

Accuracy of the Five-Factor Model in Predicting Perceptions of Daily Social Interactions

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The present study examined whether individuals' personality ratings on dimensions of the five-factor model (i.e., extraversion, neuroticism, agreeableness, openness to experience, and conscientiousness) predicted their immediate perceptions of themselves and others during daily social interactions. Participants completed personality measures at an initial session and recorded and evaluated their interactions over a 1-week period. Participants' immediate perceptions were predicted strongly by their extraversion scores, moderately by their agreeableness and neuroticism scores, and only weakly by their openness to experience score. These findings suggest that at least three of the five factors accurately represent individuals' thoughts and feelings during their daily lives.

The five-factor model (FFM) describes personality along the dimensions of extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience (e.g., John, 1990; McCrae & Costa, 1990; McCrae & John, 1992) and provides a convenient method for summarizing personality judgments of the self and others (Digman, 1990; Goldberg, 1993). The present study extended previous work by examining whether these broad personality characteristics predicted regularities in individuals' immediate perceptions of themselves and others during the course of their daily social interactions.

How well do personality descriptions based on the FFM correspond to individuals' actual attributes? Most research has addressed this question by assessing the extent to which strangers or acquaintances agree with each other, or with a target, in their judgment of a target person. In general, strangers, acquaintances, and spouses agree with each other in their judgments of a target person, and individuals' judgments of their own personality often agree with judgments made by others (e.g., Albright, Kenny, & Malloy, 1988; Borkenau & Liebler,

1992, 1993; Chaplin & Panter, 1993; Funder & Dobroth, 1987; John & Robins, 1993; Kenny & Kashy, 1994; McCrae & Costa, 1989a; Norman & Goldberg, 1966; Ozer, 1993).

Tests of the validity of the model, however, must extend beyond examining interjudge or self/other agreement to assess the degree to which such personality descriptions capture real attributes or behaviors of the individuals being described. Yet, far fewer studies have relied on such approaches (cf. Funder & West, 1993; Kenny, 1993). Studies that have assessed behavior in the lab (e.g., Funder & Colvin, 1991; Funder & Sneed, 1993; Thorne, 1987) indicate that others' personality ratings of a target individual correspond with independent observers' ratings of the target's behavior. This correspondence is somewhat stronger for the more observable FFM personality characteristics (i.e., extraversion, agreeableness, and conscientiousness) than for those that are less observable (e.g., neuroticism and openness to experience).

In addition to examining behavior in the lab, it also is important to assess how well the FFM predicts individuals' perceptions, thoughts, and feelings in the context of their daily lives. Following other theorists (Goldberg, 1994; McCrae & Costa, 1990; Mischel, 1990), we assume that the core features of personality include consistencies in patterns of thoughts, feelings, and motives, in

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addition to observable regularities in behavior, and that such consistencies provide a frame of reference for individuals' perceptions in social situations (Hogan, 1991; McAdams, 1994; Pervin, 1994a). Furthermore, the personality characteristics tapped by the FFM are particularly relevant to individuals' perceptions of themselves and others (Bond, 1994), especially in dynamic, interpersonal contexts (Goldberg, 1981). Thus, the FFM should predict individuals' immediate perceptions and feelings in their daily social interactions.

Despite the interpersonal relevance of the FFM, only a few studies have examined the extent to which the model captures how people actually think, feel, and behave during the course of their daily lives (cf. Cantor, 1990; Harlow & Cantor, 1994; McAdams, 1992; Pervin, 1994a; Snyder, 1994). These studies have shown, for example, that extraversion and neuroticism are associated with individuals' retrospective reports of positive and negative life events (Magnus, Diener, Fujita, & Pavot, 1993); neuroticism predicts individuals' daily ratings of stressful events, especially those linked to social activity (Affleck, Tennen, Urrows, & Higgins, 1994; Bolger & Schilling, 1991); combinations of the five dimensions are associated with school difficulties and delinquency (John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994); and conscientiousness is associated with aspects of job performance (Barrick, Mount, & Strauss, 1993, but see Pervin, 1994b, for an opposing view).

OVERVIEW OF THE PRESENT STUDY

The present study extended previous work by examining whether individuals' self-ratings along each of the FFM dimensions accurately predicted their immediate thoughts and feelings about themselves and others in natural social interactions. We combined nomothetic and idiographic measurement approaches by assessing, at one time point, individuals' descriptions of themselves along the FFM dimensions and by assessing, over time, their immediate thoughts and feelings about their social interactions. We defined accuracy as the degree of correspondence between individuals' global personality ratings and their on-line, immediate perceptions of experiences in their everyday lives.

We assessed individuals' immediate perceptions of themselves and their everyday social experiences using a variant of the Rochester Interaction Record (RIR; Reis & Wheeler, 1991). The interaction record allowed participants to provide detailed, quantitative descriptions of their social interactions. According to Reis and Wheeler (1991), this diary procedure minimizes the cognitive biases that can affect memory-based self-reports. When making momentary ratings, participants are required to report on their perceptions soon after they occur and thus need not rely as heavily on longer term memories;

in addition, participants need not create an average perception on the basis of many different experiences, which reduces the likelihood that their reports are influenced selectively by more salient or atypical experiences (Stone & Shiffman, 1994). Our interaction diary focused on several aspects of individuals' immediate interpersonal experiences, including the quantity of their social interactions; the quality of each interaction (i.e., the amount of intimacy, conflict, and degree to which they or their partners controlled the interaction); their perceptions of themselves after each interaction (i.e., amounts of self-disclosure and self-esteem); their emotional reactions to each interaction (i.e., the amount of positive and negative emotion experienced, the intensity of those emotions, and the expression of those emotions); and their perceptions of their partners in each interaction (i.e., amounts of partner disclosure and partner self-esteem).

We made several predictions based on the FFM as it has been defined by Costa and McCrae (1992):

1. As the most socially relevant personality dimension (Costa & McCrae, 1992), extraversion should be related to the quantity of social interactions. We predicted that individuals high in extraversion would report engaging in and initiating a larger number of interactions and would report a larger social circle (i.e., more unique social partners) than would individuals low in extraversion. Furthermore, individuals high in extraversion should perceive themselves as engaging in more socially oriented behaviors as well as benefit more from such behaviors. Accordingly, we predicted that individuals high in extraversion would report greater self-disclosure and higher self-esteem in their social interactions than would individuals lower in extraversion. Because extraversion is also related to dominance or assertiveness (McCrae & Costa, 1989b), we expected that individuals high in extraversion would report more control over their social interactions. We further predicted that extraversion would be related to perceptions of others. Warm and positive feelings toward others are central to the Costa and McCrae (1992) definition of extraversion; therefore, we predicted that individuals high in extraversion would perceive greater disclosure from their partners and regard their partners more positively than would those lower in extraversion. We did not make specific predictions regarding the connections between extraversion and other perceptions of social interaction (i.e., intimacy and conflict).

