Lastly, participants answered additional questions:

Confidence. Participants in all but Experiments 18 and 24 predicted the number of responses they thought they predicted accurately. This provided us with a measure of participants' confidence in the accuracy of their predictions.

Difficulty. Participants in Experiments 20, 21, and 23 rated how easy or difficult it was for them to predict their partner's preferences using the strategy they did on a 10-point scale (1 = *very easy*, 10 = *very hard*).

Measures about the relationship between partners included how well participants thought they knew their partners, how well they thought their partners knew them, how long they and their partner had known each other, how long they were romantically involved, whether they were married, and how long they were married. These measures are reported in the Supplemental Materials.

Results

Meta-analyses. Because Experiments 16 –24 used diverse populations and tests of interpersonal accuracy tests, we conducted random effects meta-analyses using the Comprehensive Metaanalysis 2 software (Borenstein et al., 2010) to identify the robust effects across experiments.

Accuracy. We conducted three meta-analyses to test the effect of perspective taking on accuracy. The first meta-analysis utilized the 13 comparisons in which we could calculate accuracy as the absolute difference between predicted opinions and preferences of others and their actual opinions and preferences (larger absolute differences indicate smaller accuracy). The second analysis was conducted for the eight comparisons in which we could calculate accuracy as the mean correlation between predicted opinions and preferences of others and their actual opinions and preferences. The third analysis was conducted for the eight comparisons in which we could count the number of participants' correct predictions. These meta-analyses yielded a significant negative effect for accuracy when calculated as absolute differences: $d = 0.16$, 95% CI [0.03, 0.30], $z = 2.44$, $p = .015$ (a positive sign indicates less accuracy in perspective taking condition compared with control, Table 7), and nonsignificant effects for accuracy when calculated as mean correlations: $d = -0.10$, 95% CI [-0.25, 0.05], $z = -1.36$, $p = .17$ (a negative sign indicates less accuracy in perspective taking condition compared with control, Table 8), and when calculated as the number of correct predictions: $d = 0.01$, 95% CI [-0.23, 0.20], $z = -0.12$, $p = .90$ (a negative sign indicates less accuracy in perspective taking condition compared with control, Table 9). The results of the three analyses indicate that perspective taking did not increase accuracy in predicting partners' opinions and preferences. If anything, it reduced accuracy as we also observed in Experiments 1–15.

These results did not change in a meaningful way when we replaced the "partner's shoes" conditions with the "partner's perspective" conditions in Experiments 16 and 22. In addition, participants in the "partner's shoes" condition were directionally more accurate than participants in the "partner's perspective" condition. This difference was marginally significant for the number of correct predictions measure in Experiment 22, $t(74) = 1.84$, $p = .070$, $d = 0.43$, but nonsignificant in all other measures in Experiment 22 and in all measures in Experiment 16.

Perceived difficulty. In a meta-analysis of the four comparisons in which we measured perceived difficulty, we observed a nonsignificant difference between the perspective taking and control conditions, $d = 0.03$, 95% CI [-0.30, 0.36], $z = 0.16$, $p = .87$ (see Table 10). Note that this differs from Experiments 1–15 in which perspective takers reported experiencing more difficulty than those in the control condition. This different pattern of results could stem from participants' increased familiarity with the targets of judgment in Experiments 16 –24.

Table 8. *Meta-analysis on accuracy (mean correlations between predicted responses and actual responses) for perspective taking versus control conditions, Experiments 16-24.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	P
16	**Activities (partners)**	Community #1 (74)	.64 (.15)	.65 (.16)	.07	.23	-.38	.53	.32	.751
17	**Activities (partners)**	Community #1 (66)	.68 (.14)	.62 (.16)	-.36	.25	-.84	.13	-1.44	.150
18	**Movies (strangers)**	US U. #2 (80)	.40 (.36)	.33 (.37)	-.14	.22	-.58	.30	-.63	.528
19	**Jokes (strangers)**	Community #2 (74)	.16 (.36)	.07 (.38)	-.24	.23	-.69	.22	-1.01	.314
20	**Videos (strangers)**	US U. #2 (84)	.19 (.31)	.10 (.45)	-.24	.22	-.67	.19	-1.10	.270
21	**Art (strangers)**	US U. #2 (92)	.35 (.26)	.30 (.25)	-.20	.21	-.61	.21	-.97	.331
22	**Opinions (partners)**	Community #1 (82)	.48 (.21)	.46 (.23)	-.11	.22	-.54	.33	-.47	.635
23	**Opinions (partners)**	Community #1 (80)	.33 (.28)	.35 (.20)	.03	.23	-.41	.47	.14	.887
23	**Opinions (strangers)**	Community #1 (79)	.07 (.22)	.11 (.17)	.24	.23	-.21	.68	1.06	.291
24	**Performance appraisal simulation Burke's chance**	MBA (101)	.30	.21						
24	**Performance appraisal simulation Stanley's chance**	MBA (101)	.21	.14						
24	**Performance appraisal simulation Burke's impression**	MBA (101)	.10	.05						
24	**Performance appraisal simulation Stanley's impression**	MBA (101)	.17	-.04						
Total					-.10	.08	-.25	.05	-1.36	.173

***Note*.** The meta-analysis was conducted on a Fisher-transformation of the correlations. For ease of interpretation we report the mean Pearson correlations. In Experiment 24, the correlations were calculated between two ratings rather than between mean ratings as in the other experiments. Therefore, it was not included in the meta-analysis.

Table 9. *Meta-analysis on accuracy (number of correct predictions) for perspective taking versus control conditions, Experiments 16-24.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
16	**Activities (partners)**	Community #1 (74)	11.89 (2.81)	13.03 (3.67)	.35	.23	-.11	.81	1.48	.138
17	**Activities (partners)**	Community #1 (66)	12.24 (4.02)	10.66 (3.92)	-.40	.25	-.89	.09	-1.60	.110
18	**Movies (strangers)**	US U. #2 (80)	5.03 (2.20)	4.13 (2.44)	-.39	.23	-.83	.06	-1.72	.086
19	**Jokes (strangers)**	Community #2 (78)	3.35 (1.72)	3.24 (1.94)	-.06	.23	-.50	.38	-.27	.791
20	**Videos (strangers)**	US U. #2 (79)	1.89 (1.21)	1.98 (1.23)	.07	.22	-.35	.50	.34	.734
21	**Art (strangers)**	US U. #2 (92)	2.50 (1.56)	2.26 (1.41)	-.16	.21	-.57	.25	-.77	.440
22	**Opinions (partners)**	Community #1 (82)	4.89 (2.25)	6.00 (1.90)	.53	.23	.08	.98	2.33	.020
23	**Opinions (partners)**	Community #1 (80)	4.64 (2.22)	4.03 (1.80)	-.30	.23	-.74	.14	-1.32	.186
23	**Opinions (strangers)**	Community #1 (79)	3.40 (2.03)	3.83 (1.77)	.23	.23	-.22	.67	.99	.321
Total					-.01	.11	-.23	.20	-.12	.904

***Note*.** There are 37 items in Activities, 16 items in Movies, 12 items in Jokes, 8 items in Videos, 18 items in Art, and 21 items in Opinions.

