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The Perceptive Proletarian: Subjective Social Class Predicts Interpersonal Accuracy

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Abstract

Interpersonal accuracy correlates modestly across different domains. Although some research has explored factors that predict accuracy within specific domains of interpersonal judgment (e.g., social attributes), whether any variables might predict interpersonal accuracy generally across different domains remains in question. Subjective socioeconomic status (SES) has recently emerged as an important moderator of various social cognitions, such as contextual focus and empathic accuracy. Moreover, people lower in SES tend to show greater interpersonal engagement and attention; thus, we wondered whether individuals with lower subjective SES might exhibit superior interpersonal accuracy in multiple domains. Indeed, across four studies, we found that subjective SES inversely correlated with accuracy in three different domains of interpersonal accuracy: social attributes, situational affect, and emotion. These findings therefore demonstrate that subjective SES may predict broad interpersonal accuracy abilities and suggest that, despite modest relationships between different types of first impression accuracy, the correlates of such accuracy can still operate across domains.

Keywords: interpersonal accuracy, person perception, socioeconomic status, social class, nonverbal

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Nonverbal cues heavily influence snap judgments, which in turn importantly impact social interactions (e.g., Ambady, Bernieri, & Richeson, 2000; Zebrowitz, 1997). Successfully navigating the social world therefore requires that people accurately use nonverbal information to guide their behavior. Although some work has examined factors affecting interpersonal accuracy in specific domains, research has not thoroughly investigated individual differences in interpersonal accuracy in general (i.e., across different domains). Notably, research on the domain of social attributes (inferring others' social group memberships, such as sexual orientation or political ideology) has remained distinctly separate from that on other domains of interpersonal accuracy (see Boone & Schlegel, 2016; Schlegel, Boone, & Hall, in press). Furthermore, no research to date has investigated the relationship between interpersonal accuracy and social class, a recent variable of interest in social cognition research. We sought to address these gaps here by examining how subjective social class predicts interpersonal accuracy in three domains: social attributes, emotion (reading affective states), and situational affect (inferring social context from emotional enactment).

Interpersonal Accuracy

In their recent meta-analysis, Schlegel et al. (in press) provided an overview of the various domains of interpersonal accuracy: deception, emotion, personality, situational affect, social attributes, and thoughts and feelings. They found that performance in these domains intercorrelated modestly (average $r = .19$), with some domains more closely related than others (e.g., measures of situational affect and emotion correlated more strongly than tests of social attributes and personality). Their review provided the first evidence for a global, albeit faceted,

interpersonal accuracy ability. Yet the question remains as to what external variables might predict this general ability.

Correlates of Interpersonal Accuracy

Previous research has explored many correlates of interpersonal accuracy (also called interpersonal sensitivity and interpersonal perception). A long history of research has investigated the factors that make one a "good judge" of others (e.g., Vernon, 1933). This work has examined how variables such as personality and social intelligence relate to perceivers' ability to accurately judge others' traits (Christiansen, Wolcott-Burnam, Janovics, Burns, & Quirk, 2005; Letzring, 2008). Most of this research has focused on perceptions of others' personality, however, restricting its focus to one narrow domain. More recently, Hall, Andrzejewski, and Yopchick (2009) aggregated these and other studies on interpersonal accuracy, finding that various prosocial traits (e.g., empathy, openness to experience) positively correlated with interpersonal accuracy whereas negative traits, such as depression and neuroticism, predicted lower accuracy. Similarly, Murphy and Hall (2011) showed that more intelligent people were more interpersonally accurate, and Hall, Schmid Mast, and Latu (2015) found that higher verticality (e.g., social rank and power) predicted greater interpersonal accuracy for judgments spanning a variety of domains. None of these investigations included all of the interpersonal accuracy domains outlined by Schlegel et al. (in press), however, limiting the extent to which the results can generalize to interpersonal accuracy more globally. Most substantially, research is lacking on Schlegel et al.'s social attributes dimension, which regards the categorization of others into social groups.

Research in the domain of social attributes demonstrates that people display above-chance accuracy (64.5% on average) in categorizing strangers' perceptually ambiguous group

memberships, such as their sexual orientation and political affiliation, from nonverbal cues captured in brief videos and in photos of their faces (Tskhay & Rule, 2013). Some research has already examined the factors associated with perceivers' accuracy in categorizing ambiguous group memberships—but to a limited extent (see Alaei & Rule, 2016, for a review). For example, Brambilla, Riva, and Rule (2013) found that familiarity with gay men corresponded to greater accuracy in categorizing men's sexual orientation from their faces. Illuminating as such findings are to understanding how we categorize these specific groups, the question still remains as to which factors correlate with accuracy in categorizing perceptually ambiguous groups *in general* and that correlate with interpersonal accuracy, more globally.