2. Like extraversion, the NEO version of agreeableness is considered an interpersonal dimension (Costa & McCrae, 1992; McCrae & Costa, 1989b). Although we did not expect agreeableness to be related to the quantity of social interactions, we expected that agreeableness

would be linked to some aspects of social perception. In particular, we predicted that individuals high in agreeableness (who perceive themselves as accommodating) would report less conflict and less control over their interactions than those lower in agreeableness. Furthermore, we also predicted that more agreeable individuals would report greater esteem for themselves in interactions that they perceived as less conflictual and interactions in which they perceived their partners to be in control. We did not make predictions about the link between agreeableness and other aspects of the interactions (i.e., intimacy), self-perceptions (i.e., self-disclosure), or perceptions of the interaction partner (i.e., partner disclosure and esteem for partner).

3. Although neuroticism is thought to be less central to social experiences (Funder & Dobroth, 1987), some evidence (e.g., Bolger & Schilling, 1991) suggests that individuals who are high in neuroticism are particularly sensitive to social stressors. Accordingly, we hypothesized that individuals high in neuroticism would report less esteem for themselves following their social interactions. Furthermore, we hypothesized that the relationship between negative stressors (e.g., conflict) and self-esteem would be stronger for individuals high in neuroticism than those low in neuroticism. We also tested the hypothesis that neuroticism was related to levels of self-disclosure. Findings from global questionnaires indicate that individuals high in neuroticism report lower levels of motivation for engaging in self-disclosure than those low in neuroticism (Strassberg, Adelstein, & Chemers, 1988), yet anxiety, a core facet of neuroticism, is related to increased self-disclosures in lab studies (Meleshko & Alden, 1993). We predicted that, despite their global perceptions, individuals high in neuroticism would self-disclose more than individuals low in neuroticism. Furthermore, anxious individuals do not reciprocate their partners' disclosures well (Meleshko & Alden, 1993), and neurotic individuals report lower expectations that they will engage in reciprocal self-disclosure during social interactions (Strassberg et al., 1988). Both of these findings suggested that the relationship between self-disclosure and partner disclosure may be weaker for individuals high in neuroticism. Furthermore, we expected that neuroticism would be related to immediate perceptions of social interactions. Because individuals high in neuroticism report more daily stressors (Affleck et al., 1994), they also may appraise more of their daily social interactions events as conflictual than those lower in neuroticism. Thus, we predicted that individuals high in neuroticism would be more likely to evaluate their interactions as high in conflict. We made no predictions regarding neuroticism and other aspects of the interactions (i.e., intimacy and control) or perceptions of the interaction partner.

4. To the extent that intimacy requires individuals to be aware of their own thoughts and feelings, we predicted that individuals high in openness should perceive their interactions as more intimate than individuals low in openness. We made no predictions regarding openness and other aspects of the social interactions (i.e., control and conflict), other aspects of self-perceptions (i.e., self-esteem), or perceptions of the interaction partner.

5. We predicted that neuroticism and extraversion together would be associated with individuals' emotional experiences during their social interactions. Traditionally, neuroticism has been associated with the tendency to experience negative emotions, and extraversion has been associated with the tendency to experience positive emotions (e.g., Costa & McCrae, 1992; Izard, Libero, Putnam, & Haynes, 1993; Larsen & Ketelaar, 1991; McCrae & Costa, 1991; Watson & Clark, 1992). Recent evidence (McFatter, 1994) suggests, however, that neuroticism and extraversion may operate together to influence emotional experience because, among neurotic individuals only, higher levels of extraversion are associated with increases in positive emotion, whereas lower levels of extraversion are associated with increases in negative emotion. These findings are consistent with the view that neuroticism taps general reactivity to the environment, whereas the degree of extraversion taps sensitivity to positive or negative cues in the environment (Wallace, Newman, & Bachorowski, 1991). Accordingly, we predicted that individuals high in both neuroticism and extraversion would report more positive emotion, whereas individuals high in neuroticism and low in extraversion would report more negative emotion.

6. We did not make any predictions regarding conscientiousness because this dimension is relevant primarily to task settings rather than to interpersonal interactions. Our indexes of individuals' immediate social perceptions did not tap variables theoretically related to conscientiousness, and, therefore, we were not able to assess the accuracy of conscientiousness ratings. Thus, findings for conscientiousness are reported for the sake of completeness.

METHOD

Participants

The study began with 104 participants who were selected from a larger undergraduate subject pool, 56 sampled from the University of Massachusetts and 48 sampled from the Pennsylvania State University.¹ Of the sample, 14% (15 participants) did not complete the study. These participants did not differ from those who remained in the study on any of the five personality factors except for agreeableness. Not surprisingly, the participants who dropped out of the study described

themselves as less agreeable ($M = 107.1$) than those participants who remained in the study ($M = 125.1$), $t(96) = 2.9$, $p < .01$. In particular, they rated themselves as lower on the compliance facet of the Revised NEO Personality Inventory (NEO PI-R) ($M = 11.1$) than the participants who remained ($M = 15.4$), $t(96) = 2.7$, $p < .01$. Of the remaining sample, 21% (19 participants) reported using their memory to complete more than 25% of the interaction records. We removed these participants from the analyses to minimize the influence of recall bias on participants' reports. Subjects who reported using memory to complete their interaction records differed somewhat from the rest of the sample; they evidenced greater neuroticism ($M = 115.2$) than did those individuals who followed the experimental procedure ($M = 96.7$), $t(87) = 2.7$, $p < .01$, and less conscientiousness ($M_s = 107.0$ vs. 121.2), $t(78) = 2.5$, $p < .01$.

The final sample consisted of 70 participants who had complete data for the interaction record ratings. Some participants left some items blank on the personality questionnaires; subscale scores were not computed for these participants. All 70 participants completed the Agreeableness Scale, 68 of these participants fully completed the Neuroticism and Extraversion Scales, 66 participants fully completed the Openness to Experience Scale, and 60 participants fully completed the Conscientiousness Scale. All participants received course credit and tickets for a \$50 lottery for their participation.

Materials

The NEO PI-R (Costa & McCrae, 1992). The NEO PI-R is a commonly used measure of the FFM that has demonstrated acceptable reliability and validity. Each FFM dimension was measured with 48 items (six facets scales consisting of eight items each). Participants responded to each item using a 5-point Likert-type rating scale (1 = *strongly disagree*, 3 = *neutral*, 5 = *strongly agree*).