Confidence and overconfidence. In a meta-analysis of the eight comparisons in which we measured confidence, we observed a nonsignificant difference between perspective taking and control conditions, $d = 0.08$, 95% CI [-0.09, 0.25], $z = 0.90$, $p = .37$ (see Table 11). In contrast to Experiments 1–15, perspective taking did not significantly reduce confidence. If anything, it directionally increased it. This may again be because participants in Experiments 16 –24 had more knowledge about the other person's perspective to rely on in the perspective taking condition. We calculated overconfidence by subtracting the number of accurate responses from confidence scores (i.e., predicted number of accurate responses). Overall, participants were highly overconfident in their predictions, $d = 1.50$, 95% CI [1.23, 1.78], $z = 10.58$, $p < .001$. This overconfidence was statistically significant in all eight comparisons. In a meta-analysis of the eight comparisons in which we measured both confidence and accuracy, there was no effect of overconfidence, indicating that perspective taking did not influence overconfidence, $d = 0.04$, 95% CI [-0.16, 0.24], $z = 0.39$, $p = .70$.

Reducing egocentrism. We conducted two meta-analyses on the nine comparisons in which we measured participants' own preferences that allow us to test whether or not perspective taking systematically decreases egocentric projection compared with a control condition. When calculating projection as the absolute difference between predicted opinions of others and self-opinions (larger absolute differences indicate smaller projection), we observed a nonsignificant reduction in egocentric projection in the perspective taking conditions compared with the control conditions, $d = 0.12$, 95% CI [-0.04, 0.27], $z = 1.49$, $p = .14$ (see Table 12). This was also the case when calculating projection as the mean correlation between predicted opinions of others and self-opinions (smaller correlations indicate smaller projection), $d = -0.14$, 95% CI [-0.34, 0.06], $z = -1.38$, $p = .17$, such that participants in the perspective taking condition were less egocentric than participants in the control condition (see Table 13).

Discussion

Across nine experiments consisting of naturalistic tests of interpersonal accuracy—predicting a partner's preferences and opinions—we found that an explicit instruction to engage in perspective taking did not increase accuracy. If anything, it

Table 10. *Meta-analysis on perceived difficulty for perspective taking and control conditions, Experiments 16-24.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
20	**Videos (strangers)**	US U. #2 (93)	4.72 (1.57)	5.19 (1.26)	.33	.21	-.08	.74	1.58	.113
21	**Art (strangers)**	US U. #2 (88)	6.44 (2.15)	7.07 (2.19)	.29	.21	-.13	.71	1.36	.176
23	**Opinions (partners)**	Community #1 (80)	4.39 (1.96)	3.86 (1.55)	-.30	.23	-.74	.15	-1.31	.189
23	**Opinions (strangers)**	Community #1 (79)	7.84 (1.99)	7.36 (1.87)	-.25	.23	-.69	.20	-1.09	.274
Total					.03	.17	-.30	.36	.16	.870

***Note*.** Participants made their ratings on 11-point scales.

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Table 11. *Meta-analysis on confidence (predicted number of correct responses) for perspective taking versus control conditions, Experiments 16-24.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
16	**Activities (partners)**	Community #1 (74)	23.61 (6.21)	24.95 (4.66)	.25	.23	-.21	.70	1.05	.294
17	**Activities (partners)**	Community #1 (65)	21.39 (7.38)	24.44 (7.06)	.42	.25	-.07	.91	1.68	.092
19	**Jokes (strangers)**	Community #2 (75)	6.11 (2.22)	6.81 (2.59)	.29	.23	-.17	.75	1.25	.211
20	**Videos (strangers)**	US U. #2 (93)	4.54 (1.53)	4.02 (1.44)	-.35	.21	-.76	.06	-1.68	.094
21	**Art (strangers)**	US U. #2 (88)	7.60 (3.45)	7.74 (3.67)	.04	.21	-.38	.46	.19	.850
22	**Opinions (partners)**	Community #1 (82)	12.94 (3.18)	12.42 (4.23)	-.14	.22	-.58	.29	-.63	.526
23	**Opinions (partners)**	Community #1 (79)	13.43 (4.20)	13.77 (3.23)	.09	.23	-.36	.53	.40	.693
23	**Opinions (strangers)**	Community #1 (79)	8.30 (4.07)	9.03 (4.07)	.18	.23	-.26	.62	.79	.428
Total					.08	.09	-.09	.25	.90	.370

Note. There are 37 items in Activities, 16 item in Movies, 12 items in Jokes, 8 items in Videos, 18 items in Art, and 21 items in Opinions. We did not measure confidence in Experiments 18 and 24.

decreased accuracy.

Experiments 16 –24 do not provide a clear explanation for why perspective taking failed to increase accuracy. Among pairs of participants who were encouraged to take the perspective of their partner, reading the mind of their partner was not perceived to be more or less difficult, and did not yield more or less confidence, compared with control condition. Interestingly, unlike participants in Experiments 1–15 who were underconfident in their predictions, participants in Experiments 16 –24 were dramatically overconfident. Participants in Experiments 16 –24 were more familiar with their targets' perspectives and we therefore think it was likely that the judgment task was generally easier as a result, thereby increasing confidence. Participants' overconfidence, however, did not differ systematically between perspective taking and control conditions. Perspective takers did seem to be less egocentric (i.e., projective) to some extent compared with control participants, but this effect was only marginally significant when measured as correlations between predictions and self-ratings but not when measured as absolute differences between predictions and selfratings. Less projection, however, did not increase accuracy in the perspective taking condition compared with the control condition.

