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Openness to Experience

Robert R. McCrae

and

Angelina R. Sutin

National Institute on Aging, NIH, DHHS

Openness to Experience

> Confronted with the choice, the American people
> would choose the policeman's truncheon over the
> anarchist's bomb.
>
> An intellectual is a man who doesn't know how
> to park a bike.
>
> Attributed to Spiro T. Agnew

> Their *ethics* are a short summary of police
> ordinances; for them the most important thing
> is to be a useful member of the state, and to air
> their opinions in the club of an evening; they
> have never felt homesickness for something
> unknown and far away . . .
>
> Søren Kierkegaard (1936)

This chapter is arguably misplaced. It was assigned to a section on cognition in a book on individual differences in social behavior. Yet Openness to Experience is not a cognitive disposition, nor is it a dimension of social behavior. McCrae and Costa (1997) argued that Openness must be understood "in both structural and motivational terms. Openness is seen in the breadth, depth, and permeability of consciousness, and in the recurrent need to enlarge and examine experience" (p. 826). This description makes Openness fundamentally an intrapsychic variable, associated with such esoteric phenomena as chills in response to sudden beauty (McCrae, 2007), the experience of *déjà vu* (McCrae, 1994), and homesickness for the unknown.

Yet, as the Editors understand, these characteristics of mind have profound consequences for social behavior at all levels, much of it mediated by cognitive processes. Openness affects social perceptions and the formation of social attitudes, the choice of friends and spouses, political activity and cultural innovation. All these connections were pointed out in an earlier review (McCrae, 1996); this chapter can be seen as an update.

Openness: An Orientation

Openness is one of the dimensions of the Five-Factor Model (FFM; Digman, 1990) of personality traits. As such, it is a very broad construct that is often difficult to grasp. The component traits or facets of Openness are the most loosely related of any of the five factors, and thus the weakest in replication studies (McCrae et al., 2005a). Piedmont and Aycock (2007) showed that terms for Openness entered the English language centuries after terms for Extraversion and Agreeableness, and McCrae (1990) noted that many O-related traits, such as aesthetic sensitivity, are still not represented by single trait adjectives in English. Lay conceptions of Openness are often confounded with interpersonal openness (Sneed, McCrae, & Funder, 1998). It is therefore understandable that there are different conceptualizations of Openness among experts (De Raad & Van Heck, 1994).

In this chapter we will adopt the view of Openness operationalized in the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992a), but in general there are substantial correlations among different measures of Openness, including the Openness scale of the Big Five Inventory (BFI; Benet-Martínez & John, 1998), and Goldberg's (1990) adjective-based Intellect scales. (However, the fifth factor in the Five-Factor Personality Inventory, Hendriks, Hofstee, & De Raad, 1999, is called Autonomy and is only modestly related to Openness; De Fruyt, McCrae, Szirmák, & Nagy, 2004).

The NEO-PI-R has facet scales for Openness to Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values. Highly open people are thus seen as imaginative, sensitive to art and beauty, emotionally differentiated, behaviorally flexible, intellectually curious, and liberal in values. Closed people are down-to-earth, uninterested in art, shallow in affect, set in their ways, lacking curiosity, and traditional in values.[1] Most psychologists would judge the high pole of this dimension to be desirable, because most psychologists are themselves high in Openness

(Staudinger, Maciel, Smith, & Baltes, 1998), but among laypeople there is a strong correlation between social desirability ratings of Openness and their own self-reports (Konstabel, 2007): Open people admire openness, closed people despise it.

Like the other basic factors, Openness is strongly heritable, and the covariation of Openness facets to define the factor appears at the genetic level as well as the phenotypic level (Yamagata et al., 2006)—that is, people who are intellectually curious also tend to be imaginative and artistically sensitive in part because the same genes help shape these three traits. Like the other basic factors, Openness shows high levels of differential stability across the adult lifespan (Terracciano, Costa, & McCrae, 2006), but it shows a distinctive pattern of maturational trends, increasing from early adolescence until some time in the 20s, and then gradually declining (e.g., McCrae et al., 2005a).

It is useful to distinguish Openness from constructs with which it might be confused, particularly intelligence.[2] Although adjective Intellect scales include such terms as *perceptive, analytical,* and *intelligent*, and they correlate well with Openness, the association of Openness with measured intelligence is modest and specific. Correlations around .40 are found with measures of divergent thinking, which is often thought to underlie creativity (McCrae, 1987). Openness scores were associated (rs $\approx$.30) with performance on verbal and facial emotion recognition tasks for both Caucasians and African Americans (Terracciano, Merritt, Zonderman, & Evans, 2003). Noftle and Robins (2007) reported an overall correlation of .26 between Openness and the verbal score on the Scholastic Aptitude Test, but only .05 with the math score. Higher verbal scores may reflect more and broader reading among students high in Openness, rather than greater native ability.

Finally, it will be useful to discuss the relation of Openness to some of the other constructs discussed in this book. Openness is inversely, and rather strongly, related to

Authoritarianism/Dogmatism: Trapnell (1994) reported correlations of from $-.29$ to $-.63$ between NEO-PI-R Openness facet scales and Right Wing Authoritarianism, with the largest correlation unsurprisingly with Openness to Values. To the extent that aggression is related to authoritarianism (weakly; see Carnahan & McFarland, 2007), we would expect authoritarians to be antagonistic as well as closed.