Social Class

One important factor only scarcely explored as a potential moderator of interpersonal accuracy is social class. Yet a person's social class, or socioeconomic status (SES), can importantly affect his or her interpersonal interactions. People lower in SES have fewer resources and subordinate rank compared to those higher in SES (e.g., Keltner, Gruenfeld, & Anderson, 2003); thus, external factors bear greater impact on the outcomes that lower SES individuals experience. People lower in SES accordingly engage more in social interactions (Kraus & Keltner, 2009) and focus more on social context (Grossman & Varnum, 2011; Kraus, Piff, & Keltner, 2009b) compared to higher SES individuals. They also display more sensitivity to threat and hostile emotions (Kraus, Horberg, Goetz, & Keltner, 2011a), show greater neural empathic responses compared to higher SES individuals (Varnum, Blais, Hampton, & Brewer, 2015), and, most relevant to the current research, exhibit greater empathic accuracy when reading others' thoughts, feelings, and emotions (Kraus, Côté, & Keltner, 2010). One explanation for these findings is that those lower in SES have a reduced sense of personal control

(that is, control over outcomes in their lives) due to their low rank relative to others, and thus attend to their environments and those around them more carefully than those of higher SES (Kraus et al., 2009). Context may be more important for lower class individuals because external influences place more constraints on their lives. Kraus, Piff, Mendoza-Denton, Rheinschmidt, and Keltner (2012) thus proposed that lower SES individuals' life circumstances lead to contextualist social cognitive tendencies that include increased attention to others.

Social class therefore seems like an important variable to consider when examining perceivers' levels of interpersonal accuracy. Along these lines, Hall et al. (2015) included SES in their meta-analysis of verticality and interpersonal accuracy. They found that *higher* SES perceivers demonstrated greater interpersonal accuracy, in contrast to Kraus and colleagues' findings (Kraus et al., 2009, 2010; Kraus et al., 2011a). Importantly, however, the studies comprising Hall et al.'s meta-analysis largely focused on individuals' objective SES (operationalized in a variety of ways, such as income or parents' education), rather than subjective SES (i.e., one's self-perception of SES standing compared to others). This difference is important because subjective SES accounts for one's rank *relative to others* within a hierarchy, whereas objective SES only considers absolute factors such as income or education, which can have very different relative values across contexts. Thus, because subjective SES accounts for context, it may provide a more meaningful measure of the social psychological impact of social class (see Kraus et al., 2009; Kraus et al., 2011b). Indeed, research has demonstrated that subjective SES predicts social cognition (e.g., contextual explanations for outcomes) more strongly than objective SES does and has found that manipulating participants' subjective social class (by asking them to compare themselves to those highest or lowest in social class rank) successfully alters their empathic accuracy and expectations for hostile behavior (Kraus et al.,

2009, 2010, 2011a). We therefore focused on subjective SES as a predictor in our studies but included measures of objective SES to help reconcile the contradictory findings noted above.

Subjective social class is most often measured using the MacArthur Scale of Subjective Social Status, which presents participants with an image of a ladder in which the top represents the people in one's country with the most money, most education, and most respected jobs, whereas the bottom represents those with the least money, least education, and least respected jobs (Adler, Epel, Castellazzo, & Ickovics, 2000); participants indicate their self-perceived position on the ladder. Other subjective measures of social class simply ask participants to place themselves in a social class category (e.g., lower middle class, upper class; Bernstein, 1971). These measures correlate with individuals' sense of personal control, power, and sociometric status (i.e., prestige; Anderson, Kraus, Galinsky, & Keltner, 2012). Despite these correlations, subjective social class constitutes an independent construct. Similarly, measures of subjective and objective SES correlate positively but not perfectly, suggesting that subjective and objective social class are distinct (Kraus et al., 2009). Power and sociometric status moreover do not positively correlate with objective SES measures, further highlighting that subjective and objective SES differ in important ways (Anderson et al., 2012). Thus, we expected subjective SES to uniquely correlate with interpersonal accuracy.

The Current Research

Here, we investigated how subjective SES relates to interpersonal accuracy in several domains: social attributes (categorizing faces by sexual orientation and political party affiliation), emotion (the Reading the Mind in the Eyes test, RME; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), and situational affect (the Mini Profile of Nonverbal Sensitivity, Mini PONS; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979). We chose these tasks because they

represent some of the most widely used measures of interpersonal accuracy in the literature (see Hall et al., 2009; Tskhay & Rule, 2013; Vellante et al., 2013). Furthermore, we investigated the interrelationships between them to empirically replicate Schlegel et al.'s (in press) recent meta-analytic findings suggesting that they constitute facets of a general interpersonal accuracy ability.

Study 1

To expand and clarify the relationship between SES and interpersonal accuracy, we examined how SES predicted the accuracy of categorizing sexual orientation in Study 1.

Method

We recruited 100 American Mechanical Turk (MTurk) Workers (44 male, 56 female; M_{age} = 39.50 years, *SD* = 14.06; 73 Caucasian, 12 African American, 4 Hispanic, 3 East Asian, 2 South Asian, 2 "other") to participate in the study. Participants viewed photos of the faces of 45 gay and 45 straight men borrowed from a validated database (e.g., Rule & Ambady, 2008) individually in random order and categorized each as gay or straight according to their first impressions in a self-paced task. The photos originated from online personal advertisements in the U.S., were removed from their original backgrounds, cropped around the head to include the hair and ears but exclude the neck, greyscaled, and standardized to a width of 200 pixels. The targets ranged in age from 18 to 30 and were primarily Caucasian. Four participants indicated recognizing some of the faces and one participant categorized every target as straight. Excluding their data did not alter the pattern of our results; we therefore report the results using the full sample.