We believe the collective results of all of the experiments presented so far (Experiments 1–24) are especially interesting because they stand in stark contrast to the survey we presented

Table 12. *Meta-analysis on egocentric projection (absolute difference between predictions of partners' responses and own responses) for perspective taking versus control conditions, Experiments 16-24.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	p
16	**Activities (partners)**	Community #1 (74)	1.39 (.42)	1.43 (.38)	.10	.23	-.36	.56	.43	.667
17	**Activities (partners)**	Community #1 (66)	1.50 (.48)	1.44 (.45)	-.13	.25	-.61	.35	-.52	.601
18	**Movies (strangers)**	US U. #2 (80)	1.01 (.66)	1.03 (.47)	.04	.22	-.40	.47	.16	.876
19	**Jokes (strangers)**	Community #2 (78)	.93 (.50)	1.08 (.56)	.28	.23	-.16	.73	1.24	.214
20	**Videos (strangers)**	US U. #2 (93)	.91 (.42)	.97 (.62)	.11	.21	-.29	.52	.55	.586
21	**Art (strangers)**	US U. #2 (92)	1.57 (.67)	1.68 (.72)	.16	.21	-.25	.57	.76	.449
22	**Opinions (partners)**	Community #1 (82)	1.21 (.54)	1.55 (.52)	.64	.23	.20	1.09	2.82	.005
23	**Opinions (partners)**	Community #1 (80)	1.55 (.46)	1.48 (.50)	-.15	.23	-.59	.30	-.65	.516
23	**Opinions (strangers)**	Community #1 (79)	1.77 (.57)	1.75 (.55)	-.04	.23	-.48	.41	-.16	.875
Total					.12	.08	-.04	.27	1.49	.137

***Note*.** Larger absolute values indicate less projection. We did not test projection in Experiment 24.

Table 13. *Meta-analysis on egocentric projection (mean correlations between predictions of partners' responses and own responses) for perspective taking versus control conditions, Experiments 16-24.*

					Meta-Analysis Results					
Experiment	**Task**	Location (N)	Control	PT: Other's shoes	d	SE	CI Lower limit	CI Upper limit	Z	P
16	**Activities (partners)**	Community #1 (74)	.45 (.20)	.40 (.21)	-.25	.23	-.70	.21	-1.06	.291
17	**Activities (partners)**	Community #1 (66)	.38 (.23)	.39 (.28)	.14	.25	-.35	.62	.56	.578
18	**Movies (strangers)**	US U. #2 (80)	.44 (.51)	.36 (.44)	-.25	.22	-.69	.19	-1.12	.262
19	**Jokes (strangers)**	Community #1 (75)	.31 (.39)	.27 (.42)	-.01	.23	-.47	.44	-.06	.954
20	**Videos (strangers)**	US U. #2 (92)	.29 (.47)	.15 (.59)	-.29	.21	-.70	.13	-1.36	.173
21	**Art (strangers)**	US U. #2 (92)	.52 (.31)	.49 (.31)	-.14	.21	-.55	.27	-.69	.491
22	**Opinions (partners)**	Community #1 (82)	.57 (.26)	.37 (.27)	-.76	.23	-1.21	-.31	-3.33	.001
23	**Opinions (partners)**	Community #1 (80)	.36 (.29)	.43 (.30)	.29	.23	-.15	.73	1.29	.198
23	**Opinions (strangers)**	Community #1 (79)	.19 (.32)	.22 (.28)	.06	.23	-.39	.50	.25	.799
Total					-.14	.10	-.34	.06	-1.38	.168

Note. The meta-analysis was conducted on a Fisher-transformation of the correlations. For ease of interpretation we report the mean Pearson correlations.

in the introduction, where respondents tended to predict that perspective taking would increase accuracy across many of these tests. Common sense indicates that perspective taking should increase interpersonal understanding. Likewise, psychological theory predicts that perspective taking could increase interpersonal accuracy through a variety of different mechanisms (such as behavioral mimicry, increased empathy, or reduced egocentrism). These mechanisms all presume that taking another's perspective will lead people to consider new information that they would not have considered otherwise, and that this new information will provide a systematically more accurate guide to another person's mental experience. Our results simply suggest that the information people consider when they shift perspective may not be systematically more accurate than the information they would have considered otherwise.

Experiment 25: Perspective Getting

If taking another person's perspective does not systematically increase accuracy, is there anything one can do to reliably increase understanding? If so, are people who are using this more effective strategy aware of its usefulness?

In one final experiment, we compared the effectiveness of perspective taking against another approach that almost necessarily collects more accurate information directly from another person's perspective, what we refer to as perspective getting. In particular, increasing insight into another person's mind should require getting more accurate information about his or her perspective. One obvious way to do this is by asking a person to report directly on his or her thoughts, beliefs, attitudes, and other mental states and then using that information as a guide, just as survey researchers do to assess public opinions with a relatively high degree of accuracy.

Of course, self-reports are sometimes inaccurate, such as when asking people to explain their own mental processes (Nisbett & Wilson, 1977), or when discussing topics with strong demand characteristics (Schwarz, 1999). However, self-reports of conscious mental experiences, such as conscious beliefs, emotions, or attitudes, are still consistently the best predictors of behavior (Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Oswald, Mitchell, Blanton, Jaccard, & Tetlock, 2013). More important, perspective taking is often presumed to increase understanding of another person's conscious experience, regardless of whether that experience itself accurately reflects some objective reality or not. If you want to know whether your spouse believes he or she would prefer a weekend in London or Paris, or watch Love Actually rather than Iron Man 3, the most accurate strategy would likely be to get your spouse's perspective by asking what he or she prefers rather than trying to take his or her perspective and guess.

Although this approach to increasing accuracy seems obvious, we believe it is worth comparing its effectiveness against perspective taking for three reasons. First, none of our experiments provide concrete insight into how a person might actually increase interpersonal understanding above and beyond a control condition. Indeed, perspective taking across our experiments tended to decrease accuracy. Testing the effectiveness of perspective getting would test whether it is even possible to systematically improve interpersonal accuracy. It would also offer practical advice about exactly what kind approach a person should take to understand another's mind more accurately. Second, we believe our perspective taking results highlight an important subtlety that is often overlooked in the existing psychological literature. Getting another's perspective directly through bottom-up processes of direct questioning is different than trying to take another's perspective through top-down inferences. It is important to clearly distinguish between these processes because they may have very different implications for interpersonal understanding. This distinction can also serve to refine the theoretical concept of perspective-taking, which is sometimes used broadly to describe both top-down processes of inference and bottom-up processes of direct questioning or

personal experience in another person's situation. Finally, perspective getting may seem like an obvious approach to increasing interpersonal accuracy, but it may not be so obvious to those in the midst of interpersonal interactions. By measuring participants' confidence in judgment, we can assess the degree to which people are aware of which strategies provide better insight into the mind of another person than others.