Need for Closure (Webster & Kruglanski, 1994), the desire for definite and final answers, is also related to low Openness ($r = -.42$, $N = 84$, $p < .001$; Costa & McCrae, 1998), but is unrelated to Agreeableness ($r = -.08$, $n.s.$). Instead, this construct includes a preference for order and predictability that gives it an association with Conscientiousness ($r = .42$, $p < .001$). Thus, people prone to seizing on the first idea offered and then freezing on this solution (Kruglanski & Webster, 1996) are in general uninterested in exploring alternative possibilities, keeping their views simple and uncluttered.

Other people pursue ideas vigorously, being high on both Openness and Conscientiousness. Such people score high on Need for Cognition (Cacioppo & Petty, 1982; Sadowski & Cogburn, 1997; P. D. Trapnell, personal communication, November 9, 2007). Need for Cognition is most directly relevant to O5: Ideas,[3] but it is related to most facets of Openness (Berzonsky & Sullivan, 1992). Remarkably, a PsycINFO search found 474 entries for "Need for Cognition" and 1,032 for "Openness to Experience," but only 6 that included both terms. The Need for Cognition scale was created by social psychologists and has been used widely in experimental studies, whereas Openness is employed in correlational studies in the personality literature. Petty's chapter (this volume) ought to give readers an idea of how Openness might function if it were included as a moderator variable in social psychological experiments. For example, research by D'Agostino and Fincher-Kiefer (1992) suggests that highly open people would be less susceptible to the correspondence bias, that is, to misattribute behavior to

dipositional rather than situational causes

Tetlock, Peterson, and Berry (1993) reported that Integrative Complexity (a form of cognitive complexity in which people tend to consider a range of possibilities before coming to a conculsion) showed positive associations with Myers-Briggs Type Indicator Intuition, Adjective Check List Creative Personality, and California Psychological Inventory Flexibility—all known correlates of Openness (McCrae & Costa, 1997). Kensinger (1996) scored Thought Complexity from definitions given in response to 11 words (see Kreitler & Kreitler, 1990), and found that it was associated with total Openness ($r = .36$, $N = 60$, $p < .05$) and with O2: Aesthetics ($r = .30$) and especially O5: Ideas ($r = .51$, $p < .01$).

Given the association of Openness with emotion recognition (Terracciano et al., 2003), one might guess that it would also be related to Emotional Intelligence, and there is some data supporting a modest association (Schulte, Ree, & Carretta, 2004). Finally, one of the variables classified as a motivational disposition, Sensation Seeking, has an Experience Seeking subscale that is clearly related to Openness (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993).

We do not mean to suggest that these constructs are equivalent to O; they differ both in their associations with other factors and in their specific content that gives each a unique focus of convenience. However, if measures of all of them were factored together, it is likely that a first general factor would be defined chiefly by Openness. The social consequences of Openness, to some degree, include the social consequences of Authoritarianism, Need for Closure, and so on.

Individual Social Interactions

Person Presentation and Perception

Do open people express their Openness in ways that other people can detect? Are others able to recognize these cues accurately, or do lay observers have intuitive ideas about what

behaviors reflect Openness that may not be diagnostic of the individual's actual level of Openness? Can multiple observers come to consensus on whether another is open? And are they accurate? The person perception literature addresses each of these questions and paints a broad picture of how Openness is manifested in daily living and interpersonal interactions, and how others perceive these cues.

Open individuals express their creativity, intellectual curiosity, and need for variety in characteristic ways across a variety of mediums. They are verbally fluent, humorous, and expressive in interpersonal interactions (Sneed, McCrae, & Funder, 1998). When going about their daily lives, these individuals use fewer third-person pronouns and past tense verbs, and spend more of their time in restaurants, bars, and coffee shops (Mehl, Gosling, & Pennebaker, 2006). Given that open individuals have both artistic and intellectual proclivities, it is not surprising that these interests are expressed in how they present themselves to the world. For example, on their personal web pages, open individuals choose to highlight their own creative and work projects and present information that expresses their emotions and personal opinions (Marcus, Machilek, & Schütz, 2006). These same proclivities are manifested in their working and living spaces. Their love of novelty and originality is evident here: Open individuals decorate both their offices and bedrooms in distinctive and unconventional ways, and, consistent with their intellectual interests, own and display varied books and magazines (Gosling, Ko, Mannarelli, & Morris, 2002).

Observers are fairly good at picking up on these behavioral indicators of Openness. For example, perceivers judge individuals who speak fluently, initiate humor, and are expressive to be high on Openness (Sneed et al., 1998). Individuals who use fewer past-tense verbs and who frequent restaurants, bars, and coffee shops are perceived as being open (Mehl et al., 2006), as are individuals with websites that have links to work/personal projects and that express personal

opinions (Marcus et al., 2006). Likewise, perceivers use the distinctiveness of both office space and bedrooms to judge the inhabitant's level of Openness (Gosling et al., 2002). Observers appear relatively adept at recognizing many behavioral cues diagnostic of Openness.