After completing the task, participants completed measures of their SES. They first reported their annual household income (ranging from 1 [*$15,000 or less*] to 7 [*greater than $150,000*]) and highest level of education (ranging from 1 [*some high school*] to 7 [*doctorate*])

as measures of their objective SES, and next indicated their social class standing on the MacArthur Scale of Subjective Social Status to measure their subjective SES (Adler et al., 2000). We then asked the participants to explicitly report their subjective SES, ranging from 1 (*lower income*) to 5 (*upper income*). Finally, participants reported their basic demographics (i.e., age, ethnicity, gender, and sexual orientation).

Results

We calculated participants' categorization accuracy using the signal detection statistic *A'* (see Macmillan & Creelman, 2005). As in previous research (e.g., Rule & Ambady, 2008), categorization accuracy significantly exceeded chance guessing, $t(99) = 15.09$, $p < .001$, $r = .83$ (see Table 1 for descriptive statistics and Table A in the Appendix for hit and false-alarm rates for all studies). Participants' response bias scores (*B''*) showed that they were significantly more likely to categorize targets as straight than as gay, $t(99) = 5.04$, $p < .001$, $r = .45$, in line with population base rates for sexual orientation.

The participants' subjective SES scores showed strong inter-reliability (Cronbach's $\alpha = .75$), whereas their objective SES scores did not (Cronbach's $\alpha = .44$). We therefore calculated an overall subjective SES score for each participant by normalizing his or her responses on each scale and aggregating the *z*-scores from each. This subjective SES value correlated positively with both income, $r = .52$, $p < .001$, and education, $r = .22$, $p = .03$, in line with previous research (e.g., Kraus et al., 2009). We then regressed participants' categorization accuracy scores onto subjective SES, along with the two objective SES measures (income and education), using 5000 bootstrapped resamples to correct for non-normal residuals.

Results showed that subjective SES significantly predicted categorization accuracy, $B = -.03$, $SE = .01$, $t(96) = -2.49$, $p = .01$, 95% bias-corrected confidence interval (BCCI) [-.06, -.005],

$r_{partial}$ = -.25, such that individuals reporting lower subjective SES categorized sexual orientation more accurately. Neither measure of objective SES (income: B = .01, SE = .008, t[96] = 1.48, p =.17, 95% BCCI [-.003, .03], $r_{partial}$ = .15; education: B = .001, SE = .008, t[96] = 0.06, p =.95, 95% BCCI [-.02, .02], $r_{partial}$ = .01) significantly predicted accuracy, however (all Variance Inflation Factor [VIF] scores ≤ 1.45).[1]

Discussion

In this first study, we found that people reporting lower subjective SES categorized men's sexual orientation from photos of their faces with significantly greater accuracy. These data extend previous work showing that low-SES individuals achieve greater empathic accuracy (Kraus et al., 2010), suggesting that SES may possibly relate to interpersonal accuracy more generally. Additionally, objective indices of SES did not predict accuracy, supporting previous reports that subjective SES predicts social behavior better than objective SES does (e.g., Kraus et al., 2011b; cf. Hall et al., 2015).

Study 2

The results of Study 1 showed a significant relationship between subjective SES and interpersonal accuracy within Schlegel et al.'s (in press) social attributes domain. To better understand the relationship between subjective SES and interpersonal accuracy, we examined how perceivers' subjective SES impacted their performance in the interpersonal accuracy

[1] Though men tended to be higher in subjective SES, adding gender to our regressions did not change the results in any of our studies. Subjective SES continued to predict accuracy when controlling for gender but gender did not consistently predict accuracy when controlling for subjective SES.

domain of emotion using Baron-Cohen et al.'s (2001) RME task in Study 2. As Schlegel et al. found a significant correlation between accuracy in the emotion and social attributes domains in their meta-analysis, we expected categorization accuracy to positively correlate with RME performance. Moreover, we expected subjective SES to negatively predict performance for both the RME and judgments of sexual orientation, following the results of Study 1.

Method

Anticipating an effect size similar to that for subjective SES in Study 1 (r = -.25), we conducted a power analysis using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the number of participants needed to achieve at least 80% power in a multiple linear regression with three predictor variables and a 5% false-positive rate. We then recruited 150 American MTurk Workers (57 male, 93 female; M_{age} = 38.29 years, SD = 12.77; 120 Caucasian, 10 African-American, 10 Hispanic, 5 South Asian, 3 East Asian, 2 "other") for roughly 93% power. Three participants categorized every target as straight and one participant indicated recognizing some of the faces used in the study. Excluding them did not alter our results; we therefore report the results using the full sample.

Participants completed the same sexual orientation categorization task as in Study 1. Following this, they also completed Baron-Cohen et al.'s (2001) RME before the measures of subjective and objective SES and demographics questions. In this test, participants view randomly-ordered greyscale images of the eyes of 36 Caucasian men and women and choose the word that best describes what the target is thinking or feeling from a set of four options (3 foils, 1 target) based on their first impressions. Although the targets' actual feeling states are unknown, healthy perceivers show high consensus in their judgments (whereas individuals with emotion

processing deficits do not; Baron-Cohen et al., 2001). Thus, agreement with the consensus states serves as the performance criterion.

