STAGE 2 REGISTERED REPORT

Love is not blind:

What romantic partners know about our abilities compared to ourselves, our close friends, and our acquaintances

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Highlights

- We found self-other knowledge asymmetries and similarities for abilities.
- Across abilities, people and their partners were at least moderately accurate.
- Close friends were moderately accurate in all domains but intrapersonal abilities.
- Acquaintances achieved moderate accuracy for verbal and numerical intelligence.
- Close others had unique insights into people's verbal and spatial intelligence.

Abstract

How much do our partners, close friends, and acquaintances know about our abilities, as compared to ourselves? This registered report aimed to investigate asymmetries in these perspectives' knowledge of a person's verbal, numerical, and spatial intelligence, creativity, and intra- and interpersonal emotional abilities. We collected self-estimates and performance measures of these abilities from 238 targets. Each target's abilities were also rated by their romantic partner, a close friend, and an acquaintance. Results showed knowledge-asymmetries but also similarities between perspectives. People themselves were at least moderately accurate across all six domains. However, partners achieved similar accuracy and both partners and friends could provide unique insights into some abilities. We discuss these results with regard to Vazire's self-other knowledge asymmetry model.

Keywords: Self-Knowledge; Other-Knowledge; Intelligence; Creativity; Social-Emotional Competence; Person Perception; Self-Other Knowledge Asymmetry; Acquaintance; Closeness

Stage 2 Registered Report:**Love is not blind:****What romantic partners know about our abilities compared to ourselves, our close friends, and our acquaintances****1. Introduction**

“How am I doing?” This question is one that many of us likely ask ourselves on a regular basis. Whether it concerns academic performance or everyday skills like driving ability, knowing how well we are doing is essential and sometimes our impression of our abilities shapes important life decisions (e.g., Ackerman & Wolman, 2007). It is, therefore, of little surprise that a lot of research has investigated the accuracy of self-estimates of abilities, reaching the conclusion that they are less accurate than one would imagine (Freund & Kasten, 2012; Zell & Krizan, 2014). Indeed, our self-estimates seem to be distorted by overestimation (e.g., Visser et al., 2008). Moreover, other people can also provide valuable information about our abilities and skills and their estimates might be similarly accurate or sometimes even slightly more accurate than our own (Denissen et al., 2011; Steinmayr & Spinath, 2009). To this date, however, hardly any research has directly compared the accuracy of self- and other-estimates of abilities (for an exception see Neubauer et al., 2018, who investigated accuracies of self- and peer-estimates in adolescents). The first main goal of this article was to provide such a comparison and to do so for an adult population and a wide range of abilities. When people make important decisions like vocational choices, they may ask several others for feedback. Close friends and romantic partners are probably common sources people turn to. Our second main goal was, therefore, to investigate, whether romantic partners and close friends have special insights or biases when it comes to assessing our abilities by comparing the accuracy of their judgments with those of acquaintances.

1.1. Determinants of accuracy in person perception

A considerable amount of research has focused on the accuracy of self- and other-perceptions of personality traits. Both types of perceptions can predict important outcomes like academic success or job performance and other-perceptions can provide incremental validity over self-perceptions (Connelly & Ones, 2010). However, neither perspective is without its biases. As an example, Anusic, Schimmack, Pinkus, and Lockwood (2009) found evidence for an evaluative bias factor in self- and other-ratings of the Big Five personality traits. In their truth and bias model of person perception, West and Kenny (2011) proposed that a perceiver’s rating of a target on a given trait does not only reflect the target’s true score (and measurement error) but is also affected by certain bias variables. John and Robins (1993) showed that self-other and other-other agreement for the Big Five are determined by a trait’s observability (i.e., its visibility to observers) and evaluativeness (i.e., its social desirability or undesirability). Both self-other and other-other agreement were highest for highly

observable traits of low evaluativeness. High evaluativeness seemed particularly detrimental for self-other agreement. Earlier work by Paunonen (1989) had shown that not observability per se but the interaction between observability and acquaintance is related to self-other agreement: Low observability is only related to lower self-other agreement when the level of acquaintance between target and rater is low. More recently, Connelly and Ones (2010) confirmed this meta-analytically and showed that the interpersonal intimacy between perceiver and target might be even more important than acquaintance per se. They found that the most accurate ratings in terms of self-other correlations come from spouses and dating partners. A recent extension of the truth and bias model (Leising et al., 2015) found that ratings of a target were influenced by perceiver's attitudes (liking) but only when items were high in evaluativeness. Finally, current work found that how much the perceiver likes the target and how well he/she knows the target have opposing effects on accuracy: Whereas higher knowing was associated with higher accuracy and lower positivity bias, higher liking was related to lower accuracy and higher positivity bias (Wessels et al., 2018). Overall, past research seems to agree that both characteristics of the trait to be judged and of the relationship between target and perceiver affect the accuracy of ratings. However, hardly any of these models have focused on mechanisms behind potential differences in accuracy between self- and other-estimates.

1.2. The self-other knowledge asymmetry model

Simine Vazire's (2010) self-other knowledge asymmetry (SOKA) model offers a framework for systematic comparisons of the accuracy of self- and other-estimates. The model builds on the Johari window (Luft & Ingham, 1955) and assumes that a person's traits fall into one of four different quadrants, depending on how much the person themselves and others know about the respective characteristic: Traits in the '*open area*' are judged accurately by both the self and others. If only others are accurate about a trait, it is in the '*blind spot*', whereas traits only validly judged by oneself are in the '*hidden area*'. Lastly, traits that neither perspective can judge accurately are in the '*unknown area*'. Drawing on the research summarized in the past section, the model proposes that the position of a trait in the Johari window should be determined by two factors: observability and evaluativeness. Vazire argued that self-estimates of highly evaluative traits are often distorted, since these traits are relevant to the person's self-esteem (see also John & Robins, 1993). At the same time, others can only make accurate estimates about observable traits. Taken together, others might have more accurate views of our observable and evaluative traits than we ourselves do. Vazire (2010) allocated traits to the positions within the SOKA model/Johari window based on differences in correlation coefficients between self- and peer-estimates and relevant behavior (for extraversion and neuroticism) or objective performance (for intellect). In this initial study, she found extraversion (high observability, low evaluativeness) to be in the open area, intellect (low observability, high

evaluativeness) mostly in the blind spot, and neuroticism (low observability, low evaluativeness) in the hidden area.

Similar to some of the models discussed in section 1.1, Vazire (2010) also considered a third aspect that might influence a trait's position within the SOKA model: the level of acquaintance. She discussed that, while well-acquainted others might have advantages compared to less acquainted others when it comes to judging low observability traits (see also Connelly & Ones, 2010; Paunonen, 1989), they might also share some of the self's self-protective biases, leading to less accurate judgments. Unexpectedly, she found friends to be more accurate than strangers when judging the highly evaluative trait intellect. Thus, she proposed that distortions of other-estimates due to high evaluativeness might only occur in particularly emotionally invested known others like romantic partners. The emotional investment in friendships might have been too low for the negative effects of evaluativeness on accuracy to emerge. This would be in line with the negative association between liking and accuracy found by Wessels and colleagues (2018). John and Robins (1993) proposed that judgments by emotionally invested others might involve similar psychological processes as self-perception. On a similar note, it has been suggested that "in a close relationship, the person acts as if some or all aspects of the partner are partially the person's own" (Aron et al., 1991, p. 242). This is also in line with the self-evaluation maintenance model (Tesser, 1988), according to which the performance of a close other might affect one's own self-esteem and do so negatively, if the domain in question is relevant for one's self-definition. Vazire (2010) proposed that a direct comparison between ratings by romantic partners and similarly well-acquainted friends could provide valuable insight into this question. Surprisingly, such a study does not seem to exist until today. In general, only little research on the SOKA model has been conducted. At the time of writing, it has mainly been investigated for personality traits (e.g., Beer & Vazire, 2017) but pertinent research also exists for personality disorders (Carlson et al., 2013), and moral behaviors (Thielmann et al., 2017).

1.3. The self-other knowledge asymmetry model for abilities

To this point, hardly any studies have investigated the SOKA model for different aspects of intelligence or other abilities, even though this line of research might provide valuable insights. When making important life decisions, people may rely on feedback about their abilities from different sources (e.g., self, parents, friends, partners or teachers; Neubauer et al., 2018). Thus, it seems essential to investigate which of these sources can provide accurate estimates for a given domain.

First evidence on self-other knowledge asymmetries for abilities comes from Vazire (2010), whose findings on intellect are based on creativity (originality in a divergent thinking task) and overall intelligence. Both abilities were measured with objective ability tests. Results showed that creativity is in the blind spot, with only friends but not the self providing accurate estimates. Findings for

intelligence were similar but less clear-cut, since self-estimates showed at least some accuracy in this domain. Strangers were unable to make accurate estimates for either ability.

Only recently, Neubauer and colleagues (2018) have analyzed the position of a more diverse set of abilities within the SOKA model based on self-ratings and ratings of randomly assigned classmates in 14- and 18-year-old pupils (i.e., ages when important educational decisions have to be made). The following abilities were assessed: verbal, numerical, and spatial intelligence (as measured by a standardized intelligence test), creativity (originality in a divergent thinking task), and intra- and interpersonal emotional management abilities (as measured by a situational judgment test). In both age groups, numerical intelligence and creativity were open, verbal intelligence was in the blind spot, and intra- and interpersonal emotional abilities were hidden. Spatial intelligence was unknown in the younger group and hidden in the older one. Thus, there seems to be variation in the location of abilities within the SOKA model, even though most of those examined could be considered to belong to the concept of intellect investigated by Vazire (2010) and might, therefore, be expected to be located in the blind spot. Self-reported closeness to the rated peer did not moderate any of the effects, a finding that the authors mainly attribute to the random assignment of peer-raters.

The relevance of having an accurate view of one's own abilities and those of one's peers (e.g., in order to give them feedback) might be particularly high during adolescence, given that important (educational/vocational) decisions have to be made around this time (Neubauer et al., 2018). Nevertheless, accurate self- and other-assessments are probably also relevant later in life and maintaining self-insight over the course of life may prove increasingly difficult, since adults usually receive less regular feedback on their abilities than pupils in school do. The accuracy of self- and other-estimates of abilities can also be important in clinical contexts: Accurate perceptions of a person's memory decline – which might, for example, be due to a cognitive disorder – could be essential to provide them with appropriate and timely care (Buelow et al., 2014). Even though self-reported memory complaints show a small (negative) correlation with objective cognitive function in the general aging population (Burmester et al., 2016), this association seems to disappear in individuals with mild cognitive impairment (Buelow et al., 2014; Fyock & Hampstead, 2015) or Alzheimer's disease (Buelow et al., 2014). It has also been shown that informant-reports can outperform self-reports in terms of accuracy for individuals with mild cognitive impairment (Buelow et al., 2014; Fyock & Hampstead, 2015).

Providing a systematic comparison of the accuracy of self- and other-estimates of abilities in adults was one of the main goals of the present work. In view of the lack of literature that directly compares these perspectives, we summarized available work that focused on the accuracy of either self-estimates or other-estimates in the upcoming sections. In line with recent suggestions regarding the interpretation of effect sizes in individual difference research (Gignac & Szodorai, 2016), we

classified correlations starting from .1 to indicate low accuracy and correlations starting from .2 to indicate medium or moderate accuracy. However, we used the conventional—and, thus, stricter—threshold ($r \geq .5$) for high accuracy (Cohen, 1992; for a display of the practical importance of such a correlation see Table 2).

1.4. The accuracy of self-estimates of abilities

A considerable amount of research has focused on the accuracy of self-estimates of abilities, resulting in several meta-analyses (e.g., Freund & Kasten, 2012; Mabe & West, 1982; Ross, 1998) and even one metasynthesis (i.e., a combination of several meta-analyses; Zell & Krizan, 2014). According to this metasynthesis, overall accuracy of self-estimates is moderate ($r_{\text{mean}} = .29$) with considerable variability of effects depending on the ability domain in question (r s ranging from .09 for interpersonal sensitivity to .63 for second language competence). Freund and Kasten (2012) focused their meta-analysis on verbal, numerical, spatial, and overall intelligence and also found moderate accuracy ($r_{\text{mean}} = .33$). Additionally, they found greater accuracy of self-estimates of numerical intelligence as compared to overall intelligence, with no comparable differences in accuracy between overall and verbal or spatial intelligence.

Past results on the accuracy of self- and other- estimates of the domains that we investigated in the present study, that is verbal, numerical, and spatial intelligence, creativity, and intra- and interpersonal emotional management abilities, are summarized in Table 1. As can be seen, these results again point towards an accuracy advantage for self-estimates of numerical intelligence compared to those of other intelligence facets: In the majority of cases, very low to medium accuracy was reported for self-estimates of verbal and spatial intelligence, while medium to high accuracy was found for numerical intelligence (Furnham et al., 2001; Neubauer et al., 2018; Proyer & Ruch, 2009; Rammstedt & Rammsayer, 2002; Steinmayr & Spinath, 2009; Visser et al., 2008). Correlations between self-estimates of creativity and creative performance were found to range from slightly negative to .44, depending on the way creativity was assessed (Furnham et al., 2005; Neubauer et al., 2018; Pretz & McCollum, 2014; Vazire, 2010). For both inter- and intrapersonal emotional management abilities, correlations between self-estimates and performance were moderate to high (Freudenthaler & Neubauer, 2005; Neubauer et al., 2018). In addition to the results presented in Table 1, it seems noteworthy that Elfenbein, Barsade, and Eisenkraft (2015) reported low ($r = .13$) to medium ($r = .3$) accuracy of self-reported overall emotional management abilities in two studies, even though they did not differentiate between intra- and interpersonal aspects.

