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RESEARCH PAPER

Transparency Triumphs: The Influence of Intellectual Transparency in Love and Work

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Abstract
Some virtues are referred to as "other-regarding intellectual virtues" because they focus on aiding other people to gain epistemic goods such as knowledge or understanding. Research on the associations between other-regarding intellectual virtues and important outcomes in the domains of love and work has been extremely limited. In the present research, we conducted two studies focused on Intellectual Transparency (IT)—an other-regarding intellectual virtue that involves faithfully sharing one's perspective with others to help them gain knowledge. In Study 1, using actor-partner interdependence models with 134 romantic couples, we found that an individual's IT predicted multiple indicators of relationship quality for the partner when controlling for Big Five personality traits. In Study 2, using hierarchical regressions with 126 worker-supervisor dyads, we found that a worker's IT predicted supervisor ratings of the worker's job performance and organizational citizenship when controlling for Big Five traits and the worker's honesty and love of learning. We discuss whether IT promotes positive outcomes for others more than oneself in love and work.

Keywords Intellectual transparency · Honesty · Love of learning · Intellectual virtue · Romantic relationship satisfaction · Job performance · Organizational citizenship · Mutuality · Commitment

1 Theoretical Background

Intellectual virtues are virtues that involve pursuing epistemic goods such as knowledge or understanding (Battaly, 2015). Research in philosophy had defended the centrality of intellectual virtues for understanding fundamental epistemic goods such as knowledge (Zagzebski, 1996) as well as the independent significance of intellectual virtues (Baehr, 2011),

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while research in positive psychology (Peterson & Seligman, 2004) has directed attention to some character strengths that are candidates for being intellectual virtues. Recently, interdisciplinary research has investigated a variety of specific candidates for intellectual virtues, including intellectual humility (Haggard et al., 2018), open-mindedness (Stanovich & West, 2007), curiosity (Inan et al., 2018), and integrity and tenacity (Orona et al., 2024). Yet thus far the focus has been primarily on self-regarding intellectual virtues which are concerned with acquiring or maintaining epistemic goods for oneself. This has led some researchers to call for increased attention to other-regarding intellectual virtues which instead focus on helping others to gain epistemic goods (Jarczewski, 2024; Kawall, 2002). One example of this latter kind of other-regarding intellectual virtue is Intellectual Transparency (IT): a tendency to faithfully share one's perspective with others to help them gain knowledge or understanding (Byerly, 2021).

Byerly and Haggard (2023) developed a self-report measure of IT, and found that IT is related to, and yet distinct from, other features of personality or character, such as honesty and the love of learning. Byerly (2023b) also provided conceptual and indirect empirical evidence for thinking that IT should contribute to multiple life domains by enhancing a person's romantic relationships and work performance. Yet, empirical research has not yet directly examined the relationship between IT and important outcomes in these life domains, such as romantic relationship satisfaction or job performance. We aim to make up for this deficit by directly investigating the importance of IT within the domains of romantic relationships and professional contexts through two studies.

Study 1 focused on romantic relationships. In it, we assessed the association between an individual's IT and four indicators of relationship quality for the individual and their partner: relationship satisfaction, liking for their partner, commitment, and mutuality. We did this using actor-partner interdependence models, including models in which we controlled for Big Five personality traits, honesty, and love of learning of both partners. We controlled for these variables because they are potentially significant for individuals' relationship quality and some of them—particularly honesty and love of learning—are closely associated with IT. Study 2 focused on IT at work. We assessed whether a worker's IT was associated with the worker's own job satisfaction and their supervisor's rating of the worker's job performance and organizational citizenship. We did this while controlling for demographics of the worker and supervisor and for Big Five personality traits, honesty, and love of learning of the worker, using hierarchical regressions. Therefore, the present study represents the first attempt to conduct a direct empirical assessment of the unique significance of IT in predicting important outcomes within these two life domains. As such it is an important contribution to investigating the role of one other-regarding intellectual virtue in multiple life domains.

1.1 Intellectual Transparency

While the language of "transparency" is used in a variety of contexts, the treatment of IT as a personality tendency and intellectual virtue can be traced to a book by philosopher T. Ryan Byerly (2021). Byerly conceptualizes IT as an intellectual character virtue in accordance with a neo-Aristotelian approach. In general, intellectual character virtues are multifaceted tendencies to think, feel, and act in characteristic and skilful ways that are unified by a good intellectual motive (Battaly, 2015). IT's unifying motive is to promote others' acquisition of

knowledge or understanding for its own sake by sharing one's perspective. Individuals with IT display this motive by developing a wise understanding of when sharing their perspective would be genuinely epistemically beneficial to others, gaining a detailed grasp what their own perspective is and skill in communicating its varied aspects effectively, and feeling pleased when promoting others' epistemic goods by sharing their perspective. Thus, IT can be summarily described as a tendency to faithfully share one's perspective with others out of a motivation to promote their epistemic goods. IT is one of five examples of distinctively other-regarding intellectual virtues that Byerly identifies, all of which have distinct unifying motives concerned with promoting others' epistemic goods in different ways.

Guided by this theoretical account, Byerly and Haggard (2023) introduced a self-report measure of IT which we will here refer to as the IT Scale (ITS). They constructed a large initial pool of items intended to reflect the various aspects of IT, including its unifying motive, and its characteristic cognitive, affective, and behavioral tendencies. By conducting exploratory and confirmatory factor analysis, they found that a two-factor solution reflecting two multifaceted components of IT best fit participants' patterns of responses to this item pool. As a result, they constructed the ITS with two factors: one concerned with grasping one's own perspective well (e.g., "I am good at figuring out why I think the way I do"), and the other concerned with being motivated to help others gain epistemic goods by sharing one's perspective (e.g., "It makes me happy to improve another person's thinking by sharing my own thoughts with them"). In this way, they worked in an interdisciplinary fashion to strike a balance between psychometric acceptability and theoretical coherence, implementing a methodology which has been more thoroughly described and advocated in recent research (McManus et al., 2024).

1.2 The Relationship Between IT, Honesty, Love of Learning, and Big Five Traits

IT may be thought of as a unique trait that relates closely to some better-known character strengths. Character strengths in general are enduring features of personality hypothesized to reflect the best in human potential. They are theoretically and empirically distinct from more foundational personality features such as the Big Five personality traits (McGrath et al., 2020). A very common approach to studying character strengths, encapsulated in the values-in-action measures of character strengths, identifies twenty-four distinct strengths which are widely represented in major religious and philosophical traditions (Peterson & Seligman, 2004). Among the character strengths included in the values-in-action inventory, two which relate closely to IT are honesty and the love of learning. Yet, while IT is conceptually and empirically related to honesty and the love of learning, it is also distinct from these.

IT is conceptually related to honesty because both involve tendencies to avoid distorting the facts as one sees them (Miller, 2021). An intellectually transparent person is likely to avoid distorting the facts as they see them, because this would lead others away from epistemic goods rather than toward them. Yet, the concept of IT demands more: the intellectually transparent person doesn't just avoid presenting a distorted view of how they see things to others—they actively work to faithfully share their perspective with others when doing so will be of epistemic value (Byerly, 2023a). Empirical research has shown that IT is strongly correlated with the values-in-action measure of honesty (Byerly & Haggard, 2023). Yet, despite this close association, empirical research has also found that IT relates uniquely

to other outcomes when controlling for honesty and the Big Five traits. Specifically, IT uniquely predicts self-reported communicative competence, life satisfaction, and training and teaching others in voluntary and paid roles (Byerly, 2023b).

IT is also related to self-regarding intellectual traits, since like these it is concerned specifically with promoting epistemic goods. One clear and foundational example of a self-regarding intellectual character strength is the love of learning—a tendency defined simply in terms of a motivation to pursue and acquire epistemic goods such as knowledge and understanding for oneself (Haggard et al., 2018). Empirical research has shown that IT and the love of learning are strongly correlated (Byerly & Haggard, 2023). Yet, there is a conceptual reason to suspect that these variables may come apart, given the explicit other-regarding focus of IT (Byerly, 2021), and empirical research has also found that IT explains unique variance in communicative competence and life satisfaction beyond what is explained by the love of learning and the Big Five (Byerly, 2023b). Thus, there is reason to think that IT is distinct from both Big Five personality traits and character strengths such as honesty and the love of learning, and may account for unique variance in outcomes to which these traits are also related.