Yet lay perceivers also have their own ideas about what behaviors are indicative of Openness that are not necessarily diagnostic; that is, lay conceptions can be inaccurate. For example, observers judge individuals who have highly decorated, cheerful, and colorful offices to be open, whereas these office characteristics are largely unrelated to the individual's actual level of Openness (Gosling et al., 2002). Likewise, using big words in everyday speech is perceived to be a sign of Openness, when in fact Openness is unrelated to this speech characteristic. On personal web pages, perceivers judge individuals who post many pictures and reveal much personal information to be open (Marcus et al., 2006), and in chat rooms, the number of topics discussed and number of self-deprecating remarks are taken as signs of Openness, whereas Openness is unrelated to these behaviors (Rouse & Haas, 2003).

This discrepancy, of course, begs the question of how accurately others can infer Openness. Multiple judges do agree with each other on the individual's level of Openness, which suggests that lay conceptions of Openness are not idiosyncratic. Although early research addressing this question found little consensus among observers at zero-acquaintance (Kenny, Albright, Malloy, & Kashy, 1994), more recent research, perhaps because of better conceptualizations of Openness coupled with more reliable measures, has found considerable consensus. This is true across a variety of sources of zero-acquaintance information: Observers agree on Openness when judging personal websites (Vazire & Gosling, 2004), top-10 song lists (Rentfrow & Gosling, 2006), and offices and bedrooms (Gosling et al., 2002). Compared to the other traits in the FFM, Openness and Extraversion typically show similar levels of consensus and both remain high as acquaintanceship increases (Borkenau, Mauer, Riemann, Spinath, &

Angleitner, 2004). A slightly different pattern emerges for virtual acquaintanceships. In chat

rooms, there is moderate consensus on Openness for one-on-one chats—albeit lower than

consensus on Extraversion and Agreeableness—but this consensus disappears when chatting in a

group rather than one-on-one (Markey & Wells, 2002). Although there were no differences in the

amount of text written in the two conditions, consensus may have decreased because the content

of the text may have been more superficial during group interactions and thus less diagnostic.

Across these varied contexts, consensus among observers tends to be higher than

accuracy: Others can agree on whether they believe a person is open, but they may not be right

(perhaps because shared lay conceptions of the cues of Openness are not always correct).

Accuracy also depends on the task observed; some tasks are more diagnostic of Openness than

others. Open individuals are imaginative and creative people and observers are more accurate

when judging Openness from tasks that allow these qualities to be expressed, rather than from

highly-structured tasks (Borkenau et al., 2004).

Finally, perceivers in laboratory studies form an impression of Openness very quickly

that is resistant to change. From observing as little as five seconds of a getting-to-know-you

conversation, perceivers can make attributions about Openness. Although accuracy ratings are

generally lower for Openness than the other traits in this context, accuracy does not vary as a

function of slice length—it takes a very narrow sliver of time for a perceiver to form a judgment

of Openness (Carney, Colvin, & Hall, 2007). And once this impression is formed, it is not easily

changed. Openness is a low-maintenance trait (Kammrath, Ames, & Scholer, 2007). That is,

initial impressions can be resistant to reevaluation. In contrast to traits such as Agreeableness and

Conscientiousness, which require frequent confirmatory evidence to maintain the judgment,

impressions of Openness are relatively impervious to disconfirming evidence; information that

contradicts the initial Openness impression tends to be disregarded. Once an individual is tagged

as being open (or closed), regardless of the amount of evidence to the contrary, the impression sticks. Kammrath and colleagues (2007) suggested that lay conceptions of both Openness and ability may contribute to stable impressions of Openness. Specifically, people equate Openness with ability and perceive ability as stable; thus people are less sensitive to disconfirming evidence.

These laboratory studies of person perception are complemented by correlational studies, in which agreement among observer ratings and between ratings and self-reports can be studied among people who have known each other, not for seconds or minutes, but for up to 70 years (Costa & McCrae, 1992b). Such studies typically show that length of acquaintance increases cross-observer agreement over the course of weeks or months (Kurtz & Sherker, 2003). Among long-term acquaintances, cross-observer correlations for Openness, typically .40 to .60, are similar to those found for other factors (Connolly, Kavanagh, & Viswesvaran, 2007). This level of agreement is seen in studies around the world (McCrae et al., 2004).

Marriage and Family

In any relationship, dynamics of the interaction are shaped, in part, by the personalities of the individuals involved. Although true for any dyadic interaction, most evidence comes from research on romantic relationships and married couples. At each stage, from deciding whether to get married to parenting, Openness shapes these choices, interactions, and consequences.

Marriage is a normative and expected event; there is often considerable social pressure to "find someone, settle down, and start a family." Yet, despite this pressure, some choose to remain single and never marry. These men and women tend to be high on Absorption and low on Traditionalism, two scales from the Multidimensional Personality Questionnaire closely related to Openness (Johnson, McGue, Krueger, & T. J. Bouchard, 2004). They may find fulfillment in other types of relationships and activities and, without a strong internal need to conform to the

expectations of society, pursue these interests instead of potential mates.