Interaction record. We adapted the RIR (Reis & Wheeler, 1991) to assess the quality of participants' interactions, their emotional reactions to the interactions, and their views of themselves and their interaction partners after each interaction. The interaction record is a fixed-format diary procedure that participants complete after every social interaction lasting 10 min or longer (Reis & Wheeler, 1991). We defined an interaction as any encounter with another person(s) in which the participants attended to one another and possibly adjusted their behavior in response to one another (Reis & Wheeler, 1991). We called the interactions *social* because they involved at least one other person, but the interactions included more than just situations in which the participants socialized for entertainment purposes (e.g., we sampled interactions at work, over the telephone, during classes, on errands, etc.). For each interaction,

participants rated several aspects of the interaction on 5-point Likert-type scales. Subjects rated the quality of the interaction, including the degree of intimacy, conflict, and own versus other control over the interaction (one item each). They also reported on their views of themselves after the interaction, including how much they self-disclosed (one item) and how much they felt worthwhile, competent, and accepted by the partner. The average of the latter three ratings formed the overall self-esteem score for each interaction. In addition, participants reported their views of their interaction partners, including how much the partners disclosed (one item) and how much they perceived their primary interaction partners to be worthwhile, competent, and acceptable. The average of the latter three ratings formed the overall partner esteem score for each interaction. Participants also rated a range of emotion adjectives to indicate their emotional reactions to the interaction. Ratings of affect terms sampled from the high-arousal and neutral-arousal pleasant octants of the affective circumplex (Feldman, 1995) were averaged to form an index of positive emotion (*satisfied*, *happy*, *enthusiastic*, and *excited*). Ratings of affect terms sampled from the unpleasant octants were averaged to form an index of negative emotion (*sad*, *disappointed*, *angry*, *nervous*) for each interaction. Participants provided additional information about each interaction, such as the number of partners involved, the initials of partners for each interaction, and who initiated the interaction.

Procedure

Participants attended three laboratory sessions. During the first session, the experimenter explained that the study concerned how people think and feel about their social interactions with others and that participants would keep records of all of their social interactions for 7 days. To encourage participation, the experimenter also explained that participants would receive extra credit plus tickets for a \$50 lottery to be held at the end of the semester. To preserve confidentiality, participants selected a code name to write on all of their study materials. Participants also completed several questionnaires during the first session (for a complete description, see Pietromonaco & Barrett, in press). Afterward, the experimenter explained the procedure for completing the interaction records and carefully defined all items on the interaction record form. For example, the experimenter indicated that the term *intimacy* referred to the extent to which the participants felt interpersonally close to their interaction partners in a given interaction and did not necessarily refer to sexual activity. The experimenter emphasized the importance of answering honestly when using the interaction records and of completing a record as soon as possible (within 15 min) after

each interaction. In addition to oral instructions, participants received written instructions to which they could refer during the course of the study. Participants took home some practice interaction records, along with another set of self-report measures, which included the NEO PI-R.

During the second laboratory session, participants returned their completed questionnaires and reviewed their practice interaction records with the experimenter. The experimenter answered all questions and gave participants a final written set of instructions for completing 7 days of interaction records. Participants returned their interaction records three times during their recording week, and they received extra lottery tickets for returning their forms on time. The experimenter phoned, within 24 hrs, any participants who did not return their forms on time and reminded them to return the forms.

During the third laboratory session, the experimenter interviewed participants about their reactions to the study. Participants estimated how difficult they found the study, how accurate their recording was, and how much their social patterns changed as a result of being in the study. To ensure that participants followed all instructions, the experimenter asked several specific questions about the accuracy with which participants had recorded their interactions, including (a) whether they had recorded all of their interactions, and if they had not, what percentage they did not record (percentage not recorded $M = 15.4\%$, $SD = 14.8$) and (b) whether they had completed any interaction records from memory, and if they had, the percentage of interaction forms that they had completed from memory. The experimenter stressed that participants would not be penalized in any way (i.e., they would still receive credit and lottery tickets) if they had not followed instructions and that we were simply interested in obtaining an accurate picture of their data. Overall, the majority of participants (81% of final sample) reported that they documented at least three quarters of their social interactions over the observation week. We reran analyses after removing participants who missed recording more than 25% of their interactions but found that the results remained the same.

RESULTS

Data Analysis Strategy

In much of the previous research employing interaction records, researchers have averaged observations across all interactions for one individual and analyzed the aggregates across individuals. This analytic strategy is limited, however, because individuals often vary considerably in their level of social activity, and thus, some individuals will complete many more interaction records

than others. Individuals may differ in the stability of their ratings, in the variance of their ratings, or both. As a result, consistent variation across individuals may be obscured or exaggerated, producing findings that reflect statistical artifacts rather than the true nature of the data (Kenny & Bolger, 1996; Kenny, Kashy, & Bolger, 1996). To address this limitation, we used regression analyses with a weighted least squares estimation approach recently developed by Kenny and Bolger (1996).²

Each participant in this study made two types of ratings: the interaction ratings multiple times per day and personality ratings at one point in time. This type of data set has a multilevel structure (Kenny et al., 1996) because it includes both lower level and upper level data. The lower level data consisted of participants' ratings on the interaction record variables measured on an interaction-by-interaction basis (e.g., intimacy, self-disclosure, self-esteem), and the corresponding lower level unit of analysis was the interaction. These lower level data were nested within upper level data consisted of participants' scores on each of the five personality factors (e.g., extraversion or agreeableness), and the corresponding upper level unit of analysis was the person.

The weighted least squares analyses included lower level data (e.g., interaction record ratings of intimacy or self-disclosure) as the units of analysis nested within a between-subjects, upper level unit (e.g., a score on one of the five-factor personality variables like extraversion), but the analyses also specified a subjects factor to take into account variation across participants (Kenny & Bolger, 1996; Kenny et al., 1996; Schwartz, Warren, & Pickering, 1994).³ The analyses allowed us to estimate both between-subject and within-subject variation simultaneously, thus allowing us to model each source variation while taking the statistical characteristics of the other level into account.

The majority of our analyses focused on upper level, between-subjects relationships. For example, do participants high in extraversion self-disclose on average more than those low in extraversion? Our analyses determined whether the mean level of self-disclosure increased as a function of extraversion, while taking into account variation both across subjects within each level of extraversion and between different levels of extraversion. If the extraversion effect is significant, this indicates that the mean level of self-disclosure differed across levels of extraversion (i.e., between levels of extraversion), over and above the degree to which participants' mean level of self-disclosure varied from one another (i.e., within levels of extraversion). Put another way, a significant result indicates that extraversion accounts for the variation in the mean level of self-disclosure observed across participants.

In addition, we conducted some conditional analyses in which we examined whether the strength of relationships between within-subject variables varied between subjects. For example, does the relationship between conflict and self-esteem vary at different levels of agreeableness? Our analyses determined whether the magnitude of the association between conflict and self-esteem varied as a function of agreeableness, while taking into account variation in the association magnitude both across subjects within each level of agreeableness and between different levels of agreeableness. If the agreeableness effect is significant, then this indicates that agreeableness moderated the size of the relationship between conflict and self-disclosure, over and above the random variation in size of the relationship across participants.

To avoid the possibility of Type II errors in the context of theoretically derived predictions, we established an alpha of .05, two-tailed. We used an alpha level of .01 when evaluating effects that we did not predict. All predictors were centered for all of the regression analyses (Aiken & West, 1991). Effect sizes were estimated according to procedures outlined by D. A. Kenny (personal communication, October 18, 1996). In the first section below, we report the results of analyses examining the links between each of the five factors, perceptions of self and other, and the quality of the social interactions. In the second section, we report the results of analyses examining the links between neuroticism, extraversion, and emotional responses.