Results

As in Study 1, participants' judgments of sexual orientation significantly exceeded chance guessing, $t(149) = 23.66$, $p < .001$, $r = .89$, and their response bias scores showed a significant tendency to assume that the targets were straight, $t(149) = 5.83$, $p < .001$, $r = .43$. Moreover, participants showed high inter-rater reliability in their judgments of the targets' emotional states in the RME (Cronbach's $\alpha = .99$) and their judgments corresponded to the consensus "correct" answers on the task significantly better than chance guessing (25%), $t(149) = 30.03$, $p < .001$, $r = .93$. Finally, subjective SES (again calculated by averaging normalized values of the participants' scores on the MacArthur and lower-to-higher income scales, Cronbach's $\alpha = .77$) correlated positively with income (see Table 2 for descriptive statistics and bivariate correlations).

More relevant to our hypotheses, scores on the categorization task significantly correlated with performance on the RME, such that participants who categorized sexual orientation more accurately also identified targets' mental states better from their eyes (see Table 2). Next, we tested whether subjective SES, education, and income predicted categorization accuracy and RME performance. We thus regressed participants' categorization accuracy and RME scores onto subjective SES, education, and income in separate multiple linear regressions with 5000 bootstrapped resamples (all VIF ≤ 1.68). Contrary to the results of Study 1, subjective SES did not significantly predict categorization accuracy (though the relationship showed the same direction), $B = -.01$, $SE = .01$, $t(146) = -0.91$, $p = .37$, 95% BCCI [-.03, .01], $r_{\text{partial}} = -.08$, but did significantly negatively predict RME scores, $B = -.05$, $SE = .02$, $t(146) = -2.89$, $p = .004$, 95%

BCCI [-.09, -.02], $r_{partial} = -.23$, supporting previous research (e.g. Kraus et al., 2010). Neither education nor income significantly predicted participants' performance on the RME or sexual orientation categorization tasks, all ts ≤ 1.44, all ps $\geq .15$, all rs $_{partial} \leq .12$.

Discussion

Supporting previous evidence for a general interpersonal accuracy ability (Schlegel et al., in press), participants who categorized sexual orientation more accurately also performed better on the RME. Distinct from Study 1, the relationship between subjective SES and accuracy in categorizing sexual orientation here did not reach significance. However, subjective SES did significantly predict performance on the RME. Similar to the findings reported by Kraus and colleagues (e.g., Kraus et al., 2010), and like those we observed in Study 1, lower SES individuals showed greater sensitivity to the nonverbal displays of others. Objective SES, however, did not predict either measure of interpersonal accuracy.

Study 3

In Study 1, we found that individuals' subjective SES significantly negatively predicted their accuracy in judging sexual orientation, whereas this relationship did not reach significance in Study 2. Participants in Study 2 did demonstrate a significant negative relationship between their subjective SES and their performance on the RME, however, as well as a positive relationship between their RME performance and the accuracy of their sexual orientation judgments. To help elucidate the magnitude of these relationships, we conducted Study 3 to (a) explore whether the relationship between categorization accuracy and subjective SES depends on the specific domain of categorization, and (b) test whether the relationship between categorization accuracy and RME performance persists across different perceptually ambiguous groups. Thus, we tested whether people's accuracy in categorizing strangers' political party

affiliation related to their performance on the RME and their subjective SES. Previous work has demonstrated that people can accurately categorize the political party affiliation of both politicians and undergraduate students (e.g., Rule & Ambady, 2010). We therefore anticipated that subjective SES would negatively predict participants' categorization accuracy and RME performance, similar to the results for sexual orientation above. We also predicted that RME performance and categorization accuracy would positively correlate, as in Study 2.

Method

A power analysis based on the same parameters as in Study 2 indicated that we would need at least 169 participants to achieve 80% power for an effect as large as the average of those obtained for subjective SES in Studies 1 and 2 across both tasks (r = -.19). We therefore recruited 200 American MTurk Workers, but excluded three participants who provided incomplete data (73 male, 124 female; M_{age} = 36.38 years, SD = 12.79; 151 Caucasian, 19 African-American, 8 "other", 7 South Asian, 6 East Asian, 6 Hispanic) for roughly 85% power. The significance of our results differed slightly (but showed the same pattern) if we excluded nine participants who reported that they had performed a similar task on MTurk before and 13 participants who indicated that they recognized some of the faces. However, we report the results with the full sample to provide a more conservative test of our hypotheses, noting the differences in significance in the reduced sample where relevant. The participants followed the same procedure as in Study 2 except that they categorized greyscale university yearbook portraits of the faces of 60 American male and female undergraduates (primarily Caucasian) who self-identified as Democrats or Republicans used in previous work (Rule & Ambady, 2010).

Results

Similar to Studies 1 and 2, participants categorized targets' group membership, $t(196) = 14.78$, $p < .001$, $r = .73$, and perceived other targets' putative emotions significantly more accurately than chance guessing, $t(196) = 35.61$, $p < .001$, $r = .93$. Unlike the categorizations of sexual orientation above, however, the response bias for political party categorizations did not differ from zero, $t(196) = -0.88$, $p = .38$, $r = -.06$, reflecting population base rates of relatively equal numbers of Democrats and Republicans in the U.S. (Pew Research Center, 2015). Moreover, categorization accuracy and RME performance positively correlated (see Table 3 for descriptive statistics and correlations). Finally, subjective SES (Cronbach's $\alpha = .78$) positively correlated with income and education.