The predominant focus on correlation coefficients in this line of research has repeatedly been criticized (e.g., Dunning & Helzer, 2014) and some research has instead focused on the direction of misestimation. There is a large amount of indirect evidence for humans' tendency to overestimate themselves. As an example, people were repeatedly shown to believe that they perform better than

the average person (e.g., Dunning et al., 1989; Horrey et al., 2015; Kruger & Dunning, 1999), a phenomenon known as the above-average or better-than-average effect (Alicke & Govorun, 2005). A recent study found that 65 percent of Americans believe they are more intelligent than the average person, something that is logically impossible (Heck et al., 2018). Visser and colleagues (2008) showed that students judge their intelligence on all of Gardner's eight intelligence domains to be above that of the average student at their university. Still, hardly any research has investigated people's apparent tendency to overestimate themselves more directly by comparing self-estimated and objectively measured intellectual abilities (Gignac & Zajenkowski, 2019). In a rare exception, Reilly and Mulhern (1995) found that men, on average, overestimate their IQ by about 8 IQ points, while women's self-estimates did not differ significantly from their measured IQ. In a recent study, Gignac and Zajenkowski (2019) reported that both men and women overestimate their IQ by on average 30 IQ points, which represents a large effect. Clearly, more research on this topic is needed before a definite conclusion can be made. Given the differences in accuracy correlations for different ability domains, investigating over-/underestimation in several domains seems particularly interesting.

1.5. The accuracy of other-estimates of abilities

Past work focusing on other-estimates of intelligence yielded moderate to high accuracy correlations but also overestimation by close others. Several correlational studies showed that others are already able to make reasonably accurate intelligence judgements after watching short standardized videos of a person (Borkenau et al., 2004; r s between .22 and .53 Borkenau & Liebler, 1993; Reynolds & Gifford, 2001). Denissen and colleagues (2011) investigated how intelligence-estimates by fellow students develop over the course of a semester and found accuracy correlations of .25 after one week, .27 after one month, and .22 after another 4 months of acquaintance. Borkenau and Liebler (1993) investigated intelligence estimates by a person's cohabitant (in most cases their romantic partner) and reported a correlation of .29 with objectively measured intelligence. Recently, Gignac and Zajenkowski (2019) found that women's estimates of their male romantic partner's intelligence correlated at .30 with the partner's actual intelligence, whereas men's estimates only correlated at .19 with their female partner's intelligence. Moreover, the authors found that both genders did not only overestimate their own but also their partner's intelligence by around 30 IQ points, which again constitutes a large effect.

As shown in Table 1, only little research seems to have investigated accuracy of other-estimates for different ability domains. Steinmayr and Spinath (2009) reported that parents judged their adolescent sons' and daughters' verbal, numerical, and spatial intelligence with medium accuracy. Sommer, Fink, and Neubauer (2008) found that both teachers and parents estimated elementary school pupils' intelligence with an accuracy of around .5, creativity with an accuracy of

between .2 and .3, and social competence (consisting of inter- and intrapersonal parts) with an accuracy of only .1. Neubauer and colleagues (2018) found a similar pattern of results for peer-estimates in their older age group: Numerical and verbal intelligence as well as creativity were estimated with medium accuracy, whereas estimates of intra- and interpersonal emotional management abilities were of low or low to medium accuracy. Low accuracy was also reported for peer-estimates of spatial intelligence. More support for the comparatively low accuracy of other-ratings of emotional management abilities (again consisting of intra- and interpersonal aspects) comes from Elfenbein and colleagues (2015), with estimate*performance correlations between $-.04$ (student classmates) and $.04$ (work colleagues). Vazire (2010) found quite low accuracy of stranger-ratings of creativity and slightly higher accuracy for friend-ratings.

Table 1

Past Results on the Accuracy of Self- and Other-Estimates of Verbal, Numerical, and Spatial Intelligence, Creativity, and Intra- and Interpersonal Emotional Management Abilities and Predictions of Correlations for the Present Study

Domain	$r_{\text{self-estimates x performance}}$	$r_{\text{other-estimates x performance}}$	Predictions
Verbal Intelligence	.26 ¹ .19 ² .39 ³ (comprehension) .07 ³ (fluency) .31 ⁴ .19 ⁵ .21 ¹¹ (girls) .15 ¹¹ (boys)	Peers: .28 ⁵ Parents: .35 ¹¹ (girls) .26 ¹¹ (boys)	$r_{\text{self}} \& r_{\text{partner}} < .2$ $r_{\text{friend}} \& r_{\text{acquaintance}} \geq .2$
Numerical Intelligence	.35 ¹ .50 ² .35 ³ .38 ⁴ .53 ⁵ .40 ¹¹ (girls) .46 ¹¹ (boys)	Peers: .36 ⁵ Parents: .36 ¹¹ (girls) .34 ¹¹ (boys)	$r_{\text{self}}, r_{\text{friend}}, r_{\text{partner}} \& r_{\text{acquaintance}} \geq .2$
Spatial Intelligence	r not provided, $p > .05$ ¹ .16 ² .27 ³ .05 ⁴ .31 ⁵ .30 ¹¹ (girls) .33 ¹¹ (boys)	Peers: .16 ⁵ Parents: .34 ¹¹ (girls) .28 ¹¹ (boys)	$r_{\text{self}}, r_{\text{friend}}, r_{\text{partner}} \& r_{\text{acquaintance}} < .2$
Creativity	DT originality: .32 ⁵ .19 ⁷ .11 ⁸ DT fluency: .27 ⁷ Other measures: .27 ⁶ -.01 ⁷ .44 ⁷ .28 ⁷	DT originality: Friends: .17 ⁸ Peers: .28 ⁵ Strangers: .07 ⁸ Other measures: Parents: .24 ¹⁰ Teachers: .34 ¹⁰	$r_{\text{self}}, r_{\text{friend}}, r_{\text{partner}} \& r_{\text{acquaintance}} \geq .2$
Intrapersonal EMA	.39 ⁵ .52 ⁹	Peers: .13 ⁵	$r_{\text{self}} \geq .2$ $r_{\text{friend}}, r_{\text{partner}} \& r_{\text{acquaintance}} < .2$
Interpersonal EMA	.48 ⁵ .26 ⁹	Peers: .19 ⁵	$r_{\text{self}}, r_{\text{friend}} \& r_{\text{partner}} \geq .2$ $r_{\text{acquaintance}} < .2$

Note. EMA = Emotional Management Abilities; ¹Furnham et al., (2001)· *Note:* Values represent partial correlations after partialling out gender and age; ²Proyer & Ruch, (2009); ³Rammstedt & Rammsayer, (2002); ⁴Visser et al., (2008); ⁵Neubauer et al., (2018), *Note:* 18-year-old sample; ⁶Furnham et al., (2005); ⁷Pretz & McCollum, (2014); ⁸Vazire (2010), *Note:* Values for friends and strangers represent the average result of 15 analyses in which one of five friends/strangers was chosen per target; ⁹Freudenthaler & Neubauer (2005); ¹⁰Sommer et al., (2008), *Note:* Pupils in elementary school; ¹¹Steinmayr & Spinath, 2009, *Note:* 17-year-olds.

1.6. The present study

In the present study, we investigated the position of six abilities within the SOKA model in an adult sample. We aimed to:

- (1) investigate the accuracy of self- and other-estimates of abilities, with the latter stemming from the target's romantic partner, their best or a very close friend, and an acquaintance. Thus, we collected data from two sources who knew the target considerably well but differed with regard to the expected closeness/intimacy of their relationship to the target (friends and partners; in line with the proposition by Vazire, 2010) and added a source that we expected to know the target less well and be less close to him/her (acquaintances).
- (2) determine for which domains the four perspectives (self, partner, friend, and acquaintance) differ in their accuracy.
- (3) investigate the unique insights of each perspective and the overall amount of variance all four perspectives can jointly explain.
- (4) determine the direction of misestimation by targets, friends, partners, and acquaintances.

We included verbal, numerical, and spatial intelligence, creativity, and inter- and intrapersonal emotional management abilities due to their relevance for important life outcomes. Verbal, numerical, and spatial intelligence form part of most modern models of intelligence (see Hunt, 2010) and several meta-analyses have determined that intelligence is an important predictor of professional and socioeconomic success (Hülsheger et al., 2007; Schmidt & Hunter, 2004, 1998; Strenze, 2007). Creativity is seen as essential for solving key problems and has been connected with many essential aspects of life (Hennessey & Amabile, 2010; Plucker et al., 2004). A recent meta-analysis found that creativity is associated with academic achievement, although with only a small to medium effect (Gajda et al., 2017). Emotional management comprises the highest branch in one of the most influential models of emotional intelligence (Mayer & Salovey, 1997) and refers to the "ability to manage emotions and emotional relationships for personal and interpersonal growth" (Mayer et al., 2001, p. 235). Both intra- and interpersonal emotional management abilities are associated with life satisfaction and (lower) depressive tendencies (Freudenthaler, Neubauer, & Haller, 2008). Emotional intelligence as a broader ability exhibits small but meta-analytically stable associations with job performance (Joseph et al., 2015) and was found to predict academic and social success over and above personality and psychometric intelligence (van der Zee et al., 2002).

Perhaps one of the most important methodological considerations when conducting research on accuracy in person perception relates to the choice of accuracy criteria. When it comes to perceptions of a person's abilities, the target's performance in objective ability tests constitutes an obvious accuracy criterion. Intelligence tests, for example, have long been accepted as objective measures of cognitive abilities and their scores are widely used as accuracy criteria (Freund & Kasten,

2012). Thus, we used subscales of a well-established, standardized intelligence test battery to measure verbal, numerical, and spatial intelligence. For conceptually broader abilities like creativity and emotional competence, the choice of adequate accuracy criteria becomes less obvious. One widely accepted measure of creativity, or to be more precise creative potential, is originality in divergent thinking tasks, which shows good reliability and validities when scored adequately (Benedek et al., 2013; Diedrich et al., 2018) and has served as accuracy criterion in past research (Neubauer et al., 2018; Pretz & McCollum, 2014; Vazire, 2010). Therefore, we used originality in the widely applied alternative uses task (AUT; Guilford, 1967) as accuracy criterion for creativity. Emotional management abilities are typically measured by confronting individuals with hypothetical situations and asking them how they would change or maintain their emotions (Mayer et al., 2004). Hence, tests of emotional management abilities like the respective subscale of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2003), the Situational Test of Emotional Management (STEM; MacCann & Roberts, 2008) or the Typical-performance Emotional Management Test (TEMT; Freudenthaler & Neubauer, 2005) belong to the family of situational judgement tests (SJTs)¹. Maximum performance tests of emotional management like the MSCEIT or STEM, which ask the individual to judge the most effective actions in each situation, have been criticized for measuring a person's knowledge about how to behave in emotional situations instead of their actual regulative behavior (Freudenthaler & Neubauer, 2005; see also Brackett et al., 2006). Therefore, we used a typical performance situational judgment test comprised of subscales for intra- and interpersonal emotional management.

In line with past studies (Beer & Vazire, 2017; Neubauer et al., 2018; Vazire, 2010), we considered positive correlations between estimates and performance starting from .2 to indicate relevant levels of accuracy. A correlation of this size represents a typical effect in the individual differences literature (Gignac & Szodorai, 2016) and seems like a reasonable threshold, given average effects found in research looking at the accuracy of self- and other-estimates of abilities (e.g., Denissen et al., 2011; Zell & Krizan, 2014).

We considered estimate*performance correlation coefficients that differed in at least .15 to indicate relevant differences in accuracy between two perspectives. Vazire (2010) proposed that

¹ Unfortunately, low internal consistency (coefficient alpha) is a reoccurring issue in SJTs, including those assessing emotional management abilities (e.g., MacCann & Roberts, 2008). However, several authors have argued that this is to be expected, given the inherently heterogenous nature of SJTs and that test-retest or parallel form reliability are more suitable reliability estimates for SJTs (McDaniel et al., 2007; Whetzel & McDaniel, 2009). Indeed, emotional competence SJTs with previously reported low internal consistency (MacCann & Roberts, 2008) have been found to show test-retest reliabilities of more than .7 (Libbrecht & Lievens, 2012). In addition, past work found satisfactory validities for emotional management SJTs [incl. correlations with self-reported emotional management abilities, other measures of emotional intelligence, subclinical depression (negative) and life satisfaction] despite their relatively low internal consistencies (Austin, 2010; Freudenthaler, Neubauer, & Haller, 2008; Freudenthaler & Neubauer, 2005; Neubauer et al., 2018).

differences in accuracy correlations of more than .15 can be considered as substantial, given that this number is close to one standard deviation in effect size distributions in personality and social psychology (see Richard et al., 2003). It is also slightly higher than one standard deviation in the distribution of self-estimate*performance correlations for different abilities (Zell & Krizan, 2014). To illustrate the practical importance of a difference of .15, we show binomial effect size displays (BESDs) for correlations of various sizes in Table 2. BESDs are an intuitive method to evaluate the size of correlations (Rosenthal & Rubin, 1982; see Funder & Ozer, 2019 for a recent discussion) but have also sparked some controversy (see Hall et al., 2008). Nevertheless, if we think of both measured and estimated abilities as dichotomous constructs, BESDs can provide rough estimates of the proportion of individuals that are correctly characterized as high- or low-performers based on their own or someone else's judgment (for a similar application of BESDs see Naumann et al., 2009). Table 2 shows four BESDs for estimate*performance correlations of .05, .20, .35, and .50 in a sample of 200 and, therefore, illustrates the impact of correlational differences of .15 for correlations of various strength. To provide an example, if the correlation between partner-estimated and measured verbal intelligence is .20, this indicates 60% correct predictions (e.g., both measured and estimated verbal intelligence is high). If the correlation for friend-estimates is .35, this relates to 67.5 % correct predictions. In this example, friends clearly have higher success at providing accurate feedback than romantic partners.

Table 2

Binomial Effect Size Displays for Correlations of Self- or Other-Estimates and Measured Abilities of .05, .20, .35, and .50

<i>r</i> = .05				<i>r</i> = .20			
	Ability high	Ability low	Total		Ability high	Ability low	Total
Estimate high	52.5	47.5	100	Estimate high	60	40	100
Estimate low	47.5	52.5	100	Estimate low	40	60	100
Total	100	100	200	Total	100	100	200

<i>r</i> = .35				<i>r</i> = .50			
	Ability high	Ability low	Total		Ability high	Ability low	Total
Estimate high	67.5	32.5	100	Estimate high	75	25	100
Estimate low	32.5	67.5	100	Estimate low	25	75	100
Total	100	100	200	Total	100	100	200

1.7. Research questions

Given the outline above, we investigated the following research questions (RQs):

1.7.1. RQ 1: What is the level of accuracy of self-, partner-, friend-, and acquaintance-estimates of different abilities?