Perceptions of Self, Other, and Quality of Daily Social Interactions

Extraversion. We first examined the prediction that extraversion would be associated with indicators of the quantity of social interactions. As predicted, individuals who were high in extraversion reported interacting with more unique partners ($r = .25, p < .05$). More extraverted individuals, however, did not report a greater number of interactions, $r = .02, ns$, or initiate more interactions, $r = .05, ns$.

We then conducted a series of regression analyses to test the degree to which each interaction record variable was predicted by extraversion scores, over and above the variability in the ratings across participants. Table 1 displays the mean levels of the variables reflecting perceptions of the quality of the interactions, perceptions of self, and perceptions of others for participants who were one standard deviation below the mean of extraversion, at the mean of extraversion, and one standard deviation above the mean of extraversion. Consistent with our predictions, extraversion was strongly related to many of the interaction variables. As predicted, participants high in extraversion reported having more control over their

TABLE 1: Relationship Between Extraversion and Perceptions of Daily Social Interactions, Self, and Others

	<i>Extraversion</i>			<i>Effect Size</i>	<i>F</i>	<i>p</i>
	<i>1 SD</i>		<i>1 SD</i>			
	<i>Below</i>	<i>Mean</i>	<i>Above</i>			
Quality of the interaction						
Intimacy	0.9	1.2	1.5	.15	11.7	.01
Conflict	2.3	2.2	2.1	.05	4.0	.05
Control	3.7	3.6	3.5	.28	16.0	.01
Perceptions of self						
Self-disclosure	2.5	2.7	2.6	.00	1.4	<i>ns</i>
Self-esteem	3.1	3.3	3.5	.19	14.4	.01
Perceptions of other						
Partner disclosure	2.6	2.7	2.8	.00	1.4	<i>ns</i>
Partner esteem	3.3	3.5	3.6	.13	11.2	.01

NOTE: For the analysis of all interaction ratings, extraversion was included in the regression models as the upper level predictor. There were 2,215 observations from 68 participants. Degrees of freedom for these analyses were 1, 66. Higher values indicate more of the variable of interest, with the exception of the control variable. Low values for control indicate perceptions that the subject was in control of the interaction, whereas high values indicate perceptions that the interaction partner was in control of the interaction.

interactions than did those low in extraversion. Individuals who were high in extraversion also reported more intimacy and displayed a trend to report less conflict in their interactions than did those low in extraversion. As predicted, participants high in extraversion reported higher self-esteem after their interactions. Contrary to predictions, however, they did not disclose more. Similarly, those high in extraversion also reported more esteem for their partners but did not report more disclosures from their partners.

One alternative explanation for these findings is that the positive emotions linked to extraversion may be responsible for the observed differences in participants' interaction ratings. To test this hypothesis, we conducted additional analyses to determine whether the relationships between extraversion and the social interaction variables continued to be significant after controlling for the amount of positive emotion experienced by participants in each interaction. Increases in positive affect were significantly related to increases in intimacy (effect size = .63), $F(1, 66) = 76.0, p < .01$; decreases in conflict (effect size = .59), $F(1, 66) = 64.9, p < .01$; increases in self-disclosure (effect size = .62), $F(1, 66) = 66.7, p < .01$; increases in self-esteem (effect size = .75), $F(1, 66) = 142.7, p < .01$; increases in partners' disclosures (effect size = .61), $F(1, 66) = 58.0, p < .01$; and increases in partner esteem (effect size = .69), $F(1, 66) = 119.3, p < .01$. Positive emotion was not related to ratings of control, however (effect size = .00, $F < 1$). After accounting for the variance due to positive emotion, extraversion continued to be significantly related to increased ratings

TABLE 2: Relationship Between Agreeableness and Perceptions of Daily Social Interactions, Self, and Others

	Agreeableness			Effect Size	F	p
	1 SD Below	Mean	1 SD Above			
Quality of the interaction						
Intimacy	2.7	2.7	2.8	.00	< 1	ns
Conflict	2.6	2.5	2.4	.07	5.5	.05
Control	2.8	2.9	2.9	.02	1.6	ns
Perceptions of self						
Self-disclosure	1.9	2.1	2.2	.04	3.5	.10
Self-esteem	4.3	4.3	4.3	.00	< 1	ns
Perceptions of other						
Partner disclosure	2.0	2.2	2.3	.05	4.1	.05
Partner esteem	4.1	4.1	4.2	.00	< 1	ns

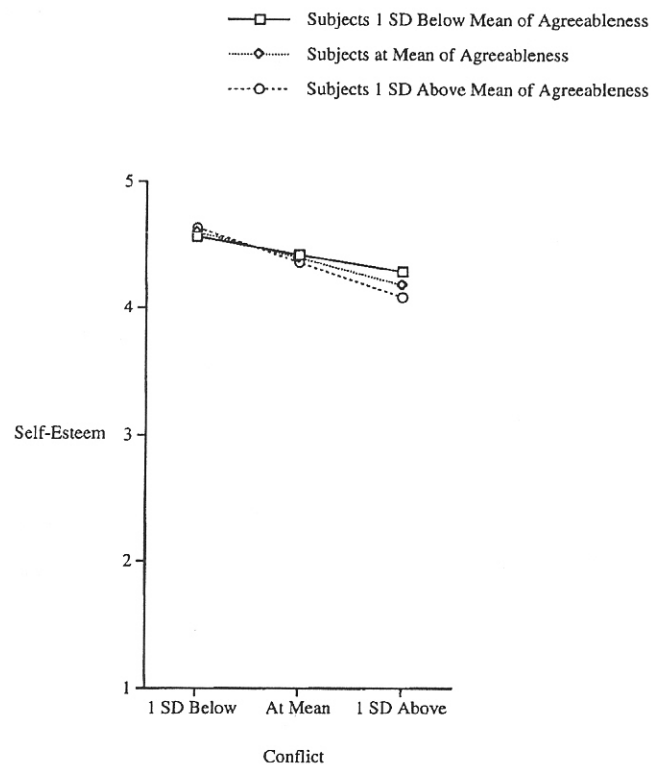
NOTE: For analyses of all interaction variables, agreeableness was included in the regression models as the upper level predictor. There were 2,272 observations from 70 participants. Degrees of freedom for these analyses were 1, 68. Higher values indicate more of the variable of interest, with the exception of the control variable. Low values for control indicate perceptions that the subject was in control of the interaction, whereas high values indicate perceptions that the interaction partner was in control of the interaction.

of control (effect size = .37), $F(1, 66) = 12.6$, $p < .01$, and was no longer significantly related to ratings of intimacy, conflict, self-esteem, or partner-esteem (effect sizes were approximately zero).

Agreeableness. In contrast to the findings for extraversion, individuals high in agreeableness did not report having more unique interaction partners ($r = .12$, *ns*), having more interactions ($r = .15$, *ns*), or initiating more interactions ($r = -.11$, *ns*) than individuals who were low in agreeableness.