1.3 Intellectual Transparency and Romantic Relationship Quality Indicators: Satisfaction, Mutuality, Partner-Liking, and Commitment

There are two reasons to hypothesize that IT would predict the quality of romantic relationships which have been described in greater detail in previous research (Byerly, 2023b). First, IT is known to be associated with character strengths such as honesty and the love of learning, and there is evidence that such character strengths are related to indicators of romantic relationship quality. Several previous studies have found that individuals' character strengths are significantly related to relationship outcomes for both the individual and their partner. In a study involving 100 Israeli married couples, Lavy et al. (2016) found that relationship partners' total scores for all twenty-four character strengths included in the values-in-action inventory predicted both partners' relationship satisfaction, using an actor-partner interdependence model (APIM). In a study with 177 married couples, Boiman-Meshita and Littman-Ovadia (2022) grouped the twenty-four character strengths into three clusters: caring (including gratitude, kindness, love, teamwork, social intelligence, and leadership), self-control (including prudence, perseverance, self-regulation, honesty, and modesty) and inquisitiveness (including curiosity, creativity, zest, bravery, love of learning, and hope). Using APIM, they found that all three of these clusters were related to three relationship quality indicators for the participant themselves (actor effects): satisfaction, intimacy, and burnout. They also found that women's scores on all three clusters were related to men's satisfaction, and that women's caring was related to men's intimacy; while men's inquisitiveness and self-control were related to women's satisfaction (partner effects). Their supplementary analyses found that honesty specifically was related to both partners' relationship satisfaction and burnout, as well as to actors' intimacy.

These studies provide some evidence for thinking that character strengths closely related to IT, such as honesty and love learning, may be related to relationship quality indicators for individuals and their partners. Given the established relationship between IT and honesty and the love of learning, it may likewise be expected that IT will relate positively to relationship quality indicators. Moreover, given the distinctively other-regarding focus of

IT and what is known about its unique association with communicative competence and certain prosocial behaviors beyond honesty, love of learning, and the Big Five traits, we might expect IT to predict additional variance in relationship quality indicators beyond these covariates.

The second reason to hypothesize a relationship between IT and relationship quality indicators is that IT is theoretically related to relationship maintenance behaviors which are known to predict relationship quality indicators. Many studies have examined the relationship between relationship maintenance behaviors and relationship quality indicators. Generally speaking, relationship maintenance behaviors refer to the dynamic processes whereby individuals sustain or tend to their relationships in order to preserve desired relationship characteristics (Stafford & Canary, 1991). One of the most commonly studied relationship maintenance behaviors is openness, which refers to processes involving self-disclosure and communication in the relationship. Many studies have reported positive associations between openness and various indicators of relationship quality. A meta-analysis found that openness related positively to the relationship quality indicators of romantic relationship satisfaction, mutuality, commitment, and how much one likes their romantic partner—both for individuals and for their partners (Ogolsky & Bowers, 2012). Whereas relationship satisfaction refers to global assessments of the quality of one's relationship, the other indicators listed relate to more narrow assessments of aspects of these relationships: how much partners cooperate, have their say, and agree about who can make decisions within the relationship (mutuality), how likely they are to continue the relationship (commitment), and how much they admire their partner (partner-liking). Whereas there is an established empirical relationship between openness and these relationship quality indicators, Byerly (2023b) provides a detailed argument that IT is conceptually related to openness, since the intellectually transparent person is able and willing to share their perspective with others, which would include their romantic relationship partners. Moreover, Byerly also explains how the observed empirical relationship between IT and communicative competence and prosocial dispositions noted above supports this link between IT and openness, and suggests that IT may promote openness when controlling for Big Five traits, honesty, and love of learning.

Given that IT is related to honesty, love of learning, and openness, while the later are known to predict relationship quality indicators for individuals and their partners, and given that IT is also known to go beyond Big Five traits, honesty, and love of learning in predicting communicative competence and prosocial behaviors, we predicted that:

(H1) IT will be associated with the relationship quality indicators of satisfaction, mutuality, commitment, and partner-liking for an individual and their partner, and will retain this association when controlling for Big Five traits, honesty, and love of learning.

1.4 Intellectual Transparency and the Workplace: Job Performance, Organizational Citizenship, and Job Satisfaction

IT may also promote key outcomes in the professional domain, as there is both conceptual and indirect empirical evidence of its role in this area. Two important outcomes in the professional domain are job performance and organizational citizenship. Job performance refers to the extent to which an employee carries out their role competently and takes initiative to improve not only their own performance but also that of their organization and

any teams they are part of within it (Griffin et al., 2007). Organizational citizenship refers to voluntary and prosocial behaviors that employees may undertake, known to boost team performance and morale in organizations (Moorman & Blakely, 1995).

IT is conceptually linked to job performance and organizational citizenship, because a person high in IT is less likely to lose motivation to participate in group knowledge-sharing processes than someone low in IT, leading to fewer process losses due to social loafing (Karau & Williams, 1993). They are likely to remain motivated to share their perspective and help enhance the understanding of team members even when doing this might not be noticed or rewarded, simply because they value doing it. Also, the previously noted relationship between IT and communicative competence and training and teaching others in voluntary and paid roles suggests that IT may contribute uniquely to job performance or organizational citizenship via its relationship to these variables.

Moreover, IT is empirically linked to professional performance through its relationships with honesty and love of learning. Previous research has found these latter traits to be significant predictors of professional performance. Harzer and Ruch (2014) found that honesty was related to employees' self-ratings of their task performance, job dedication, interpersonal facilitation, and organizational support, while it was also related to supervisors' ratings of all of these apart from interpersonal facilitation. In the same study, love of learning was related to all four job performance dimensions for employees and to job dedication and organizational support for supervisors. In a more recent study using hierarchical regressions, employees' self-ratings of honesty and love of learning were found to predict supervisors' ratings of job performance beyond Big Five traits and general mental ability (Harzer et al., 2021), demonstrating incremental validity. Thus, again, given the relationship between IT and these character strengths, together with what is known regarding their relationship to job performance, it may be anticipated that IT will relate positively to job performance and organizational citizenship, predicting additional variance in these outcomes beyond these character strengths and the Big Five traits.

It might also be expected that IT will relate positively to employees' own satisfaction with their jobs. Job satisfaction has been linked to job performance in previous studies (Katebi et al., 2022). Previous research has also found that the love of learning and honesty both relate positively to job satisfaction, predicting unique variance in job satisfaction beyond what is predicted by the other twenty-two values-in-action character strengths and employees' gender and education (Heintz & Ruch, 2020). Thus, we predicted that:

(H2) IT will be associated with job performance, organizational citizenship, and job satisfaction, and will retain these associations when controlling for Big Five traits, honesty, and love of learning.

1.5 The Current Studies

We conducted two studies to investigate the incremental validity of IT over and above honesty, the love of learning, and the Big Five traits in both romantic relationship and professional domains. In the first study, we collected data from intimate partners, who reported on their IT, character strengths, personality traits, demographics, and indicators of relationship quality. In the second study, we collected data from workers who reported on their IT, character strengths and personality traits, demographics, and job satisfaction, and from supervi-

sors who reported on the worker's job performance and organizational citizenship alongside their own demographics. The studies were ethically reviewed by the University of Sheffield.

2 Study 1

Study 1 focused on the relationship between IT and indicators of relationship quality: relationship satisfaction, mutuality, commitment, and partner-liking. We tested our hypothesis, (H1), that IT would be associated with these indicators for individuals and their partners, and would retain this association when controlling for both partners' Big Five traits, honesty, and love of learning. We did this by examining correlations between IT and these indicators, and by utilising a series of Actor-Partner Interdependence Models.