The last column of Table 1 provides a summary of our expectations for the accuracy of each perspective and Figure 1 shows the expected location of each domain within the Johari window (Luft & Ingham, 1955)/SOKA model (Vazire, 2010). We based our expectations regarding the accuracy of self-estimates on the literature summarized in the first column of Table 1. Our expectations were as follows:

1.1.: Self-estimates of numerical intelligence, creativity, and intra- as well as interpersonal emotional abilities should be at least moderately accurate (positive correlations with performance $\geq .2$). Since self-estimates of spatial and verbal intelligence showed lower correlations with performance in past studies, we expected these abilities to fall below that threshold.

We based the following expectations for the accuracy of friend-estimates largely on the results listed in the second column of Table 1, particularly on those reported for peers and friends:

1.2.: Friends-estimates should be at least moderately accurate for verbal and numerical intelligence. Past results on the accuracy of friend-estimates of creativity were only slightly below the threshold of .2 and results on peer-estimates and other acquainted perceivers were above it, which is why we also expected at least moderate accuracy for creativity. The accuracy of peer-estimates of interpersonal emotional management abilities was also only slightly below our threshold. In addition, one could argue that interpersonal emotional management abilities should be easily observable, particular to well-acquainted others like friends, who might also directly experience relevant behaviors. We, therefore, also expected at least moderate accuracy for interpersonal emotional management abilities. Finally, based on past results we expected that friends would not be able to judge spatial intelligence or intrapersonal emotional abilities accurately.

Due to the lack of pertinent literature on the accuracy of partner-estimates and the notion that very close friends and romantic partners might have similar access to information about a target (e.g., see the similar results for friends and partners reported by Connelly & Ones, 2010), our expectations for partner-estimates were quite similar to those for friends. However, since it has

repeatedly been argued that particularly close others might share some of the self's biases, we suspected that partners would also have problems making accurate estimates of the target's verbal abilities, which is the only domain that was found to be in the blind spot in the past (Neubauer et al., 2018). Our expectations were as follows:

1.3.: Partner-estimates of creativity, numerical intelligence, and interpersonal emotional abilities should be at least moderately accurate, whereas no relevant levels of accuracy were expected for estimates of verbal and spatial intelligence as well as intrapersonal emotional abilities.

It was difficult to derive specific expectations for acquaintance-estimates based on past research, since hardly any studies seem to have investigated acquaintance-estimates of different abilities (see also Table 1). Since there is considerable evidence that even unknown others have some insight into a person's intelligence (Borkenau et al., 2004; Borkenau & Liebler, 1993; Denissen et al., 2011; Reynolds & Gifford, 2001), we did expect that acquaintances would be able to give accurate estimates for some domains. We based our expectations on the results by Neubauer and colleagues (2018) on estimates by classmates. However, one has to bear in mind that these raters had been in the same class as the targets for several years and might, therefore, know them better than other types of acquaintances (e.g., work colleagues). Thus, these results should be considered as the upper boundary of what can be expected for acquaintances. In addition to their comparatively lower "knowing" of the target, there should also be less liking/closeness/interpersonal intimacy between targets and acquaintances compared to friends and – even more so – partners (see sections 1.1 and 1.2). Thus, one would not expect acquaintances to share the self's bias regarding verbal abilities. Given this reasoning, we expected the following:

1.4.: Acquaintances might not be able to provide accurate estimates of spatial intelligence and both intra- and interpersonal emotional management abilities. Albeit we have argued that the latter should be quite observable, it might be that this is only the case for well-acquainted others, who are likely more often on the receiving end of these emotional management attempts. This would also be in line with the low accuracy Elfenbein and colleagues (2015) found for reports on emotional management abilities by work colleagues and classmates. At least moderately accurate judgments were expected for verbal and numerical intelligence as well as creativity.

Figure 1

Predictions on positions of abilities within the Johari window (Luft & Ingham, 1955)/SOKA model (Vazire, 2010)

		Self-Knowledge		Self-Knowledge		Self-Knowledge	
		High	Low	High	Low	High	Low
Other-Knowledge	High	OPEN AREA Creatvity Numerical <i>Interpersonal</i>	BLIND SPOT	OPEN AREA Creatvity Numerical <i>Interpersonal</i>	BLIND SPOT <i>Verbal</i>	OPEN AREA Creatvity Numerical	BLIND SPOT <i>Verbal</i>
	Low	HIDDEN AREA Intrapersonal	UNKNOWN AREA Spatial <i>Verbal</i>	HIDDEN AREA Intrapersonal	UNKNOWN AREA Spatial	HIDDEN AREA Intrapersonal <i>Interpersonal</i>	UNKNOWN AREA Spatial
		Partners		Friends		Acquaintances	

Note. Other-estimates by romantic partners (left), friends (middle), and acquaintances (right). For self- or other-knowledge of any domain to be classified as ‘high’, the respective estimate*performance correlation must be at least .2. Domains in italic are expected to yield differences in accuracy of partner-, friend-, and acquaintance-estimates.

1.7.2. RQ2: For which abilities do self-, partner-, friend-, and acquaintance-estimated abilities differ in their correlations with performance?

We, again, derived our hypotheses from the results summarized in Table 1 and from the reasoning described in section 1.7.1. Differences between perspectives were, therefore, expected for domains located in the blind spot or hidden area or changing positions between acquaintances, friends, and partners in Figure 1. We made the following predictions:

- 2.1.: Friends and acquaintances provide more accurate estimates of verbal intelligence than both partners and targets themselves.
- 2.2.: Targets' estimates of their intrapersonal emotional management abilities are more accurate than those of friends, acquaintances, or partners.
- 2.3.: Acquaintance-estimates are less accurate than self-, friend-, or partner-estimates of interpersonal emotional management abilities.
- 2.4.: No relevant differences in correlations between the four perspectives were expected ($r_{diff} < .15$) for numerical and spatial intelligence, and creativity.

1.7.3. RQ3: What is the unique contribution of self-, partner-, friend-, and acquaintance-estimates in explaining performance and how much variance do all three perspectives explain together?

Like past studies (Neubauer et al., 2018; Vazire, 2010; Vazire & Mehl, 2008), we investigated whether any of the four perspectives could uniquely predict ability levels and how much variance in ability was jointly explained by all four perspectives by entering them into one linear multiple regression per domain. Given the novelty of considering the perspectives of the self, partners, acquaintances, and friends simultaneously, we had no specific hypotheses in this regard.

1.7.4. RQ4: What is the direction of misestimations by partners, friends, acquaintances, and targets?

Building on the recent study by Gignac and Zajenkowski (2019), we investigated the direction of (potential) misestimations in verbal, numerical, and spatial intelligence by comparing performance with self-, partner-, acquaintance-, and friend-ratings made on a normative scale that is comparable to psychometrically measured IQ scores. Due to the large overestimations of general intelligence by both targets and romantic partners reported by Gignac and Zajenkowski (2019), we expected overestimations of medium to large effect sizes for these two perspectives. We had no specific hypotheses regarding the strength and direction of misestimations by friends and acquaintances. We also investigated how misestimations might differ depending on the source of the estimate and the

domain in question. Given the lack of prior research on this question, we had no specific hypotheses about the directions.

2. Methods

As this is a registered report, our hypotheses, methods, and analysis plans were peer-reviewed and preregistered before data collection. The full stage 1 manuscript including detailed sample size considerations is available at <https://osf.io/nxegr>. We explicitly state any deviations from our original plans—all of them only minor—in this manuscript. We presented all tests in German. All material that can be shared without infringing copyright can be found via the same OSF-link. Anonymized data are available as scientific use file at <https://doi.org/10.23668/psycharchives.5368>. Reproducible scripts for all reported analyses are on the OSF (<https://osf.io/ydn98>), together with a results appendix (in the following “Appendix”). The local ethics committee approved the study procedure.

2.1. Participants: Targets and raters

We planned to collect data from 250 *targets* (~ 50 % female). At this sample size, sample estimates of correlations of around $r = .2$ can be expected to be relatively stable (Schönbrodt & Perugini, 2013), which we considered essential for RQs 1 and 2. Based on this number, we also conducted power analyses for a desired power of 90% at an alpha of 5%: At $n = 250$, we could detect correlations of $r \geq .184$ (RQ 1), small to medium effects of $f^2 \geq .063$ in multiple regressions with up to three predictors (RQ 3), and small effects in pairwise t-tests (part 1 of RQ 4: $d \geq .264$ with a Bonferroni-corrected alpha for 12 tests; part 2 of RQ 4: $d \geq .283$ with a Bonferroni-corrected alpha for 30 tests, i.e., the follow-up pairwise comparisons for a potential interaction in a 3*4-ANOVA).

We recruited participants via social media, mailing-lists, on campus, and at a wedding fair. The data collection process involved multiple steps: Targets signed-up online and completed an online questionnaire, provided contact details for three raters, who also completed online questionnaires on the targets, and, finally, targets came into the laboratory to complete a set of performance tests and questionnaires. More than 400 targets signed-up but there was considerable drop out, particularly when it came to naming raters. Moreover, in-person testing was complicated considerably by the COVID-19 pandemic, which started to show its effects in Austria shortly after data collection for this project had begun (January 2020). Due to time constraints, we had to close data collection in November 2021—just when Austria moved into another lockdown—with a sample of 243 targets. To participate, targets had to be between 18 and 45 years old, able to speak German on a native speaker level, and in a heterosexual romantic relationship for at least 6 months. We excluded data from five participants due to an insufficient level of German ($n = 3$) or lack of

compliance ($n = 2$). This left a final sample of 238 targets (62.6% female²; $M_{\text{age}} = 23.9$, $SD_{\text{age}} = 5.13$). 76.8% of them were university students (61.2% of those studied psychology); 19.8% stated being employed as their main occupation. 71.9% had completed high school and another 24.8% already held a university degree. At the time of registration for the study, targets had been in their romantic relationships for between 0.5 and 15 years ($M = 3.12$, $SD = 2.96$). All targets, who had completed all parts of the study, could receive a compensation of € 15. Psychology students, who participated as targets, could alternatively choose to receive course credit (45.8% of participants did). As additional incentives, all targets could request feedback involving a profile of their abilities (90.8% did) and participate in a raffle for one of two € 70 vouchers.

For each target, we collected data from three raters: the target's romantic partner, best friend (or someone they would describe as very close friend with a minimal friendship duration of at least 6 months), and an acquaintance. Based on examples of relationships involving low to medium acquaintance (Connelly & Ones, 2010) and instructions used in past studies (Gächter et al., 2015; Starzyk et al., 2006), we presented targets with the following instruction for selecting an acquaintance: "Think of someone you have known for less than 6 months or with whom you have always had mostly similar interactions (or both). For example, this could be one of the following people: a fellow student, a flat-mate, a colleague at work or someone you know from a group activity (e.g., a joint club activity or a sports course). It is not important who exactly this person is, as long as he/she is an acquaintance – and only an acquaintance. Please do not enter any friends or relatives here."

A total of 714 raters ($M_{\text{age}} = 24.9$, $SD_{\text{age}} = 6.86$) participated. Similar to targets, raters were highly educated (59.2% high school degrees; 30.4% university degrees) and the majority were students (59%) or employees (32.9%). Targets predominantly named close friends (89.1%) and acquaintances (67.6%) of the same gender as themselves. Interestingly, the targets and raters did not always share the same assessment of their type of relationship: Two target-named partners rather saw themselves as close friends, three target-named close friends considered themselves acquaintances, and 86 (36.1%) target-named acquaintances rather saw themselves as close friends. When we asked the remaining 152 acquaintances to describe their relationship to the target (with the possibility of selecting multiple options), they stated they were fellow students (45), roommates (16), work colleagues (22), knew the target from a joint group activity (23), or that they had another type of relationship to the target (60), in many cases specifying that they knew the target via family members or mutual friends. As incentive, all raters were entered into a raffle for a total of 15 prizes of € 50.

² We had to deviate from our goal of a balanced ratio of male and female targets as recruiting participants—and especially male ones—proved very difficult.

2.2. Measures

2.2.1. Intelligence

We administered three modules, each consisting of two subtests, from the well-established Wilde-Intelligenz-Test-2 (WIT-2; Kersting et al., 2008) battery to assess verbal, numerical, and spatial intelligence. We used two pseudo-parallel test forms (i.e., same items but different order) to reduce the possibility of cheating. Each subtest consists of twenty items. Thus, participants could achieve raw scores between zero and twenty points per subtest. As suggested by the test authors, we used the undifferentiated norms provided in the test manual (Kersting et al., 2008, p. 130) to convert raw scores into standard scores (min = 70, max = 130, $M = 100$, $SD = 10$). We averaged the standard scores of both subtests per domain to compute composite verbal, numerical, and spatial intelligence. We also transformed standard scores to IQ scores so that they are comparable with self-/other-estimated IQs (RQ 4). The test authors found internal consistencies between .77 and .91 on the subtest-level and between .87 and .94 on the module level. We report internal consistencies for the present sample with their bootstrapped 95% confidence intervals in Table A1 in the Appendix (<https://osf.io/ydn98>). They were well in line with the ones reported in the test manual.