Next, we regressed categorization accuracy and RME performance onto subjective SES, income, and education in separate simultaneous multiple linear regressions with 5000 bootstrapped resamples (all VIF ≤ 1.67). As in Study 2, we found that subjective SES significantly negatively predicted RME scores, $B = -.03$, $SE = .02$, $t(193) = -2.03$, $p = .04$, 95% BCCI [-.07, .002], $r_{\text{partial}} = -.14$. However, here, income also *positively* predicted RME performance, $B = .02$, $SE = .01$, $t(193) = 2.12$, $p = .04$, 95% BCCI [.003, .04], $r_{\text{partial}} = .15$—though this pattern was only marginally significant in the reduced sample, $B = .02$, $SE = .01$, $t(171) = 1.93$, $p = .05$, 95% BCCI [-.0003, .04], $r_{\text{partial}} = .15$. Subjective SES did not significantly predict categorization accuracy, $B = -.02$, $SE = .01$, $t(193) = -1.50$, $p = .13$, 95% BCCI [-.04, .004], $r_{\text{partial}} = -.11$, similar to Study 2. In the reduced sample, however, this pattern was significant, $B = -.03$, $SE = .01$, $t(171) = -2.16$, $p = .02$, 95% BCCI [-.05, -.001], $r_{\text{partial}} = -.16$, in line with the results of Study 1. Income did not significantly predict categorization accuracy, $B = .004$, $SE = .007$, $t(193) = 0.57$, $p = .57$, 95% BCCI [-.01, .02], $r_{\text{partial}} = .04$, and education

predicted neither RME performance nor categorization accuracy, both ts ≤ 1.01, ps $\geq .31$, and rs $_{partial} \leq .07$.

Discussion

We again found evidence that people who perform better on the RME also categorize perceptually ambiguous group members more accurately, suggesting that both categorization accuracy and RME performance stem from a more general interpersonal accuracy ability (consistent with Schlegel et al.'s, in press, meta-analytic findings). Accordingly, the results of this study suggest that the relationship between categorization accuracy and RME performance does not depend on the type of judgment (i.e., the dimension categorized: sexual orientation in Study 2 and political affiliation here).

Furthermore, subjective SES again significantly predicted RME performance and did not significantly predict categorization accuracy. However, the direction of the relationships paralleled those in Studies 1 and 2 such that lower subjective SES individuals performed significantly better on the RME task and nonsignificantly more accurately in categorizing political affiliation. This may be a conservative estimate of the associations, however, as excluding participants who indicated familiarity with the categorization task brought the relationship between subjective SES and accuracy in categorizing political affiliation to traditional levels of statistical significance.

Additionally, unlike in Study 2, participants' objective income positively predicted their RME performance, similar to Hall et al.'s (2015) findings. The reliability of this result remains unclear and surprising, given its isolation to just this study and as objective and subjective SES predicted interpersonal accuracy in opposite directions. Nevertheless, the conjunction of these results with those from Studies 1 and 2 suggests a pattern in which subjective SES negatively

predicts sundry measures of interpersonal accuracy. To confirm this, we conducted a final study to further test how SES relates to interpersonal accuracy in another of Schlegel et al.'s (in press) domains: situational affect.

Study 4

The results of Studies 1-3 indicated a link between lower subjective SES and increased accuracy on measures of performance in Schlegel et al.'s (in press) social attributes and emotion domains of interpersonal accuracy. Here, we added the Mini PONS (Rosenthal et al. 1979) from the domain of situational affect to further examine the relationship between subjective SES and interpersonal accuracy. Additionally, including categorization, the RME, and the Mini PONS in one study allowed us to compare the relative strength of relationships between these three measures the interpersonal accuracy domains that they represent, enabling us to better understand interpersonal accuracy's underlying structure. Consistent with the findings of Studies 1-3, we hypothesized that subjective SES would negatively predict categorization accuracy, RME performance, and Mini PONS accuracy. Furthermore, we expected these three interpersonal accuracy measures to positively intercorrelate.

Method

We recruited 220 American participants (92 male, 128 female; M_{age} = 37.97 years, *SD* = 12.17; 164 Caucasian, 20 African-American, 14 Hispanic, 9 East Asian, 7 "other", 6 South Asian) from MTurk for roughly 82% power based on the results of a power analysis using the same parameters as in Studies 2 and 3, anticipating the average effect size for subjective SES across all of the relationships estimated in Studies 1-3 (r = -.16). Eighteen participants indicated that the Mini PONS videos did not display properly and one participant did not respond to this question. We therefore did not consider these participants' data when analyzing the Mini PONS

scores but did include their data when conducting the other analyses not blighted by this technical error. Two of these participants and another 23 indicated familiarity with the categorization task (i.e., having rated the same faces and/or recognizing the faces), but the pattern of our results did not change when we excluded their data; we therefore report the results using the full sample of data below (with the Mini PONS exclusions when appropriate).

Participants completed the sexual orientation categorization task, RME, and Mini PONS in random order, counterbalanced across participants. The Mini PONS consists of 64 brief recordings of a woman's face, body, and voice, varying in whether they show just the face, body, voice, or some combination thereof. Participants chose from two options to describe the situation taking place in each recording, playing each only once and indicating their answers before proceeding to the next recording. Before finishing, they answered demographic questions, including the measures of subjective and objective SES used in the previous three studies.

