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# Self-knowledge of perceiver effects: Do people know how positively they tend to view targets relative to other people? <sup>☆</sup>

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## ABSTRACT

There are stable individual differences in how positive people's impressions of others tend to be and these perceptual tendencies in turn shape behaviour. Using data from an experimental online photo-rating study ( $N = 303$ ) and from an in-lab round-robin study ( $N = 156$ ), we explored whether people have insight into how positive their impressions tend to be compared to others. Results from both studies suggest that people are aware of how positive their impressions tend to be relative to others. We discuss implications of having or lacking this form of self-knowledge.

## 1. Introduction

When encountering someone for the first time, we come away with a general attitude about them, or a sense of how positively or negatively we see their personality. Subjectively, we might believe this impression is all about the other person, but part of our impressions stem from the idiosyncratic way we tend to see people (Kenny, 1994). Take the example of Pam and Nick, who meet the same group of people for the first time. Despite having the same available cues to use, Pam sees people in the group more positively, whereas Nick sees the group more negatively. These unique perceptual tendencies are called perceiver effects (Kenny, 1994).

Perceiver effects are related to social experiences and shape social outcomes (Rau et al., 2020), suggesting that it might be useful for people to understand the role of their perceiver effects in daily life. But do people like Pam and Nick even know how positively they tend to see people relative to other perceivers? If not, it would be difficult for people to appreciate how their perceptions shape their social experiences. Conversely, if people *do* have a sense of the lens through which they see their social world, it would implicitly suggest that people understand that others have a different social lens than they do. If, for example, Pam appreciates the fact that she tends to see others more positively, she clearly senses that others have a different opinion than she does. The

current research tests whether people have self-knowledge of their positivity, or their perceptual style of seeing others in a relatively more positive (or negative) light.

## 1.1. Self-Knowledge of perceiver effects

There are informational and motivational barriers to self-knowledge in general and for self-knowledge of perceiver effects in particular (Vazire, 2010). With respect to informational barriers, self-knowledge of perceiver effects requires an understanding of how one's own perceptions deviate from others' perceptions; thus, a major barrier to self-knowledge could be a lack of information about what others' tendencies are. For instance, imagine that a group of perceivers rated the same 10 targets on some trait using a scale of 1 to 10 with a grand mean of 5. For Pam to know that her average rating of targets was relatively more positive than the group's average, she would need to understand that the normative impression was a 5. It is possible that people do receive feedback about how their perceptions deviate from others' in daily life given that a major topic of conversation is gossip, which generally entails exchanging impressions of people (Litman & Pezzo, 2005). In this exchange, people likely learn if their perceptions tend to be more positive or negative than others' are on average.

With respect to motivational barriers, perceiver effects in early

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acquaintanceship likely reflect people's general working models of others, which suggests perceiver effects might feel like objective truths rather than subjective experiences. This fusion between perception and reality might manifest as a general sense of being accurate. For example, Nick might not realize that he sees others in relatively negative ways because he thinks he picks up on valid, negative cues and similarly believes that these negative cues are so self-evident that everyone sees people like he does (i.e., he is not especially negative). Interestingly, there is indirect evidence that people do realize how their views of a target would differ from other people's views (Solomon & Vazire, 2016). Specifically, romantic partners are aware that other people view their partner as less attractive than they do (Solomon & Vazire, 2016), suggesting people understand that their impressions might deviate from others' impressions. Thus, despite the motivation to view one's own perceptions as reality, people might nevertheless understand that others have different social experiences than they do.

Another reason to think that people have self-knowledge of their perceiver effects is that people's perceptual tendencies can be a defining part of their character. For example, a defining feature of agreeableness is a tendency to be more trusting (e.g., "Is generally trusting" is an agreeableness item from the Big Five Inventory; John & Srivastava, 1999), which likely allows agreeable people to be more generous, kind, and cooperative (Wood et al., 2010). Furthermore, people who describe themselves as higher in agreeableness also tend to see others in especially positive ways (Rau et al., 2021; Srivastava et al., 2010; Wood et al., 2010). The fact that people's self-reports of their tendency to be trusting tends to predict their positive perceptual style provides indirect evidence for self-knowledge.