2.2.2. Creativity

We operationalized creativity as divergent thinking and measured it with a computerized version of the alternative uses task (AUT; Guilford, 1967). Participants had to find creative uses for three different everyday objects (book, hairdryer, and garbage bin) within a time limit of 2.5 min per object. Before the task, participants were instructed to come up with ideas that others would see as “original, clever, unconventional, interesting or funny” and to prioritize creativity of ideas over quantity. At the end of data acquisition, six raters judged the originality of ideas on a 4-point Likert scale ranging from 0 (not creative) to 3 (very creative; see also Benedek et al., 2017). Before this, all ideas for each object were pooled and sorted alphabetically so that raters could make no inferences about the originators of each idea. Raters consisted of the first author and a group of laypeople (for validities associated with laypeople’s judgments of everyday creativity see Hass et al., 2018), who received a short training before judging the ideas. In this training, raters received a written instruction (see OSF) telling them to rate an idea as very creative, if it meets two criteria: (1) the idea is novel/unusual and (2) the idea is fitting/clever/interesting/humorous/surprising. Following this, raters evaluated a small subset of ideas and discussed their assessments. For the actual assessment of originality of ideas, raters worked independently. A similar approach was successfully applied in past work (e.g., Benedek et al., 2013). For each object, we computed a max-three originality score by averaging the originality ratings for a participant’s three most highly rated ideas (according to ratings averaged across raters) to minimize confounds resulting from fluency (Benedek et al., 2016, 2017;

Smeekens & Kane, 2016). In the past, this approach resulted in satisfactory inter-rater reliabilities (between .72 and .80) and internal consistency (Cronbach's $\alpha = .71$; Benedek et al., 2016). As apparent in Table A1, the same was true in the present study.

2.2.3. Emotional abilities

We used the typical-performance emotional management test (TEMT; Freudenthaler & Neubauer, 2005) to assess inter- and intrapersonal emotional abilities (one subscale per domain). The items of this situational judgment test consist of short descriptions of emotionally-laden situations. Test-takers are instructed to choose the response alternative that best reflects their *typical behavior* in each situation from four response options. The intrapersonal emotional management subscale consists of 18 items (sample item: "You have to present your latest work project to colleagues."; sample response option: "I'm very proud and do my best to give a good presentation."). The interpersonal emotional management subscale consists of 24 items (sample item: "A good friend has recently been dumped by his girlfriend. He suffers a lot."; sample response option: "I tell him that I am there for him whenever he wants me to."). Adequacy of response alternatives was judged by ten experts in the field of emotions during test construction and can range from one to four. We used mean response adequacy per subscale for all analyses. Past studies (Freudenthaler, Neubauer, Gabler, et al., 2008; Freudenthaler, Neubauer, & Haller, 2008; Freudenthaler & Neubauer, 2005, 2007) indicated alpha coefficients around .7 and expected convergent validity with other measures of emotional abilities and relevant personality characteristics. However, based on the high heterogeneity inherent to situational judgment tests (Whetzel & McDaniel, 2009) and the low internal consistency of a similar test for young adults reported by Neubauer and colleagues (2018), we had anticipated lower alphas of between .5 and .6. We actually found internal consistencies of .65 (both scales; see Table A1). In a recent study, test-retest reliability—a likely more suitable reliability indicator for situational judgment tests (e.g., McDaniel et al., 2007)—was good for both subscales (intra: $r_{tt} = .83$; inter: $r_{tt} = .76$; Neubauer & Hofer, 2022).

2.2.4. Ability self- and other-estimates

Self-estimates of verbal, numerical, and spatial intelligence, creativity, and intra- and interpersonal emotional abilities were assessed with a six-subscale questionnaire (one subscale per domain). This measure was slightly adapted from the one Neubauer and colleagues (2018) had created for adolescents. All school-specific items were rephrased to be applicable to adults. Some items within the intra- and interpersonal emotional abilities subscales were ambiguous or had low item-total correlations and were removed or adapted to improve internal consistencies. An unpublished pilot study revealed satisfactory item and scale statistics (Cronbach's α s between .75

and .95; see OSF). Participants respond on a 5-point Likert scale ranging from (1) *not true at all* to (5) *exactly true*. Each subscale comprises nine to ten items (sample item for spatial intelligence: “I am good at finding my way in an unknown area.”). The questionnaires for other-estimates were based on the same but slightly rephrased items (e.g., “_____ is good at finding his/her way in an unknown area.”, where the survey program will replace “_____” with the target’s name). Neubauer and colleagues (2018) used a similar approach for collecting ability estimates from peers and obtained satisfactory item and scale statistics. In the present study, both, the self- and other-estimate forms of the questionnaire showed satisfactory internal consistency (for details see Table A3 in the Appendix). We used means per subscale for all statistical analyses.

In addition to the existing multi-item self- and other-estimate scales, targets and raters completed single-item normative scales. In line with past research (e.g., Furnham et al., 2001), we provided participants with a plot showing a normal distribution curve with IQ scores on the x-axis and short descriptions underneath (e.g., 70 – 85 “below average”, see OSF). A short text provided participants with further information on how the IQ is distributed within the population (e.g., that the average IQ is 100 and that around two-thirds of individuals score between 85 and 115). Participants estimated their own (targets) or their partner’s/close friend’s/acquaintance’s (raters) overall, verbal, numerical, spatial, creative, intrapersonal, and interpersonal IQs by using a slider ranging from 55 to 145. We use these scores to investigate the direction of discrepancies between estimates and performance for verbal, numerical, and spatial intelligence (RQ 4), and for descriptive and exploratory purposes for the other domains. Within the same source (i.e., self, partner, close friend, or acquaintance), the two types of estimate-measures correlated highly ($r \geq .5$) with each other in the majority of cases (91.7%; range $_r = .41-.79$; $Mdn_r = .64$; for all r see Table A9 in the Appendix).

2.2.5. Relationship closeness, liking, and knowing

For purely descriptive purposes, we assessed relationship closeness with the Inclusion of Other in the Self Scale (IOS; Aron et al., 1992) in the version applied by Gächter and colleagues (2015). This is a single-item measure consisting of seven Venn-like diagrams with each of them depicting different levels of overlap between two circles labeled “You” and “X”. Raters are asked to replace the “X” in their mind with the name of a given person—in our case the target—and to select the diagram that best describes their relationship to this person. Item scores range from 1 (circles without overlap) to 7 (circles with considerable overlap).

To have additional descriptive information about the relationships between perceivers and targets, we assessed how much perceivers liked the targets and how well they knew them, each on four items (Wessels et al., 2018; sample item for liking: “I like this person very much.”; sample item for knowing: “I know this person very well.”). Items were presented in pseudo-randomized order and

response options ranged from (1) *does not apply* to (5) *applies exactly*. For each subscale, responses were averaged across all (recoded) items. Past research found high internal consistencies (ICCs between .85 and .92; Wessels et al., 2018). In our study, internal consistencies—in this case alphas—were mostly between .61 and .85 (see Table A7 in the Appendix) but lower in the case of partners' responses regarding liking³ ($\alpha = .47$).

2.3. Procedure

The study comprised three main parts: First, targets registered, completed questionnaires, and provided their own e-mail address in an online survey. They then received a request for the names and contact details of the raters per e-mail⁴. Second, they raters completed separate online-surveys, after having received an electronic invitation to participate. Third, after all three ratings had been completed, we invited the targets to the laboratory for performance testing.

2.3.1. Online questionnaire for targets

Before starting the online questionnaire, targets read a data protection declaration and an overview of the study. The latter included the information on raters summarized in section 2.1. Targets had to give their informed consent to participate. They then reported the following demographics: gender, age, highest level of education, current occupation (including field of study for students), whether German was their mother tongue (if not: whether they spoke German on a native speaker level), and whether they were in a heterosexual relationship (if yes: the duration of that relationship in months). People who reported being outside of the age limits (18 – 45), unable to speak German on a native speaker level, or not in a heterosexual relationship for at least six months, were forwarded to a page explaining that they did not meet the inclusion criteria. All others proceeded to complete (1) the multi-item self-estimate questionnaire for abilities, and (2) the single-item self-estimate questionnaire for abilities. Afterwards, participants created a personal code. For data protection reasons, they were then forwarded to a separate survey, where they re-entered their code and provided their name and e-mail address. The main survey took most participants between around 10 and 20 minutes (*Mdn* = 13.3 min).

³ Note that the liking scale includes the item "I cannot say this person is my best friend." as a measure of low liking. We suspect that this item might be ambiguous for partners: They might very well answer it affirmatively—after all, they are talking about their partner and not their best friend—while still liking the target a lot. Notably, the removal of this item would not have improved internal consistency—presumably due to the short scale length. As we only used these data for descriptive purposes, we included all items in the composite score.

⁴ This constitutes a change to our original plan of the targets already entering all raters' contacts details at the time of registration. However, within the first weeks of registration we noticed considerable dropout at this part of the survey, which was likely due to the targets needing some time to think of suitable raters and getting their consent to share their contact details.

2.3.2. Online questionnaire for partners, friends, and acquaintances

The online questionnaires for partners, friends, and acquaintances were virtually identical. After providing their informed consent, raters were instructed to enter a code previously sent to them per e-mail (the target's code + “_P” for partner, “_F” for friends, or “_A” for acquaintances). They were then asked to enter the target's first name and gender, which the survey program used to personalize the questionnaires (i.e., replace all blanks with the target's name). Demographic questions were on gender, age, highest level of education, current occupation (including field of study for students), type of relationship to the target (partner, close friend or acquaintance), and duration of acquaintance to the target in years and months, duration of the friend-/or relationship in years and months (only for friends and partners), and—only for acquaintances—the specific type of relationship they had to the target [fellow students, flat-mates, work colleagues, knowing each other through a group activity (e.g., club/association or sports course), or other]. Raters then completed (1) the multi-item other-estimate questionnaire for abilities, (2) the single-item other-estimate questionnaire for abilities, (3) the IOS, and (4) the questionnaire on liking and knowing. This survey took most raters between around 11 and 19 minutes (*Mdn* = 14.1 min).

2.3.3. Performance testing sessions for targets

Depending on current COVID-19-related restrictions, performance testing sessions were either held in small groups or one participant at a time in a computer laboratory. In line with our university's guidelines to enable a relatively safe participation, we took several measures to avoid COVID-19 transmissions (e.g., mask-wearing by all present parties)⁵. Screens were placed between participants to avoid cheating. After a general introduction, we presented the WIT-2 subtests in the order and with the time limits suggested by the test manual (Kersting et al., 2008), with instructions before each subtest. The test—completed in its paper-pencil form—took about 75 minutes. After a five-minute break, participants completed both, the AUT and finally the TEMT, on the computers. The whole session took around 100 minutes.

3. Results

We conducted all statistical analyses in R (R Core Team, 2021). For a detailed list of packages, see our Appendix on the OSF.

3.1. Quality checks, descriptive statistics, and intercorrelations

As per our stage 1 report, we performed several quality checks before conducting statistical analyses. We specified that the reliability of all relevant measures should be within the ranges that had been reported in the past (Cronbach's alphas $\geq .7$ for the WIT subscales, AUT inter-rater

⁵ We have no reason to believe that these measures affected our results.

reliabilities and internal consistency of the max-three originality score, and ability self-/other-estimates; Cronbach's alphas $\geq .5$ for the TEMT subscales). As reported in sections 2.2.1 to 2.2.4, we found sufficient reliability evidence for all main measures (see also Tables A1 and A3 in the Appendix). In addition, we inspected all measures for floor or ceiling effects. Descriptive statistics of all main variables are available in Tables A1, A3, and A5 of the Appendix and the respective histograms can be found in Figures A1 to A5. While we found no direct evidence of floor or ceiling effects, there was notable skewness (= many high-scorers) in the TEMT intra- and interpersonal subscales. We consider this in our interpretations. The Appendix also includes intercorrelations between the different performance variables (Table A2), multi-item-estimates by the different sources (Table A4), and single-item-IQ-estimates by the different sources (Table A6), as well as descriptive statistics and intercorrelations for different relationship variables (i.e., duration of acquaintance, closeness, liking, and knowing; Table A7). In Table A8, we report standardized mean differences (Cohen's d) between the partners', friends', and acquaintances' reports on these relationship variables. The most notable differences emerged between acquaintances and the other two groups: Acquaintances reported being less close to the targets, and liking and knowing them less than friends and partners (all $ds \geq 1.15$). They also reported having known the targets for a shorter time than partners ($d = 0.35$) and friends ($d = 1.07$). While partners had known the targets for a shorter time than friends ($d = 0.86$), they reported somewhat higher closeness ($d = 0.28$). Differences in partners' and friends' reports about liking and knowing the target were negligible ($ds \leq 0.12$).

3.2. Accuracy of self-, partner-, friend-, and acquaintance-estimates of abilities (RQ 1)

We investigated RQ 1 using bivariate one-tailed Pearson correlations between self-, partner-, friend-, and acquaintance-estimates and performance per domain. Due to the skewness of some variables, we used bootstrapping and report 95% bias corrected and accelerated (BCa) confidence intervals based on 2000 iterations (Wright et al., 2011). Table 3 shows accuracy correlations for ability estimates by the different sources. In line with our expectations, self-estimates met our criterion for at least moderate accuracy (point-estimate $r \geq .2$) for numerical intelligence, creativity, and intra- and interpersonal emotional abilities. Unexpectedly, self-estimates were also moderately accurate for verbal and spatial intelligence. Partners also showed relevant accuracy in all six domains, surpassing our expectations regarding their knowledge about the targets' verbal and spatial intelligence and intrapersonal emotional abilities. As expected, friend-estimates met our accuracy criterion for verbal and numerical intelligence, creativity, and interpersonal emotional abilities. They were also unexpectedly accurate about the targets' spatial intelligence. Finally, acquaintances met our expectations in meeting the accuracy criterion for verbal and numerical intelligence. However, their estimate of the targets' creativity was less accurate than expected.

Table 3

*Accuracy Correlations for Self-, Partner-, Friend-, and Acquaintance-
Estimates of Abilities*

Domain	Self	Partner	Friend	Acquaintance
Verbal	.34 [.24, ∞]	.33 [.22, ∞]	.28 [.18, ∞]	.26 [.15, ∞]
Numerical	.57 [.49, ∞]	.44 [.34, ∞]	.42 [.32, ∞]	.30 [.21, ∞]
Spatial	.29 [.18, ∞]	.33 [.24, ∞]	.22 [.12, ∞]	.03 [-.06, ∞]
Creativity	.29 [.19, ∞]	.25 [.14, ∞]	.21 [.11, ∞]	.10 [-.01, ∞]
Intrapersonal	.35 [.26, ∞]	.21 [.12, ∞]	.14 [.03, ∞]	.15 [.04, ∞]
Interpersonal	.32 [.20, ∞]	.24 [.12, ∞]	.27 [.17, ∞]	.18 [.06, ∞]

Note. $n = 238$. Values in brackets represent 95% BCa confidence intervals based on 2000 bootstrap samples for one-sided tests ($r > 0$).