2.1 Method

2.1.1 Participants

Three hundred and seventy participants were recruited to complete surveys on Prolific Academic, with the intention of matching their responses with their romantic partner's. Prolific Academic has been shown to be among the most suitable crowdsourcing platforms for collecting high-quality data for use in psychological research (e.g., Douglas, Ewell, & Brauer, 2023). Because not all partners who were invited to take the survey completed it, we were ultimately able to form one hundred and thirty-four dyads (approximately 88% heterosexual, with three couples not reporting their genders). All participants indicated via a prescreener question that they were in a romantic relationship with another Prolific user and were willing to complete surveys with them. The median relationship duration was more than five years. The median age of participants was 35–44 years old, and 49% of participants were women. Participants were paid £0.50 (an estimated rate of £30/hr) for completing the first survey and £2.50 (estimated at £10/hr) for completing the second. Participants' responses were screened for near-straight-lining and implausibly fast completion times, and participants had to successfully answer a screener question: "If you are paying attention, select 'Mostly Like Me'." No respondents showed ≥ 90% identical responding across the study scales, indicating no evidence of global inattentiveness. The fastest completion time (199 s) was about 1.5 *SD*s below the mean ($M = 832$, $SD = 413$), which is not an outlier by common screening criteria. Data and analysis code is available at https://doi.org/10.6084/m9.figshare.24243400.

Participants were asked about their age, gender, length of their romantic relationship, and they completed the following measures.

2.1.2 Measures

2.1.3 Relationship Satisfaction

Participants' satisfaction with their relationships was measured using the Couples Satisfaction Index – 4 (Funk & Rogge, 2007). This is a four-item measure of perceived global

relationship quality which was developed by applying item-response theory to identify the most informative items from a pool of 140 items derived from leading measures of relationship satisfaction (α = 0.9). One item, "Please indicate the degree of happiness, all things considered, in your relationship", is scored on a seven-point scale with responses ranging from "Extremely unhappy" to "Perfect", while the other three items (e.g., "I have a warm and comfortable relationship with my partner") are scored on a five-point scale ranging from "Not at all true" to "Completely true".

2.1.4 Mutuality, Commitment, and Partner-liking

Scales for mutuality, commitment, and partner-liking derived from (Stafford & Canary, 1991) were used to assess these more specific aspects of participants' perceptions of their romantic relationships. Mutuality refers to a partner's perception that both partners cooperate, have their say, and agree about who can make decisions within the relationship. It is measured through a five-item scale (α = 0.9) which includes items such as "Both of us are satisfied with the way we handle decisions". Commitment refers to a partner's intention to maintain the relationship and not pursue other relationship partners instead. It is measured by a five-item scale (α = 0.79) which includes items such as "I want this relationship to last as long as possible". Partner-liking concerns how much one partner likes or admires the other partner. It is measured by a five-item scale (α = 0.86) which includes items such as "My partner is one of the most likeable people I know". Each item is scored on a seven-point scale ranging from "Disagree strongly" to "Agree strongly".

2.1.5 Intellectual Transparency

Participants' IT was measured using the six-item ITS developed by Byerly and Haggard (2023). The scale has two factors. Factor one concerns participants' abilities to accurately grasp their own perspectives ("I am good at figuring out why I think the way I do", "I am alert and sensitive to the many ways I could go wrong in my thinking", "I can sometimes catch myself before I make an intellectual mistake"), while factor two concerns participants' motivations to share their perspectives with others in order to help them gain epistemic goods ("It makes me happy to improve another person's thinking by sharing my own thoughts with them", "I like to contribute to others' learning by sharing what I know with them", "If I know something another person doesn't know, I'm happy to share what I know with them"). In our sample, the omega and alpha coefficients for the subscales and full scale were as follows: factor one (ω = 0.86, α = 0.85), factor two (ω = 0.81, α = 0.80), and full scale (ω = 0.88, α = 0.82). Each item is scored on a seven-point scale ranging from "Very much unlike me" to "Very much like me".

2.1.6 Honesty

Participants completed the ten-item values-in-action measure of honesty (Peterson & Seligman, 2004). A sample item is "I tell the truth even if it hurts" (α = 0.84). Each item is scored on a seven-point scale ranging from "Very much unlike me" to "Very much like me".

2.1.7 Love of Learning

They completed the three-item love of learning subscale of the intellectual humility measure developed by Haggard and colleagues (2018). A sample item is "When I don't understand something, I try hard to figure it out" ($\alpha = 0.78$). Each item is scored on a seven-point scale ranging from "Very much unlike me" to "Very much like me". Haggard and colleagues note that this measure is similar in function and content to the VIA measure of love of learning, although it is somewhat broader than the latter, being less concerned with the way individuals consult specific sources of information.

2.1.8 Big Five Traits

Participants' Big Five personality traits were assessed via the ten-item BFI-10 measure developed by Rammstedt and John (2007). Each of neuroticism, conscientiousness, agreeableness, openness, and extraversion has two items represented in the scale. Sample items include "I see myself as someone who is reserved" (reverse-scored for extroversion), "I see myself as someone who is generally trusting" (agreeableness), "I see myself as someone who tends to be lazy" (reverse-scored for conscientiousness), "I see myself as someone who is relaxed, handles stress well" (reverse-scored for neuroticism), and "I see myself as someone who has few artistic interests" (reverse-scored for openness). Each item is scored on a seven-point scale ranging from "Strongly disagree" to "Strongly agree". Rammstedt and John (2007) found that there was an average of a 0.83 correlation between the BRI-10 subscales and subscales for the larger BFI-44, which uses 9 items per Big Five trait, together with additional evidence supporting the utility of the BFI-10 in studies with limited time constraints.

2.1.9 Statistical Analysis

2.1.10 Bivariate Relationships

To assess bivariate relationships between our key study variables, we computed correlations for these. Where correlations involve variables for the same individual (e.g., honesty and IT for the same partner), we use our full sample, whereas where correlations involve variables for two individuals (e.g., one partner's IT and the other's mutuality), we use our full set of dyads.

2.1.11 Dyadic Actor-Partner Interdependence Model

We investigated the association between each individual's IT with both the individual's and their partner's relationship satisfaction, commitment, partner-liking, and mutuality. To accomplish this, we utilized the Actor-Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006). The Actor-Partner Interdependence Model accounts for the non-independence of dyadic data—that is, the fact that partners' scores are often correlated because their experiences and behaviours mutually influence one another. APIM statistically takes into account this interdependence, allowing for a more accurate estimation of

effects within dyads. Additionally, APIM enables the simultaneous investigation of how each partner's independent variable relates to both their own outcome (actor effect) and their partner's outcome (partner effect). Hence, we chose APIM because it addresses two key aspects: (a) modelling nonindependence in interpersonal relationships, and (b) allowing for the investigation of the associations between actor and partner effects of IT for relationship quality indicators. This was important in our study because partners' relationship satisfaction, commitment, mutuality, and partner-liking may be naturally interdependent, reflecting ongoing interpersonal dynamics within the relationship. Beyond statistical interdependence, one partner's IT may influence not only their own perception and behavior but also shape their partner's — for examples, through communication patterns, emotional exchanges, or behavioral responses (Kenny et al., 2020). Hence, individuals' IT may have implications for both their own and their partner's relationship quality indicators, potentially in different ways. Thus, using APIM enabled us to simultaneously test whether individuals' IT is related to their own relationship quality indicators (actor effect) or their partner's (partner effect), while controlling for the interdependence among these indicators.

APIM can be applied to distinguishable dyads (e.g., by gender or role), where partners can be differentiated in the analysis based on a demographic variable such as gender, or to indistinguishable dyads, where no such differentiation is considered. We used an indistinguishable APIM because we had no theoretical basis for expecting actor or partner effects to differ by gender, and because our sample included same-sex couples and couples who did not report gender, for whom gender cannot serve as a meaningful distinguishing variable.

We conducted our analyses hierarchically in three steps: (a) In the first model, we included the actor and partner effects for each of the Big Five traits predicting each relationship quality indicator; (b) In the second model, we added the actor and partner effects for love of learning and honesty; (c) In the third model, we included the actor and partner effects for IT. This resulted in a total of twelve models, with three models for each outcome variable: relationship satisfaction, mutuality, commitment, and partner-liking. We also conducted robustness checks by reanalysing the associations after excluding certain variables—love of learning and honesty—to assess whether the results for IT remained consistent. We used multilevel modelling (MLM) to conduct our analyses, which is well-suited for handling non-independent dyadic data (Kenny et al., 2006). Model fit indices were compared across models to evaluate improvements in new models.