Specifically, we conducted a replication of Experiments 22 and 23, in which participants predicted their romantic partner's agreement or disagreement with a series of opinion statements. Participants in the perspective taking condition followed the same instructions as in Experiments 22 and 23, whereas participants in the control condition were instructed to "use whatever strategy you think is best." Each participant in the perspective getting condition, in contrast, was first given the chance to ask his or her partner either half or all of the opinion statements, listen to the partner's verbal response, and then to later predict how his or her partner would respond on the numeric preference scale for each item. Allowing participants to get their partners' perspective on either a subset of the items, or the full set of items, enables us to more precisely assess the impact of this approach on accuracy.

We predicted that getting a partner's perspective would increase accuracy compared with taking his or her perspective and to the control condition. Because the survey items we used were designed so as to be uncorrelated with each other (Hoch, 1987), we expected that getting perspective would increase accuracy only on the items people discussed. Those in the partial perspective-getting conditions, who discuss only half the items, should therefore obtain accuracy rates somewhere in between the control and full perspective getting condition (where participants discuss all of the items). Obviously, these results would change if we used a set of highly intercorrelated survey items. Finally, given the tenuous relationship between confidence and accuracy in judgment, we expected to observe a smaller difference in participants' confidence across conditions than in accuracy across conditions. Those in the perspective-getting conditions, we predicted, would not be fully aware of just how much their judgment improved compared with the other experimental conditions.

Method

Participants. One hundred four heterosexual romantic couples were recruited in the community to complete a short survey. Of these, 58% were married. Participants ranged in age from 19 to 72 (M = 36), and were in a relationship between one month and 43 years (M = 10 years).

Materials and procedure. Couples were invited to participate in a study on how well people can gauge their partner's opinions, using the same test as reported in Experiments 22 and 23. One member of each couple (predictor) was asked to predict how their partner would respond to 20 opinion statements selected from Consumer Reports (Hoch, 1987) and then report his or her own opinions. The other member (target) was only asked to rate his or her own opinions. Predictors were randomly assigned to one of five strategies and read the following instructions:

Control condition. Participants read, "We would like for you to use whatever strategy you think is best." Participants in the control condition received no further suggestions on what these strategies might be.

Perspective taking condition. Participants read, "We would like for you to take the perspective of your partner. Please imagine a typical day in the life of your partner as if you were him/her, looking at the world through his/her eyes and walking through the world in his/her shoes. You should start from the beginning of your partner's day to the end, focusing on his/her thoughts and feelings. Please take approximately five minutes to write about a day in the life of your partner. Once you have done that, we would like for you to use this information to rate the extent to which your partner would agree or disagree with the following statements. Please use this strategy even if you think another strategy would be better."

Perspective getting (–all, – even, and, – odd) conditions. Participants read, "Before you rate the extent to which your partner would agree or disagree with the following statements, we would like for you to ask your partner to tell you about their opinions. We will give you a list of statements. Please take approximately five minutes to ask your partner about the extent to which they agree or disagree with each of the statements on the list, trying to get a sense of the range of your partner's opinions. Your partner might strongly agree with some statements, somewhat agree with others, and they may strongly disagree with others. Once you have done that, we would like for you to use the information you got from your partner to predict the extent to which your partner would agree or disagree with these statements. Please use this strategy even if you think another strategy would be better." Participants in the *perspective getting—all* condition received the full list of statements, and those in the *perspective getting-even* and *-odd* conditions received a list with only the even or odd-numbered statements, respectively.

Each participant in the perspective taking condition was given five minutes in which to write about a day in the life of his or her partner, a commonly used perspective-taking manipulation (adapted from Macrae, Bodenhausen, Milne, & Jetten, 1994). Each participant in the perspective getting conditions was given five minutes in which to ask his or her partner about their opinions on the items provided. Note that perspective getting participants simply discussed their opinions verbally, rather than putting them on the numeric scale that they would use later in the experiment. This is important because participants in the perspective getting condition still had to infer their partner's numeric response from their verbal answer, rather than simply remember the exact numeric answer that a partner provided. After this 5-min period, partners were moved to separate locations and given the full list of opinion statements. Targets reported their opinion on each item on a 7-point scale (-3 = *strongly disagree*, 3 = *strongly agree*). Predictors guessed how their target would respond to each item on the same scales.

We next measured participants' confidence in the accuracy of their own or their partner's judgment in two different ways. First, predictors rated how confident they were that their predictions of their partner's opinions were correct, and targets rated how confident they were that their partner's predictions of their opinions were correct on an 11-point scale (0 = *not at all confident*, 10 = *extremely confident*). Second, predictors indicated the number of responses they thought they predicted exactly correctly, and targets also indicated the number of

responses they thought their partner predicted exactly correctly.

Finally, participants reported how long they and their partner had been romantically involved and how long (if applicable) they had been married. Participants were then reunited with their partners and debriefed.

Results

Means, standard deviations, and correlations for the different dependent measures are presented in Table 14.

Accuracy. We assessed accuracy in three ways. First, we calculated the absolute mean difference between predicted and actual opinions (larger absolute differences indicate smaller accuracy). Second, we calculated the correlation between predicted and actual opinions (larger correlations indicate greater accuracy), using a Fisher-transformation to correct for non-normality in Pearson correlations (Fisher, 1915). For ease of interpretation, we report untransformed Pearson correlations in the tables and text. Third, we calculated the number of items predictors guessed correctly. All results are presented in Table 14. Across these measures, perspective getting improved accuracy relative to the control condition. Perspective taking did not increase accuracy. If anything, it again decreased accuracy.

Accuracy as measured by the absolute mean difference between predicted and actual ratings significantly varied by experimental condition, $F(4, 99) = 14.61$, $p < .001$, $n_p^2 = .37$. Compared with the control condition, participants were significantly more accurate (reflected in smaller absolute differences between predicted and actual responses) in the perspective getting-full condition, $t(99) = -4.89$, $p < .001$, $d = 1.85$, perspective getting-even condition, $t(99) = -2.62$, $p = .010$, $d = 0.75$, and perspective getting-odd condition, $t(99) = -2.04$, $p = .044$, $d = 0.82$. However, participants were significantly less accurate in the perspective taking condition than in the control condition, $t(99) = 2.20$, $p = .031$, $d = 0.68$.