Results

As above, participants categorized sexual orientation more accurately than chance, $t(219) = 18.65$, $p < .001$, $r = .78$, and showed a significant tendency to categorize the targets as straight, $t(219) = 6.89$, $p < .001$, $r = .42$. Performance also surpassed chance guessing on the RME, $t(219) = 37.78$, $p < .001$, $r = .93$, and Mini PONS, $t(200) = 32.07$, $p < .001$, $r = .91$. Participants' categorization accuracy correlated positively with their performance on the RME and the Mini PONS, which positively correlated with each other; subjective SES (Cronbach's $\alpha = .78$) positively correlated with income and education (see Table 4 for descriptive statistics and bivariate correlations).

Next, we regressed categorization accuracy, RME performance, and Mini PONS scores onto subjective SES, income, and education in separate simultaneous multiple linear regressions

with 5000 bootstrapped resamples (all VIFs ≤ 1.87). Similar to the above studies, subjective SES significantly negatively predicted categorization accuracy, B = -.02, SE = .01, $t(216)$ = -2.30, p =.02, 95% BCCI [-.04, -.002], $r_{partial}$ = -.15, Mini PONS scores, B = -.03, SE = .01, $t(197)$ = -2.64, p =.01, 95% BCCI [-.05, .-005], $r_{partial}$ = -.18, and RME performance, B = -.05, SE = 0.02, $t(216)$ = -3.12, p = .002, 95% BCCI [-.08, -.02], $r_{partial}$ = -.21. Income and education did not significantly predict any of these, all ts ≤ 1.47, all ps ≥ .14, all rs $_{partial}$ ≤ .10. Importantly, we found no order effects in any of our analyses, all ts ≤ 1.17, all ps ≥ .25, all rs $_{partial}$ ≤ .08.

Meta-analytic comparisons of the correlation coefficients (see Meng, Rosenthal, & Rubin, 1992) revealed that the relationship between the RME and Mini PONS scores significantly exceeded those between both the categorization accuracy and RME scores (Z = -5.48, p < .001) and between the categorization accuracy and Mini PONS scores (Z = -5.35, p < .001). The strength of the latter two relationships did not differ, however (Z = 0.16, p = .87).

Discussion

As we found in Studies 2 and 3, participants' accuracy in categorizing perceptually ambiguous group membership from faces correlated positively with their performance on the RME. Here, we additionally found meaningful relationships between Mini PONS scores and both sexual orientation categorization accuracy and RME performance. Notably, the relationship between RME performance and Mini PONS scores significantly exceeded the relationship between categorization accuracy and either measure. Thus, interpersonal accuracy appears to be faceted (as Schlegel et al, in press, proposed), and our studies suggest that categorization accuracy may represent an ability distinct from that measured by the RME and the Mini PONS. Additionally, lower subjective SES predicted significantly better categorization accuracy and performance on both the RME and the Mini PONS, replicating and expanding Kraus et al.'s

(2010) findings, and providing further evidence that subjective social class relates to general interpersonal accuracy. We next aggregated the results across the four studies to clarify how our various measures of interpersonal accuracy related to SES overall.

Aggregated Results

The relationships reported in Studies 1-4 were fairly small and varied. To get a better sense of the overall relationships, we therefore summarized them using a fixed-effects meta-analysis. Thus, we aggregated the correlations between categorization accuracy and subjective and objective SES across all four studies, as well as the correlations between participants' RME performance and categorization accuracy, subjective SES, and objective SES across Studies 2-4.

Subjective SES modestly related to both categorization accuracy and RME performance, overall (see Table 5). Although the relationship between RME scores and categorization accuracy showed the largest effect, all three mean relationships significantly exceeded zero. Furthermore, comparisons of these average effect sizes against the correlation between subjective SES and Mini PONS performance in Study 4 revealed no significant differences (all Zs ≤ 1.39, all ps $\geq .08$). Neither measure of objective SES (i.e., income, education) correlated significantly with RME performance or categorization accuracy. Thus, in aggregate, lower subjective SES related to better performance on all three measures of interpersonal accuracy whereas objective SES showed no significant relationship with accuracy.

We also conducted the meta-analysis using the partial-r effect sizes computed from the regression statistics to better understand the relationship between accuracy and subjective SES while controlling for objective SES, and vice versa. We observed the same pattern of results, with some variation in effect sizes (see Table 6). Only the relationship between categorization accuracy and income notably differed: when controlling for subjective SES and education,

income modestly predicted categorization accuracy such that individuals with higher incomes achieved greater accuracy (in line with Hall et al.'s, 2015, findings), though this relationship was weaker than the absolute value of that between categorization accuracy and subjective SES (which was in the opposite direction), $Z = 1.49$, $p = .14$. Subjective SES therefore negatively predicted categorization accuracy and RME performance across the studies overall, and did so more strongly the relationship between income and categorization accuracy.

General Discussion

The results of the present studies suggest that interpersonal accuracy represents a global, yet faceted, ability. Consistent with Schlegel et al.'s (in press) findings, measures of accuracy across the domains of situational affect, social attributes, and emotion positively intercorrelated, though with varying strength. Importantly, Mini PONS scores and RME performance correlated more strongly than either did with categorization accuracy, indicating that emotion and situational affect relate more closely than either does to social attributes. This may seem unsurprising, as both emotion and situational affect relate to reading displays of emotion, whereas social attributes may not (but see Tskhay & Rule, 2015). Furthermore, reading emotion and situational affect involves making judgments of more fleeting states than making social attributes judgments does. Different domains of interpersonal accuracy may therefore recruit distinct skill sets (see Schlegel et al. for discussion).