We analyzed the associations between agreeableness and the interaction record variables (e.g., self-disclosure, conflict) following the same strategy as in the first set of analyses for extraversion. Table 2 shows the mean levels of each interaction record variable for participants one standard deviation below, at the mean, and one standard deviation above the mean of agreeableness. As predicted, individuals high in agreeableness perceived less conflict in their interactions than those low in agreeableness. Contrary to predictions, however, agreeableness was not related to perceived personal control over the interactions. Although no differences were predicted, participants high in agreeableness displayed a trend to report that they and their partners disclosed more information during their social interactions. Agreeableness was not related to perceptions of intimacy in the interactions or to perceptions of partner esteem.

In the next set of analyses, we examined the hypothesis that individuals high in agreeableness would evidence higher self-esteem for interactions that they described as low in conflict or in which they perceived their partners

**Figure 1** Simple slopes of self-esteem on conflict at different levels of agreeableness.

to be in control. First, we examined whether the association between conflict and self-esteem (the relationship between two lower level variables) varied with different levels of agreeableness (as the upper level predictor). The association between conflict and self-esteem was negative and significant (effect size = .59), $F(1, 68) = 16.5$, $p < .01$; in general, participants reported lower self-esteem for interactions they rated as more conflictual. In addition, the interaction between conflict and agreeableness was significant (effect size = .14), $F(1, 68) = 8.9$, $p < .01$. Figure 1 shows that the relationship (i.e., the slope) between conflict and self-esteem was stronger for individuals high in agreeableness than for those who were low. Individuals who were high in agreeableness showed the lowest self-esteem when their interactions were high in conflict; in contrast, this association was attenuated for individuals who were low in agreeableness. The association for individuals of moderate agreeableness fell in between these two extremes.

Second, we examined whether the association between control and self-esteem (the relationship between two lower level variables) varied with different levels of agreeableness (as the upper level predictor). Perceived control over the interaction was associated with self-esteem in daily social interactions (effect size = .10), $F(1,$

TABLE 3: Relationship Between Neuroticism and Perceptions of Daily Social Interactions, Self, and Others

	Neuroticism			Effect Size	F	p
	1 SD Below	Mean	1 SD Above			
Quality of the interaction						
Intimacy	2.4	2.5	2.6	.00	< 1	ns
Conflict	1.7	1.7	1.6	.00	< 1	ns
Control	2.6	2.7	2.8	.21	12.4	.01
Perceptions of self						
Self-disclosure	2.3	2.5	2.6	.04	4.6	.05
Self-esteem	5.0	4.9	4.8	.07	4.9	.05
Perceptions of other						
Partner disclosure	2.6	2.7	2.8	.02	3.7	.10
Partner esteem	4.6	4.6	4.5	.00	< 1	ns

NOTE: For analyses of all interaction variables, neuroticism was included in the regression models as the upper level predictor. There were 2,215 observations from 68 participants. Degrees of freedom for these analyses were 1, 66. Higher values indicate more of the variable of interest, with the exception of the control variable. Low values for control indicate perceptions that the subject was in control of the interaction, whereas high values indicate perceptions that the interaction partner was in control of the interaction.

68) = 4.7, $p < .05$, indicating that as perceptions of control over the interaction increased, self-esteem increased. None of the effects including agreeableness were statistically significant (effect sizes were zero), suggesting that agreeableness did not influence participants' self-esteem change in response to felt control.

Neuroticism. Table 3 shows the mean levels for each variable for participants one standard deviation below, at the mean, and one standard deviation above the mean of neuroticism. Contrary to predictions, participants high in neuroticism did not report more conflictual interactions than those low in neuroticism. Nor was neuroticism related to perceptions of intimacy. Although not predicted, individuals describing themselves as neurotic reported having less control than their interaction partners over their social interactions. As predicted, participants describing themselves as high in neuroticism reported that they self-disclosed more during their social interactions and reported lower self-esteem after their interactions. There was a trend for those high in neuroticism to report more partner disclosures than those lower in neuroticism. Neuroticism was not related to perceptions of partner esteem.

One alternative explanation for these findings is that the negative emotions linked to neuroticism may be responsible for the observed differences in participants' interaction ratings. To test this hypothesis, we conducted additional analyses similar to those conducted with extraversion and positive emotion, to determine whether the relationships between neuroticism and the

social interaction variables continued to be significant after controlling for the amount of negative emotion experienced by participants in each interaction. Increases in negative emotion were associated with increased ratings of conflict (effect size = .86), $F(1, 67) = 228.5$, $p < .01$, decreased ratings of self-esteem (effect size = .79), $F(1, 67) = 153.7$, $p < .01$, and decreased ratings of partner esteem (effect size = .56), $F(1, 67) = 66.9$, $p < .01$, but were not related to changes in intimacy, control, self-disclosure, or partner disclosure (effect sizes were essentially zero). After controlling for negative affect, neuroticism continued to be significantly related to a decreased sense of personal control (effect size = .16), $F(1, 66) = 10.0$, $p < .01$, and increased self-disclosure (effect size = .05), $F(1, 66) = 5.8$, $p < .03$, and was marginally related to both decreased self-esteem (effect size = .05), $F(1, 66) = 3.6$, $p < .10$, and increased disclosures from the interaction partner (effect size = .02), $F(1, 66) = 3.5$, $p < .10$.

Next, we examined the hypothesis that individuals high in neuroticism would be more reactive to conflict and would thus have stronger self-esteem reactions to conflictual situations than those low in neuroticism. We tested whether neuroticism (as an upper level predictor) moderated the relationship between conflict in the interaction (as the lower level predictor) and self-esteem (as the lower level criterion). In these analyses, the association between conflict and self-esteem was negative and significant (effect size = .60), $F(1, 66) = 71.3$, $p < .01$. The interaction between conflict and neuroticism was not significant, however (effect size = .02), $F(1, 66) < 1$, ns , suggesting that neuroticism did not influence participants' self-esteem change in response to conflict. Interestingly, neuroticism was significantly related to decreased self-esteem when there was an average level of conflict in the interactions (effect size = .10), $F(1, 66) = 7.82$, $p < .01$, indicating that high-neurotic individuals have lower self-esteem in their social interactions but not necessarily because their interactions are more conflictual.