We conducted the analyses in R (version 4.4.3; R Core Team, 2025). We utilized several packages, including *dplyr* (Wickham et al., 2026) and *nlme* (Pinheiro et al., 2023), for our analyses. We based our sample-size recruitment on recommendations for APIM analyses, which suggest that 100–150 dyads provide adequate power for estimating actor and partner effects (Ledermann & Kenny, 2017). Our sample comprised 126 complete dyads, which falls within this recommended range. In addition, we conducted a power analysis assuming small-to-moderate actor and partner effects ($\beta \approx 0.15$–0.30), consistent with prior dyadic research on individual dispositions and relational outcomes. Under these assumptions and a significance level of 0.05, statistical power ranged from acceptable to high (0.70 to 0.98). We utilized the program APIMPowerR (Ackerman & Kenny, 2016)—a tool employed in various studies (e.g., Tavares et al., 2022)—to estimate power.

2.2 Results

2.2.1 Descriptive Statistics

Means and standard deviations for the study variables are reported in Table 1. Notably, participants reported high relationship quality, with individuals' scores for commitment being particularly high with a median of 7 out of 7. To further consider the potential for ceiling effects, we assessed the percentage of participants scoring at the maximum of the scales for our relationship quality indicators. This suggested significant potential of ceiling effects for satisfaction (21% at maximum), mutuality (28%), partner-liking (39%), and especially commitment (66%).

2.2.2 Bivariate Relationships

Tables 1 and 2 provide key bivariate correlations. Several observations stand out.

First, IT was significantly correlated with all relationship quality indicators for the self and for the partner.

Second, IT was moderately to strongly correlated with the character strengths of honesty and love of learning.

Third, honesty and love of learning had some significant associations With relationship quality indicators. Honesty was related to all relationship quality outcomes for the self and all but mutuality for the partner. Love of learning was related to all indicators for the self but only partner-liking for the partner. In general, IT was more strongly related to relationship quality indicators for the partner, while honesty was more strongly related to relationship quality indicators for the self.

Fourth, relationship partners demonstrated some similarity on key study variables but not others (Table 1). Partners' ratings of relationship satisfaction, mutuality, and partner-liking were significantly correlated, but not their ratings for commitment. The only traits that were correlated between partners were their honesty, conscientiousness, and openness.

Table 1 Key study variable means, standard deviations, and correlations with partner's score and relationship length

Variable	Mean	Standard deviation	Partner's score	Relationship length
Satisfaction	4.57[a]	0.86	0.41***	−0.06
Partner-liking	6.4[b]	0.80	0.13*	−0.08
Mutuality	6.25[b]	0.86	0.38***	−0.07
Commitment	6.66[b]	0.67	0.09	0.04
Honesty	5.82[b]	0.69	0.16*	0.22***
Love of Learning	5.99[b]	0.78	0.11	−0.07
IT	5.63[b]	0.80	0.12	−0.05
Extroversion	3.75[b]	1.54	0.08	−0.04
Agreeableness	5.04[b]	1.22	0.01	−0.06
Conscientiousness	5.25[b]	1.25	0.36***	0.10*
Emotional Stability	4.12[b]	1.60	−0.01	0.04
Openness	4.76[b]	1.28	0.19**	−0.00

[a]Range is from 1 to 5

[b]Range is from 1 to 7

Table 2 Correlations between Traits and Self- and Partner-rated Indicators of Relationship Quality

	IT	Honesty	Love of Learning
Self			
Honesty	0.47***		
Love of Learning	0.57***	0.40***	
Satisfaction	0.22***	0.26***	0.16**
Mutuality	0.22***	0.29***	0.19***
Partner-liking	0.20***	0.25***	0.15**
Commitment	0.14**	0.23***	0.12*
Partner			
Satisfaction	0.20***	0.13*	0.06
Mutuality	0.18**	0.08	0.03
Partner-liking	0.27***	0.17**	0.15*
Commitment	0.17**	0.15*	0.07

Note. *p <.05, **p <.01, ***p <.001

Finally, relationship length was only corelated with honesty and conscientiousness—not any of the relationship quality indicators (Table 1).

2.2.3 Dyadic Actor-Partner Interdependence Model

Models in which we added actor and partner effects of love of learning and honesty to the Big Five traits did not consistently demonstrate significant coefficients for the added variables. Likewise, these models did not consistently show increased model fit compared to models including only the Big Five traits. Therefore, we present the results of these models in the supplementary materials (see Tables S1-S2) and report in the main text only the results for the models used for our planned robustness checks in which we added IT to the Big Five traits.

As shown in Table 7, models of relationship satisfaction, commitment, and partner-liking in which actor and partner effects of IT were added to the Big Five traits demonstrated significantly increased model fit compared to models containing only the Big Five traits. In the case of mutuality, model fit was increased when actor and partner effects of IT were added but the *p*-value of this increased model fit was greater than 0.05. IT had significant associations with each relationship quality indicator. Regarding relationship satisfaction (Table 3), the second model included significant actor and partner effects of IT. For mutuality (Table 4), commitment (Table 5), and partner-liking (Table 6), the second model revealed a significant partner effect for IT, but no significant actor effect. Overall, these results suggest that higher levels of individuals' IT are associated with higher levels of their partners' relationship satisfaction, mutuality, commitment, and partner-liking, over and beyond both partners' Big Five personality traits.

We also conducted additional robustness checks, focusing on the actor and partner effects of IT in predicting relationship outcomes with neither the Big Five traits nor honesty and love of learning included. The findings indicated that IT was significantly associated with relationship satisfaction, with an actor effect of $\beta = 0.19$, $p = .002$, 95% CI [0.07, 0.31], and a partner effect of $\beta = 0.18$, $p = .003$, 95% CI [0.06, 0.30]. Similarly, IT was linked to mutuality, showing an actor effect of $\beta = 0.16$, $p = .008$, 95% CI [0.04, 0.28], and a partner effect of $\beta = 0.15$, $p = .010$, 95% CI [0.03, 0.27]. For commitment, the actor effect was not significant ($\beta = 0.01$, $p = .72$, 95% CI [−0.07, 0.11]), while the partner effect was significant ($\beta = 0.13$, p

Table 3 Models predicting relationship satisfaction

	Model 1			Model 2		
	B	95% CI [LL, UL]	SE	β	95% CI [LL, UL]	SE
Intercept	3.42	[2.41, 4.43]	0.51	2.18	[0.95, 3.41]	0.60
Agreeable (Act)	0.18^{***}	[0.09, 0.27]	0.04	0.15^{***}	[0.07, 0.24]	0.04
Agreeable (Part)	0.12^{**}	[0.04, 0.21]	0.04	0.10^{*}	[0.02, 0.19]	0.04
Conscientious (Act)	0.08^{*}	[0.00, 0.16]	0.04	0.06	[−0.01, 0.15]	0.04
Conscientious (Part)	-0.11^{**}	[−0.19, −0.03]	0.04	-0.14^{***}	[−0.22, −0.06]	0.04
Stable (Act)	0.01	[−0.05, 0.07]	0.03	0.01	[−0.05, 0.07]	0.03
Stable (Part)	0.00	[−0.06, 0.07]	0.03	0.00	[−0.06, 0.06]	0.03
Open (Act)	0.01	[−0.05, 0.08]	0.03	−0.00	[−0.07, 0.06]	0.03
Open (Part)	0.01	[−0.05, 0.09]	0.03	0.00	[−0.07, 0.07]	0.03
Extroverted (Act)	-0.06^{*}	[−0.13, −0.00]	0.03	-0.06^{*}	[−0.13, −0.00]	0.03
Extroverted (Part)	−0.05	[−0.11, 0.00]	0.03	−0.05	[−0.12, 0.00]	0.03
IT(Act)	–	–	–	0.14^{*}	[0.01, 0.27]	0.06
IT(Part)	–	–	–	0.19^{**}	[0.07, 0.32]	0.06

Note. N=252 (126 dyads). Act =Actor Effect. Part =Partner Effect. IT= Intellectual Transparency. CI=confidence interval. SE=standard error. LL= lower limit. UL= upper limit. $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Table 4 Models predicting mutuality