Accuracy as measured by the correlation between predicted and actual ratings also varied by experimental condition, $F(4, 99) = 15.24$, $p < .001$, $n_p^2 = .38$. Compared with the control condition, participants were significantly more accurate in in the perspective getting-full condition, $t(99) = 5.23$, $p < .001$, $d = 2.28$, perspective getting-even condition, $t(99) = 2.66$, $p = .009$, $d = 0.77$, and perspective getting-odd condition, $t(99) = 2.68$, $p = .009$, $d = 1.03$. Participants in the perspective taking condition were not more accurate than those in the control condition, $t(99) = -1.89$, $p = .061$, $d = -0.55$. If anything, they were again directionally less accurate.

The number of items predictors guessed exactly correctly also varied by experimental condition, $F(4, 99)$ 1= 2.41, $p < .001$, $n_p^2 = .33$. Compared with the control condition, participants predicted significantly more items correctly in the perspective getting-full condition, $t(99) = 4.86$, $p < .001$, $d = 1.50$, and the perspective getting-even condition, $t(99) = 3.36$, $p = .001$, $d = 1.09$, and marginally more items in the perspective getting-odd condition, $t(99) = 1.90$, $p = .060$, $d = 0.68$. Participants in the perspective taking condition again were not more accurate than those in the control condition, $t(99) = -1.28$, $p = .20$, $d = -0.52$. They were directionally less accurate.

Notice that the two perspective getting conditions that discussed only half of the survey items yielded accuracy that fell midway between the perspective getting-full condition and the control condition on both absolute mean difference and correlational accuracy, the two accuracy measures for which we had item-level measures of predicted and actual accuracy. This moderate increase in accuracy compared with the control condition occurred because predictors' accuracy significantly increased only on the items that predictors discussed explicitly with their partners. On those items, participants in the two partial perspective-getting conditions were as accurate as those in the perspective getting-all conditions, but they were no more accurate than the control condition on the items they did not discuss with their partner. We discuss the details of these secondary analyses in the Supplemental Materials. Again, we note that the items within this survey were designed so as to be independent from each other, and so these results simply reflect the nature of the survey items used in the experiment. Accurate insight gained from any strategy generalizes to other contexts only to the extent that those contexts are intercorrelated.

These results make it clear that participants gained insight into their partner's opinions when they got the person's

Table 14. *Results for Experiment 25.*

Measure	Control	PT: Other's shoes	Perspective getting (even)	Perspective getting (odd)	Perspectiv getting (al
1. **Accuracy** (ABS difference between predicted and actual opinions)	1.46^{a}	1.71^{b}	1.15^{c}	1.21^{c}	$.88^{d}$
	(.31)	(.43)	(.49)	(.29)	(.32)
2. **Accuracy** (Mean correlation between predicted and actual opinions)	$.50^{a*}$	$.39^{a*}$	$.65^{b}$	$.66^{b}$	$.81^{c}$
	(.15)	(.24)	(.23)	(.16)	(.12)
3. **Accuracy** (# of correct predictions)	4.90^{a*}	3.95^{a*}	7.43^{b}	6.35^{bc}	8.60^{cd}
	(1.70)	(1.94)	(2.79)	(2.52)	(3.02)
4. **Projection** (ABS difference between predicted and self opinions)	1.62	1.56	1.45	1.47	1.42
	(.33)	(.60)	(.56)	(.42)	(.52)
5. **Projection** (Mean correlation between predicted and self opinions)	$.35^{a*}$	$.37^{ab**}$	$.49^{ab*}$	$.44^{ab}$	$.53^{c**}$
	(.24)	(.30)	(.24)	(.24)	(.23)
6. **Confidence** (Ratings)	7.30	7.05	7.00	6.65	7.55
	(1.13)	(1.63)	(1.26)	(2.01)	(1.36)
7. **Confidence** (# of estimated correct predictions)	12.60^{a}	13.48^{ab}	14.45^{b}	13.53^{ab}	14.80^{b}
	(3.21)	(3.12)	(2.46)	(3.36)	(2.75)
8. **Overconfidence** (Difference between #7 and #3)	7.60^{a}	9.67^{b}	6.65^{ac}	7.00^{ac}	6.20^{ac}
	(3.73)	(4.25)	(2.93)	(3.90)	(3.65)

***Note*.** There are 20 items in the Hoch questionnaire. Within each measure, numbers that do not share a superscript differ significantly at $p < .05$. For numbers that share an identical number of asterisks the difference is marginally significant at $p < .10$.

perspective directly, in this case through a bottom-up process of directly asking him or her to report on an opinion. As in the preceding experiments, taking another's perspective through a top-down process of inference did not increase accuracy compared with a control condition. If anything, perspective taking again decreased accuracy.

Confidence and overconfidence. Despite large differences in accuracy across conditions, the right panel of Figure 2 shows that confidence in the accuracy of their judgment (measured on 0 –10 scales) did not vary across conditions, $F(4, 97) = 1.01$, $p = .41$, $n_p^2 = .04$. These confidence ratings were also nonsignificantly correlated with absolute mean difference accuracy, $r = -.08$, $p = .44$, correlational accuracy, $r = .08$, $p = .44$, and the number of items participants predicted correctly, $r = .12$, $p = .21$.

We also measured participants' sense of their own accuracy by asking them to predict how many items they guessed exactly correctly. Again despite large differences in the actual accuracy, participants' predictions of the number guessed exactly correctly did not vary by experimental condition, $F(4, 95) = 1.69$, $p = .16$, $n_p^2 = .07$. Predictors' beliefs about the number they guessed exactly correctly was nonsignificantly correlated with the number they actually guessed correctly, $= .15$, $p = .13$. It was also nonsignificantly correlated with absolute mean difference accuracy, $r = -.13$, $p = .19$, and correlational accuracy, $r = .10$, $p = .31$.

Comparing the predicted number of items guessed correctly against the actual number of items guessed correctly provides a direct measure of overconfidence. As shown in the left panel of Figure 2, participants had very limited insight into how their prediction strategy affected their actual accuracy. A 5 (Condition) X 2 (Number correct: Actual vs. Predicted) ANOVA with repeated measures on the second factor indicated that participants across conditions were dramatically overconfident, believing they predicted more items correctly ($M = 13.71$, $SD = 3.22$) than they actually did ($M = 6.20$, $SD = 2.92$), $F(1, 95) = 408.76$, $p < .001$, $n_p^2 = .81$. The interaction was not significant, $F(4, 95) = 1.02$, $p = .403$, $n_p^2 = .04$, indicating that overconfidence did not vary by experimental condition.