3.3. Differences in accuracy between perspectives (RQ 2)

To answer RQ 2 regarding potential differences in accuracy between the different sources, we compared the strength of the accuracy correlations shown in Table 3. In line with our preregistration, we determined for which domains (1) accuracy correlations differed by at least .15 (see also Vazire, 2010) and (2) 95% confidence intervals around correlational differences (Zou, 2007) did not include zero (i.e., accuracy differed significantly). As we show in Table 4, these two criteria for relevant differences in accuracy mostly concurred with each other. For verbal intelligence, the different sources did not show relevant differences in accuracy. Thus, our expectations that friends and acquaintances would be more accurate than targets and partners were not met. Conversely, we had not expected any differences in accuracy for estimates of numerical intelligence, spatial intelligence, and creativity, but found some differences between perspectives: For numerical intelligence, self-estimates were significantly more accurate than all types of other-estimates (with only the difference to acquaintance-estimates surpassing .15). Moreover, partner-estimates of numerical intelligence were significantly more accurate than acquaintance-estimates (with an r_{diff} just below .15). Acquaintances were also less accurate than any other source about the targets' spatial intelligence and less accurate than targets themselves and their partners about the targets' creativity. We had

expected targets to have more knowledge about their own intrapersonal abilities than any of their raters had. This was indeed the case, although the difference to partners' accuracy was slightly below .15. Finally, our expectation that acquaintances would know less about the targets' interpersonal emotional abilities than the other sources was not confirmed.

Table 4

Differences in Accuracy Correlations for Self-, Partner-, Friend-, and Acquaintance-Estimates of Abilities

Domain	SE vs. PE	SE vs. FE	SE vs. AE	PE vs. FE	PE vs. AE	FE vs. AE
Verbal	.01 [-.10, .12]	.05 [-.08, .18]	.07 [-.07, .21]	.04 [-.09, .18]	.06 [-.07, .20]	.02 [-.11, .15]
Numerical	.13* [.04, .22]	.14* [.04, .25]	.27*+ [.14, .39]	.01 [-.09, .12]	.14* [.01, .27]	.12 [-.01, .26]
Spatial	-.04 [-.16, .07]	.07 [-.07, .22]	.26*+ [.09, .42]	.12 [-.04, .27]	.30*+ [.14, .46]	.18*+ [.02, .34]
Creativity	.04 [-.09, .17]	.08 [-.05, .21]	.19*+ [.04, .34]	.04 [-.09, .17]	.15*+ [.00, .29]	.11 [-.04, .26]
Intrapersonal	.14* [.01, .27]	.21*+ [.05, .37]	.21*+ [.05, .36]	.07 [-.09, .23]	.07 [-.09, .23]	.00 [-.16, .15]
Interpersonal	.08 [-.05, .21]	.04 [-.09, .18]	.14 [-.01, .29]	-.03 [-.18, .11]	.06 [-.09, .21]	.09 [-.05, .23]

Note. $n = 238$. Values represent differences in the accuracy correlations (r_{diff}) of the respective sources (SE = Self-Estimate. PE = Partner-Estimate. FE = Friend-Estimate. AE = Acquaintance-Estimate), with brackets containing 95% confidence intervals as suggested by Zou (2007), implemented via the R-package *cocor* [Version 1.1.3; Diedenhofen and Musch (2015)].

+ = $r_{\text{diff}} \geq .15$. * = statistically significant r_{diff} (95% CI does not include zero).

3.4. Unique validity of each perspective and variance explained by all perspectives combined (RQ 3)

We investigated our third research question with one multiple linear regression per domain with self-, partner-, friend-, and acquaintance-estimates as predictors and performance as outcome. To counter violations of assumptions, we used bootstrapping for regression parameters (2000 iterations) and report 95% BCa confidence intervals. Table 5 shows the results of these six multiple regressions. Self-estimates made significant unique contributions to the prediction of measured verbal and numerical intelligence, creativity, and intra- and interpersonal abilities. Partner-estimates could predict measured verbal and spatial intelligence. Friend-estimates predicted measured spatial intelligence. Finally, acquaintance-estimates made no significant unique contribution to any of the models. For most domains, estimates by the different sources could conjointly explain between 11% and 17% of variance in measured abilities (Verbal: $R^2 = .17$, 90% CI [0.09, 0.23], $F(4,233) = 11.73$, $p < .001$; Spatial: $R^2 = .15$, 90% CI [0.08, 0.22], $F(4,233) = 10.42$, $p < .001$; Creativity: $R^2 = .11$, 90% CI [0.04,

0.16], $F(4,233) = 7.07$, $p < .001$; Intrapersonal: $R^2 = .14$, 90% CI [0.07, 0.21], $F(4,233) = 9.73$, $p < .001$; Interpersonal: $R^2 = .14$, 90% CI [0.06, 0.20], $F(4,233) = 9.30$, $p < .001$). Notably, the amount of explained variance was considerably higher for numerical intelligence ($R^2 = .35$, 90% CI [0.26, 0.42], $F(4,233) = 31.00$, $p < .001$).

Table 5*Unique Predictive Validities of Self-, Partner-, Friend-, and Acquaintance-Estimates of Abilities*

Predictor	Verbal		Numerical		Spatial		Creativity		Intrapersonal		Interpersonal	
	<i>b</i>	β	<i>b</i>	β	<i>b</i>	β	<i>b</i>	β	<i>b</i>	β	<i>b</i>	β
(Intercept)	75.81*		72.25*		75.85*		0.87*		2.16*		2.32*	
	[62.93, 88.03]		[62.34, 80.78]		[63.85, 88.34]		[0.59, 1.15]		[1.80, 2.52]		[1.93, 2.66]	
Self	2.78*	.17	5.53*	.43	2.27	.13	0.08*	.20	0.18*	.31	0.10*	.21
	[0.50, 5.17]		[3.78, 7.39]		[-0.28, 4.78]		[0.02, 0.13]		[0.11, 0.24]		[0.03, 0.19]	
Partner	2.40*	.16	0.65	.05	4.32*	.25	0.05	.13	0.03	.07	0.04	.09
	[0.16, 4.61]		[-1.38, 2.76]		[2.11, 6.64]		[-0.00, 0.11]		[-0.02, 0.09]		[-0.02, 0.09]	
Friend	2.01	.12	1.95	.13	2.96*	.15	0.03	.07	0.03	.07	0.06	.14
	[-0.35, 4.54]		[-0.20, 3.97]		[0.39, 5.49]		[-0.02, 0.08]		[-0.04, 0.12]		[-0.00, 0.13]	
Acquaintance	1.87	.10	1.46	.08	-0.79	-.04	0.00	-.01	0.04	.08	0.02	.06
	[-0.95, 4.45]		[-0.40, 3.45]		[-3.25, 1.38]		[-0.06, 0.05]		[-0.03, 0.11]		[-0.03, 0.09]	

Note. Values in brackets represent 95% BCa confidence intervals based on 2000 bootstrap samples.

* indicates $p < .05$ (i.e., *b*'s 95% CI does not include zero)

3.5. The direction of misestimation (RQ 4)

We analyzed RQ 4 in two steps. First, we computed paired t-tests to test for significant differences between estimates (in this case single-item IQ-estimates) by each source and performance. We did this for verbal, numerical, and spatial intelligence, resulting in a total of twelve (3 domains x 4 sources) t-tests, which is why we performed a Bonferroni correction ($\alpha = .05/12 = .004$). We had expected that both the targets and their partners would overestimate the targets' IQs and had no specific expectations for friends or acquaintances. Our results (Table 6) indicated that only four of the twelve IQ-estimates deviated significantly from the targets' measured IQ. What is more, three of these cases pertained to targets not over- but actually underestimating their own IQs. These underestimation effects roughly corresponded to small effects (Cohen, 1992). Only friend-estimates of verbal intelligence constituted a significant overestimation, with the effect size falling below what would be considered a small effect.

Table 6

Mean Differences between Measured Intelligence Quotients and Self-, Partner-, Friend-, and Acquaintance-Estimates of Intelligence Quotients

Domain	Performance		Estimate			Estimate - Performance			
	<i>M</i>	<i>SD</i>	Source	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>	95% <i>CI_d</i>
Verbal	110.72	9.98	Self	107.08	11.74	-4.57	< .001*	-0.30	[-0.43, -0.17]
			Partner	112.03	12.27	1.49	.137	0.10	[-0.03, 0.22]
			Friend	113.42	11.64	2.98	.003*	0.19	[0.06, 0.32]
			Acquaintance	112.39	9.89	1.93	.055	0.12	[0.00, 0.25]
Numerical	104.07	12.55	Self	100.66	13.93	-4.09	< .001*	-0.26	[-0.39, -0.14]
			Partner	106.20	12.24	2.67	.008	0.17	[0.04, 0.30]
			Friend	105.87	13.26	2.01	.046	0.13	[0.00, 0.26]
			Acquaintance	106.48	10.06	2.76	.006	0.18	[0.05, 0.31]
Spatial	105.78	13.79	Self	100.50	12.14	-5.84	< .001*	-0.38	[-0.51, -0.25]
			Partner	105.12	10.30	-0.70	.482	-0.05	[-0.17, 0.08]
			Friend	105.71	11.60	-0.07	.944	0.00	[-0.13, 0.12]
			Acquaintance	106.03	9.37	0.23	.815	0.02	[-0.11, 0.14]

Note. * indicates significance at the Bonferroni-corrected α -level ($.05/12 = .004$).

Next, we investigated differences in misestimations based on the domain (verbal, numerical, spatial) and source of estimates (self, friend, partner, acquaintance) in a 2-way repeated-measures ANOVA with misestimation (estimate – performance) as dependent variable. As the assumption of sphericity was violated for the interaction effect, we used a multivariate approach. Both, the main effect of source ($V = .28$, $F(3, 235) = 29.92$, $p < .001$) and the main effect of domain ($V = .03$, $F(2, 236) = 3.88$, $p = .022$) were significant, while the interaction was not ($V = .02$, $F(6, 232) = 0.80$, $p = .572$). As

a follow-up, we computed Bonferroni-corrected pairwise comparisons between sources (estimated marginal means across domains) and domains (estimated marginal means across sources). Panel A of Figure 2 shows that the difference between self-estimates and measured intelligence was significantly more negative (= higher underestimation) than for any of the other sources (all $p < .001$, all $d \geq 0.5$; all other $p > .999$, all other $d \leq .05$; for detailed statistics see Table B1 in the Appendix). Panel B of Figure 2 shows that people's misestimations were more negative regarding the targets' spatial as compared to their numerical intelligence ($p = .031$, $d = 0.17$). A similar pattern emerged for spatial compared to verbal intelligence but did not reach significance ($p = .084$, $d = 0.14$). The difference between misestimations in the verbal and numerical domain was negligible ($p > .999$, $d = 0.02$).

Figure 2

Beeswarm plots showing misestimation per source (A) and domain (B).

Note. Colorful dots represent participant-level data; black dots with error bars represent means with 95% within-subject confidence intervals, calculated using the Cosineau-Morey-O'Brien (Cosineau & O'Brien, 2014) method.

4. Discussion

“Who knows what about a person’s abilities?” is the question that we aimed to answer in this registered report, inspired by Vazire’s (2010) Self-Other Knowledge Asymmetry model. Knowledge of one’s abilities might not only be important when making life-decisions (Ackerman & Wolman, 2007; Neubauer et al., 2018) but also in clinical contexts (e.g., when it comes to memory decline; Buelow et al., 2014). Others sometimes know more about a person’s abilities than the person themselves (Buelow et al., 2014; Neubauer et al., 2018). But the accuracy of other-estimates might also depend on whom you ask, be it due to differences in the level of acquaintance (Paunonen, 1989), interpersonal intimacy (Connelly & Ones, 2010), or liking/knowing (Wessels et al., 2018) between informant and target. Partners share a relationship with the target that is likely high on all of these characteristics and might, therefore, share some of the self’s biases (e.g., Gignac & Zajenkowski, 2019; Vazire, 2010). We investigated what the self and different informants knew about various abilities of a person. As informants, we relied on two sources that people likely consult before important life decisions—romantic partners and close friends—and a source that is considerably less close to people—acquaintances. We found asymmetries—but also similarities—in what the self, romantic partners, close friends, and acquaintances know about a person’s abilities. Moreover, we found no evidence that partners’ estimates were particularly inaccurate. We also investigated to what extent the self and informants over- or underestimated the target’s ‘true’ (i.e., psychometrically measured) abilities. To our surprise, people did not overestimate but rather underestimate themselves, while others’ estimates deviated only little from the targets’ measured abilities.

4.1. Validity of self-, partner-, friend-, and acquaintance-estimates of abilities

In Figure 3, we show the location of each ability in the Johari window (Luft & Ingham, 1955)/SOKA model (Vazire, 2010), based on self-knowledge as compared to partner- (Panel A), friend- (Panel B), and acquaintance-knowledge (Panel C). Overall, our predictions regarding accuracy (Figure 1) were met for many domains but there were also some deviations. Self-estimates were at least moderately accurate in all six domains, meaning that no abilities (instead of the expected verbal and spatial intelligence) were located in the blind spot. As the same was also true for partner-estimates (i.e., they unexpectedly also met our accuracy criterion for intrapersonal, verbal, and spatial abilities), no ability was located in the hidden area or—combined with self-estimates—in the unknown area. Friend-estimates were at least moderately accurate in five domains (unexpectedly including spatial intelligence); only the targets’ intrapersonal abilities were therefore hidden from friends. As expected, acquaintance-estimates were at least moderately accurate for verbal and numerical intelligence. Only about the targets’ creativity were acquaintances less accurate than anticipated, putting this domain—together with spatial intelligence and the two emotional abilities—in the hidden area.

Figure 3

Placement of abilities in the Johari window (Luft & Ingham, 1955)/self-other knowledge asymmetry model (Vazire, 2010) with other-estimates by romantic partners (A), friends (B), and acquaintances (C).