To examine the hypothesis that individuals high in neuroticism would not reciprocate their partners' disclosures as well as those lower in neuroticism, we tested whether neuroticism (as an upper level predictor) moderated the relationship between partner disclosure (as a lower level predictor) and self-disclosure (as a lower level criterion). In these analyses, the association between partner disclosure and self-disclosure was positive and significant (effect size = .88), $F(1, 66) = 355.7$, $p < .01$; in general, participants reported that they self-disclosed more when they perceived their partners to have done the same. The interaction between partner disclosure and neuroticism was not significant, however (effect size = .00), $F(1, 66) < 1$, ns , suggesting that neuroticism did not

TABLE 4: Relationship Between Openness and Perceptions of Daily Social Interactions, Self, and Others

	Openness			Effect Size	F	p
	1 SD Below	Mean	1 SD Above			
Quality of the interaction						
Intimacy	0.8	1.1	1.4	.15	13.0	.01
Conflict	1.5	1.5	1.5	.06	< 1	ns
Control	3.1	3.1	3.1	.09	< 1	ns
Perceptions of self						
Self-disclosure	2.7	2.8	2.8	.00	< 1	ns
Self-esteem	4.2	4.3	4.3	.00	< 1	ns
Perceptions of other						
Partner disclosure	2.8	2.8	2.9	.00	< 1	ns
Partner esteem	4.1	4.2	4.2	.00	< 1	ns

NOTE: For analyses of all interaction variables, openness was included in the regression models as the upper level predictor. There were 2,200 observations from 66 participants. Degrees of freedom for these analyses were 1, 64. Higher values indicate more of the variable of interest, with the exception of the control variable. Low values for control indicate perceptions that the subject was in control of the interaction, whereas high values indicate perceptions that the interaction partner was in control of the interaction.

influence participants' ability to reciprocate disclosures. Interestingly, neuroticism was significantly related to increased self-disclosure when there was an average level of partner disclosure in the interactions (effect size = .08), $F(1, 66) = 4.7$, $p < .05$, indicating that high-neurotic individuals self-disclose more in their social interactions but not necessarily because they perceive their partners to disclose more.

Openness to experience. Table 4 shows the mean levels of variables reflecting perceptions of the quality of the interactions, self, and others for participants one standard deviation below the mean, at the mean, and one standard deviation above the mean of openness to experience. As predicted, individuals high in openness reported greater intimacy in their social interactions than those low in openness. Openness was not related to any of the other social interaction variables, however.

Conscientiousness. As expected, conscientiousness was not associated with any of the social interaction variables.

Summary. Individuals' scores on several of the FFM dimensions predicted their immediate perceptions of their social interactions. Extraversion was associated with having more unique interaction partners, perceptions of greater control over the interaction, greater intimacy, and higher esteem for self and partners. Agreeableness was associated with less perceived conflict and marginally greater disclosures by self and partners; individuals high in agreeableness also showed lower self-esteem following interactions high in conflict. Neuroticism was linked to greater self-disclosure, less perceived control over inter-

actions, and lower self-esteem following interactions. Openness to experience predicted only greater intimacy during social interactions, whereas, as expected, conscientiousness did not predict any of the interaction variables.

Emotional Reactions to Social Interactions

We predicted that neuroticism and extraversion together would be associated with individuals' emotional experiences (McFatter, 1994) during their social interactions. Specifically, we predicted that individuals high in both neuroticism and extraversion would report more positive emotion, whereas individuals high in neuroticism and low in extraversion would report more negative emotion.

To examine the hypothesized associations between neuroticism, extraversion, and emotional experience, we performed separate regressions for positive emotion and negative emotion using extraversion, neuroticism, and their interaction as the predictors (Aiken & West, 1991). As in the previous analyses, we again performed analyses allowing us to take into account the variation and estimate whether this variation was accounted for by predictors.

We predicted that neuroticism and extraversion would contribute jointly to emotional experience. Consistent with this prediction, the Neuroticism \times Extraversion cross product was marginally significant for positive emotions experienced during social interactions (effect size = .04), $F(1, 64) = 3.3$, $p < .10$. Figure 2 shows the simple regression lines for the association between extraversion and positive emotion at one standard deviation below, at the mean, and one standard deviation above the mean of neuroticism (Aiken & West, 1991). As predicted, the relationship between extraversion and positive emotion was strongest for individuals high in neuroticism. Individuals high in neuroticism reported more positive emotion at higher levels of extraversion. Similarly, individuals at the mean of neuroticism also reported more positive emotion when they evidenced greater extraversion, but the association was weaker than for individuals high in neuroticism. The regression slope was virtually flat for individuals low in neuroticism, which suggests that extraversion and positive emotion are not linked for these individuals. Thus, individuals who evidenced high neuroticism and high extraversion reported more positive emotion immediately following their interactions, whereas those who evidenced high neuroticism and low extraversion reported the least positive emotion.

For negative emotions, the Neuroticism \times Extraversion cross product again was marginally significant (effect size = .03), $F(1, 64) = 2.3$, $p < .10$. Figure 3 shows the simple regression slopes at each level (i.e., above, at,

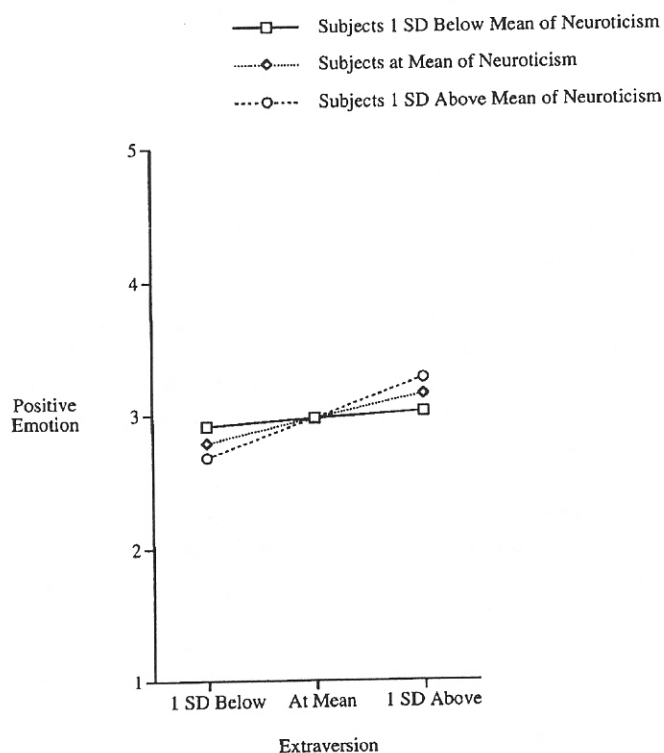


Figure 2 Simple slopes of positive emotion on extraversion at different levels of neuroticism.

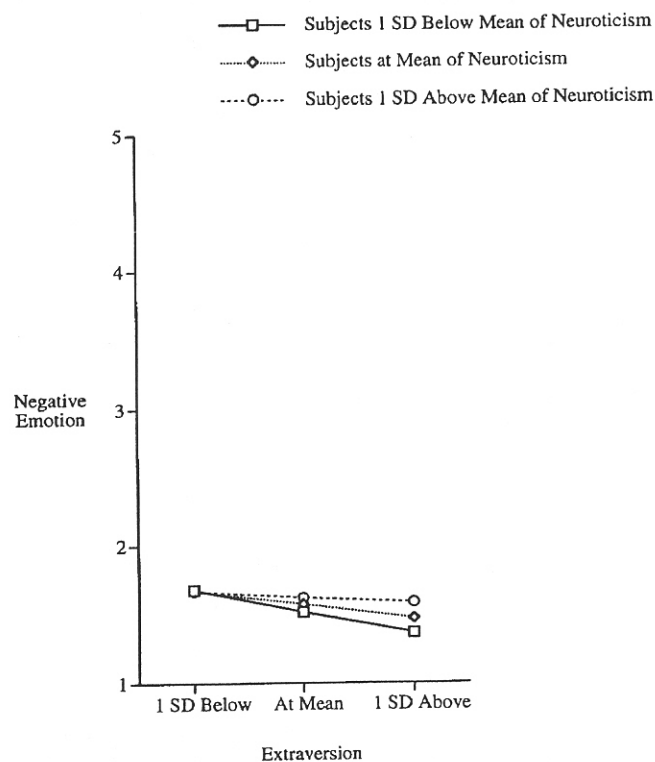


Figure 3 Simple slopes of negative emotion on extraversion at different levels of neuroticism.

