Journal of Research in Personality 46 (2012) 106–110

Contents lists available at SciVerse ScienceDirect

Journal of Research in Personality

journal homepage: www.elsevier.com/locate/jrp

Brief Report

Accuracy and assumed similarity in first impressions of personality: Differing associations at different levels of analysis

Lauren J. Human *, Jeremy C. Biesanz

Department of Psychology, University of British Columbia, 2135 West Mall, Vancouver, BC, Canada V6T 1Z4

ARTICLE INFO

Article history:
Available online 20 October 2011

Keywords:
Accuracy
Assumed similarity
Person perception
First impressions

ABSTRACT

How are accuracy and assumed similarity associated in first impressions of personality? In a large-scale video perception study, accuracy and assumed similarity were strongly negatively associated across traits, consistent with past research (e.g., Beer & Watson, 2008). However, across perceivers and perceiver–target dyads, the ability to perceive others accurately was independent of the tendency to assume similarity with others. Thus, viewing others in general or specific others as overly similar to the self does not imply viewing them inaccurately. In sum, accuracy and assumed similarity are inversely related when examined across traits but are independent across perceivers and dyads.

1. Introduction

Intuitively, accuracy and bias in interpersonal impressions seem mutually exclusive, with more biased impressions implying less accuracy. Indeed, accuracy and the bias of assumed similarity are inversely related in personality impressions when examined across traits (Beer & Watson, 2008; Watson, Hubbard, & Wiese, 2000). That is, for a given trait such as extraversion, if accuracy is high, assumed similarity tends to be low. This finding, however, does not inform us of how these processes manifest across perceivers – if a person generally tends to view others accurately does that person necessarily view others with less assumed similarity? The current research examines how accuracy and assumed similarity are associated across traits, perceivers, and perceiver–target dyads to determine when and how these perceptual processes are associated with one another.

It is easy to see how accuracy and assumed similarity would be inversely related across traits. Consider the self-based heuristic, which argues that perceivers use information about the self to "fill in the gaps" when information is low (Ready, Clark, Watson, & Westerhouse, 2000). Specifically, less visible traits, such as neuroticism, tend to be seen with more assumed similarity, while more visible traits, such as extraversion, are seen with less assumed similarity (Watson et al., 2000). Conversely, less visible traits are seen with less accuracy (e.g., John & Robins, 1993). Indeed, greater information (indexed as degree of acquaintanceship, for instance) is generally related to less assumed similarity (e.g., Beer & Watson, 2008) and greater accuracy (e.g., Beer & Watson, 2010; Biesanz, West, & Millevoi, 2007). As such, it seems only natural that accuracy and assumed similarity would be inversely related.

Does it necessarily follow that the inverse relationship between accuracy and assumed similarity observed across traits would also occur across perceivers and dyads? No, as what occurs at the aggregate level is not necessarily reflective of what occurs at the individual level (i.e., the ecological fallacy). Further, accuracy and assumed similarity are theoretically independent of one another in personality impressions (e.g., Kenny & Acitelli, 2001). Thus, it is theoretically possible for people to simultaneously see others accurately and as overly similar to the self.

The current study examines the association between distinctive accuracy and distinctive assumed similarity in first impressions of personality. Broadly, accuracy is defined in line with Funder's Realistic Accuracy Model (RAM, 1999), in that a judgment is deemed accurate if it maps on to realistic criteria for what the target is like, such as the target's own self-report of their personality. Distinctive accuracy specifically refers to understanding a given target's unique traits. To assess distinctive accuracy, we must control for normative accuracy, or agreement due to similarity of the target and the perceiver's impressions to the average person (Biesanz, 2010; Cronbach, 1955; Furr, 2008). Distinctive accuracy then reflects the extent to which a perceiver understands whether a person is higher or lower on a range of traits than the average person and than other targets (Biesanz & Human, 2010; Human & Biesanz, 2011).

Assumed similarity generally refers to perceiving one's own characteristics in others (e.g., Allport, 1924; Cronbach, 1955). *Distinctive* assumed similarity explicitly refers to viewing one's own unique patterning of traits in others (Human & Biesanz, 2011). That is, if an individual is more reserved and organized than most peo-

* Corresponding author. Address: Department of Psychology, University of British Columbia, 2135 West Mall, Vancouver, BC, Canada V6T 1Z4. Fax: +1 604 822 6923.
E-mail address: lhuman@psych.ubc.ca (L.J. Human).