Reducing egocentrism. We also calculated the correspondence between predictors' own stated opinions and their predictions of partner's stated opinions in two different ways. First, as the absolute mean difference between each predictor's own opinions and predictions of his or her partner's opinions. Second, as the correlation between each predictor's own opinions and predictions of his or her partner's opinions. We report the results of these analyses for the sake of consistency with the preceding experiments, but urge caution interpreting these results in the perspective getting conditions. In particular, predictors in the perspective getting conditions may have aligned their attitudes with their partner's stated opinions, meaning that these measures may reflect social influence rather than projection. Indeed, partners in the perspective getting-full condition reported more similar preferences than those in the control condition: contrast analyses indicated that the absolute difference between own and partner's opinions was marginally smaller in the perspective getting-full condition ($M = 1.54$, $SD = .25$) than in the control condition ($M = 1.77$, $SD = .43$), $t(30.36) = -2.00$, $p = .054$, $d = -0.65$, and the correlation between own and partner's opinions was significantly larger in the perspective getting—full condition ($M = .44$, $SD = .24$) than in the control condition ($M = .31$, $SD = .17$), $t(98) = 2.01$, $p = .047$, $d = 0.63$. These results in the perspective getting conditions are therefore difficult to interpret.

With that concern in mind, the absolute difference between own opinions and predicted partner's opinions did not vary by experimental condition, $F(4, 98) = .58$, $p = .68$, $n_p^2 = .02$, but the correlation between these two measures did, $F(4, 97) = 2.61$, $p = .040$, $n_p^2 = .10$. In contrast to the meta-analysis of Experiments 16 –24, we did not observe a significantly smaller correlation in the perspective taking condition ($M = .37$, $SD = .30$) than in the control condition ($M = .35$, $SD = .24$), $t(97) = 0.08$, $p = .94$, $d = 0.08$, indicating that perspective taking did not significantly reduce egocentrism in this experiment. In contrast, compared with the control condition,

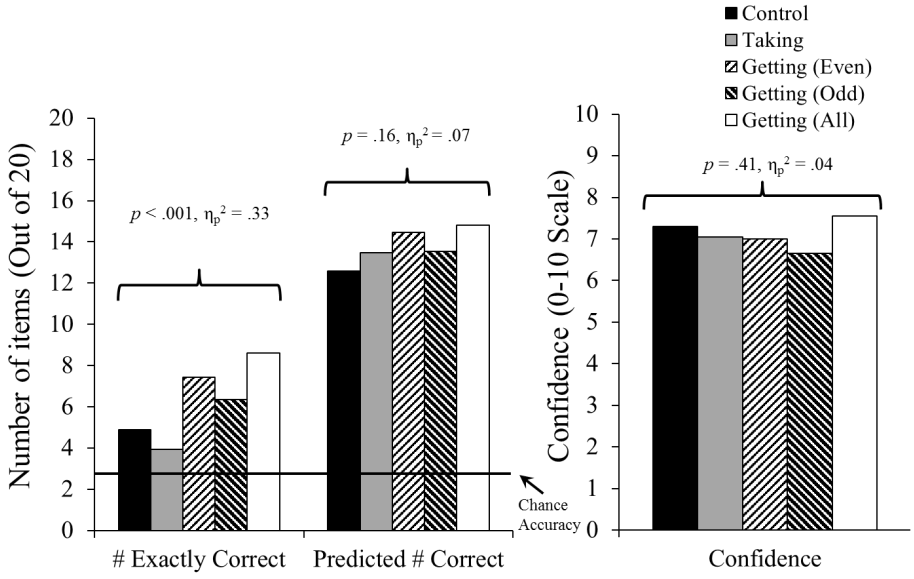

Figure 2. Confidence and overconfidence measures as a function of condition, Experiment 25

the correlation was significantly larger in the perspective getting-full (M = .53, SD = .23), $t(97) = 2.38$, p = .019, d = 0.77, and perspective getting-even conditions (M = .49, SD = .24), $t(97) = 2.13$, p = .036, d = 0.58. The correlation between own opinions and predicted partner opinions did not differ significantly between the perspective getting-odd condition (M = .44, SD = .24) and the control condition, $t(97) = 1.17$, p = .25, d = 0.37.

Discussion

Romantic partners, most of whom were married, and who had been together for an average of 10 years, presumably know a lot about their partner's perspective. Nevertheless, trying to take a partner's perspective again failed to increase insight into their partner's mind. Instead, compared with predicting their partner's responses without special instructions, perspective taking increased confidence but decreased accuracy, thereby increasing overconfidence. This is not the outcome that perspective taking is presumably intended to create.

This experiment also tested a more obvious strategy for increasing accuracy into the mind of one's partner: getting another's perspective by asking him or her directly. We referred to this as perspective-getting to contrast a bottom-up approach to understand another person against a top-down approach of trying to take another's perspective by shifting cognitive attention to another's point of view. Although asking one's partner to state his or her preferences is an obvious way to increase understanding, perhaps the most important result from this experiment is that participants themselves did not seem to be aware of how this strategy actually affected their insight compared with the relatively ineffective strategies used in our other conditions. One might imagine that students who ask their teacher the answers to exam questions would be more confident when completing the exam than students who did not. Our romantic partners in the perspective-getting conditions did something conceptually similar and yet were not markedly more confident than those whose accuracy was sometimes only slightly better than chance guessing in the control and perspective taking conditions. Taking perspective and getting perspective are two obviously different approaches to understanding the mind of another person. The obvious benefit of one strategy compared with the other was not, however, so obvious to those who were actually using each strategy.

General Discussion

A survey of 1,020 Americans asked them to indicate which of 5 superpowers they would most like to possess: invisibility, teleportation, flight, time travel, or reading others' minds (Marist, 2011). Tied with time travel for the most desired superpower was the ability to read the minds of others. On the one hand, this is somewhat ironic as the ability to read the minds of others is arguably the only capacity among that list that people already possess. The human brain stands out in our primate lineage for its relatively large neocortex (Jerison, 1971; Herrmann et al., 2007), a feature that may be the product of natural selection to handle the cognitive requirements of living in large social groups (Dunbar, 1993). By the age of 2, human toddlers' capacity to understand the minds of others has already surpassed that of our nearest primate relatives, the chimpanzee (Herrmann et al., 2007). On the other hand, being able to understand the mind of another person does not mean that one is able to do so perfectly. Studies of human social cognition routinely reveal accuracy rates in understanding others' beliefs, attitudes, emotions, and intentions that are significantly better than random chance but also markedly worse than perfect (e.g., Ambady, Bernieri, & Richeson, 2000; Funder, 1995; Hall & Schmid Mast, 2007; Ickes, 1997; Kenny, 1991; Swann & Gill, 1997; Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015). In many ways, everyday life would be much easier if people were able to understand exactly what others thought of them, could understand when others were lying versus telling the truth, could identify who really loved them and who was just pretending, and could anticipate others' actions based on an accurate understanding of their intentions. It is therefore easy to understand why a person might want to make this potential super power work even better.