	Model 1			Model 2		
	B	95% CI [LL, UL]	SE	β	95% CI [LL, UL]	SE
Intercept	3.42	[2.41, 4.43]	0.51	3.87	[2.68, 5.06]	0.60
Agreeable (Act)	0.18^{***}	[0.09, 0.27]	0.04	0.14^{***}	[0.06, 0.02]	0.04
Agreeable (Part)	0.12^{**}	[0.04, 0.21]	0.04	0.09^{*}	[0.00, 0.17]	0.04
Conscientious (Act)	0.08^{*}	[0.00, 0.16]	0.04	0.06	[−0.01, 0.15]	0.04
Conscientious (Part)	-0.11^{**}	[−0.19, −0.03]	0.04	-0.10^{**}	[−0.19, −0.02]	0.04
Stable (Act)	0.01	[−0.05, 0.07]	0.03	0.01	[−0.05, 0.07]	0.03
Stable (Part)	0.00	[−0.06, 0.07]	0.03	0.03	[−0.03, 0.01]	0.03
Open (Act)	0.01	[−0.05, 0.08]	0.03	0.02	[−0.04, 0.01]	0.03
Open (Part)	0.01	[−0.05, 0.09]	0.03	0.03	[−0.04, 0.01]	0.03
Extroverted (Act)	-0.06^{*}	[−0.13, −0.00]	0.03	−0.06	[−0.12, 0.00]	0.03
Extroverted (Part)	−0.05	[−0.11, 0.00]	0.03	−0.04	[−0.10, 0.02]	0.03
IT(Act)	–	–	–	0.10	[−0.02, 0.02]	0.06
IT(Part)	–	–	–	0.13^{*}	[0.00, 0.02]	0.06

Note. N=252 (126 dyads). Act =Actor Effect. Part =Partner Effect. IT= Intellectual Transparency. CI=confidence interval. SE=standard error. LL= lower limit. UL= upper limit. $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

=.005, 95% CI [0.04, 0.23]). Regarding partner-liking, the actor effect was not significant (β=0.13, p =.06, 95% CI [0.00, 0.27]), whereas the partner effect was significant (β=0.37, p <.001, 95% CI [0.23, 0.52]). These results converge with our hierarchical APIM analysis, supporting the robustness of our findings regarding the relationship between IT and relationship quality indicators for individuals' partners.

Table 5 Models predicting commitment

	Model 1			Model 2		
	B	95% CI [LL, UL]	SE	β	95% CI [LL, UL]	SE
Intercept	3.42	[2.41, 4.43]	0.51	5.77	[4.91, 6.64]	0.44
Agreeable (Act)	0.18***	[0.09, 0.27]	0.04	0.09**	[0.03, 0.16]	0.03
Agreeable (Part)	0.12**	[0.04, 0.21]	0.04	0.06	[−0.00, 0.12]	0.03
Conscientious (Act)	0.08*	[0.00, 0.16]	0.04	0.05	[−0.00, 0.12]	0.03
Conscientious (Part)	−0.11**	[−0.19, −0.03]	0.04	−0.09**	[−0.16, −0.02]	0.03
Stable (Act)	0.01	[−0.05, 0.07]	0.03	−0.00	[−0.05, 0.05]	0.02
Stable (Part)	0.00	[−0.06, 0.07]	0.03	−0.03	[−0.09, 0.01]	0.02
Open (Act)	0.01	[−0.05, 0.08]	0.03	−0.01	[−0.07, 0.04]	0.03
Open (Part)	0.01	[−0.05, 0.09]	0.03	−0.00	[−0.06, 0.05]	0.03
Extroverted (Act)	−0.06*	[−0.13 −0.00]	0.03	−0.04	[−0.09, 0.00]	0.02
Extroverted (Part)	−0.05	[−0.11, 0.00]	0.03	−0.01	[−0.06, 0.03]	0.02
IT(Act)	–	–	–	−0.01	[−0.12, 0.08]	0.05
IT(Part)	–	–	–	0.16**	[0.05, 0.26]	0.05

Note. N=252 (126 dyads). Act =Actor Effect. Part =Partner Effect. IT= Intellectual Transparency. CI=confidence interval. SE=standard error. LL= lower limit. UL= upper limit. $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Table 6 Models predicting partner-liking

	Model 1			Model 2		
	B	95% CI [LL, UL]	SE	β	95% CI [LL, UL]	SE
Intercept	3.42	[2.41, 4.43]	0.51	2.71	[1.56, 3.86]	0.58
Agreeable (Act)	0.18***	[0.09, 0.27]	0.04	0.13**	[0.03, 0.23]	0.05
Agreeable (Part)	0.12**	[0.04, 0.21]	0.04	0.02	[−0.07, 0.11]	0.05
Conscientious (Act)	0.08*	[0.00, 0.16]	0.04	−0.03	[−0.13, 0.06]	0.05
Conscientious (Part)	−0.11**	[−0.19, −0.03]	0.04	−0.05	[−0.15, 0.04]	0.05
Stable (Act)	0.01	[−0.05, 0.07]	0.03	0.02	[−0.05, 0.09]	0.03
Stable (Part)	0.00	[−0.06, 0.07]	0.03	0.06	[−0.00, 0.14]	0.03
Open (Act)	0.01	[−0.05, 0.08]	0.03	0.13**	[0.04, 0.22]	0.04
Open (Part)	0.01	[−0.05, 0.09]	0.03	−0.03	[−0.12, 0.04]	0.04
Extroverted (Act)	−0.06*	[−0.13 −0.00]	0.03	−0.02	[−0.09, 0.04]	0.03
Extroverted (Part)	−0.05	[−0.11, 0.00]	0.03	−0.03	[−0.11, 0.03]	0.03
IT(Act)	–	–	–	0.12	[−0.02, 0.27]	0.07
IT(Part)	–	–	–	0.33***	[0.18, 0.48]	0.07

Note. N=252 (126 dyads). Act =Actor Effect. Part =Partner Effect. IT= Intellectual Transparency. CI=confidence interval. SE=standard error. LL= lower limit. UL= upper limit. $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

3 Discussion

These results are partly supportive of our hypothesis, (H1), regarding the relationship between individuals' IT and indicators of relationship quality for themselves and their partners. Specifically, they suggest that IT is associated with relationship quality indicators for oneself and one's partner, and IT retains associations with relationship quality indicators for the partner when controlling for Big Five traits, while honesty and love of learning generally do not have this association when controlling for the Big Five traits. Individuals' level

Table 7 Fit statistics for model comparisons

Fit indices	*df*	*logLik*	*AIC*	*BIC*	Δ*df*	χ^2
Relationship Satisfaction						
Step 1 (Model 1)	13	−277.03	580.07	625.96		
Step 2 (Model 2)	15	−271.38	572.76	625.70		
Model 1 vs. Model 2					2	11.31**
Mutuality						
Step 1 (Model 1)	13	−277.03	573.35	619.23		
Step 2 (Model 2)	15	−274.06	571.45	624.39		
Model 1 vs. Model 2					2	5.93†
Commitment						
Step 1 (Model 1)	13	−229.00	484.00	529.88		
Step 2 (Model 2)	15	−224.15	478.31	531.25		
Model 1 vs. Model 2					2	9.69**
Partner-Liking						
Step 1 (Model 1)	13	−327.84	681.69	727.58		
Step 2 (Model 2)	15	−315.54	661.09	714.03		
Model 1 vs. Model 2					2	24.60***

Note *p <.05, **p <.01, ***p <.001, †p <.1

of IT therefore has an association with their partner's relationship satisfaction, mutuality, partner-liking, and commitment that is distinct from any association between individuals' Big Five traits and these indicators, and any association between individuals' honesty or love of learning and these indicators. These results cohere with the pattern visible in previous research which indicates that while IT is related to Big Five traits as well as honesty and love of learning, it also stands out as distinct from them and retains distinct associations with important outcomes when controlling for them (Byerly & Haggard, 2023; Byerly, 2023b).

In fact, the results of our APIMs somewhat surprisingly suggest that individuals' honesty and love of learning may not predict additional variance in indicators of relationship quality for oneself or one's partner, once Big Five personality traits are controlled for. The lack of significant findings for these specific character strengths is interesting, given that previous research has provided evidence that honesty and the inquisitiveness strengths cluster are related to some indicators of relationship quality, including relationship satisfaction (Boiman-Meshita & Littman-Ovadia, 2022). However, this previous research did not control for the Big Five personality traits. It is possible that honesty and love of learning do not predict additional variance in these relationship quality indicators beyond the Big Five. It is also possible that honesty and love of learning are more closely associated with relationship quality indicators not considered in the present study, such as intimacy or burnout. Even in this study, honesty stood as the one study variable most closely associated with relationship length. Finally, it could be that the lack of findings in this study reflect the ceiling effects observed in several relationship quality indicators, which restrict variance and tend to attenuate actor and partner effects. The question of which relationship quality indicators honesty relates to and how it relates to relationship length deserves continued scrutiny.