Note. Intra = intrapersonal abilities. Inter = interpersonal abilities. For self- or other-knowledge of any domain to be classified as 'high', the respective estimate*performance correlation must be at least .2. A position farther left on the x-axis indicates more accurate self-estimates; a higher position on the y-axis indicates more accurate other-estimates. $N = 238$.

People possessed more insight into their verbal and spatial abilities than we had anticipated. In that, the self's accuracy was somewhat higher than some previous research reported for both verbal (e.g., Hofer, Langmann, et al., 2021; Neubauer et al., 2018; Proyer & Ruch, 2009; Steinmayr & Spinath, 2009) and spatial intelligence (e.g., Furnham et al., 2001; Hofer, Langmann, et al., 2021; Proyer & Ruch, 2009; Visser et al., 2008). Of note, there are also some studies that found accuracy correlations of around .2 to .3 for self-estimates in these domains or subfacets of them (e.g., Neubauer & Hofer, 2021; Rammstedt & Rammsayer, 2002). One potential source of variance between these studies might be different operationalizations of the two intelligence facets. As an example, Rammstedt and Rammsayer reported an accuracy correlation of around .4 for verbal comprehension but one below .1 for verbal fluency. In Table B2 of the Appendix, we report accuracy correlations for this study's different intelligence subtests. It shows that, within domains, accuracy indeed varied a bit between subtest. This might suggest that people could have a quite accurate sense of their standing on some aspects of a given ability but might struggle more when assessing other aspects. Future research investigating the accuracy of self-estimates of different aspects of abilities might, therefore, be beneficial.

Only for numerical intelligence, people's estimates of their own abilities could be considered highly accurate. The consistently higher accuracy in the numerical domain as compared to the other two intelligence facets also is what seems to unite the literature that assessed self-estimates in all three facets (Furnham et al., 2001; Hofer, Langmann, et al., 2021; Hofer, Mraulak, et al., in press; Neubauer et al., 2018; Neubauer & Hofer, 2021; Proyer & Ruch, 2009; Rammstedt & Rammsayer, 2002; Steinmayr & Spinath, 2009; Visser et al., 2008). The relatively lower self-insight in verbal and spatial intelligence implies that people might particularly benefit from others'—hopefully accurate—feedback in these areas. This aligns with our results from multiple regressions: In four out of six domains, the self was the only source whose estimates could explain unique variance in measured abilities. However, both, estimates by the self and partners, could predict measured verbal intelligence. And only other-estimates (by partners and friends) explained unique variance in spatial intelligence. Similarly, in a recent study that compared self-estimates to those of knowledgeable informants (mostly friends) and strangers, informants were the only ones with unique insight into the targets' verbal intelligence and strangers were the only source with unique insight in the spatial domain (Hofer, Langmann, et al., 2021). Why people are better in judging their own numerical as compared to their verbal and spatial intelligence is still an open question. Based on the SOKA model, one could suspect that numerical intelligence was less evaluative than the other intelligence facets. However, initial data do not support this (Hofer, Langmann, et al., 2021). Other potential accounts include higher task familiarity and more feedback—both aspects that have been associated with accuracy (Bollich et al., 2011; Zell & Krizan, 2014)—due to the similarities between items of

numerical intelligence tests and math problems encountered during schooling (see also Hofer, Langmann, et al., 2021).

Even though people knew more about some of their abilities than we had predicted, one should bear in mind that all but one of the accuracy correlations for self-estimates were at around .3. While this is well in line with meta-analytical findings (Freund & Kasten, 2012; Zell & Krizan, 2014), it still appears somewhat puzzling, particularly when considering that intelligence scores were found to correlate at up to .6 with external criteria (e.g., Schmidt & Hunter, 2004). One might think that self-reports ostensibly tapping into the same construct as performance tests (i.e., abilities in a certain area) would also show higher validity. Instead, some research showed that self-estimates of abilities correlate more highly with self-reported personality traits than with performance in relevant ability tests (Herreen & Zajac, 2018; Neubauer & Hofer, 2021). Thus, even though people themselves were the perspective with the most insight across most domains, self-estimates cannot be a replacement for more objective performance tests, be it in research or in applied settings (see also, Ackerman & Wolman, 2007; Freund & Kasten, 2012).

Romantic partners were also at least moderately accurate judges of their better half's abilities. Not a single domain fell into partners' hidden area. There was also no domain where estimates by partners were outperformed by those of close friends or acquaintances. Thus, our prediction that partners would share the self's biases was not met—indeed, neither perspective seems to have had particular biases compared to close friends or acquaintances. Partners were also able to provide at least moderately accurate estimates of the targets' intrapersonal abilities—an area that was not judged with relevant accuracy by any other type of informant in the present study or in the past (Hofer, Langmann, et al., 2021; Neubauer et al., 2018). Indeed, when considering our .15 criterion, partners were the only source not showing any relevant accuracy disadvantage compared to the self. A similarity of self- and partner-estimates also becomes apparent in their intercorrelations (see Table A4 in the Appendix). Correspondingly, the meta-analysis by Connelly and Ones (2010) showed that, out of many different types of informants, partners' estimates showed the highest correlations to those of targets themselves. Despite all these similarities, our regression results suggest that in some domains—in the present case, verbal and spatial intelligence—partners can provide relevant insights in addition to or instead of the self. All in all, it appears that the increased interpersonal intimacy between partners and targets—as compared to other informants—might not necessarily be detrimental when it comes to accuracy (see also Connelly & Ones, 2010).

Close friends could also provide valuable insights into a person's abilities. In the present study, the only domain that was completely hidden from friends were intrapersonal emotional abilities. Here, friends' lack of insight corresponds well to our expectations as well as past research on peers (Neubauer et al., 2018) and recent one on friends (Hofer, Langmann, et al., 2021). What neither

matched our expectations nor past research (Hofer, Langmann, et al., 2021; Neubauer et al., 2018) was that friends were able to judge the targets' spatial intelligence with moderate accuracy (although the effect size was just slightly above .2). Apart from present or past sampling error, one potential reason for the higher accuracy estimate in our study lies in the fact that we measured spatial intelligence across two tests—instead of only one (Hofer, Langmann, et al., 2021; Neubauer et al., 2018)—and could, therefore, benefit from a likely more reliable accuracy criterion (Epstein, 1983). From a less technical point of view, this means that we have captured more aspects of spatial intelligence (and the other two intelligence facets). Of course, the same reasoning also applies to intelligence estimates by all sources and on all three facets (including the self's and partners' unexpectedly accurate estimates in the verbal and spatial domain). Table B2 of the Appendix shows that, in many cases, aggregated IQ measures were indeed associated with slightly higher accuracy than each of the underlying subtests. Overall, consulting one's close friend about one's abilities could lead to moderately accurate responses, at least when the domain of interest is not intrapersonal emotional management.

Compared to all other perspectives, acquaintances knew relatively little about what people were good at—which is quite likely the least surprising of all our results. Four out of six abilities—all but numerical and verbal intelligence—were hidden from acquaintances. This means that for all domains but creativity, acquaintances were similarly accurate as classmates were in the past (Neubauer et al., 2018). Acquaintances' unexpectedly inaccurate estimates of the targets' creativity were closer to what was reported for strangers (Hofer, Langmann, et al., 2021; Vazire, 2010). Conversely, unlike the present study's acquaintances and classmates in the earlier study (Neubauer et al., 2018), strangers were also unable to assess people's verbal and numerical intelligence but showed at least moderate accuracy for spatial intelligence (Hofer, Langmann, et al., 2021). Thus, different types of low-acquaintance perceivers might face different struggles when having to assess a person's abilities, questioning whether a domain's observability would be sufficient to explain what these groups can and cannot assess accurately (cf. Vazire, 2010). Alternatively, there could be differences in the availability of relevant ability-related cues (e.g., Borkenau & Liebler, 1995; Funder, 1995). As an example, classmates might be able to observe many creativity-related cues at school, while this might be harder in other low-acquaintance contexts. Notably, in the present study, the contexts, in which acquaintances and targets predominately interacted with each other, varied. It is, therefore, also possible, that specific subgroups falling in this domain (e.g., work colleagues vs. roommates) would differ in what abilities they can perceive accurately. However, to test this adequately, an even larger sample of different types of acquaintances would be necessary. Based on our broad group of acquaintances, we conclude that they can contribute only little towards shedding light on a person's abilities.

4.2. A self-other knowledge asymmetry model for abilities?

Our findings contribute to a growing body of literature reporting asymmetries in what the self and others know about various characteristics of a person—including Big 5 personality traits (Beer & Vazire, 2017; Vazire, 2010), personality disorders (Carlson et al., 2013), moral behaviors (Thielmann et al., 2017), social status (Liu et al., 2021), and abilities (Hofer, Langmann, et al., 2021; Neubauer et al., 2018). Notably, we found only few self-other knowledge asymmetries when other-estimates stemmed from well-acquainted others. Even though the overall accuracy of self-estimates—with the exception of numerical intelligence—was only moderate, there also was not a single domain that fell into the self's blind spot. Together with past work (Hofer, Langmann, et al., 2021; Neubauer et al., 2018), these findings question to what extent the placement of intellect in the blind spot in Vazire's (2010) original study is generalizable. In contrast to Vazire's (2010) and our assumptions, partners' potentially increased emotional investment did not make them particularly biased compared to friends (or acquaintances). Instead, partners—despite their higher closeness to the targets—showed insights into more of the targets' abilities than the other two types of informants. Although we did not assess evaluativeness in our study, our findings bring into question whether relationship differences in closeness/emotional investment and their interaction with evaluativeness are sufficient to explain what close friends and partners know about a person's abilities.

While the present study investigated self-other knowledge asymmetries (i.e., differences in self- and other-knowledge), it is important to note that we did not put the SOKA model's (Vazire, 2010) main predictions regarding observability and evaluativeness to a direct test. We are, therefore, unable to make any claims about how a given ability's position relates to its observability or evaluativeness. First, very tentative, data on the observability and evaluativeness/self-worth relevance of different abilities from a recent study suggest that these two attributes might not necessarily be sufficient to explain differences in self- and other-knowledge (Hofer, Langmann, et al., 2021). What is more, while the data collection for the current project was ongoing, Vazire herself published a loss-of-confidence statement about her 2010 paper on the SOKA model (Rohrer et al., 2021). In this statement, she admitted to having "(...) cherry-picked the results that made the contrast between self-accuracy and peer accuracy the most striking and that fit with the story about evaluativeness and observability" (Rohrer et al., 2021, p. 7). Notably, evaluativeness and observability form part of many models about person perception (e.g., Anusic et al., 2009; Connelly & Ones, 2010; Funder, 1995; John & Robins, 1993; Leising et al., 2015; Paunonen, 1989). While the relevance of these two characteristics for self-other knowledge asymmetries might have been overestimated in Vazire's (2010) original work, their importance for accuracy should certainly not be disregarded altogether. However, it appears plausible that binary judgments of traits/domains as either high or low in observability or evaluativeness and corresponding predictions regarding self-

and other-knowledge might be too reductionistic. Comprehensive models, allowing for variation in what is evaluative to a person or observable to others in given situations, might be more promising avenues towards predicting accuracy (for an example of a similarly comprehensive modeling approach see Leising et al., 2015).

4.3. Misestimation (or lack thereof)

Contrary to our expectations, estimates of one's own and one's partner's cognitive abilities might not necessarily be overly positive: People actually underestimated their own verbal, numerical, intelligence to a small degree and, while informants showed some slight tendencies of overestimating the target, these only reached significance for close friends' estimates of verbal intelligence. These results are somewhat different from earlier research showing that men—but not women—were overly positive about their own IQ (Reilly & Mulhern, 1995) and stand in stark contrast to a more recent study showing that men's and women's IQs were overestimated—by as much as 30 points—by people themselves and their partners (Gignac & Zajenkowski, 2019). Importantly, the latter study worked with a sample from the general population that might have been less highly-educated than our participants. In highly educated samples, estimating one's intelligence as above average often does not constitute an overestimation but a rather accurate assessment (Heck et al., 2018; Visser et al., 2008). In line with this, our findings for self-estimates correspond more closely to two studies that recruited mostly college students and reported only negligible misestimation or slight underestimation across different cognitive abilities (Ackerman & Wolman, 2007; Hofer, Mraulak, et al., in press).

Overall, it seems plausible that the large overestimation effects reported by Gignac and Zajenkowski (2019) might have been overestimated in and of themselves. The authors did not measure IQ-estimates on a labelled IQ-scale, like we did, but used a 25-point Likert-like scale from “very low” to “very high” and then transformed responses to IQ-estimates on a scale from 40 to 160, thus including extremes only very few people can be expected to reach. It would be interesting to see whether this had inflated IQ-estimates. The authors also deducted 6 points from participants' measured IQs to correct for potential IQ-gains due to the Flynn effect between the creation of their IQ-test's norms and their study. As the Flynn effect has declined in recent years (Pietschnig & Voracek, 2015), this might have been too conservative, leading to an underestimation of people's true IQs by the authors and, in that, more potential for overestimation by participants and their partners.

What our results also showed is that, between targets, there is quite some variability in the strength and direction of misestimation—which is also well in line with the far-from-perfect correlations between estimated and measured abilities: If everybody were to overestimate themselves (or be overestimated by their partners) to the same degree, there would still be high

rank-order validity and—in that—correlational accuracy (see Vazire, 2010). All of this leads us to conclude that it is likely too early to make strong claims about whether there are any generalizable tendencies towards over- or underestimation by the different sources or how large these effects might be. Instead, it will remain important to investigate potential misestimation effects in addition to purely correlational accuracy (Dunning & Helzer, 2014; Schraw, 2009).