0092-6566/$ - see front matter © 2011 Elsevier Inc. All rights reserved.
doi:10.1016/j.jrp.2011.10.002

ple, they would perceive others as possessing that same unique patterning of traits. In measuring distinctive assumed similarity we again control for what the average person is like, focusing on the extent to which a perceiver assumes others share the traits that make the perceiver different from most people (Cronbach, 1955). We also control for actual similarity (e.g., Kenny & Acitelli, 2001), because if a target really does have a similar patterning of traits to the perceiver, then assumed similarity could in fact be considered accuracy. Thus, distinctive assumed similarity is the biased tendency to see others as possessing one's own unique, differentiating traits – the traits that make the perceiver different from the average person and the specific targets being perceived. For simplicity's sake, for the remainder of the current manuscript, we use the terms "distinctive accuracy" and "accuracy" interchangeably, and "distinctive assumed similarity" and "assumed similarity" interchangeably.

Although perfect accuracy would necessitate zero assumed similarity, at more realistic, moderate levels of accuracy and assumed similarity, these processes may coexist. For example, if a perceiver is much more reserved and somewhat more organized than most people, he or she may rate others more highly on these traits than they really are, evidencing distinctive assumed similarity. However, the perceiver may pick up that, unlike the self, a target is more organized than reserved, and rate the target accordingly, and thus with distinctive accuracy. By rating a target as more reserved and organized than they really are, but flipping the patterning of those two traits to map onto the target's unique profile, the perceiver is assuming similarity while maintaining distinctive accuracy.

There is preliminary evidence that accuracy and assumed similarity are not negatively associated across dyads and perceivers. For instance, romantic partners can simultaneously view their partners accurately and with assumed similarity (Kenny & Acitelli, 2001), and both are associated with relationship satisfaction (Luo & Snider, 2009). Further, in first impressions, individual differences in assumed similarity and accuracy are uncorrelated across perceivers (Human & Biesanz, 2011). None of these studies, however, simultaneously examined whether accuracy and assumed similarity show the established negative association across traits in conjunction with this independent pattern across perceivers and dyads. Therefore, in a large-scale video study involving over 8000 impressions, we examined whether distinctive accuracy and distinctive assumed similarity are negatively related across traits while simultaneously independent across perceivers and dyads.

2. Method

2.1. Participants

A total of 1157 University of Wisconsin undergraduates (767 females, 388 males, and 2 unknown; M_{age} = 18.87, SD = 1.33) participated in exchange for partial course credit.

2.2. Procedure and measures

Participants in small groups viewed 5-minute video clips of seven targets at individual computers. Participants privately rated each target's personality on the 44-item Big Five Inventory (BFI; John & Srivastava, 1999), using a scale from 1 (*disagree strongly*) to 9 (*agree strongly*). The target videos were drawn from a pool of videos of 14 female undergraduate research assistants from the University of Wisconsin answering a series of getting-acquainted questions, such as "What is your major?" and "Where are you from?" The same experimenter acted as the interviewer in all video clips.[1]

2.3. Data analytic technique

To examine the relationship between distinctive accuracy and assumed similarity we estimated a multilevel model utilizing *R*'s *lme4* package following the social accuracy modeling (SAM) procedures outlined by Biesanz (2010; for empirical examples and more details on estimation see Biesanz & Human, 2010; Human & Biesanz, 2011). Specifically, in the within-perceiver part of the model (Level 1), perceivers' ratings of each target on each item were predicted simultaneously from (1) the target self-reports on each item, (2) the perceiver self-reports on each item, and (3) the mean self-report on each item based on a sample of 1157 undergraduates from the same population (our perceivers). Items were not reverse coded prior to analysis. The relationship between the means of each item and perceiver ratings reflects normative accuracy – how well perceiver ratings correspond to the average self-report on these personality dimensions. By partialling out the mean self-report for each item, the relationship between target self-reports and perceiver ratings reflects distinctive accuracy – how well perceivers' ratings map on to the targets' distinctive self-reported personality profiles. By partialling out the mean self-report for each item and the target self-report for each item, the relationship between perceiver self-reports and perceiver ratings reflects distinctive assumed similarity – the extent to which perceivers' ratings map on to the perceivers' own distinctive self-reported personality profiles.

To examine the association between distinctive accuracy and assumed similarity across traits, we analyze self-other agreement and assumed similarity for each item separately. That is, we examine how well the targets' self-reports and perceivers' self-reports predict the perceivers' ratings of the targets on the item "*starts quarrels with others*", for example. Distinctive accuracy and assumed similarity unstandardized regression coefficients are then saved and correlated with one another to determine their relationship across traits. Thus, we can examine whether the traits for which there is greater distinctive accuracy are also the traits for which there is lower assumed similarity.