IT appeared to have a greater impact on the partner's relationship quality indicators than on the individual's. In fact, our results indicate that there may be relatively little unique significance for IT on relationship quality for the self, as IT was only significantly associated with relationship satisfaction for the self, but not any other relationship quality indicator,

when controlling for the Big Five traits. This finding coheres with the conceptualization of IT as an other-regarding intellectual virtue, which emphasizes its role in facilitating others' epistemic needs, rather than focusing on fulfilling an individual's own epistemic needs (Byerly, 2021). Previous research has shown that fulfilling epistemic needs is a key factor in determining relationship quality (Deci & Ryan, 2014; Hagemeyer et al., 2013), suggesting that individuals who have their epistemic needs satisfied in their relationship are more likely to perceive their relationship as satisfactory. Therefore, IT may enhance relationship quality more for partners than for individuals themselves by selectively promoting the fulfilment of the partner's epistemic needs. Some relationship quality indicators for the self, such as relationship satisfaction, may be influenced indirectly by IT via its relationship with one's partner's relationship quality. This is a hypothesis deserving attention in future research.

3.1 Study 2

Study 2 examined the significance of IT in a second life domain—work. The aim of Study 2 was to assess the relationship between workers' IT and key worker-rated and supervisor-rated outcomes in the workplace. Specifically, based on the research reviewed in the introduction, we predicted that workers' IT would predict additional variance in worker-rated job satisfaction, supervisor-rated job performance, and supervisor-rated organizational citizenship when controlling for demographics of the worker and supervisor and Big Five personality traits, honesty, and love of learning of the worker in hierarchical regressions. Two different surveys were used—one for workers and one for supervisors. The study was ethically reviewed by the University of Sheffield and was pre-registered at https://doi.org/10.17605/OSF.IO/3ZJND.

4 Method

4.1 Participants

One hundred twenty-six matched pairs of workers and supervisors were recruited through Qualtrics Panellist Services, which sourced participants from a U.S.-based partner panel provider. Workers and supervisors were recruited as matched dyads, with the partner panel provider verifying the supervisory relationship through their internal screening procedures. Participants worked in a variety of fields including information technology (17.4%), health care (11.1%), education (10.3%), retail (10.3%), real estate and development (7.1%), government (5.6%), and other (37%). Nearly all workers (124) worked full-time. The median age of workers and supervisors was both 35–44 years old. 47.6% of workers and 46.8% of supervisors were women. To be included in the analysis, workers had to correctly answer the same screening question used in Study 1, and supervisors had to correctly respond to the item "The answer to this question is 'Slightly Agree'. Select 'Slightly Agree'." Qualtrics also performed a data scrub removing any participants exhibiting straight-lining or implausibly fast responding. The minimum completion time for employees was 92 s and for supervisors was 59 s, which are not outliers when compared to median completion times (Md = 405 s for employees and 284 s for supervisors), which are more informative here because a small number of very long durations skewed the distribution. Participants were paid at a

rate set by Qualtrics for completing the survey. We had aimed to recruit 150 dyads, which is comparable to the sample sizes used in prior research of this kind (Rothman & Coetzer, 2003), but had to settle for a more modest sample. A priori power analysis with G*Power (Faul et al., 2009) showed that the minimum sample size for detecting a moderate effect size ($f^2 = 0.15$), given a power of 0.81, a critical alpha of 0.05, and a model with 12 predictors, was approximately $N = 129$. The data and analysis code is available at https://doi.org/10.6084/m9.figshare.24243232.

4.2 Procedures

After giving informed consent, workers completed a survey anonymously, using a participant ID. They were asked demographic questions, questions about their type of employment, and questions about their own personalities or characters. Demographic questions included a question about the worker's age and a question about the worker's gender. Questions about their type of employment asked whether they worked full-time or part-time, how long they had been employed in their current job, and which sector they worked in. The measures of personality or character included several of the same measures used in Study 1: the ITS (Byerly & Haggard, 2023; $\omega = 0.90$), the ten-item measure of Big Five personality traits (Rammstedt & John, 2007), the values-in-action measure of honesty (Peterson & Seligman, 2004; $\alpha = 0.90$), and the love of learning subscale of the limitations-owning intellectual humility scale (Haggard et al., 2018; $\alpha = 0.83$). Employees' satisfaction with their job was assessed with a single question, "Overall, how satisfied are you with your job?" Responses were scored on a five-point scale ranging from "Extremely dissatisfied" to "Extremely satisfied".

After giving informed consent, supervisors completed a survey anonymously, using a participant ID that enabled the researchers to create matched dyads with the relevant worker. They were asked about their own age and gender. Additionally, the following scales were used.

4.3 Measures

4.3.1 Job Performance

Supervisors' ratings of their supervisee's job performance were assessed using the 27-item scale developed by Griffin et al. (2007), $\alpha = 0.97$. This scale provides a global measure of work performance that takes into account different work roles and the importance of uncertainty in the workplace. It includes nine sub-scales for work performance which measure a worker's proficiency, adaptability, and proactivity at each of the levels of individual task performance, team membership, and organization membership. Cronbach's alphas for these subscales ranged from to 0.8 (individual task adaptability) to 0.9 (individual task proficiency). Supervisors were asked to rate to what extent they agreed or disagreed that these items were true of the supervisee's recent performance at work (past 6 months or less). Sample items include "They carried out the core duties of their job well" (individual task proficiency), "They responded constructively to changes in the way their team works" (team member adaptability), and "They came up with ways of increasing efficiency within the

organization" (organization member proactivity). All items were scored on a seven-point scale ranging from "Strongly disagree" to "Strongly agree".

4.3.2 Organizational Citizenship

Supervisors' ratings of their supervisee's organizational citizenship were assessed using two subscales from the Organizational Citizenship Behavior Scale developed by Moorman and Blakely (1995). This scale measures employees' voluntary, constructive work behaviors across four subdomains: interpersonal helping, individual initiative, personal industry, and loyal boosterism. Interpersonal helping measures behaviors in which employees offer support to fellow employees that is not formally required by their role (e.g., "They go out of their way to help coworkers with work-related problems"), while individual initiative measures behaviors in which employees speak up proactively or encourage others to do so in order to promote better organizational performance (e.g., "They often motivate others to express their ideas and opinions"). Personal industry measures citizenship behaviors having to do with individual task proficiency (e.g., "They perform their duties with extra-special care"), while loyal boosterism measures citizenship behaviors that involve taking initiative on behalf of the organization (e.g., "They defend the organization when other employees criticize it"). The researchers employed just the first two of these subscales because these were deemed to have content that was both the most unique in comparison to what is already captured by the job performance measure (e.g., personal industry likely overlaps substantially with individual task proficiency) and most closely theoretically related to IT. The combination of these two subscales was treated as a single scale for organizational citizenship ($\alpha = 0.94$); Cronbach's alpha was 0.89 for the interpersonal helping subscale and 0.91 for the individual initiative subscale. All items were scored on a seven-point scale ranging from "Very much unlike them" to "Very much like them".

4.4 Statistical Analysis

4.4.1 Bivariate Relationships

To assess bivariate relationships key study variables, correlations were computed for these. Unlike in Study 1, the full sample was used both for intra-individual correlations and for inter-individual correlations, because in this study all workers and supervisors were part of a dyad.

4.4.2 Hierarchical Multiple Regression Analysis

A series of three-step hierarchical regressions was performed in order to examine whether worker IT retained a significant association with supervisor-rated job performance and organizational citizenship and worker-rated job satisfaction when controlling for other variables in the study. At Step 1, the age, gender, and Big Five personality traits of the worker and the age and gender of the supervisor were entered. At Step 2, the worker's honesty and love of learning were added. And, at Step 3, worker IT was added. The researchers repeated this process for each of the subscales of job performance and organizational citizenship in order

to explore whether any patterns emerged in terms of IT's unique relationship to these different aspects of job performance and organizational citizenship.