## 2. Research overview

In two studies, we assess whether people have insight into how positively they tend to view people relative to others. Evidence for self-knowledge of positivity would suggest that people have insight into how they process social information and that they realize if and how their social experiences differ from other people. To understand the utility of having self-knowledge of positivity, it can be useful to consider the implications of lacking this insight. If Nick's perceptions tend to be negative, for example, but he thinks that he is a more charitable perceiver compared to others, it is likely that he will encounter interpersonal friction: others will likely see him as disagreeable where he thinks he is agreeable.

To examine this type of self-knowledge, we index the magnitude of the association between self-reports of tending to see others in positive ways and the actual positivity of people's perceptions. Notably, while perceiver effects contain both a global positivity component (i.e., how positively a perceiver generally sees people) and a trait-specific component (i.e., how positively a perceiver sees people on a specific trait; Rau et al., 2020; Srivastava et al., 2010), we focus on positivity because it dominates perceiver effect variance (Rau et al., 2020). We also focus on impressions in early acquaintanceship, including both pre-interaction (zero-acquaintance) and post-interaction perceptions, because perceiver effects in early acquaintanceship reflect generalized stereotypes (Rau et al., 2021).

Our analyses were pre-registered ([https://osf.io/zjymp/?view\\_only=0fa810aac644265b48dd346e877456b](https://osf.io/zjymp/?view_only=0fa810aac644265b48dd346e877456b)). Detecting an effect of about 0.21 (i.e., the average effect size in social/personality psychology; Funder and Ozer, 2019) would require a sample size between 84 and 193 for a two-tailed test at a  $p < .05$  significance level. However, structural equation modelling requires larger sample sizes (i.e., around 200) to obtain stable parameter estimates. Notably, in our pre-registration, we planned to use a third dataset (Dataset 2 in the pre-registration) but decided to report the effects in the Supplemental Materials because the sample size was small ( $N = 95$ ), especially for structural equation models, and the self-knowledge items were conceptually different from those in the other two datasets.

## 3. Method

Table 1 summarizes the studies. In both studies, participants indicated how positively they tend to view people and rated targets on Big Five traits, from which we generated a global index of positivity. The Big Five was measured using the Ten-Item Personality Inventory (TIPI; Gosling et al., 2003), which has one positively-keyed and one negatively-keyed item for each of the Big Five domains. In Study 1, participants rated targets' photographs, and in Study 2, participants met each other in small groups. We indexed self-knowledge at zero-acquaintance in Study 1, given that this context appears to assess a stable, generalized stereotype (Rau et al., 2021), and self-knowledge before and after an initial encounter in Studies 2 when people have a chance to shape their social interactions.

### 3.1. Study 1

Participants completed an online intake survey that included self-perceptions of positivity ("Compared to most people, do you initially see people in a negative, neutral, or positive way?") on a  $-10$  (*Extremely negative*) to  $10$  (*Extremely positive*) scale. Participants viewed photographs of 90 targets and rated their traits on the TIPI (Gosling et al., 2003). Each photo-rating survey included 30 targets, and because participants were required to pass attention checks to continue with the study, surveys were completed over several days (i.e., between 4 and 7 days). The final sample includes those who completed all three surveys. Targets were (1) undergraduate students ( $k = 30$ ), shown from the shoulders up with naturalistic expressions, (2) individuals' faces from the Chicago Face Database (CFD; Ma et al., 2015;  $k = 30$ ), shown from the shoulder up with the same clothing (i.e., grey shirts) 10 of whom had neutral expressions and 20 of whom had smiling expressions, and (3)

**Table 1**  
Overview of Studies.

	Study 1	Study 2
Participants	Cloud Research Participants	Canadian Undergraduates
Compensation	\$22 USD	Course credit or \$20 CAD
N	303	156
Age	$M_{age}(SD) = 41.22 (12.30)$ years	$M_{age}(SD) = 18.53 (0.97)$ years
Gender	178 male, 123 female, 1 nonbinary, 1 did not respond	40 male, 114 female, 1 self-identified
Ethnicity	33 Black, 214 Caucasian, 13 East Asian, 12 Latin American, 5 Native American or Indigenous Canadian, 7 Middle Eastern or North African	15 African American, 79 Asian, 5 Hispanic, 2 Pacific Islander, 29 White/Caucasian, 38 self-identified using an open-response box
Positivity	TIPI items 1 = Disagree strongly, 7 = Agree strongly	TIPI items 1 = Disagree strongly, 7 = Agree strongly
Self-perception of positivity	Compared to most people, do you initially see people in a negative, neutral, or positive way? -10 = Extremely negative, 0 = Average, 10 = Extremely positive $M(SD) = 2.68 (4.09)$	T1: Compared to most people, are your judgments of others relatively negative, neutral, or positive? -100 = Extremely negative, 0 = Neutral, 100 = Extremely positive $M(SD) = 4.61 (1.07)$ T2: If you were to guess, you likely saw this person in a more negative or positive way than most people would see this person? <sup>1</sup> 1 = More negative than most, 7 = More positive than most $M(SD) = 4.94 (1.15)$