Here we reported the results of 25 experiments that tested one common sense strategy for enabling more accurate mind reading: perspective taking. Across a wide variety of experimental tests, involving relationships that ranged from strangers to spouses, we found no evidence that perspective taking systematically increased one's ability to accurately understand the mind of another person compared with a control condition. If anything, we found that perspective taking tended to decrease interpersonal accuracy. A meta-analysis on all 25 experiments (number of correct responses in Experiments 1–15 and absolute differences in Experiments 16 –25) yielded a statistically significant, albeit small, negative effect of perspective taking on accuracy, d = -0.23, 95% CI [-0.32, -0.13], z = -4.72, p < .001. This result does not change in a meaningful way if the meta-analysis includes other accuracy measures for Experiments 16 –25 (for correlations between predicted and actual responses, d = -0.21 and for number of items predicted correctly, d = -0.17). Dale Carnegie (1936) suggested that "trying honestly to see things from the other person's point of view" was a "formula that will work wonders for you." Perspective taking may indeed work some interpersonal wonders, but our results suggest that increasing insight into the mind of another person is not among them.

It is worth noting that we began our research presuming, consistent with the common sense we observed in the pretest reported in the introduction and with existing psychological theory, that shifting perspective to another person's point of view could increase interpersonal accuracy in many circumstances. We conducted such a large number of experiments across a wide variety of contexts and utilizing a variety of interpersonal understanding measures because we kept searching for contexts as well as measures that might reveal, based on existing theory, circumstances in which perspective taking could increase accuracy. Because the scientific method is unable to confidently affirm the null hypothesis, our experiments are unable to confirm that perspective taking is ineffective for increasing interpersonal accuracy. They can only show the absence of positive evidence despite a concerted effort to test the most likely contexts where we, our pretest participants, believed that perspective taking could increase accuracy.

That perspective taking failed to increase accuracy was not the product of ineffective experimental manipulations. In a manipulation check across Experiments 1–15, participants in

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the perspective taking conditions reported trying harder to adopt another's perspective than participants in the control conditions. In addition, in a meta-analysis across all experiments in which we measured perceived difficulty, perspective taking was perceived as more difficult, $d = 0.13$, 95% CI [0.03, 0.23], $z = 2.54$, $p = .011$. This perception was stronger and more reliable in Experiments 1–15 than in Experiments 20 –23, perhaps because participants were less familiar with the judgmental tasks or the targets of judgment. We also found evidence that perspective taking tended to decrease egocentric biases in judgment. This effect was stronger and more consistent when measured by the false belief task (Experiments 4, 5, 8, and 13) than when measured incidentally as the correspondence between one's own opinions and preferences and a target's opinions and preferences (Experiments 16 –23). However, even when perspective taking reliably decreased egocentrism it did not reliably increase accuracy. Finally, we did not find a reliable effect of perspective taking on confidence. In a meta-analysis across all experiments in which participants estimated the number of correct responses as a measure of confidence, perspective taking decreased confidence, although this effect was only marginally significant, $d = -0.10$, 95% CI [-0.20, -0.01], $z = -1.81$, $p = .070$. This reduction in confidence was mostly evident in Experiments 1–15. As reported before, in Experiments 16 –25, this effect was reversed, with perspective taking directionally increasing confidence. This non reliable effect of perspective taking on confidence across experiments may be because participants in the perspective taking condition in Experiments16-25 were more familiar with and had more knowledge about the other person's perspective to rely on than participants in Experiments 1–15. However, even when perspective taking increased confidence it did not reliably increase accuracy.[4]

Some of the additional conditions we included across experiments, discussed in more detail in the Supplemental Materials, were meant to address potential explanations for these negative results of perspective taking on accuracy. None of these conditions yielded what we believe is a clear explanation. For instance, it is possible that perspective taking caused people to think too hard, leading them to overlook intuitive responses that might have been correct. However, an explicit instruction for participants to think hard in Experiment 3 did not significantly reduce accuracy compared with the control condition ($Ms = 18.83$ vs. 18.48, respectively, $t(119) = .46$, $p = .64$, $d = 0.02$). Perspective taking might also have led participants to distrust their intuitions and kept them from going with their first more accurate intuitive response, but an explicit instruction to rely on intuitions actually decreased accuracy in Experiment 4 compared with the control condition ($Ms = 17.84$ vs. 18.89, $t(129) = 2.03$, $p = .044$, $d = 0.46$). We also tested whether perspective taking leads to greater mimicry, but an explicit instruction to mimic the smile of the person in the video did not change accuracy in Experiment 13 compared with the condition ($Ms = 13.23$ vs. 12.42, respectively, $t(116) = 1.15$, $p = .252$, $d = 0.30$). It could also be argued that perspective taking did not reduce egocentrism enough to measurably improve accuracy. Our experiments suggest otherwise: Explicitly instructing participants to rely on their own perspectives in Experiments 16 –20 and Experiments 22–23 meaningfully increased egocentrism (when measured as absolute difference between predicted and self responses) relative to control conditions, $d = -0.64$, 95% CI [-0.94, 0.33], $z = -4.08$, $p < .001$, but did not significantly decrease accuracy (when measured as absolute difference between predicted and actual responses), $d = 0.09$, 95% CI [0.07, -0.25], $z = 1.08$, $p = .28$. Although our experiments do not provide an explanation for why perspective taking sometimes decreased accuracy, they clearly demonstrate that perspective taking does not systematically increase accuracy.

Of course, it is important to keep these results in perspective. In particular, to measure the accuracy of social judgment, participants in our control conditions also needed to be predicting others' thoughts, beliefs, or mental states. This means that participants in the control conditions of our experiments were already making inferences about another person's perspective. Perspective taking could increase the use of accurate information that people already possess about another person when making decisions if they would have overlooked this information otherwise. For instance, perspective taking might increase the likelihood that a politician would consider what he or she already knows about citizen's attitudes and beliefs before proposing a policy. Such a result would simply reflect an increased accessibility about others' thoughts and feelings while making a decision. Our research suggests that perspective taking would not systematically increase the accuracy of a politician's inferences about a citizen's attitudes and beliefs. How perspective taking affects the use of available social knowledge is distinct from how perspective taking affects the accuracy of available social knowledge.