Whether single, dating, or married, people have a good idea of what they want in their ideal partner—someone just like themselves, particularly on Openness. When contemplating the ideal mate, single individuals prefer partners who strongly resemble them on Openness, with Agreeableness and Extraversion coming in a distant second and third, respectively (Figueredo, Sefcek, & Jones, 2006). A similar pattern holds for both dating couples and newlyweds, although at the stage of marriage, similarity on Conscientiousness becomes slightly more important than a match on Openness (Botwin, Buss, & Shackelford, 1997). And regardless of their own personality, women in particular value mates who are open and dominant (Botwin et al., 1997). Taking an evolutionary perspective, Botwin and colleagues (1997) suggested that women prefer these qualities because they are the most strongly associated with resource acquisition.

Despite these clear preferences, most people settle for much less. Some studies find no correlation between ratings of an ideal partner and ratings of an actual partner (Figueredo et al., 2006); others find a moderate correlation at best (Botwin et al., 1997). Although we can build the ideal mate in our minds, the constraints of reality typically force compromise. In the end, other factors, such as physical attractiveness, proximity, or availability, may be more important than the ideal personality.

But people do want a partner with a similar personality and it is important to ask to what extent individuals succeed in finding such a match. This question is of considerable interest to behavioral geneticists, who typically assume no assortative mating in calculating estimates of heritability. That is, they presume an open man would be just as likely to marry a closed woman as an open woman. Researchers have now documented couples' similarity on a variety of attributes, from intelligence, to social attitudes, to personality. In one large-scale study of newlyweds, Watson and colleagues (Watson, Klohnen, Casillas, Simms, Haig, & Berry, 2004)

found the highest similarity correlations for age, religiousness, and political conservatism (mean $r = .71$), lower correlations for education and intelligence (mean $r = .43$), and virtually no correlation for any of the FFM personality traits (mean $r = -.03$).

But given that Openness is strongly related to political conservatism, religiosity, and education, one would expect some evidence of assortative mating for this trait. And indeed, despite somewhat mixed findings, similarity on Openness emerges more often than not. Neyer and Voigt (2004), for example, found significant correlations for both Openness ($r = .25$) and Conscientiousness ($r = .39$), but not for Neuroticism, Extraversion, or Agreeableness. Similar findings are summarized in McCrae (1996). Biases such as age, gender, education, and assessment method may contribute to these inconsistent findings.

Recently, McCrae and colleagues (in press) analyzed trait similarity using both self-reports and spouse ratings of personality in married couples across four cultures, controlling for these potential biases. Consistent with previous research, similarity correlations for the broad domains were generally modest and Openness had the largest correlation (mean r for Openness across the three cultures = .22). Facet-level analyses revealed that couples were drawn together on some aspects of Openness more than others. Across the different cultures, Openness to Values consistently showed the most evidence for trait similarity: liberals seek out other liberals, whereas conservatives seek out other conservatives. Part of this pairing is likely a matter of convenience; these two types of people inhabit very different social worlds. In addition, their differing ideologies would likely be a continued source of argument and conflict within the relationship.

Although lower in magnitude, individuals also tend to marry partners who are similar to themselves on O2: Aesthetics (McCrae et al., in press). In the early stages of dating, to get to know each other, couples may engage in shared interests, such as going to art museums or the

symphony. If one partner adores the arts, whereas the other one is bored stiff, the relationship may only last one or two dates. This trait similarity among married couples appears to come from initial choice, rather than convergence over time. People with the same values and intellectual pursuits seek each other out rather than mold each other into their likenesses over time.

Openness not only influences mate selection, but it also shapes relationship quality, conflict interactions, and daily life within the family. Although people maintain that they want someone similar to themselves on Openness and are somewhat successful in finding a similar mate on this trait, similarity does not necessarily imply relationship satisfaction. Nemechek and Olson (1999), for example, found that partners who were similarly conscientious had higher marital adjustment, but similarity on Openness was unrelated to adjustment. Even discrepancies between ideal partner personality and actual partner personality do not predict dissatisfaction (Botwin et al., 1997).

In contrast, degree of Openness, rather than similarity, is associated with satisfaction in both serious dating relationships (e.g., Neyer & Voigt, 2004) and among married couples (e.g., Donnellan, Conger, & Bryant, 2004). Interestingly, husbands' and wives' Openness contribute to different aspects of relationship satisfaction. For both husbands and wives, husbands' level of Openness is related to satisfying relationships overall (Botwin et al., 1997; Neyer & Voigt, 2004) and well-adjusted marriages (G. Bouchard, Lussier, & Sabourin, 1999). Wives' level of Openness, however, is unrelated to marital adjustment (Neyer & Voigt, 2004). On the flip side, wives,' but not husbands,' level of Openness is related to the couple's sexual satisfaction (Donnellan et al., 2004). Donnellan and colleagues speculated that Openness is related to sexual satisfaction because open individuals are motivated to seek out new and varied experiences; open wives may be more willing to explore new and varied sexual experiences, which may translate

into greater sexual satisfaction for both partners.

Conflict between two people, however, is inevitable, and communication is often touted as the key to maintaining a healthy, satisfying relationship. How individuals approach (or avoid), work through, and resolve conflict have major implications for the health of the relationship. The flexibility, perspective-taking ability, and willingness to tolerate differences of opinion of open people may facilitate communication and reduce conflict. Open men and women have a constructive communicative style in which they actively negotiate conflicts while recognizing the other's perspective. That is, both members of the couple face the conflict, freely express their feelings, and work together towards resolution. In contrast, closed women prefer to avoid discussion or change activities when conflict occurs. And, regardless of their own Openness, men perceive conflict interactions with closed wives as characterized by demand-withdraw: The wife criticizes, complains, and demands change, and in response the husband avoids the conflict by being silent or walking away (Heaven, Smith, Prabhakar, Abraham, & Mete, 2006). With these types of interaction styles, it is hardly surprising that closed individuals typically have less satisfying relationships.