<sup>1</sup>We also conducted the analyses using the dyadic T2 item for both T1 and T2 models and the results were unchanged (see Supplemental).

dating profile photos ( $k = 30$ ) which varied in the amount of the body shown, clothing, and background. This study was conducted for a different project, which is why there are different subsets of targets. We chose to use all targets to maximize the reliability of the perceiver effects. The order of photograph sets (e.g., dating photos versus undergraduates) and all photos within rating sets were randomized. After rating each target set, participants rated how positively they viewed the set of targets. We used all four indicators of positivity as a global index of positivity (i.e., the global as well as the three photoset-specific ratings of positivity; see Table 1) but see the Supplemental Materials for disaggregated results.

### 3.2. Study 2

Participants came to the lab in groups of 4–6 and were unacquainted. Research assistants ensured that participants were unacquainted by verbally asking the participants to declare if they knew anyone else in the group. Before interacting, each member rated, and was rated by, each other member of their group on a subset of the TIPI (Gosling et al., 2003). Specifically, each of the Big Five domains was measured with one item from the TIPI: extraverted, enthusiastic; dependable, self-disciplined; sympathetic, warm; anxious, easily upset; conventional, uncreative). After playing a competitive board game (i.e., *The Sheriff of Nottingham*) and working through a cooperative task (i.e., design an advertisement campaign for the board game), they rated, and were rated by, each person on the full TIPI. At the end of the session, each participant rated how positive their ratings tend to be in general and how positively they saw each member of their group relative to others (Table 1).

### 3.3. Analytic plan

We used the Social Relations Model (SRM; Kenny, 1994) to extract perceiver effects for each Big Five trait, which resulted in five perceiver effect scores per participant. To reduce acquiescence variance, we first scored each of the Big Five factors by averaging their respective scale items (e.g., “extraverted, enthusiastic” and reverse-coded “reserved, quiet” for extraversion) and then used the five scale scores when conducting SRM analyses. We modeled positivity as a latent factor with each of the perceiver effect scores as an indicator of the factor (i.e., the positivity factor had 5 indicators). Neuroticism was reverse-coded to create an emotional stability score, and as such, all five indicators loaded positively onto the positivity factor. Notably, in Study 2, the zero-acquaintance ratings only had one TIPI item per subscale (i.e., extraverted, enthusiastic; sympathetic, warm; anxious, easily upset; conventional, uncreative; and dependable, self-disciplined); thus, these trait-specific SRM scores were based on one item versus two. Next, we correlated the positivity factor with self-perception of positivity scores.

**Table 2**

Fit indices and inter-factor correlations between perceived and actual positivity ( $\Phi$ ).

	CFI	RMSEA	SRMR	TLI	$\Phi$ [95% CI]
Study 1					
All targets	0.966	0.091	0.043	0.953	<b>0.56 [0.48, 0.65]</b>
Study 2					
T1 <sup>1</sup>	0.895	0.060	0.045	0.802	<b>0.26 [0.05, 0.47]</b>
T2	0.945	0.056	0.043	0.908	<b>0.40 [0.22, 0.59]</b>

Note. T1 = pre-interaction ratings; T2 = post-interaction ratings.

<sup>1</sup>This model included a residual correlation between openness and emotional stability ( $r = 0.26$ ), which we allowed in order to improve fit. The results are comparable when this residual correlation is omitted:  $\Phi = 0.31$  [0.12, 0.50], CFI = 0.728, RMSEA = 0.098, SRMR = 0.065, TLI = 0.547.