4.4. Strengths and limitations

In the present study, we compared self-estimates to estimates by several groups of informants across a multitude of domains. The comparison between partners and friends was not only interesting from a theoretical point of view but also has real-life relevance, as these are two sources that people might reasonably consult when making important life-decisions. Adding acquaintances⁶ to the picture allowed us additional insights into the limits of other-estimates and the relevance of different aspects of the target-perceiver relationship for accuracy. To our knowledge, this is the first registered report on self-other knowledge asymmetries. This line of work involves a large number of researchers' degrees of freedom (e.g., the operationalization of accuracy or the choice of accuracy criteria). For this reason—and in light of Vazire's recent loss-of-confidence statement (Rohrer et al., 2021)—we view the preregistration and peer-review of our study plan as particularly important. However, the many strengths of our study are also accompanied by limitations.

First, our final sample was slightly smaller than preregistered due to unanticipated problems with recruitment and data collection. Data collection was not only slowed considerably by the COVID-19 pandemic but also by the (reported) reluctance of many potential participants to involve so many different informants. While we do not believe that our slightly smaller sample had a strong impact on the robustness of our results, the difficult recruitment process does suggest a potential self-selection bias in terms of one's willingness to involve others when participating in a study. It would be interesting to see how our sample—or those from similar studies involving multiple informants—compared to the general public in variables like agreeableness or social connectedness. As we do not have these data, it is yet unclear to what extent our findings generalize to other populations. Second, many targets reported that they found it particularly hard to think of a person that matched our definition of an acquaintance—particularly during a pandemic that complicated getting to know new people. This is also mirrored in the large number of target-appointed acquaintances viewing the same relationships as friendships. Notably, acquaintances reported considerable shorter acquaintance duration, closeness, liking, and knowing than close friends (all $d >$

⁶ Initially, we had not planned on including a third source for other-estimates. This idea arose through the fruitful discussion with one reviewer and the editor during the peer-review process for our stage one manuscript. The insights that we have gained from this are a good demonstration of how the registered report format can benefit research.

1), which is why we still think that the targets' nominations were valid. Given the breadth of relationship types we subsumed under acquaintances, it is nevertheless unclear how generalizable our results are to very specific types of acquaintances (e.g., work colleagues). Third, our sample of targets consisted of people in heterosexual long-term relationships. For this reason, we cannot generalize our results to singles or people in other, less heteronormative, relationship forms. Fourth, our conclusions are based on a highly educated sample and might not necessarily be generalizable beyond that. As there is some indication that people with high abilities possess higher self-knowledge about the very same abilities (i.e., the so-called Dunning-Kruger effect; Kruger & Dunning, 1999), the slightly above-average cognitive abilities of our sample might have also equipped participants with above-average self-insight. Notably, recent work suggests that the Dunning-Kruger effect might be less robust than earlier studies suggested (e.g., Gignac & Zajenkowski, 2020; Hofer, Mraulak, et al., in press). Finally, many participants scored relatively high on our criterion measures for intra- and interpersonal emotional abilities. This issue is not unique to our sample (see e.g., Neubauer & Hofer, 2022) but might have limited the potential strength of accuracy correlations. Of note, the only study that we know of that investigated self- and other-knowledge of a person's emotional abilities with other criterion measures did not find higher but actually mostly lower accuracy correlations (Elfenbein et al., 2015).

4.5. Conclusion

When we ask different people in our social surrounding questions like our initially posed "How am I doing?" or "What am I good at?", we likely get responses of varying accuracy. This study's results suggest that people we are very well-acquainted with—like our closest friends or our partners—can provide at least moderately accurate assessments of a variety of our cognitive and non-cognitive abilities. Both types of sources might also be able to provide us with information about our abilities that we ourselves have no access to. In that, our partners also do not appear to idealize our abilities—at least not more than our close friends or acquaintances. Indeed, people who we have just met or who we only interact with in very specific contexts—like at work or at university—are likely less accurate in their perceptions of our abilities. Our own knowledge of our abilities can be considered moderate across many areas and even high in the domain of numerical intelligence. Despite all that, the associations between our own and different types of others' perceptions of our abilities and our actual standing on the same abilities are far from perfect. Thus, when we really want to know how well we are doing in a domain, our best option likely remains to take psychometrically sound performance tests (see also Neubauer et al., 2018; Neubauer & Hofer, 2021).

5. References

- Ackerman, P. L., & Wolman, S. D. (2007). Determinants and validity of self-estimates of abilities and self-concept measures. *Journal of Experimental Psychology: Applied*, 13(2), 57–78.
<https://doi.org/10.1037/1076-898X.13.2.57>
- Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. In M. D. Alicke, D. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (pp. 85–106). Psychology Press.
- Anusic, I., Schimmack, U., Pinkus, R. T., & Lockwood, P. (2009). The nature and structure of correlations among Big Five ratings: The halo-alpha-beta model. *Journal of Personality and Social Psychology*, 97(6), 1142–1156. <https://doi.org/10.1037/a0017159>
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63(4), 596–612.
<https://doi.org/10.1037/0022-3514.63.4.596>
- Aron, A., Aron, E., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology*, 60(2), 241–253. <https://doi.org/10.1037/0022-3514.60.2.241>
- Austin, E. J. (2010). Measurement of ability emotional intelligence: Results for two new tests. *British Journal of Psychology*, 101(3), 563–578. <https://doi.org/10.1348/000712609X474370>
- Beer, A., & Vazire, S. (2017). Evaluating the predictive validity of personality trait judgments using a naturalistic behavioral criterion: A preliminary test of the self-other knowledge asymmetry model. *Journal of Research in Personality*, 70, 107–121.
<https://doi.org/10.1016/j.jrp.2017.06.004>
- Benedek, M., Mühlmann, C., Jauk, E., & Neubauer, A. C. (2013). Assessment of divergent thinking by means of the subjective top-scoring method: Effects of the number of top-ideas and time-on-task on reliability and validity. *Psychology of Aesthetics, Creativity, and the Arts*, 7(4), 341–349. <https://doi.org/10.1037/a0033644>

Benedek, M., Nordtvedt, N., Jauk, E., Koschmieder, C., Pretsch, J., Krammer, G., & Neubauer, A. C.

(2016). Assessment of creativity evaluation skills: A psychometric investigation in prospective teachers. *Thinking Skills and Creativity*, 21, 75–84. <https://doi.org/10.1016/j.tsc.2016.05.007>

Benedek, M., Panzierer, L., Jauk, E., & Neubauer, A. C. (2017). Creativity on tap? Effects of alcohol intoxication on creative cognition. *Consciousness and Cognition*, 56, 128–134.

<https://doi.org/10.1016/j.concog.2017.06.020>

Bollich, K. L., Johannet, P. M., & Vazire, S. (2011). In search of our true selves: Feedback as a path to self-knowledge. *Frontiers in Psychology*, 2(NOV), 1–6.

<https://doi.org/10.3389/fpsyg.2011.00312>

Borkenau, P., & Liebler, A. (1993). Convergence of stranger ratings of personality and intelligence with self-ratings, partner ratings, and measured intelligence. *Journal of Personality and Social Psychology*, 65(3), 546–553. <https://doi.org/10.1037/0022-3514.65.3.546>

Borkenau, P., & Liebler, A. (1995). Observable attributes as manifestations and cues of personality and intelligence. *Journal of Personality*, 63(1), 1–25. <https://doi.org/10.1111/1467-6494.ep9504261446>

Borkenau, P., Mauer, N., Riemann, R., Spinath, F. M., & Angleitner, A. (2004). Thin slices of behavior as cues of personality and intelligence. *Journal of Personality and Social Psychology*, 86(4), 599–614. <https://doi.org/10.1037/0022-3514.86.4.599>

Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology*, 91(4), 780–795.

<https://doi.org/10.1037/0022-3514.91.4.780>

Buelow, M. T., Tremont, G., Frakey, L. L., Grace, J., & Ott, B. R. (2014). Utility of the cognitive difficulties scale and association with objective test performance. *American Journal of Alzheimer's Disease & Other Dementias*®, 29(8), 755–761.

<https://doi.org/10.1177/1533317514539032>

- Burmester, B., Leathem, J., & Merrick, P. (2016). Subjective cognitive complaints and objective cognitive function in aging: A systematic review and meta-analysis of recent cross-sectional findings. *Neuropsychology Review*, 26(4), 376–393. <https://doi.org/10.1007/s11065-016-9332-2>
- Carlson, E. N., Vazire, S., & Oltmanns, T. F. (2013). Self-other knowledge asymmetries in personality pathology. *Journal of Personality*, 81(2), 155–170. <https://doi.org/10.1111/j.1467-6494.2012.00794.x>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Connelly, B. S., & Ones, D. S. (2010). An other perspective on personality: Meta-analytic integration of observers' accuracy and predictive validity. *Psychological Bulletin*, 136(6), 1092–1122. <https://doi.org/10.1037/a0021212>
- Cousineau, D., & O'Brien, F. (2014). Error bars in within-subject designs: A comment on Baguley (2012). *Behavior Research Methods*, 46(4), 1149–1151. <https://doi.org/10.3758/s13428-013-0441-z>
- Denissen, J. J. A., Schönbrodt, F. D., van Zalk, M., Meeus, W. H. J., & van Aken, M. A. G. (2011). Antecedents and consequences of peer-rated intelligence. *European Journal of Personality*, 25(2), 108–119. <https://doi.org/10.1002/per.799>
- Diedrich, J., Jauk, E., Silvia, P. J., Gredlein, J. M., Neubauer, A. C., & Benedek, M. (2018). Assessment of real-life creativity: The Inventory of Creative Activities and Achievements (ICAA). *Psychology of Aesthetics, Creativity, and the Arts*, 12, 304–316. <https://doi.org/10.1037/aca0000137>
- Dunning, D., & Helzer, E. G. (2014). Beyond the correlation coefficient in studies of self-assessment accuracy: Commentary on Zell & Krizan (2014). *Perspectives on Psychological Science*, 9(2), 126–130. <https://doi.org/10.1177/1745691614521244>

- Dunning, D., Meyerowitz, J. A., & Holzberg, A. D. (1989). Ambiguity and self-evaluation: The role of idiosyncratic trait definitions in self-serving assessments of ability. *Journal of Personality and Social Psychology*, 57(6), 1082–1090. <https://doi.org/10.1037/0022-3514.57.6.1082>
- Elfenbein, H. A., Barsade, S. G., & Eisenkraft, N. (2015). The social perception of emotional abilities: Expanding what we know about observer ratings of emotional intelligence. *Emotion*, 15, 17–34. <https://doi.org/10.1037/a0038436>
- Epstein, S. (1983). Aggregation and beyond: Some basic issues on the prediction of behavior. *Journal of Personality*, 51(3), 360–392. <https://doi.org/10.1111/j.1467-6494.1983.tb00338.x>
- Freudenthaler, H. H., & Neubauer, A. C. (2005). Emotional intelligence: The convergent and discriminant validities of intra- and interpersonal emotional abilities. *Personality and Individual Differences*, 39(3), 569–579. <https://doi.org/10.1016/j.paid.2005.02.004>
- Freudenthaler, H. H., & Neubauer, A. C. (2007). Measuring emotional management abilities: Further evidence of the importance to distinguish between typical and maximum performance. *Personality and Individual Differences*, 42(8), 1561–1572. <https://doi.org/10.1016/j.paid.2006.10.031>
- Freudenthaler, H. H., Neubauer, A. C., Gabler, P., Scherl, W. G., & Rindermann, H. (2008). Testing and validating the trait emotional intelligence questionnaire (TEIQue) in a German-speaking sample. *Personality and Individual Differences*, 45(7), 673–678. <https://doi.org/10.1016/j.paid.2008.07.014>
- Freudenthaler, H. H., Neubauer, A. C., & Haller, U. (2008). Emotional intelligence: Instruction effects and sex differences in emotional management abilities. *Journal of Individual Differences*, 29(2), 105–115. <https://doi.org/10.1027/1614-0001.29.2.105>
- Freund, P. A., & Kasten, N. (2012). How smart do you think you are? A meta-analysis on the validity of self-estimates of cognitive ability. *Psychological Bulletin*, 138(2), 296–321. <https://doi.org/10.1037/a0026556>
- Funder, D. C. (1995). On the accuracy of personality judgment: A realistic approach. *Psychological Review*, 102(4), 652–670. <https://doi.org/10.1037/0033-295x.102.4.652>

- Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, 2(2), 156–168.
<https://doi.org/10.1177/2515245919847202>
- Furnham, A., Kidwai, A., & Thomas, C. (2001). Personality, psychometric intelligence, and self-estimated intelligence. *Journal of Social Behavior and Personality*, 16, 97–114.
- Furnham, A., Zhang, J., & Chamorro-Premuzic, T. (2005). The relationship between psychometric and self-estimated intelligence, creativity, personality and academic achievement. *Imagination, Cognition and Personality*, 25(2), 119–145. <https://doi.org/10.2190/530V-3M9U-7UQ8-FMBG>
- Fyock, C. A., & Hampstead, B. M. (2015). Comparing the relationship between subjective memory complaints, objective memory performance, and medial temporal lobe volumes in patients with mild cognitive impairment. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, 1(2), 242–248. <https://doi.org/10.1016/j.dadm.2015.03.002>
- Gächter, S., Starmer, C., & Tufano, F. (2015). Measuring the closeness of relationships: A comprehensive evaluation of the “Inclusion of the Other in the Self” scale. *PLOS ONE*, 10(6), e0129478. <https://doi.org/10.1371/journal.pone.0129478>
- Gajda, A., Karwowski, M., & Beghetto, R. (2017). Creativity and academic achievement: A meta-analysis. *Journal of Educational Psychology*, 109(2), 269–299.
<https://doi.org/10.1037/edu0000133>
- Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, 102, 74–78.
<https://doi.org/10.1016/j.paid.2016.06.069>
- Gignac, G. E., & Zajenkowski, M. (2019). People tend to overestimate their romantic partner's intelligence even more than their own. *Intelligence*, 73, 41–51.
<https://doi.org/10.1016/j.intell.2019.01.004>
- Gignac, G. E., & Zajenkowski, M. (2020). The Dunning-Kruger effect is (mostly) a statistical artefact: Valid approaches to testing the hypothesis with individual differences data. *Intelligence*, 80, 101449. <https://doi.org/10.1016/j.intell.2020.101449>

Guilford, J. P. (1967). *The nature of human intelligence*. McGraw-Hill.