To examine the association between distinctive accuracy and assumed similarity across perceivers, we examine the correlation among individual differences in these tendencies, on average across traits and across targets. The degree of individual differences in distinctive accuracy and distinctive assumed similarity are directly assessed by examining the random effects, or degree of reliable variability due to perceivers around the mean levels of accuracy and assumed similarity. These are reported as the estimated random effect standard deviations ($\hat{\tau}$) across perceivers. Next, the association between distinctive accuracy and assumed similarity can be assessed by examining the correlation among these random effects. That is, is an individual's general ability to view others with distinctive accuracy associated with their general tendency to view others with assumed similarity? Similarly, the variability in the tendencies to view specific others with accuracy and assumed similarity, or dyadic random effects, can be correlated to assess the extent to which accuracy and assumed similar-

[1] The present study aggregates across numerous video studies that all followed the same basic procedure. There were 14 different targets across the studies and subsets of the data were counterbalanced with no impact on the reported results. Subsets of this dataset appear in other manuscripts, focused on different research questions. Specifically, Biesanz & Human (2010) examined the impact of motivation on accuracy (n = 532), and the remaining data was reported in Chan, Rogers, Parisotto, & Biesanz (2011; Study 1, Samples 1 and 2, n = 625), which examined accuracy as a function of perceiver gender. The present results regarding accuracy and assumed similarity have not been previously published.

ity are associated in impressions of a specific target (across dyads). Because these are latent variables, the significance of the individual differences and correlations among them are calculated with likelihood ratios (Hox, 2010). Thus, SAM allows for a direct assessment of the degree of variability in each of these tendencies across perceivers and dyads, and also allows one to test how these tendencies are associated with one another at each level.

3. Results

3.1. Levels of assumed similarity and accuracy

Overall, participants demonstrated significant levels of distinctive accuracy, $b = .21$, $z = 71.39$, $p < .0001$, distinctive assumed similarity, $b = .06$, $z = 14.73$, $p < .0001$, and normative accuracy, $b = .60$, $z = 69.69$, $p < .0001$. Distinctive accuracy was quite high, indicating that perceivers were able to pick up the targets' unique characteristics, while, to a lesser extent, perceivers also attributed their own unique characteristics to others. Normative accuracy was quite substantial, indicating that perceivers viewed the targets on average as similar to the average person, as would be expected.

3.2. Across trait analyses

When calculated for each trait separately, distinctive accuracy and assumed similarity were negatively correlated, $r = -.50$, $p < .001$ (see Fig. 1, Panel *A*). Interestingly, accuracy and assumed similarity showed a curvilinear relationship with the self-report mean of each trait, which provides an index of each trait's normativeness, such that more extremely normative and non-normative traits were viewed with higher assumed similarity and less accuracy, while moderately normative traits were viewed with greater accuracy and less assumed similarity (see Fig. 1, panel *B*).

3.3. Across perceiver and dyad analyses

Overall, there were significant but somewhat modest individual differences in both perceiver distinctive assumed similarity, $\hat{\tau} = .08$, and distinctive accuracy, $\hat{\tau} = .05$, indicating some degree of variability in the tendency to view others as uniquely similar to the self and in the ability to discern the unique characteristics of others, or in being a "good judge". At the dyadic level, there were larger levels of reliable unique variability in distinctive assumed similarity, $\hat{\tau} = .20$, and distinctive accuracy, $\hat{\tau} = .12$.