In addition to communication, effective coping is also important to the health of the relationship. When faced with marital difficulties, both husbands and wives high in Openness engage in problem-focused coping (G. Bouchard, 2003). That is, they try to identify the cause of the relationship stress and then actively work to change the identified elicitor. Open individuals may be comfortable with this strategy because of their natural ability to find novel solutions to problems and their willingness to try new approaches when old ones fail. In contrast, when facing interpersonal stress, closed individuals employ distancing coping strategies, such as ignoring the problem or refusing to become emotionally involved (Lee-Baggley, Preece, & DeLongis, 2005). These individuals are uncomfortable with strong emotional reactions and may

employ distancing techniques as a preemptive strategy against such experiences. These strategies are not without consequence, however, and their relative effectiveness may be observable by others. Donnellan and colleagues (2004), for example, found that independent observers judged open men and women to have less negative interactions while discussing their relationship.

In some contexts, however, low Openness may be related to more beneficial outcomes. Following therapy, for example, couples who score higher on conventionalism report less marital distress (Snyder, Mangrum, & Wills, 1993). Further, among middle-aged women, divorce is associated with a more liberal/radical political orientation (Fahs, 2007). Both conventionalism and political ideology have been associated with Openness, and these finding suggest that the relation between Openness and relationship satisfaction and length may be a complex one.

Finally, Openness shapes daily life within the family, particularly when it comes to parenting. Closed individuals value obedience and deference to authority without question, whereas open individuals are more open-minded, tolerant, and willing to listen to opposing arguments. These characteristics are readily apparent in their different parenting philosophies. In interactions with their children, open parents are emotionally expressive, warm, and encourage children to voice their opinions. In contrast, closed parents demand obedience, expect their children to follow their rules without question, and limit their children's autonomy (Metsäpelto & Pulkkinen, 2003). The consequence of these different parenting styles may be evident in their children's behavior: Open parents are less likely to report child misbehavior as a major daily stressor (Lee-Baggley et al., 2005). It is possible, however, that open parents are more tolerant of child misbehavior, rather than actually having better-behaved children.

Strangers and Friends

The social consequences of Openness for interpersonal interactions are not limited to romantic relationships and the family. Open and closed individuals have different styles of

interacting with the world that influence how they interact with strangers, the types of friends they seek out, and how those relationships are maintained. Open and closed individuals differ in their political orientations, beliefs about religion, and intellectual interests. These characteristics may influence friendships for at least two reasons. First, people tend to meet each other when enjoying shared interests; thus, a foreign film buff and a NASCAR fanatic are not likely to cross paths often. Second, politics and religion are often sources of great conflict when strongly-held convictions differ. Constant argument does not make a good basis for friendship.

Across the five factors, correlations between friends tend to be modest at best (Berry, Willingham, & Thayer, 2000). Similarity correlations for Openness, however, are clearly the largest ($r = .35$). Similar to romantic partners, individuals tend to seek out friends who share similar interests. As McCrae (1996) pointed out, "open people are bored by the predictable and intellectually undemanding amusements of closed people; closed people are bored by what they perceive to be the difficult and pretentious culture of the open" (p. 331). Given these different orientations to the world, open and closed individuals are unlikely to voluntarily spend enough time with each other to develop a lasting friendship.

In addition to studying the basis for friendship, it is also of interest to ask how Openness shapes casual interactions among strangers and its role in interpersonal interactions between friends. When getting acquainted, open individuals spend more time looking at their interaction partner and less time talking about themselves. Observers to these conversations mistake this greater visual attention as an indication of relationship quality (Berry & Hansen, 2000). Yet, Openness is unrelated to perceived interaction quality in either spontaneous interactions in same-sex dyads (Berry & Hansen, 2000) or in getting-to-know you conversations in opposite-sex interactions (Berry & Miller, 2001). Open individuals are curious and attentive to the world around them and, in the process of getting to know somebody new, their curiosity may lead them

to look more intently at their interaction partner as they take them in and try to figure them out. This nonverbal cue, however, does not facilitate high-quality interactions.

Closed individuals are sensitive to appropriate social interactions between strangers and react strongly when norm expectations are violated. In one study, for example, compared to the control condition, after being teased by a confederate, closed participants became less friendly and their narratives of the interaction with the confederate were less positive. For open participants, in contrast, being teased did not influence their interaction with the teaser (Bollmer, Harris, Milich, & Georgesen, 2003). Teasing a stranger, even if playfully, violates norm expectations and may create a novel situation that closed people find uncomfortable.

Low Openness has likewise been associated with other problems in interpersonal functioning. In evaluating their interpersonal interactions, these individuals endorse items related to difficulty in perspective-taking, being easily persuaded by others (presumably those in positions of authority), and losing their sense of self when interacting with strong-minded others (Gurtman, 1995). And just as these characteristics influence conflict and communication in couples' interactions, it also affects interactions between friends. In a diary study, for example, closed individuals had more conflicts with a close friend over a four-week period than did open individuals. In response to the conflict, closed friends were more likely to engage in passive-aggressive strategies, whereas open friends adopted a forgive-and-forget strategy. Also similar to couples, these strategies do not go unnoticed; friends get more irritated with closed friends than with open ones (Berry et al., 2000).