Hierarchical regressions were used in Study 2 rather than APIMs as in Study 1, because of crucial differences between these study designs, and modelled on the way hierarchical regressions have been used in similar studies previously (Harzer et al., 2021). While Study 1 investigates the same outcomes (e.g., relationship satisfaction) as judged by both romantic relationship partners, enabling the use of APIMs, in Study 2 we were particularly interested in supervisors' judgments of workers' job performance and organizational citizenship rather than workers' own judgments about these topics, which we did not assess. Likewise, we were interested in workers' own judgments of their job satisfaction, and not supervisors' judgments of workers' job satisfaction, or supervisors' judgments of their own job satisfaction, which we did not measure.

5 Results

5.1 Descriptive Statistics

Table 8 provides means and standard deviations for key study variables. Notably, scores for outcomes tended to be lower than for Study 1.

5.2 Bivariate Relationships

Table 9 provides key bivariate correlations from this study. Several observations stand out.

First, worker IT was moderately to strongly correlated with supervisor-rated job performance and organizational citizenship, and weakly correlated with worker job satisfaction.

Second, worker IT was strongly correlated with worker honesty and love of learning. Worker honesty and love of learning were themselves moderately correlated with supervisor-rated job performance and organizational citizenship and with worker job satisfaction.

Examination of correlations between workers' character trait variables and subscales from the supervisor-rated outcome variables revealed a more suggestive pattern for the subscales for job performance than for those for organizational citizenship. Worker IT, honesty, and love of learning were each significantly related to all subscales for job performance, with ranges from [0.40, 0.60] for IT, [0.26, 0.49] for honesty, and [0.20, 0.46] for love of

Table 8 Means and standard deviations for key study variables

Variable	Mean	Standard deviation
Job Performance	5.95[b]	0.89
Organizational Citizenship	5.71[b]	1.13
Job Satisfaction	4.33[a]	0.86
Honesty	6.18[b]	0.75
Love of Learning	6.37[b]	0.83
IT	5.93[b]	0.88
Extroversion	4.92[b]	0.84
Agreeableness	5.15[b]	0.93
Conscientiousness	5.19[b]	0.93
Emotional Stability	5.02[b]	0.91
Openness	5.01[b]	0.90

[a] Range is from 1 to 5

[b] Range is from 1 to 7

Table 9 Key Correlations between Worker Traits and Worker- and Supervisor-rated Work Outcomes

	Worker IT	Worker Honesty	Worker Love of Learning	Supervisor-rated Job Performance	Supervisor-Rated Organizational Citizenship
Worker Honesty	0.51***	–	–	–	–
Worker Love of Learning	0.53***	0.70***	–	–	–
Supervisor-rated Job Performance	0.57***	0.49***	0.43***	–	–
Supervisor-rated Organizational Citizenship	0.42***	0.49***	0.37***	0.79***	–
Worker-rated Job Satisfaction	0.28**	0.49***	0.36***	0.41***	0.40***

Note *p <.05, **p <.01, ***p <.001

learning. The correlation between IT and these outcome variables was stronger than that between honesty and these outcome variables except in the cases of organization member proficiency and organization member proactivity, with the largest differences being for individual task proactivity and team member adaptability. The correlation between IT and these outcome variables was stronger than that between love of learning and these outcome variables in all cases except for individual task proficiency (where the relationships were equal), with the largest differences being for individual task proactivity, team member adaptability, and team member proactivity. Each of IT (r =.40, p <.001), honesty (r =.42, p <.001), and love of learning (r =.34, p <.001) were significantly correlated with the interpersonal helping subscale of organizational citizenship, and the same was true of the relationships between IT (r =.40, p <.001), honesty (r =.51, p <.001), and love of learning (r =.36, p <.001) with the individual initiative subscale. Worker honesty had a somewhat stronger relationship with these subscales, and indeed with the full organizational citizenship scale, than did worker IT, while worker IT had somewhat stronger relationships with the subscales and full scale than did love of learning.

5.3 Hierarchical Multiple Regression Analyses

In the hierarchical regressions with worker IT as a predictor (see Table 10), worker IT retained a significant association with the full scales for both supervisor-rated job performance and supervisor-rated organizational citizenship at Step 3, with the size of this relationship being larger in the case of job performance. Unlike in Study 1, honesty had a significant association with the outcome variables at both Step 2 and Step 3. In the regressions for job performance, Step 2 and Step 3 were each significant, and the same was true of Step 2 and Step 3 in the regressions for organizational citizenship. In the hierarchical regression for employee job satisfaction, worker IT was not significant at Step 3, nor was Step 3 itself significant, though Step 2 was, with honesty driving this relationship.

Hierarchical regressions for worker IT and the subscales of job performance followed a similar pattern to that evidenced by the correlations. Worker IT retained a significant association with each of these subscales at Step 3, with Step 3 explaining a range of variance from 3.5% (individual task proficiency) to 14.8% (team member adaptability). The increase in variances explained at Step 3 for individual task proactivity, team member adaptability, and team member proactivity were each above 10%. Worker IT was significant at Step 3 for

Table 10 Hierarchical Regressions for IT and Worker- and Supervisor-Rated Outcomes

	Job Performance			Organizational Citizenship			Job Satisfaction		
	β(SE)	B	ΔR^2	β(SE)	B	ΔR^2	β(SE)	B	ΔR^2
Step 1			0.17^{**}			0.10			0.19^{**}
Step 2			0.13^{***}			0.15^{***}			0.10^{***}
Honesty	0.34 (0.14)	0.40^{**}		0.43 (0.18)	0.65^{***}		0.42 (0.13)	0.48^{***}	
Love of Learning	0.17 (0.13)	0.18		0.08 (0.17)	0.10		−0.04 (0.13)	−0.04	
Step 3			0.11^{***}			0.03^{*}			0.00
Honesty	0.25 (0.13)	0.30^{*}		0.38 (0.18)	0.58^{**}		0.42 (0.14)	0.49^{***}	
Love of Learning	0.04 (0.13)	0.04		0.01 (0.17)	0.01		−0.04 (0.13)	−0.04	
Worker-rated IT	0.42 (0.09)	0.43^{***}		0.24 (0.13)	0.30^{*}		−0.01 (0.10)	−0.01	
Total R^2			0.41^{***}			0.29^{***}			0.30^{***}

Note. For job performance, Step 1: F(9, 116) = 2.64; Step 2: F(2, 114) = 4.55; Step 3: F(1, 113) = 6.72. For organizational citizenship, Step 1: F(9, 116) = 1.55; Step 2: F(2, 114) = 3.65; Step 3: F(1, 113) = 3.94. For job satisfaction, Step 1: F(9, 116) = 3.19; Step 2: F(2, 114) = 4.59; Step 3: F(1, 113) = 4.17. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Note. Step 1 includes the age, gender, and Big Five personality traits of the worker and the age and gender of the supervisor

both of the organizational citizenship subscales, with Step 3 explaining an additional 3.8% variance in interpersonal helping behaviors and 2.5% variance in individual initiative.

6 Discussion

These results partly supported our hypothesis, (H2), regarding the relationship between worker IT and job performance, organizational citizenship, and job satisfaction. Specifically, worker IT was associated with each of these variables, and it retained a significant association with supervisor-rated job performance and organizational citizenship when controlling for workers' demographics, Big Five traits, honesty, and love of learning and supervisors' demographics. The significance of worker IT in hierarchical regressions suggests that workers' IT may be significant as a predictor of workers' job performance and organizational citizenship over and beyond the age and gender of workers and supervisors and the Big Five traits, honesty, and love of learning of the worker.

This finding fits well with prior theory and research which has suggested that IT is associated with other variables such as honesty and love of learning which are themselves related to job performance (Harzer et al., 2021), and yet IT also goes beyond these by being uniquely associated with other behaviors that may be important at work, such as communicative competence and voluntarily teaching or training others (Byerly, 2023b). The person high in IT may tend to share their perspective competently and proactively in the workplace, helping colleagues to make better use of what they know and leading to better workplace functioning. Particularly in jobs which rely on the transfer of knowledge and strong communication between team members, IT may lead to better job performance for workers,

and it may also lead to certain organizational citizenship behaviors that involve proactively sharing knowledge with others.