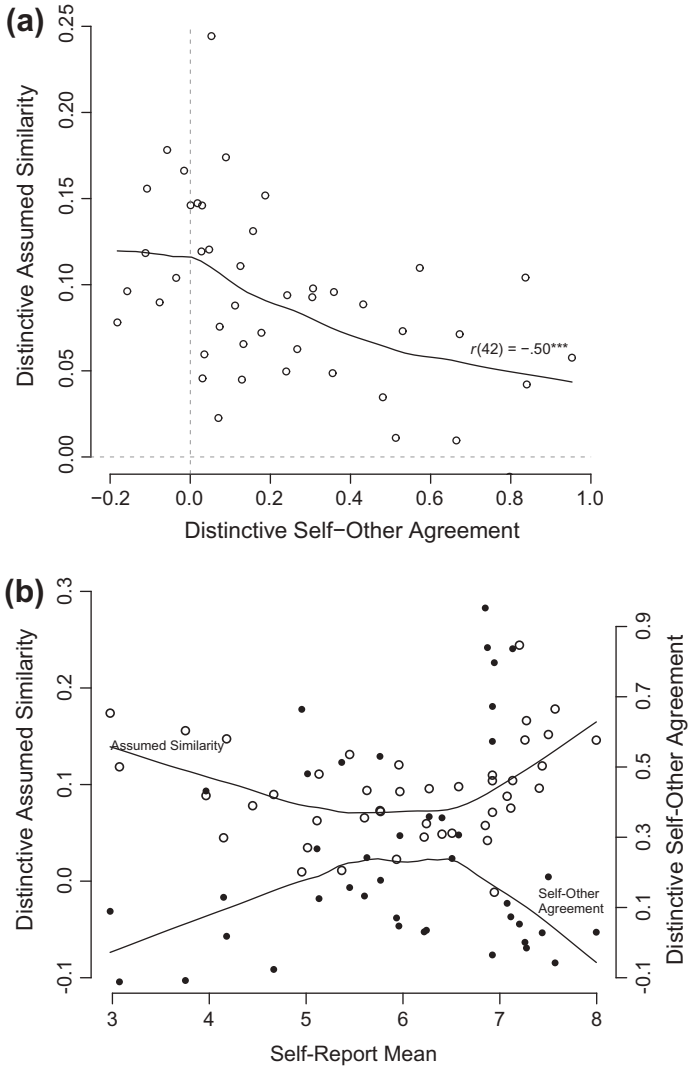

Fig. 1. The relationship between accuracy and assumed similarity across traits (Panel *A*) and as a function of the self-report mean (trait normativeness). In Panel *B*, distinctive assumed similarity is on the left axis and individual item slopes are indicated with open circles while distinctive self-other agreement is on the right axis and individual item slopes are indicated with filled in circles.

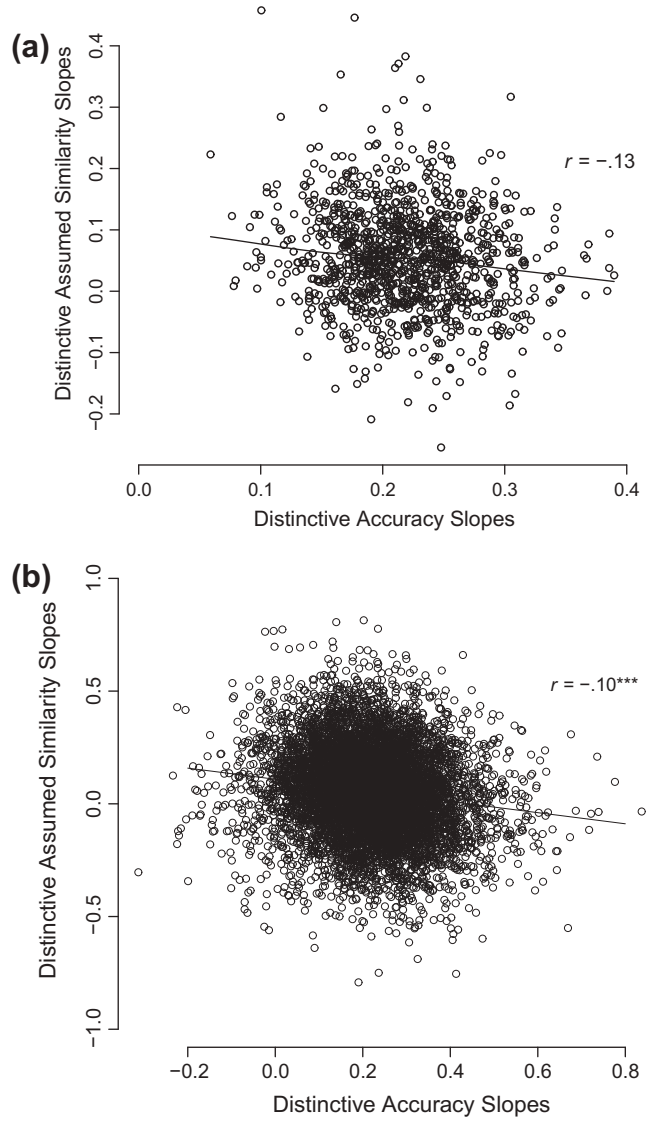

Fig. 2. The relationship between accuracy and assumed similarity across perceivers on average across the seven targets (Panel *A*) and at the unique, dyadic level after controlling for perceiver and target main effects (Panel *B*).