The faceted nature of interpersonal accuracy notwithstanding, we found consistent relationships between subjective SES and the measures from all three domains. Individuals reporting lower subjective SES demonstrated greater interpersonal accuracy in categorizing perceptually ambiguous groups, greater RME performance, and higher Mini PONS scores, suggesting that subjective SES relates to a global interpersonal ability rather than just one

specific domain. Yet objective SES, as measured by both education level and yearly income, did not predict any of the three interpersonal accuracy measures (cf. Hall et al., 2015) except a small positive relationship between income and categorization accuracy when controlling for education and subjective SES. As the relationship between subjective SES and interpersonal accuracy exceeded that between objective SES and categorization accuracy in the opposite direction, it seems that subjective SES predicts interpersonal accuracy better than objective SES does. Future research may wish to untangle the puzzling opposition of these two findings. Despite their potential contradiction, however, this relationship does confirm previous findings that objective and subjective SES independently predict different outcomes and may thus relate to social cognition differently (e.g., Adler et al., 2000; Kraus et al., 2009).

Our findings present important potential implications for interpersonal interactions, particularly those between interlocutors of different social classes. Specifically, these data suggest that individuals lower in subjective SES may read a variety of nonverbal cues more accurately than individuals higher in subjective SES, who may show less interpersonal sensitivity. This could potentially lead to misjudgments by higher SES individuals and subsequent misunderstandings in interactions. Research that has manipulated subjective SES has suggested the potential to ameliorate such misjudgments, highlighting the value for future research exploring behavioral consequences of the relationship between interpersonal accuracy and subjective SES.

Limitations and Future Directions

Although these studies suggest a somewhat reliable relationship between global interpersonal accuracy and subjective SES, we tested this using a limited number of measures.

We examined categorizations of two perceptually ambiguous groups (sexual orientation and political affiliation) to measure social attributes, and the RME and Mini PONS to measure emotion and situational affect, respectively. Future research could thus explore the relationships between subjective SES and more measures in these domains, particularly as Schlegel et al. (in press) found pronounced heterogeneity between different measures of social attributes. Similarly, we only examined three interpersonal accuracy domains in these studies. Thus, including more measures in the other domains (thoughts and feelings, personality, and deception) could provide more evidence for the relationship between subjective SES and interpersonal accuracy by drawing on a diversity of measures, such as those reviewed in Hall et al.'s (2009) and Murphy and Hall's (2011) meta-analyses.

Future research could also employ manipulations of subjective SES (such as those used by Kraus et al., 2010; Kraus et al., 2011a) to establish causal links between subjective SES and greater interpersonal accuracy. Such manipulations might additionally provide ideas for ways to reduce potential class-based differences in interpersonal accuracy. Moreover, future work could explore possible mechanisms driving the relationship between interpersonal accuracy and subjective SES to facilitate improvements in interpersonal accuracy. Previous work (e.g., Kraus et al., 2009, 2012) suggested that people lower in SES have more contextual focus, possibly because they feel less sense of personal control and thus pay more attention to others in their environment. Manipulating perceivers' sense of control might therefore also provide a path to improving interpersonal accuracy. Finally, examining the behavioral consequences of varying interpersonal accuracy ability would meaningfully extend this work by clarifying how the interpersonal accuracy abilities documented in laboratory studies (such as those reported here) impact actual interactions.

Conclusions

Overall, the results of these studies indicate that subjective SES negatively relates to interpersonal accuracy. Individuals lower in subjective social class exhibited greater interpersonal accuracy across three domains. This relationship requires further investigation to examine the extent of the relationship between subjective SES and interpersonal accuracy, however, as well as to understand its implications for day-to-day social interaction.

Compliance with Ethical Standards

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Research Ethics Board at the University of Toronto and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants in all studies. Conflict of interest: The authors declare that they have no conflict of interest.

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Table 1

Descriptive Statistics and Bivariate Correlations between Participants' Accuracy and Response Bias for Sexual Orientation Judgments and Measures of their Subjective and Objective Socioeconomic Status in Study 1

	M	*SD*	1	2	3	4
1. Accuracy	.65	.10	—			
2. Response Bias	.11	.21	.52***	—		
3. Subjective SES	0.00	.93	-.20*	-.10	—	
Objective SES						
4. Income	3.17	1.36	.03	-.15	.52***	—
5. Education	4.06	1.25	-.01	-.03	.22*	.28**

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; $df = 98$; SES = socioeconomic status.

Table 2

Descriptive Statistics and Bivariate Correlations between Participants' Accuracy and Response Bias Scores for Sexual Orientation Judgments, Reading the Mind in the Eyes Test Performance, and Measures of their Subjective and Objective Socioeconomic Status in Study 2

	M	*SD*	1	2	3	4	5
1. SO Accuracy	.68	.09	—				
2. SO Response Bias	.11	.23	.35***	—			
3. RME Performance	68%	17%	.22**	.04	—		
4. Subjective SES	0.00	.99	-.01	-.02	-.24**	—	
Objective SES							
5. Income	3.27	1.40	.08	.03	-.10	.63***	—
6. Education	4.00	1.26	-.04	-.02	-.0003	.17	.19*

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; $df = 148$; SO = sexual orientation, RME = Reading the Mind in the Eyes, SES = socioeconomic status.