Interestingly, the negative effect of perspective taking on accuracy that we observed was more pronounced for strangers (Experiments 18 –21, 23, 24) than for partners in a relationship (Experiments 16, 17, 22, 23, 25) when accuracy was measured as absolute differences between predicted and actual responses (Strangers: $d = 0.20$, 95% CI [0.07, 0.34], $z = 2.89$, $p = .004$, Partners: $d = 0.16$, 95% CI [-0.17, 0.48], $z = 0.96$, $p = .34$). This decrease in accuracy following perspective taking for strangers compared with partners was also apparent, but weaker, when accuracy was measured as the number of predicted correct responses (Strangers: $d = -0.06$, 95% CI [-0.26, 0.14], $z = -0.62$, p .54, Partners: $d = -0.05$, 95% CI [-0.47, 0.37], $z = -0.24$, $p = .81$) and as correlations between predicted and actual responses (Strangers: $d = -0.12$, 95% CI [-0.32, 0.08], $z = -1.21$, $p = .23$, Partners: $d = -0.10$, 95% CI [-0.31, 0.10], $z = -0.97$, $p = .33$). Thus, the difference between partners and strangers in the effect of perspective taking on accuracy was unreliable. It is worthwhile to note, that for both strangers and close others, we failed to find any evidence that perspective taking systematically increased interpersonal accuracy.

Our final experiment suggests that there are likely to be much more effective ways of gaining more accurate insight into another person's mind. In particular, human beings have also evolved a sophisticated language whose primary purpose is to convey the contents of one conscious mind to another (Pinker

[4] We also examined whether accuracy was predicted by three variables that yielded interesting results— confidence, response time, and perceived effort. Across Experiments 1–25 there was an overall weak positive relationship between confidence and accuracy. This was true for all three measures of accuracy in Experiments 16-25: mean absolute difference, $r = .10$, CI (.04, .15), $Z = 3.42$, $p < .001$, correlations between predicted and actual responses, $r = .11$, CI (.05, .16), $Z = 3.64$, $p < .001$, and number of correct predictions, $r = .14$, CI (.07, .20), $Z = 4.11$, $p < .001$. None of these correlations differed by condition: mean absolute difference, $Q(1) = 0.41$, $p = .52$, correlations between predicted and actual responses, $Q(1) = 0.28$, $p = .59$, and number of correct predictions, $Q(1) = 1.96$, $p = .16$. In Experiment 1-15, accuracy was weakly predicted by response time, $r = -.08$, CI (-.16, -.01), $Z = -2.26$, $p = .024$, but this relationship between accuracy and response time did not differ by condition, $Q(1) = 0.16$, $p = .69$. Accuracy, however, was not predicted by effort, $r = -.03$, CI (-.10, .04), $Z = -0.83$, $p = .41$

& Bloom, 1990). Increasing interpersonal understanding may come most readily from becoming a more effective questioner and listener, like a skilled journalist or a survey interviewer, rather than by trying to become a more routine perspective taker. If you want to know what another person is thinking, it may be best to put them in a situation where they can answer honestly and then ask them directly.

This may seem like an obvious solution to increasing interpersonal insight, but our final experiment found little evidence that this was obvious to the participants who were actually using this strategy. Indeed, the most interesting aspect of Experiment 25 was the notable disconnect between confidence and accuracy. Despite large differences in accuracy that came from using different strategies, confidence in judgment did not vary meaningfully across conditions. This is important because it suggests that people may have little insight into which strategies are likely to increase interpersonal understanding and which are not. This result is consistent with a small body of emerging research that finds meaningful misunderstanding of effective versus ineffective strategies for improving social cognition. In one experiment (Zhang et al., 2017), participants were asked to guess another person's emotional reactions to an evocative series of images. Participants made their predictions either by reading the target's expression by watching a video of his or her facial expressing, or by being in the person's situation by seeing the image the target was rating. Results indicated that participants were dramatically more accurate when they saw the image the target was rating, and yet participants tended to dramatically overestimate how effectively they could read the target's expressions. In another experiment (Gilbert, Killingsworth, Eyre, & Wilson, 2009), participants attempted to predict their own emotional experience in an unknown event either by learning about details of the event or by getting another person's report of his or her experience. Participants tended to believe they would be more accurate if they learned about details of the event, when they were actually more accurate if they got another person's report of the experience. Each of these three lines of research suggest that people may overestimate the effectiveness of topdown processes of inference for understanding the mind of another person compared with bottom-up process of direct experience or knowledge acquisition. Mistaken expectations about how best to understand the minds of others could lead people to choose ineffective strategies, thereby increasing misunderstanding. Learning the cause of these mistaken expectations, and identifying their consequences, are pressing issues for future research.

Of course, there are limits to the accuracy that can be gained by trying to get another person's perspective through bottom-up processes. Others may not tell the truth or know their own minds, such that self-reports are inaccurate. Emotional reactions to an experience may differ, such that one person's experience is a poor simulation for another's experience. Or a simulation may turn out to be a poor proxy for the situation being simulated, such as a sighted person trying to simulate the experience of lifelong blindness by walking around a room blindfolded (Silverman, Gwinn, & Van Boven, 2015). No strategy for interpersonal understanding is perfect. The useful comparison standard is therefore not perfection, but rather the accuracy obtained from other available strategies, as well as people's beliefs about the effectiveness of these strategies. Research on both of these comparison standards is currently limited, and offer promising opportunities for future research. When it comes to understanding the mind of others, existing evidence suggests that people may systematically misunderstand what's good for them.

Finally, we believe our experiments may be of practical value to those who are trying to understand the most complicated system any of us will ever think about—another person's mind—a little bit better. Engaging in active perspective taking appears to have a number of reliable interpersonal consequences: it increases empathy for another person, increases the sense of similarity and connection to others, and encourages cooperation in negotiations. One recent theoretical model argues that perspective taking's main benefit, in fact, is to strengthen social bonds (Galinsky et al., 2005). Our experiments are not inconsistent with this perspective. If a person is wanting to feel more connected to another person, then imagining oneself in another's shoes is likely to be a useful strategy to adopt. But if a person is really trying to gain an accurate understanding of another person's mind, then another approach seems to be called for. If you really want to know what's on the mind of another person, it is hard to do better than getting their perspective by just asking them.

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