The relation between Openness and conflict, however, takes a different course among college roommates than between friends; in this case, open individuals are more likely to have conflict with their roommates (Bono, Boles, Judge, & Lauver, 2002). Unlike friendships, students typically have little choice in their roommates and a mismatch on Openness may be one

source of conflict. And indeed, conflict was unrelated to Openness when roommates had similar

mean levels and conflict was marginally related to mean-level differences in Openness between

roommates. At both ends of the continuum, individuals may understand each other better and

feel more comfortable with a like-minded roommate. Roommates mismatched on Openness, in

contrast, may be likely to butt heads if one is unconventional and emotional and the other

conservative and stoic. In addition, what might be fun argumentativeness for an open individual

may amount to a serious conflict for a closed individual. For both reasons, there may be less

conflict when roommates are matched on Openness.

Finally, one great benefit of a close relationship is the support that can be provided by the

other during times of great stress. Openness is associated with both the type and frequency of

support offered to others. Open individuals reciprocate emotional support, whereas closed

individuals reciprocate instrumental support (Knoll, Burkert, & Schwarzer, 2006). Once open

individuals receive emotional support from a friend, they easily return the favor, which likely

deepens the emotional bond between them. In contrast, instrumental support is more concrete

and costly; perhaps closed individuals feel indebted and thus more compelled to reciprocate.

Instrumental support, although costly for the individual, is often more beneficial for the recipient

due to the practical application of the support. Thus, in times of distress, when concrete solutions

are needed, closed individuals may provide more useful support. These different approaches to

support likely affect the nature and closeness of the friendship over time.

Taken together, these findings demonstrate how Openness shapes interpersonal

interactions, from casual interactions to long-term committed relationships. Open and closed

individuals tend to develop lasting relationships with like-minded individuals and subsequently

these pairings have implications for a variety of outcomes, from relationship satisfaction to

conflict resolution to parenting to social support. Clearly, an individual's experiential orientation

to the world profoundly affects his or her interaction with the people in it.

Openness in Work Groups

In the past decade, Industrial/Organizational psychologists have taken an interest in the effects of personality traits on team performance. Although teams with high mean levels of Conscientiousness tend to perform well in many situations, results are much more mixed for Openness. High team-level Openness is generally advantageous, but often only for certain kinds of tasks or within certain contexts. And in some respects, Openness interferes with the work of the group.

An early study of team personality elevation (mean level) and variability (within-team variance) examined customer service and task completion ratings for 82 teams of retail assistants. Higher elevations of Openness (as well as Agreeableness and Conscientiousness) were associated with better performance (Neuman, Wagner, & Christiansen, 1999). Taggar (2000) analyzed data from 94 teams at both individual and team level, and found that Openness had no effect at the individual level, but the greater proportion of team members high in Openness, the better the performance. An analysis of the specific behaviors responsible for good performance suggested that open members contributed by generating ideas, promoting free discussion, and synthesizing team efforts. Openness has also been found to promote emergent leadership—the ability to take charge of a leaderless group (J. Kickul & Neuman, 2000).

A meta-analysis of job performance and team personality found advantages for teams higher in Openness, but only in field studies, not laboratory studies (Bell, 2007), suggesting that it is the long-term effects of Openness that are noticeable. Another meta-analysis sorted studies by the kind of task involved, using Holland's (1985) vocational typology. Predictably, team-level Openness predicted success in Investigative tasks (Anderson, 2006) but was unrelated to success

in Social, Conventional, or Enterprising tasks. Lepine (2003) examined the effect of introducing an unforeseen change—a breakdown of communication—in a simulated military "command and control" task. Teams high in Openness (and low in C2: Order, C3: Dutifulness, and C6: Deliberation) adapted to the new situation more readily and successfully. Bing and Lounsbury (2000) studied performance of managers of Japanese companies operating in the U. S.; presumably because they could handle the complexities of cross-cultural interactions, managers high in Openness were rated higher in performance.

However, high Openness also presents problems for groups. For example, G. H. Kickul (2000) found that Openness was negatively related to goal clarity (presumably because high Openness people kept generating new ideas), and Lun and Bond (2006) found that it interfered with achieving relationship harmony in a work group (perhaps because high Openness members were too individualistic). A study of 220 individuals in 45 teams also found that Openness (like low Agreeableness) was inversely related to peer-rated social role behavior—that is, how well group members got along (Stewart, Fulmer, & Barrick, 2005). In another study, employees high in Openness were low in organizational loyalty, especially if they lacked resources (Moss, McFarland, Ngu, & Kijowska, 2006).

At least one finding relates to the team variability in Openness. Given the frequent antagonism between individuals high and low in Openness and their very different working styles and goals, it is perhaps not surprising that a meta-analysis found that homogeneity with respect to Openness lead to better group performance, at least among professional teams. Presumably the best results—and the highest levels of morale—would be obtained by choosing teams uniformly high in Openness to deal with changeable situations and investigative tasks, and teams uniformly low in Openness to deal with well-structured, conventional tasks.