Table 3

Descriptive Statistics and Bivariate Correlations between Participants' Accuracy and Response Bias Scores for Political Affiliation Judgments, Reading the Mind in the Eyes Test Performance, and Measures of their Subjective and Objective Socioeconomic Status in Study 3

	M	*SD*	1	2	3	4	5
1. PA Accuracy	.63	.12	—				
2. PA Response Bias	-.01	.16	-.16*	—			
3. RME Performance	67%	16%	.28***	-.22**	—		
4. Subjective SES	0.00	.95	-.08	.10	-.05	—	
Objective SES							
5. Income	3.50	1.59	-.01	.05	.10	.61***	—
6. Education	4.13	1.37	.04	.15*	.06	.33***	.27***

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; $df = 195$; PA = political affiliation, RME = Reading the Mind in the Eyes, SES = socioeconomic status.

Table 4

Descriptive Statistics and Bivariate Correlations between Participants' Accuracy and Response Bias Scores for Sexual Orientation Judgments, Reading the Mind in the Eyes Test Performance, Profile of Nonverbal Sensitivity Accuracy, and Measures of their Subjective and Objective Socioeconomic Status in Study 4

	M	*SD*	1	2	3	4	5	6
1. SO Accuracy	.64	.11	—					
2. SO Response Bias	.09	.18	.36***	—				
3. RME Performance	67%	17%	.17*	.06	—			
4. Mini PONS Score	73%	11%	.18**	.14*	.61***	—		
5. Subjective SES	0.00	.94	-.10	-.10	-.14	-.20**	—	
Objective SES								
6. Income	3.51	1.47	.004	.01	-.07	-.10	.66***	—
7. Education	4.25	1.24	.02	.01	.02	.03	.37***	.41***

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$; $df = 218$ (except for correlations involving the Mini PONS, where $df = 199$); SO = sexual orientation, RME = Reading the Mind in the Eyes, Mini PONS = Profile of Nonverbal Sensitivity, SES = socioeconomic status.

Table 5

Summary of Meta-analytic Results for the Relationships between Categorization Accuracy, the Reading the Mind in the Eyes Test, and Measures of Subjective and Objective Socioeconomic Status across Studies 1-4, Computed Using Effect Sizes Calculated from Comparisons of Means

Relationship	*k*	Weighted mean *r*	95% CI	*Z*	*Q*
Categorization accuracy, RME	3	.22	[.14, .31]	5.33***	1.38
Categorization accuracy, subjective SES	4	-.09	[-.17, -.01]	-2.28*	2.24
Categorization accuracy, income	4	.02	[-.06, .10]	0.53	0.77
Categorization accuracy, education	4	.01	[-.07, .08]	0.21	0.60
RME, subjective SES	3	-.14	[-.22, -.05]	-3.23***	3.18
RME, income	3	-.02	[-.01, .06]	-0.44	4.30
RME, education	3	.03	[-.05, .11]	0.68	0.33

Note. * $p \leq .05$, *** $p \leq .001$; *k* = number of contributing effects, CI = confidence interval, *Q* = heterogeneity statistic; RME = Reading the Mind in the Eyes test performance, SES = socioeconomic status; Categorization accuracy includes both judgments of sexual orientation (Studies 1, 2, and 4) and political affiliation (Study 3).

Table 6

Summary of Meta-analytic Results for the Relationships between Categorization Accuracy, the Reading the Mind in the Eyes Test, and Measures of Subjective and Objective Socioeconomic Status across Studies 1-4, Computed Using Effect Sizes Calculated from Regression Coefficients

Relationship	*k*	Weighted mean *r*	95% CI	*Z*	*Q*
Categorization accuracy, subjective SES	4	-.14	[-.22, -.06]	-3.55***	2.01
Categorization accuracy, income	4	.09	[.01, .16]	2.25*	1.00
Categorization accuracy, education	4	.04	[-.04, .11]	0.90	2.07
RME, subjective SES	3	-.19	[-.28, -.11]	-4.57***	0.86
RME, income	3	.07	[-.01, .15]	1.65	2.24
RME, education	3	.07	[-.01, .15]	1.65	0.22

Note. * $p \leq .05$, *** $p \leq .001$; *k* = number of contributing effects, CI = confidence interval, *Q* = heterogeneity statistic; RME = Reading the Mind in the Eyes test performance, SES = socioeconomic status; Categorization accuracy includes both judgments of sexual orientation (Studies 1, 2, and 4) and political affiliation (Study 3).

Appendix

Table A

Descriptive Statistics for Hit and False Alarm Rates for Categorization of Targets as Gay or Straight in Studies 1, 2, and 4, and as Democrat or Republican in Study 3

	N	*M*	*SD*
Study 1	100		
Hit rate		.48	.18
False alarm rate		.31	.17
Study 2	150		
Hit rate		.49	.20
False alarm rate		.29	.16
Study 3	197		
Hit rate		.57	.14
False alarm rate		.42	.12
Study 4	220		
Hit rate		.47	.18
False alarm rate		.31	.16