Of note, across perceivers, distinctive assumed similarity and distinctive accuracy were very slightly and nonsignificantly negatively related, $r = -.13$, *ns* (see Fig. 2A). Thus, despite the strong inverse association across traits, accuracy and assumed similarity were primarily independent across perceivers. A similar pattern emerged for the association between unique, dyadic levels of distinctive assumed similarity and distinctive accuracy, $r = -.10$, $p < .001$ (see Fig. 2B). Although this correlation is significant, this is likely a function of high statistical power in the analysis. Indeed, the small magnitude of this correlation supports the interpretation that across perceivers and dyads, distinctive accuracy was virtually unrelated to distinctive assumed similarity.

4. General discussion

Overall, accuracy and assumed similarity show differential associations with each other when assessed across traits, perceivers, and dyads. In line with previous research (Beer & Watson, 2008; Watson et al., 2000), accuracy and assumed similarity are strongly negatively related across traits. That is, when rating a particular trait, if accuracy tended to be high, assumed similarity tended to be low, and vice versa. In contrast, distinctive accuracy was primarily unrelated to assumed similarity across perceivers and dyads. This is further and more direct evidence that accuracy and bias can be independent of one another (e.g., Kenny & Acitelli, 2001). Specifically, if an individual generally views others as being very similar to the self, this does not imply that this individual is generally unable to perceive others accurately. Perhaps even more compelling, if one views a specific other as very similar to the self, they will not necessarily see that person less accurately.

4.1. Accuracy and assumed similarity across perceivers and dyads

The essentially independent relationship between accuracy and assumed similarity across perceivers and dyads has implications for how we conceptualize each of these processes. Specifically, unless assumed similarity is perfect (a perceiver views a target as exactly similar to the self), assumed similarity cannot be interpreted as inaccuracy. Similarly, forming a rather accurate impression does not imply that it is free of all biases. Instead, one must examine each of these processes individually to determine their prevalence and to understand their causal underpinnings and interpersonal outcomes. For instance, assumed similarity, but not distinctive accuracy, in first impressions is associated with greater psychological adjustment (Human & Biesanz, 2011), while both are associated with relationship satisfaction in first impressions (Human & Biesanz, 2011) and romantic relationships (Luo & Snider, 2009). Thus, assumed similarity and accuracy may converge or diverge in their associations with other variables and both may have adaptive interpersonal consequences.

4.2. Accuracy and assumed similarity across traits

Examining the association between accuracy and assumed similarity at the trait level revealed that their inverse relationship was a function of the normativeness of the trait. Specifically, highly normative (e.g., "Is talkative") and non-normative (e.g., "Is quarrelsome") traits were viewed less accurately but with greater assumed similarity, while moderately normative traits (e.g., "Is organized") were viewed more accurately but with less assumed similarity. Given that normativeness and social desirability are so highly correlated (see Borkenau & Zaltauskas, 2009), this is consistent with John and Robins' (1993) finding that self-other agreement has a curvilinear association with the social desirability of traits. John and Robins argued that people have less accurate self-perceptions on highly evaluative traits and thus self-other agreement is lower on these traits (see also Vazire, 2010).

Further, this greater assumed similarity on more evaluative traits is consistent with motivational accounts of assumed similarity. For instance, Allport (1924) argued that assumed similarity is a way of validating the self: Seeing one's traits in others is a way to justify those traits in the self. It follows that perceivers might be more motivated to see their highly desirable and undesirable traits in others, as these are likely more important to the self-concept, and therefore to receive validation on.

These associations with trait normativeness, however, may have an alternative interpretation. For instance, the self-based heuristic (Ready et al., 2000) proposes information as an explanation for the inverse association between accuracy and assumed similarity: More information is associated with greater accuracy and less assumed similarity. Perhaps normativeness could be considered a proxy for information: Perceivers may have less information on very normative and non-normative traits. Indeed, highly normative or desirable traits should have a very high frequency or base rate in first impressions (e.g., most people would seem friendly and talkative in an initial interaction), leaving perceivers with little differentiating information to form accurate impressions about these traits.

Similarly, highly non-normative or undesirable traits should have a very low frequency in first impressions (e.g., few people would be quarrelsome or rude), again leaving perceivers with little differentiating information on these traits. In both cases, perceivers may need to fill in the gaps with their own standing on these traits.