Social and Political Effects

The quotations from Agnew and Kierkegaard that open this article illustrate not only the substantive differences between closed and open people in social attitudes, but also the affective tone: Both sides hold the other in contempt. Agnew famously declared that so-called intellectuals were "an effete corps of impudent snobs," whereas Kierkegaard clearly regarded his fellow citizens as Philistines. There is, however, a subtle asymmetry in these characterizations. Agnew, spokesman for the Silent Majority, assures us that Americans, preferring order to freedom, share his values. By contrast, the Danish existentialist emphasizes his isolation, distinguishing himself from "them." Open people prize uniqueness and individuality (Dollinger, Ross, & Preston, 2002), at the cost of some social alienation; closed people are loyal and patriotic, strongly identified with their own kind. Open people root for the underdog; closed people support favorites (Wilkinson, 2007).

The dark side of closed people's in-group loyalty is their intolerance for out-groups, characterized by Agnew as "Yippies, Hippies, Yahoos, Black Panthers, lions and tigers . . . the whole damn zoo." In a Swedish sample, Ekehammar and Akrami (2007) examined correlations of generalized prejudice (a composite of ethnic prejudice, sexism, homophobia, and prejudice against people with mental disabilities) with NEO-PI-R scales. At the domain level, the strongest correlations (both –.49) were with Openness and Agreeableness; at the facet level, the strongest were A6: Tender-Mindedness (–.61) and O6: Values (–.55), which are considered attitudinal facet scales. However, prejudice was also inversely related to Openness to Fantasy, Aesthetics, Feelings, and Actions, rs = –.25 to –.49, N = 170, p < .05.

Flynn (2005), in studies of White Americans, found that Openness is associated with lower racial prejudice, more favorable judgments of a fictional Black character, and more favorable assessments of Black interviewees, and attributed this in part to the willingness of

people high in Openness to consider stereotype-disconfirming information. Duriez and Soenens (2006) found that racism was related to low Openness (and low Agreeableness) among Belgian adolescents. Given the strong, consistent, and theoretically expectable associations of low Openness with prejudice and racism, it is extraordinary that, of 11,015 items found in a PsycINFO search on "prejudice or racism," only 10 involved Openness. Social psychologists have overlooked one of the key determinants of one of their most-studied phenomena.

There has been much less research on reverse prejudice, but Lecci and Johnson (2008) reported the intriguing finding that, among American Blacks, in addition to the expectable inverse association with Agreeableness, there is a small ($r = .15$) but significant positive correlation between Openness and anti-White attitudes. Perhaps it was this that led the Black Panthers to challenge the racist status quo in mid-20th Century America.

There is ample evidence that Openness is inversely related to authoritarianism, as well as to other, less extreme forms of social conservativism. Van Hiel, Kossowska, and Mervielde (2000) examined left/right political ideology in Belgium and Poland. A right-wing ideology score was defined in part by preference for nationalist parties over socialist and green parties, as well as by general conservative political beliefs. This index was inversely related to O6: Values in each of four samples (rs = –.37 to –.64, $p < .001$), but it was also more modestly related to each of the other facets in one or more of the samples. For example, O1: Fantasy, which shares no obvious content with measures of ideology, showed correlations ranging from –.20 to –.39, all $p < .05$, in the Belgian samples.

In a later study, Van Hiel and Mervielde (2004) related Openness to separate measures of cultural and economic conservatism. Cultural conservatism was related to Openness and all its facets, but economic conservatism was unrelated to total Openness and only weakly related to O2: Aesthetics ($r = –.19$) and O6: Values ($r = –.15$). The strongest personality predictor of

economic conservatism was low Agreeableness ($r = -.23$, $p < .001$). Economic conservatives may be mean, but they are not necessarily closed. Economic conservatism is presumably based on ideology and self-interest; cultural conservatism is psychological rather than ideological (cf. van Hiel & Mervielde, 2004) and seems to reflect the preference of closed individuals for simple, stable, and familiar beliefs and values. In a Polish study, cultural but not economic conservatism was found to be heritable (Oniszczenko & Jakubowska, 2005).

Aggregate Openness and Culture

Cross-Cultural Analyses

Within the past few years, cross-cultural studies have suggested that nations differ systematically in mean levels of personality traits (but see Poortinga, van de Vijver, & van Hemert, 2002, for a critical view of that claim). McCrae (2002) assembled self-report NEO-PI-R data from 36 cultures, and McCrae and colleagues (2005b) gathered observer rating NEO-PI-R data from 51 cultures. Mean aggregate personality scores were calculated for each culture. Across the two datasets, convergent culture-level correlations were significant for 4 of the five factors and 26 of the 30 facets. In particular, correlations for Openness facets ranged from .44 for O4: Actions to .75 for O6: Values, with a correlation of .50 for total Openness. Thus, different samples using different methods of measurement generally concurred in describing the citizens of some cultures as being, in general, more open than others—although differences between cultures were generally small compared to the ubiquitous individual differences within cultures.