or below the mean) of neuroticism. In contrast to the findings for positive emotion, individuals who evidenced high neuroticism experienced similar levels of negative emotion regardless of their degree of extraversion. In contrast, individuals who evidenced low neuroticism showed less negative emotion at higher levels of extraversion. Individuals at the mean in neuroticism showed a similar, but weaker, association between negative emotion and extraversion. Thus, our predictions were partly supported; individuals who were high in extraversion varied in their reported negative emotion depending on their level of neuroticism, but those who were low in extraversion reported the most negative emotion, regardless of their level of neuroticism.

Taken together, these findings indicate that individuals low in neuroticism experience similar levels of positive emotion in their interactions, regardless of their extraversion, but less negative emotion when they are more extraverted. In contrast, individuals high in neuroticism experience similar levels of negative emotion in their interactions, regardless of their extraversion, but more positive emotion when they are more extraverted.

DISCUSSION

The FFM and Immediate Perceptions

Our findings suggest that individuals' descriptions of themselves on some of the FFM personality dimensions accurately predict consistent patterns in their immediate perceptions and responses to daily social interactions.

Extraversion. Individuals who reported a high level of extraversion during the initial questionnaire assessment were more likely to report having more unique interaction partners when they were keeping daily records of their interactions; they also evidenced more positive views of themselves and others in their immediate perceptions of their daily interactions and perceived themselves as in control of their interactions. Thus, individuals' extraversion scores accurately predicted immediate perceptions on an interaction-by-interaction basis, and did so across a range of social variables.

Affect seemed to play a central role in the relationship between extraversion and participants' social interactions. After the variance due to positive emotion was accounted for, extraversion continued to be significantly related to increased ratings of control and was no longer

significantly related to ratings of intimacy, conflict, self-esteem, or partner esteem. The interpretation of these findings depends on whether positive emotion and extraversion are viewed as separate but related constructs or whether positive emotion is viewed as a central component of extraversion. If they are separate constructs, then these findings suggest that positive emotionality is a mediator in the relationship between extraversion and social interaction experiences. If positive emotion is a core component of extraversion, then the findings suggest simply that extraversion is related to social interaction experiences. The difference in interpretation is one of degree. Theorists do differ in whether they consider positive emotions to be a central aspect of extraversion or merely a separate or related construct (for a discussion, see Watson & Clark, in press). Our results are consistent with either interpretation.

Agreeableness. Although agreeableness was not linked to perceptions of daily interactions as broadly as predicted, it did show a conditional association with self-esteem. People high in agreeableness evidenced higher self-esteem following interactions that were lower in conflict and did so to a greater extent than those low in agreeableness. It may be that low-conflict situations allow highly agreeable individuals to confirm their views of themselves and, thus, enhance their self-esteem (Swann, 1983).

Neuroticism. Neuroticism predicted individuals' immediate perceptions of their interactions, but in a more circumscribed manner than extraversion. Individuals high in neuroticism reported lower self-esteem and more self-disclosure during social interactions than those low in neuroticism. Neuroticism was not related to individuals' self-esteem reactivity to negative social stimuli, and it was not related to the ability to reciprocate disclosures from interaction partners (although high-neurotic individuals reported lower self-esteem and more self-disclosure at average levels of conflict and partner disclosures, respectively). Neuroticism was also related to decreased perceptions of control in social interactions, although it was not related to increased perceptions of conflict. Our findings suggest that, for individuals high in neuroticism, social interactions may heighten their fragile sense of self-worth, which provides at least partial support for previous findings that individuals high in neuroticism are especially sensitive to social stressors (Bolger & Schilling, 1991).

Openness and conscientiousness. The last two dimensions—openness to experience and conscientiousness—were not strongly related to perceptions of social interactions as measured in the present study. Individuals high in openness reported greater intimacy in their

interactions but did not differ on any of the other interaction variables. Furthermore, conscientiousness was not related to any of the social interaction variables, supporting the view that it is the least social of the FFM dimensions. Because the situations that we sampled may not have been appropriate domains to activate openness and conscientiousness, the present study cannot fully address how well these two personality factors predict daily experiences.

In summary, our findings offer some evidence that the FFM captures some real attributes of the individual that are expressed as patterns of perception in the context of people's daily lives. Participants' descriptions of themselves agreed with their immediate perceptions on an interaction-by-interaction basis, particularly for extraversion. To a lesser extent, neuroticism and agreeableness predicted individuals' immediate perceptions of their interactions. Thus, three of the five factors were linked to individuals' perceptions of themselves and others in the course of their daily interactions. These findings suggest that individuals' judgments of their own personality correspond not only to the judgments of strangers or acquaintances (e.g., McAdams, 1992) but also to individuals' reports of their own perceptions and responses in the course of their daily interactions. Although openness and conscientiousness did not predict immediate perceptions in the present study, it is likely that most of the sampled interactions were not particularly relevant to these two dimensions. Future work will need to address this limitation by examining a broader range of situations.

A Case for Self-Perception?

Individuals have access to their own thoughts and feelings, and probably use them as cues to make summary descriptions of themselves. In addition, according to self-perception theory (Bem, 1972), people make inferences about themselves on the basis of observing their own behavior. Whether or not the process is conscious, individuals may make trait attributions to themselves based on the same behavioral cues that they use to ascribe traits to others. Extraversion is the most observable of the FFM dimensions (Borkenau & Liebler, 1993; John & Robins, 1993) and was most strongly linked to participants' on-line ratings. The self-perception hypothesis may hold particularly for extraversion, then, if people infer the presence of this trait both on the basis of their thoughts and feelings and on the basis of their own observable behaviors. Some support for this interpretation of our findings comes from studies that have identified the behavioral cues that strangers and acquaintances use to judge the degree of extraversion in target individuals (Funder & Colvin, 1991; Funder &

Sneed, 1993). Extraversion has many behavioral cues that are related to social skills and expressiveness (e.g., engages in eye contact, exhibits social skills, is dominant in the interaction). Several of these behaviors correspond to participants' own perceptions of their social interactions measured in the present study (e.g., perceptions of control and self-esteem in the interaction). Thus, some of the interaction items may correspond directly to behavioral cues that are considered to be diagnostic of extraversion.