Hall, J. A., Andrzejewski, S. A., Murphy, N. A., Mast, M. S., & Feinstein, B. A. (2008). Accuracy of judging others' traits and states: Comparing mean levels across tests. *Journal of Research in Personality*, 42(6), 1476–1489. <https://doi.org/10.1016/j.jrp.2008.06.013>

Hass, R. W., Rivera, M., & Silvia, P. J. (2018). On the dependability and feasibility of layperson ratings of divergent thinking. *Frontiers in Psychology*, 9, 1343. <https://doi.org/10.3389/fpsyg.2018.01343>

Heck, P. R., Simons, D. J., & Chabris, C. F. (2018). 65% of Americans believe they are above average in intelligence: Results of two nationally representative surveys. *PLOS ONE*, 13(7), e0200103. <https://doi.org/10.1371/journal.pone.0200103>

Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology*, 61(1), 569–598. <https://doi.org/10.1146/annurev.psych.093008.100416>

Herreen, D., & Zajac, I. (2018). The reliability and validity of a self-report measure of cognitive abilities in older adults: More personality than cognitive function. *Journal of Intelligence*, 6(1), 1–15. <https://doi.org/10.3390/jintelligence6010001>

Hofer, G., Langmann, L., Burkart, R., & Neubauer, A. (2021). *Who knows what we are good at? Unique insights of the self, knowledgeable informants, and strangers into a person's abilities*. PsyArXiv. <https://doi.org/10.31234/osf.io/u73xf>

Hofer, G., Mraulak, V., Grinschgl, S., & Neubauer, A. (in press). Less intelligent and unaware? Accuracy and Dunning-Kruger effects for self-estimates of different aspects of intelligence. *Journal of Intelligence*.

Horrey, W. J., Lesch, M. F., Mitsopoulos-Rubens, E., & Lee, J. D. (2015). Calibration of skill and judgment in driving: Development of a conceptual framework and the implications for road safety. *Accident Analysis & Prevention*, 76, 25–33. <https://doi.org/10.1016/J.AAP.2014.12.017>

Hülsheger, U. R., Maier, G. W., & Stumpp, T. (2007). Validity of general mental ability for the prediction of job performance and training success in Germany: A meta-analysis.

- International Journal of Selection and Assessment*, 15(1), 3–18.
<https://doi.org/10.1111/j.1468-2389.2007.00363.x>
- Hunt, E. (2010). *Human intelligence*. Cambridge University Press.
- 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(4), 521–551. <https://doi.org/10.1111/j.1467-6494.1993.tb00781.x>
- Joseph, D. L., Jin, J., Newman, D. A., & O’Boyle, E. H. (2015). Why does self-reported emotional intelligence predict job performance? A meta-analytic investigation of mixed EI. *Journal of Applied Psychology*, 100(2), 298–342. <https://doi.org/10.1037/a0037681>
- Kersting, M., Althoff, K., & Jäger, A. O. (2008). *Wilde-Intelligenz-Test 2: WIT-2*. Hogrefe.
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one’s own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology*, 77(6), 1121–1134. <https://doi.org/10.1037/0022-3514.77.6.1121>
- Leising, D., Scherbaum, S., Locke, K. D., & Zimmermann, J. (2015). A model of “substance” and “evaluation” in person judgments. *Journal of Research in Personality*, 57, 61–71.
<https://doi.org/10.1016/j.jrp.2015.04.002>
- Libbrecht, N., & Lievens, F. (2012). Validity evidence for the situational judgment test paradigm in emotional intelligence measurement. *International Journal of Psychology*, 47(6), 438–447.
<https://doi.org/10.1080/00207594.2012.682063>
- Liu, C., Li, J., Tao, Z., Wang, Z., Chen, C., & Dong, Y. (2021). Prestige and dominance as assessed by friends, strangers, and the self. *Personality and Individual Differences*, 179, 110965.
<https://doi.org/10.1016/j.paid.2021.110965>
- Luft, J., & Ingham, H. (1955). The Johari window: A graphic model of interpersonal awareness. In *Proceedings of the Western Training Laboratory in Group Development*. UCLA.
- Mabe, P. A., & West, S. G. (1982). Validity of self-evaluation of ability: A review and meta-analysis. *Journal of Applied Psychology*, 67(3), 280–296. <https://doi.org/10.1037/0021-9010.67.3.280>

- MacCann, C., & Roberts, R. D. (2008). New paradigms for assessing emotional intelligence: Theory and data. *Emotion, 8*(4), 540–551. <https://doi.org/10.1037/a0012746>
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence* (pp. 3–31). Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry, 15*(3), 197–215.
https://doi.org/10.1207/s15327965pli1503_02
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitarenios, G. (2001). Emotional intelligence as a standard intelligence. *Emotion, 1*(3), 232–242. <https://doi.org/10.1037/1528-3542.1.3.232>
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitarenios, G. (2003). Measuring emotional intelligence with the MSCEIT V2.0. *Emotion, 3*(1), 97–105. <https://doi.org/10.1037/1528-3542.3.1.97>
- McDaniel, M. A., Hartman, N. S., Whetzel, D. L., & Grubb, W. L. (2007). Situational judgment tests, response instructions, and validity: A meta-analysis. *Personnel Psychology, 60*(1), 63–91.
<https://doi.org/10.1111/j.1744-6570.2007.00065.x>
- Naumann, L. P., Vazire, S., Rentfrow, P. J., & Gosling, S. D. (2009). Personality judgments based on physical appearance. *Personality and Social Psychology Bulletin, 35*(12), 1661–1671.
<https://doi.org/10.1177/0146167209346309>
- Neubauer, A. C., & Hofer, G. (2021). Self-estimates of abilities are a better reflection of individuals' personality traits than of their abilities and are also strong predictors of professional interests. *Personality and Individual Differences, 169*, 109850.
<https://doi.org/10.1016/j.paid.2020.109850>
- Neubauer, A. C., & Hofer, G. (2022). (Retest-)Reliable and valid despite low alphas? An example from a typical performance situational judgment test of emotional management. *Personality and Individual Differences, 189*, 111511. <https://doi.org/10.1016/j.paid.2022.111511>
- Neubauer, A. C., Pribil, A., Wallner, A., & Hofer, G. (2018). The self–other knowledge asymmetry in cognitive intelligence, emotional intelligence, and creativity. *Heliyon, 4*(12), e01061.
<https://doi.org/10.1016/j.heliyon.2018.e01061>

- Paunonen, S. V. (1989). Consensus in personality judgments: Moderating effects of target-rater acquaintanceship and behavior observability. *Journal of Personality and Social Psychology*, 56(5), 823–833. <https://doi.org/10.1037/0022-3514.56.5.823>
- Pietschnig, J., & Voracek, M. (2015). One century of global IQ gains: A formal meta-analysis of the Flynn effect (1909–2013). *Perspectives on Psychological Science*, 10(3), 282–306. <https://doi.org/10.1177/1745691615577701>
- Plucker, J. A., Beghetto, R. A., & Dow, G. T. (2004). Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research. *Educational Psychologist*, 39(2), 83–96. https://doi.org/10.1207/s15326985ep3902_1
- Pretz, J. E., & McCollum, V. A. (2014). Self-perceptions of creativity do not always reflect actual creative performance. *Psychology of Aesthetics, Creativity, and the Arts*, 8(2), 227–236. <https://doi.org/10.1037/a0035597>
- Proyer, R. T., & Ruch, W. (2009). Intelligence and gelotophobia: The relations of self-estimated and Psychometrically measured intelligence to the fear of being laughed at. *Humor - International Journal of Humor Research*, 22(1–2), 165–181. <https://doi.org/10.1515/HUMR.2009.008>
- R Core Team. (2021). *R: A language and environment for statistical computing* (4.1.1) [Computer software]. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Rammstedt, B., & Rammsayer, T. H. (2002). Self-estimated intelligence: Gender differences, relationship to psychometric intelligence and moderating effects of level of education. *European Psychologist*, 7(4), 275–284. <https://doi.org/10.1027//1016-9040.7.4.275>
- Reilly, J., & Mulhern, G. (1995). Gender differences in self-estimated IQ: The need for care in interpreting group data. *Personality and Individual Differences*, 18(2), 189–192. [https://doi.org/10.1016/0191-8869\(94\)00148-L](https://doi.org/10.1016/0191-8869(94)00148-L)
- Reynolds, D. J., & Gifford, R. (2001). The sounds and sights of intelligence: A lens model channel analysis. *Personality and Social Psychology Bulletin*, 27(2), 187–200. <https://doi.org/10.1177/0146167201272005>

- Richard, F. D., Bond, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology, 7*(4), 331–363.
<https://doi.org/10.1037/1089-2680.7.4.331>
- Rohrer, J. M., Tierney, W., Uhlmann, E. L., DeBruine, L. M., Heyman, T., Jones, B., Schmukle, S. C., Silberzahn, R., Willén, R. M., Carlsson, R., Lucas, R. E., Strand, J., Vazire, S., Witt, J. K., Zentall, T. R., Chabris, C. F., & Yarkoni, T. (2021). Putting the Self in Self-Correction: Findings From the Loss-of-Confidence Project. *Perspectives on Psychological Science, 17*45691620964106.
<https://doi.org/10/gh6f6r>
- Rosenthal, R., & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psychology, 74*, 166–169. <https://doi.org/10.1037/0022-0663.74.2.166>
- Ross, S. (1998). Self-assessment in second language testing: A meta-analysis and analysis of experiential factors. *Language Testing, 15*(1), 1–20.
<https://doi.org/10.1177/026553229801500101>
- Schmidt, F. L., & Hunter, J. (2004). General mental ability in the world of work: Occupational attainment and job performance. *Journal of Personality and Social Psychology, 86*(1), 162–173. <https://doi.org/10.1037/0022-3514.86.1.162>
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124*(2), 262–274. <http://dx.doi.org/10.1037/0033-2909.124.2.262>
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality, 47*(5), 609–612. <https://doi.org/10.1016/j.jrp.2013.05.009>
- Schraw, G. (2009). A conceptual analysis of five measures of metacognitive monitoring. *Metacognition and Learning, 4*(1), 33–45. <https://doi.org/10.1007/s11409-008-9031-3>
- Smeekens, B. A., & Kane, M. J. (2016). Working memory capacity, mind wandering, and creative cognition: An individual-differences investigation into the benefits of controlled versus

- spontaneous thought. *Psychology of Aesthetics, Creativity, and the Arts*, 10(4), 389–415.
<https://doi.org/10.1037/aca0000046>
- Sommer, U., Fink, A., & Neubauer, A. C. (2008). Detection of high ability children by teachers and parents: Psychometric quality of new rating checklists for the assessment of intellectual, creative and social ability. *Psychology Science Quarterly*, 50(2), 189–205.
- Starzyk, K. B., Holden, R. R., Fabrigar, L. R., & MacDonald, T. K. (2006). The personal acquaintance measure: A tool for appraising one's acquaintance with any person. *Journal of Personality and Social Psychology*, 90(5), 833–847. <https://doi.org/10.1037/0022-3514.90.5.833>
- Steinmayr, R., & Spinath, B. (2009). What explains boys' stronger confidence in their intelligence? *Sex Roles*, 61(9–10), 736–749. <https://doi.org/10.1007/s11199-009-9675-8>
- Strenze, T. (2007). Intelligence and socioeconomic success: A meta-analytic review of longitudinal research. *Intelligence*, 35(5), 401–426. <https://doi.org/10.1016/j.intell.2006.09.004>
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. *Advances in Experimental Social Psychology*, 21, 181–227.
- Thielmann, I., Zimmermann, J., Leising, D., & Hilbig, B. E. (2017). Seeing is knowing: On the predictive accuracy of self- and informant reports for prosocial and moral behaviours. *European Journal of Personality*, 31(4), 404–418. <https://doi.org/10.1002/per.2112>
- van der Zee, K., Thijs, M., & Schakel, L. (2002). The relationship of emotional intelligence with academic intelligence and the Big Five. *European Journal of Personality*, 16(2), 103–125.
<https://doi.org/10.1002/per.434>
- Vazire, S. (2010). Who knows what about a person? The self–other knowledge asymmetry (SOKA) model. *Journal of Personality and Social Psychology*, 98(2), 281–300.
<https://doi.org/10.1037/a0017908>
- Vazire, S., & Mehl, M. R. (2008). Knowing me, knowing you: The accuracy and unique predictive validity of self-ratings and other-ratings of daily behavior. *Journal of Personality and Social Psychology*, 95(5), 1202–1216. <https://doi.org/10.1037/a0013314>

- Visser, B. A., Ashton, M. C., & Vernon, P. A. (2008). What makes you think you're so smart? Measured abilities, personality, and sex differences in relation to self-estimates of multiple intelligences. *Journal of Individual Differences*, 29(1), 35–44. <https://doi.org/10.1027/1614-0001.29.1.35>
- Wessels, N. M., Zimmermann, J., Biesanz, J. C., & Leising, D. (2018). Differential associations of knowing and liking with accuracy and positivity bias in person perception. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/pspp0000218>
- West, T. V., & Kenny, D. A. (2011). The truth and bias model of judgment. *Psychological Review*, 118(2), 357–378. <https://doi.org/10.1037/a0022936>
- Whetzel, D. L., & McDaniel, M. A. (2009). Situational judgment tests: An overview of current research. *Human Resource Management Review*, 19(3), 188–202. <https://doi.org/10.1016/j.hrmr.2009.03.007>
- Wright, D. B., London, K., & Field, A. P. (2011). Using bootstrap estimation and the plug-in principle for clinical psychology data. *Journal of Experimental Psychopathology*, 2(2), 252–270. <https://doi.org/10.5127/jep.013611>
- Zell, E., & Krizan, Z. (2014). Do people have insight into their abilities? A metasynthesis. *Perspectives on Psychological Science*, 9(2), 111–125. <https://doi.org/10.1177/1745691613518075>
- Zou, G. Y. (2007). Toward using confidence intervals to compare correlations. *Psychological Methods*, 12(4), 399–413. <https://doi.org/10.1037/1082-989X.12.4.399>