## 4. Results

The models in both datasets fit well (Table 2). Overall, people had insight into how positively they tend to view people (Table 2). At zero-acquaintance, when people viewed targets' photographs (Study 1  $\Phi = 0.56$ , 95% CI [0.48, 0.65]) or met in person (Study 2  $\Phi = 0.26$ , 95% CI [0.05, 0.47]), their self-reports of positivity strongly predicted their actual positivity. This pattern was the same in the student photoset ( $\Phi = 0.60$ , 95% CI [0.49, 0.70]; CFI = 0.929, RMSEA = 0.145, SRMR = 0.065, TLI = 0.885), CFD photoset ( $\Phi = 0.54$ , 95% CI [0.42, 0.65]; CFI = 0.966, RMSEA = 0.101, SRMR = 0.037, TLI = 0.946), and dating photoset ( $\Phi = 0.57$ , 95% CI [0.47, 0.68]; CFI = 0.970, RMSEA = 0.096, SRMR = 0.044, TLI = 0.951).

In Study 2, after interacting with group members, the self-knowledge of positivity was stronger compared to positivity at zero-acquaintance ( $\Phi = 0.40$ , 95% CI [0.22, 0.59]), arguably because the self-knowledge indicator was indexed after the interaction, at the same time people provided post-interaction impressions.

## 5. Discussion

In two studies, we found that people understand the degree to which they tend to see people in relatively more positive or negative ways than other people do in early acquaintanceship, specifically at zero acquaintance and after a first meeting. Broadly, this suggests that people have insight not only into how their perceptions differ from others' perceptions, but that they are also aware of their working model of what others are like. We found evidence of this type of self-knowledge in both a highly controlled, non-interactive context (i.e., photo-ratings only) and in a relatively more naturalistic in-lab interaction, and interestingly, the magnitude of self-knowledge was larger in the *non*-interactive context. Conceptually, this might be because there are many other pieces of information to attend to during a live interaction (e.g., speech, body language), and self-knowledge in this context requires understanding how other people are processing these dynamic cues.

We focused on early acquaintanceship in order to isolate people's general perceptual tendencies. Past work suggests that in early acquaintanceship, perceiver effects reflect people's generalized stereotypes (Rau et al., 2022a), but as people become more acquainted, perceiver effects tend to be based on social experiences within a group (e.g., feeling or being liked; Rau et al., 2022b; Srivastava et al., 2010). Thus, our results reveal that people are aware of the positivity of their generalized expectations relative to others, and the results from Study 2 suggest that this self-knowledge might persist after first meeting someone. However, both studies rely heavily on undergraduate perceivers and targets, and it is possible that these effects could differ with a sample of older or younger perceivers, given that this would change the reference group. Furthermore, our sample sizes were relatively small, especially for structural equation modelling, and as such, our results should be replicated.

The current work cannot uncover the specific mechanism(s) responsible for achieving or lacking self-knowledge of positivity, but future work could more directly examine how people achieve this type of self-knowledge. For example, it is likely that people learn about their own harshness or leniency in everyday conversations. People often gossip (Litman & Pezzo, 2005) and these conversations might reveal consistent discrepancies between one's own and others' impressions. Moreover, because individual differences in people's perceptions of others can shape their social experiences (Rau et al., 2020), it may be beneficial to know the ways in which one's own perceptions differ from others' perceptions. Future work could consider giving people feedback about the positivity of their impressions relative to others to see whether and how this feedback shapes their behaviour during an interaction. This might be particularly useful for people who wish to change their perceiver effects (e.g., to view others more charitably).

Given that people seem to understand that they have a more

generous (or harsher) working model compared to others, future work might explore whether people believe their perceptual styles are accurate or adaptive. People with greater self-knowledge of their perceptual styles who feel like their views are accurate might be less flexible about their beliefs and might even devalue others' beliefs. For example, someone with an especially harsh view of others on an interview panel might realize they are harsher than others, but if they also tend to think they are accurate, they would downplay others' more positive impressions. With respect to beliefs about adaptiveness, some people might believe their perceptual styles hinder them and might be very motivated to change whereas other people believe their perceptual styles serve them well. For example, agreeable people might realize their perceptions are more positive than others and are not willing to change this style given the benefits this style confers.

### CRedit authorship contribution statement

**Victoria Pringle:** Formal analysis, Writing – original draft, Writing – review & editing. **Erika N. Carlson:** Conceptualization, Funding acquisition, Writing – review & editing. **Richard Rau:** Conceptualization, Writing – review & editing.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jrp.2023.104413>.

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