In contrast, perceivers may have much more information on moderately normative or nonevaluative traits (e.g., "Is organized), as people may be more comfortable revealing more differentiating information on these traits. In turn, perceivers should be able to form more accurate impressions of these traits and therefore assume less similarity on them. Thus, rather than the *self* being less accurate on more evaluative traits, as John and Robins (1993) propose, perhaps *others* are less accurate on these traits because they have less information about them. Of course, both processes (and others, including response sets) could be at play, concurrently hindering self-other agreement on these traits. Clearly, further research is needed to disentangle the underlying causes for the negative association between accuracy and assumed similarity in impressions of traits.

4.3. Conclusion

In sum, accuracy and assumed similarity are indeed negatively associated across traits: If accuracy is high for a given trait, assumed similarity tends to be low. In contrast, accuracy and assumed similarity are essentially independent across perceivers and dyads; one can be simultaneously accurate and assume similarity with others. This independence leaves room for these tendencies to operate freely from one another – one need not interpret assumed similarity as inaccuracy, nor are accurate impressions necessarily bias free.

Acknowledgments

This research was supported by SSHRC Grants (410-2005-2287) and (410-2008-2643) to Jeremy C. Biesanz.

References

Allport, F. M. (1924). *Social psychology*. New York: Houghton Mifflin.

Beer, A., & Watson, D. (2008). Personality judgment at zero acquaintance. Agreement, assumed similarity, and implicit simplicity. *Journal of Personality Assessment, 90*, 250–260.

Beer, A., & Watson, D. (2010). The effects of information and exposure on self-other agreement. *Journal of Research in Personality, 44*, 38–45.

Biesanz, J. C. (2010). The social accuracy model of interpersonal perception: Assessing individual differences in perceptive and expressive accuracy. *Multivariate Behavioral Research, 45*, 853–885.

Biesanz, J. C., & Human, L. J. (2010). The cost of forming more accurate impressions: Accuracy-motivated perceivers see the personality of others more distinctively but less normatively than perceivers without an explicit goal. *Psychological Science, 21*, 589–594.

Biesanz, J. C., West, S. G., & Millevoi, A. (2007). What do you learn about someone over time? The relationship between length of acquaintance and consensus and self-other agreement in judgments of personality. *Journal of Personality and Social Psychology, 92*, 119–135.

Borkenau, P., & Zaltauskas, K. (2009). Effects of self-enhancement on agreement on personality profiles. *European Journal of Personality, 23*, 107–123.

Chan, M., Rogers, K. H., Parisotto, K. L., & Biesanz, J. C. (2011). Forming first impressions: The role of gender and normative accuracy in personality perception. *Journal of Research in Personality, 45*, 117–120.

Cronbach, L. J. (1955). Processes affecting scores on "understanding of others" and "assumed similarity". *Psychological Bulletin, 53*, 177–193.

Funder, D. C. (1999). *Personality judgment: A realistic approach to personality perception*. San Diego, London: Academic.

Furr, R. M. (2008). A framework for profile similarity: Integrating similarity, normativeness, and distinctiveness. *Journal of Personality, 76*, 1267–1316.

Hox, J. J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). New York, NY: Routledge.

Human, L. J., & Biesanz, J. C. (2011). Through the looking glass clearly: Accuracy and assumed similarity in well-adjusted individuals' first impressions. *Journal of Personality and Social Psychology, 100*, 349–364.

John, O. P., & Robins, R. W. (1993). Determinants of interjudge agreement on personality traits: The Big Five domains, observability, evaluativeness, and the unique perspective of the self. *Journal of Personality, 61*, 521–551 (Special Issue).

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: Guilford.

Kenny, D. A., & Acitelli, L. K. (2001). Accuracy and bias in the perception of the partner in a close relationship. *Journal of Personality and Social Psychology, 80*, 439–448.

Luo, S., & Snider, A. G. (2009). Accuracy and biases in newlyweds' perceptions of each other: Not mutually exclusive but mutually beneficial. *Psychological Science, 20*, 1332–1339.

Ready, R. E., Clark, L. A., Watson, D., & Westerhouse, K. (2000). Self- and peer-reported personality: Agreement, trait rateability, and the "self-based heuristic". *Journal of Research in Personality, 34*, 208–224.

Vazire, S. (2010). Who knows what about a person? The self-other knowledge asymmetry (SOKA) model. *Journal of Personality and Social Psychology, 98*, 281–300.

Watson, D., Hubbard, B., & Wiese, D. (2000). Self-other agreement in personality and affectivity: The role of acquaintanceship, trait visibility, and assumed similarity. *Journal of Personality and Social Psychology, 78*, 546–558.