The self-perception hypothesis is not well supported, however, by our findings for agreeableness. Agreeableness, like extraversion, is fairly observable, and both stranger and acquaintance ratings correlate highly with the use of behavioral cues (Funder & Sneed, 1993). Agreeableness, like extraversion, is thought to be a socially relevant trait, and many of the behavioral indicators of agreeableness are related to social skills. In fact, many are similar to those noted for extraversion. Yet, several of the on-line ratings that were not related to agreeableness (self-disclosure, partner esteem, and conflict) are considered to be diagnostic of the trait and are used by strangers and acquaintances when describing a target person.

One reason that the self-perception hypothesis might not hold for agreeableness is that it has evaluative connotations, whereas extraversion is evaluatively neutral (John & Robins, 1993; Saucier, 1994). By evaluative connotations, we mean that agreeableness items require participants to report on value-laden (either positive or negative) aspects of themselves, whereas this is less true of extraversion items. As a result, individuals may observe their own behavior but may be reluctant to acknowledge these aspects because they wish to maintain a positive self-perception. Thus, the evaluative nature of the agreeableness dimension might trigger a bias in self-perception (Funder & Dobroth, 1987; John & Robins, 1993), even when behavior is readily observable.

Neuroticism, Extraversion, and Momentary Experiences of Emotion

Our findings also indicated that neuroticism and extraversion contributed to immediate emotional reactions during social interactions. Although the effect was small, individuals high in neuroticism tended to report more positive emotion when they were high in extraversion, but individuals low in neuroticism did not differentially report more or less positive emotion as a function of extraversion. In contrast, individuals low in neuroticism tended to report less negative emotion when they were high in extraversion, whereas individuals high in neuroticism did not differentially report more or less negative emotion as a function of extraversion.

This study provides support for the hypothesis that neuroticism and extraversion together predict the experience of emotion. Some theorists (e.g., Tellegen, 1985; Watson & Clark, 1992, in press) have referred to neuroticism as "negative emotionality" or "negative temperament," and others (Carver & White, 1994; Gray, 1987a, 1987b; Tellegen, 1985) have linked it to sensitivity to negative cues or punishment in the environment. In contrast, extraversion has been characterized as "positive emotionality" or "positive temperament" and is linked to sensitivity to positive cues or rewards in the environment (Carver & White, 1994; Gray, 1987a, 1987b; Tellegen, 1985). More recent research (McFatter, 1994; Wallace et al., 1991), however, suggests that neuroticism is associated with a general sensitivity to environmental cues, whereas extraversion is related to reward sensitivity and introversion is related to punishment sensitivity. Our findings contribute to these ideas by showing that a combination of neuroticism and extraversion is related to people's emotional reactions to their social experiences. Although our results are consistent with recent research that neuroticism and extraversion jointly contribute to the experience of positive and negative emotions, their joint contributions were small and marginally significant in the present study, suggesting that these effects are in need of replication.

Conditional Patterns

We tested several context-dependent hypotheses associated with the FFM but demonstrated only that agreeableness was related, to some extent, to self-perceptions in specific social situations (e.g., situations low or high in conflict). This "conditional pattern" (Thorne, 1989; Wright & Mischel, 1987) indicated that the association between agreeableness and self-esteem depended on the level of conflict present in the social interactions. Despite the fact that our other conditional hypotheses were not supported, we expect that conditional hypotheses may be a fruitful avenue for future research on personality characteristics, especially when combined with an experience-sampling methodology. A conditional research strategy is directly related to the notion that behavioral consistency may be nested within situations. Indeed, Mischel and Shoda (1995) redefined personality as a set of "behavioral signatures": A personality characteristic is in evidence when an individual's behavior varies in a predictable way across situations. In the present study, we defined situations not by objective, external criteria but by the subjective perceptions of the participants. We expect that experience-sampling techniques will prove to be a promising method for future researchers who seek to construct "perceptual signatures" that may be associated with various personality characteristics.

Furthermore, conditional analyses can be informative even when conditional hypotheses are not supported. For example, we were able to show that neuroticism was associated with lower self-esteem and greater self-disclosure, regardless of the level of elicitors (i.e., conflict and partner disclosures) in the interaction. We would not have identified this rigidity as characteristic of those high in neuroticism had we not conducted the conditional analyses.

Potential Limitations

The present research also has several potential limitations. First, the small percentage (14%) of participants who did not complete the study scored lower on agreeableness than those participants who remained in the study; the loss of these more disagreeable participants may have restricted our ability to detect associations between agreeableness and immediate social perceptions. Second, the interaction record assessed only a particular range of interpersonal perceptions and responses and thus may have limited our ability to detect associations between all of the FFM dimensions and social perceptions. Even given this limitation, however, we found a variety of associations between the FFM dimensions and on-line perceptions. Third, most participants did not document every single social interaction over the entire observation period, and thus we cannot rule out the possibility that participants may have selectively chosen to report only certain interactions. Fourth, as in most intensive studies of everyday experiences, our sample size was not large; further research is needed to determine the generality of the findings. Fifth, we cannot determine whether individuals' global personality impressions caused them to evidence particular kinds of on-line perceptions, whether their previous experiences in their on-line perceptions caused them to develop their global impressions or whether some third factor (e.g., motives; McClelland, 1951; Murray, 1938; Pervin, 1994a) might be responsible for the association. Sixth, both global personality judgments and immediate perceptions came from the same source (i.e., the participant) and thus might be expected to show greater correspondence than if they had come from different sources (i.e., the participant and the partner). We believe that it is unlikely that the associations merely reflect a same-source bias because the two sets of responses were gathered at different time points, in different contexts, and using quite different methods (i.e., a global trait questionnaire vs. immediate reports of particular interpersonal responses). Given that the present study relied on self-report methodologies, however, it will be important for future studies to use multiple methods, for example, by including peer ratings of personality as predictors of participants' experience-sampling ratings.

Conclusion

In sum, the present study demonstrated that at least three dimensions (i.e., extraversion, agreeableness, and neuroticism) of the FFM predict individuals' immediate perceptions and emotional responses in the context of their daily social interactions. Individuals' summary, abstract judgments of their personality characteristics are related to the way in which they understand and respond to naturally occurring, interpersonal events.

NOTES

1. Participants in this study were part of a larger study (Pietromonaco & Barrett, in press) on adult attachment and interpersonal experiences. The sample included approximately equal numbers of individuals from each of four attachment styles (i.e., secure, preoccupied, fearful-avoidant, and dismissing-avoidant; Bartholomew & Horowitz, 1991). The hypotheses and analyses reported here do not overlap with those reported in Pietromonaco and Barrett (1996). Participants who held different attachment styles did not differ significantly on their scores on agreeableness, extraversion, conscientiousness, or openness. Preoccupied and fearful-avoidant individuals evidenced significantly greater neuroticism scores than did secure or dismissing-avoidant individuals, $F(3, 91) = 8.4, p < .01$, but the size of the effect was modest, $\eta^2 = .22$.

2. A detailed explanation of the analysis strategy used in the present article is available from the first author by request.

3. See Bolger and Schilling (1991), Kenny and Bolger (1996), and Schwartz et al. (1994) for a detailed explanation of the analysis strategy. This least squares estimation procedure yields similar results to hierarchical linear modeling (Bryk & Raudenbush, 1992).

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