Worker IT did not account for any unique variance in worker job satisfaction in hierarchical regressions. It may be that, much as was observed for Study 1, individuals' IT is more closely related to outcomes for others than with outcomes for the individual themselves. In this case, it may be more closely associated with outcomes for coworkers, teams, or the worker's organization as a whole than with the worker's own job satisfaction. Yet, it may still have an indirect relationship to worker job satisfaction, perhaps moderated by other variables, including the extent to which worker IT is perceived by supervisors. This finding would fit well with the theoretical description of IT as an other-regarding intellectual virtue that focuses first and foremost on promoting knowledge or understanding for others (Byerly, 2021). It may more directly benefit others in the workplace, and only indirectly benefit the worker themselves.

6.1 General Discussion

Intellectual transparency (IT) is an other-regarding intellectual virtue that focuses on grasping one's own perspective well and communicating it to others effectively when doing so would help them gain knowledge or understanding. Previous theory has suggested that IT would lead to higher quality romantic relationships and better performance at work (Byerly, 2023). We tested these ideas empirically, finding evidence that individuals' IT is uniquely related to relationship quality indicators, particularly as judged by their relationship partner, and that workers' IT is uniquely related to supervisor-rated job performance and organizational citizenship.

The finding that IT is uniquely significant for other-rated outcomes as judged by a romantic partner or supervisor fits well with prior theory and research on IT. IT differs from other intellectual virtues such as the love of learning in that it is explicitly conceptualized as an other-regarding intellectual virtue focused on enabling others to gain knowledge or understanding (Byerly, 2021). Moreover, it demands more than honesty, requiring not just refraining from lying or misleading, but more positively sharing one's perspective to help the other person (Byerly, 2023a). Prior research reflects the close association between IT and honesty and love of learning but also demonstrates that IT is uniquely associated with other-related outcomes such as communicative competency and frequency of training or teaching others (Byerly, 2023b). Overall, IT uniquely targets the satisfaction of others' epistemic needs through the sharing of one's own perspective, which may be significant especially for others in a romantic relationship or at work (Deci & Ryan, 2014; Hagemeyer et al., 2013). Displaying IT may enhance others' judgments of the person exhibiting IT and their contribution to the shared domain—whether that is work or romance. Specifically, IT has been described as one of several intellectual virtues that should uniquely contribute to a person's being "intellectually dependable"—the kind of person that others can rely upon when trying to figure things out (Byerly, 2021). This kind of dependability or trustworthiness is plausibly related to more positive evaluations of a person in domains which require trust, including love and work (e.g., Atta et al., 2013).

We found less evidence of the unique significance of IT for the person's own self-assessed outcomes in love and work. IT was related to a person's satisfaction with their romantic relationship when controlling for covariates, but not to their other relationship

quality indicators, and workers' IT was not related to their job satisfaction when controlling for covariates. The relationship between IT and outcomes for the self in love and work may be weaker and more indirect than the relationship between IT and outcomes for others in these domains. As IT most directly targets the satisfaction of others' epistemic needs, its relationship to outcomes for the self may depend on downstream effects of promoting others' epistemic needs, such as whether this leads others to a more positive evaluation of the person high in IT. This kind of indirect hypothesis could be explored in future research.

Beyond considering IT, these studies also contribute to understanding the significance of two character strengths—honesty and the love of learning—in love and work. Previous studies have found that honesty is related to partners' judgments of relationship quality, while clusters of character strengths including love of learning are as well (Boiman-Meshita & Littman-Ovadia, 2022). However, in Study 1, we found that honesty and love of learning were very limited in their ability to predict unique variance in our selected relationship quality indicators in APIMs. This was true even though honesty was the study variable most associated with relationship length. While honesty in particular is often identified as a highly valued feature of romantic partners (Steen, 2003), our study suggests that a person's IT plays a more significant role for the relationship outcomes investigated here. Perhaps this could be due the way in which IT is more demanding than honesty. Partners, especially in relatively stable relationships such as those in this study, may more commonly meet the bar of honesty in this domain but fail to achieve the demands of IT. This may be a hypothesis worth pursuing in future research.

By contrast, in the professional domain, worker-rated honesty predicted unique variance in supervisors' judgments of job performance and organizational citizenship, as well as employees' job satisfaction, although love of learning did not. This finding regarding honesty coheres well with previous research which has found that worker-rated honesty is uniquely predictive of supervisor's judgments of employee work performance (Harzer et al., 2021) and workers' own job satisfaction (Heintz & Ruch, 2020). It is interesting to note that honesty appears to play a more significant role at work than in romantic relationships—at least relatively stable relationships such as those in this study. Perhaps this is because dishonesty is perceived to be more acceptable in the workplace than in romantic relationships (Cantarero et al., 2018). This could lead to more variation in displays of honesty at work than in these romantic relationships, allowing variation in honesty to play more of a role—a hypothesis which future research may wish to consider.

6.2 Limitations

The present studies contribute to the literature on character virtues by providing a direct empirical assessment of the unique significance of IT—a philosophically informed, other-regarding intellectual character virtue—in predicting important outcomes beyond competing variables across two life domains. However, the studies are not without limitations.

First, as these studies employ a cross-sectional design, they do not allow us to draw conclusions about the causal role of IT in relation to outcomes at work or in romantic relationships. Future studies employing alternative designs, such as longitudinal or experimental designs, could help address this topic.

Second, in the present study, we used a 6-item scale for measuring IT, which may impose some limitations on content coverage. However, the measure was derived from a large and

diverse initial item pool in a collaborative, interdisciplinary way and selected on the basis of its strong psychometric features. At the same time, the brevity of the scale has practical advantages for applied research, including reduced participant burden and improved feasibility in multi-variable designs such as the present study. That said, we encourage future studies to supplement the ITS with expanded item pools or complementary methods capable of capturing additional facets of the construct when greater depth is required.

Third, our samples of romantic partners and workers may differ from other samples. For instance, our sample for Study 1 included only romantic relationship partners who were willing to take online surveys together. It is possible that these relationships are not representative of romantic relationships in general, and may reflect only more cooperative, stable relationships. It would be valuable for future research to investigate the significance of IT within a wider array of romantic relationships, including less stable, cooperative ones. Similarly, our sample for Study 2 included individuals working in a variety of career settings. Yet, it is possible that there are different norms surrounding IT in different types of careers, and IT may be more significant in some careers than others. More generally, our samples are from the United States, and it is possible that cultural norms concerning IT could moderate our results. For instance, in more collectivist cultures, IT may be even more of an expectation (Kim, 2020).

Fourth, researchers may wish to examine other constructs or measures thereof alongside IT beyond those considered here. For instance, we used a very limited measure of the Big Five personality traits. Lengthier measures of these traits and their subfacets could enable exploration of the relationship between IT and more detailed aspects of the Big Five and the role played by each in love and work. Other character strengths and personality features could also be considered as covariates of IT. For instance, perspective-taking (Davis, 1980), metacognitive awareness (Gregory & Sperling, 1994), the VIA strength of perspective (Peterson & Seligman, 2004), and emotional intelligence (Davies et al., 2010) each overlap in various ways with IT, while remaining conceptually distinct from it. It would be valuable to investigate not only how IT is related to these variables, but whether it continues to be associated with important outcomes in love and work when controlling for them, or how it interacts with them in relating to these outcomes.

Fifth, researchers may wish to investigate the specific processes whereby IT is related to outcomes in romantic relationships or at work. Are there specific actions that individuals high in IT tend to perform which influence their partner's or supervisor's judgments? Do high-IT individuals display certain emotions in relevant contexts which influence these judgments? This kind of research could shed light on the short-term dynamics through which intellectual transparency affects outcomes in these areas.

7 Conclusion

We conducted the first studies to directly assess the significance of intellectual transparency (IT), an other-regarding intellectual virtue, in love and work. These studies provide evidence that IT is associated with the quality of romantic relationships for individuals' partners when controlling for Big Five personality traits, and evidence that IT is associated with supervisor-rated job performance and organizational citizenship when controlling for Big Five personality traits, honesty, and love of learning.

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Data Availability Data for the two studies presented in this paper is available at 10.6084/m9.figshare.24243400 (Study 1) and 10.6084/m9.figshare.24243232 (Study 2).

Declarations

Conflict of Interest The authors have no relevant financial or non-financial interests to disclose.

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