Which cultures are most open? Of the 28 cultures with both self-report and observer rating data, the highest mean Openness scores were found for French-speaking Switzerland, Serbia, Austria, Germany, and German-speaking Switzerland, with *T*-scores of 53 to 59. The lowest-scoring countries were Croatia, Spain, Hong Kong, Malaysia, and India, with *T*-scores of

46 to 49. It is surely puzzling that Serbia scores so much higher than Croatia, but the other findings make a certain sense: Modern, progressive, well-educated countries are higher in Openness than are traditional cultures. The U.S. was near average on aggregate Openness.

It is possible to move past simple impressions about these sets of cultures by conducting culture-level analyses, relating aggregate Openness levels to other features of nations. McCrae (2002) showed that Openness was significantly related to three of Hofstede's (2001) dimensions of culture: low Power Distance, high Individualism, and high Masculinity. The first two of these associations were replicated in the observer rating study (McCrae et al., 2005b). Thus, people from cultures with high mean levels of Openness prefer egalitarian to hierarchical social structures and focus on themselves as individuals rather than on the groups to which they belong. McCrae and colleagues (2005b) examined country scores on Schwartz's (1994) Values survey, and found positive correlations of Openness with Affective Autonomy, Intellectual Autonomy, and Egalitarian Commitment values, and a negative correlation with Conservatism.

Based on data from the World Values Survey, Inglehart and Norris (2003) identified two broad dimensions, Survival versus Self-Expression, and Traditional versus Secular-Rational. Openness was significantly related to Secular-Rational values ($r = .34$, $N = 42$, $p < .05$), and showed a trend toward a positive association with Self-Expression ($r = .29$, $N = 42$, $p < .10$). Traditional cultures are guided by religion, and tend to reject abortion, divorce, and euthanasia—values shared by closed individuals. Survival values are generally found in poorer countries, where material prosperity is a major concern. Cultures with a history of high economic development have citizens more concerned about tolerance, imagination, and personal fulfillment—goals more congenial to open individuals.

In general, these are sensible correlates, and suggest that associations found on the individual level may also be found on the culture level. This is by no means always the case.

Cultures high in O6: Values show higher use of the drug Ecstasy (McCrae & Terracciano, 2008), but a study at the individual level in the Netherlands found no difference in Openness levels between those who did and did not use the drug (instead, Ecstasy users were higher on Extraversion and lower on Conscientiousness; ter Bogt, Engels, & Dubas, 2006). The widespread use of Ecstasy is presumably limited to wealthy nations, and Openness is correlated with per capita Gross Domestic Product. Thus, effects of aggregated personality traits may be inflated or masked by other culture-level variables.

However, one association that unfortunately seems to hold on both levels is that between low Openness and HIV stigmatization. In Russia and the U.S., stigmatization was associated with low Openness and especially low O6: Values (McCrae et al., 2007). In the self-report study, Black South African, Zimbabwean, Indian, and Malay cultures scored lowest on O6: Values (McCrae, 2002). In both South Africa and Zimbabwe, the AIDS epidemic has been fueled by indifference or denial on the part of the governments. In India, where at least two million people are living with HIV infection, "the HIV epidemic is misunderstood and stigmatised among the Indian public. People living with HIV have faced violent attacks; been rejected by families, spouses and communities; been refused medical treatment; and even, in some reported cases, denied the last rites before they die" (AVERT, October 31, 2007; Overview of HIV and AIDS in India; downloaded Nov. 15, 2007 from http://www.avert.org/aidsindia.htm). Fortunately, having learned from the experience in Africa, both Malaysia and India have programs in place to educate the public about HIV infection risks. Given the public's perceptions, anonymous testing and confidential treatment ought to be emphasized.

Critics of this line of research (e.g., Poortinga et al., 2002) have argued that apparent differences in mean levels of traits in different cultures might be due to artifacts, such as problems in the translation, culture-specific response styles, or inadequacies in sampling. But a

demonstration of the validity of aggregate personality scores has recently been provided by

Rentfrow, Gosling, and Potter (in press), who used Internet data on the BFI collected from over

600,000 respondents to compare mean personality trait levels in the 50 U. S. states and the

District of Columbia. Here language and national culture were held constant, and Rentfrow and

colleagues argued that their sample was broadly representative. Yet mean level differences still

appeared, and in general made sense. They found the highest aggregate level of Openness in

Washington, DC—which joined only Massachusetts in favoring McGovern/Shriver over

Nixon/Agnew in the 1972 Presidential election—followed by New York, Oregon, and

Massachusetts. Lowest in Openness were Alabama, Alaska, Wyoming, and North Dakota.

Rentfrow and colleagues correlated these scores with state-level indicators and showed that

Openness was positively related to favorable aggregate attitudes toward legalizing marijuana,

abortion, and same-sex marriage; proportion of the state population employed in occupations

related to the arts and entertainment and to computers and mathematics; and, unexpectedly, to

the per capita robbery and murder rates. Openness was negatively related to spending time in a

bar or tavern and to attending church. Especially in a democracy, personality traits can have a

dramatic effect on collective behavior: Oregon was the first state to decriminalize marijuana, and

Massachusetts recognizes same-sex marriages.

The chief question remaining is how traits come to be associated with features of culture.

Do cultural practices promote the development of certain traits, or do common traits stimulate

the evolution of cultural institutions? Until quite recently, anthropologists and psychologists

would have reflexively presumed that culture shapes personality. But the strong evidence of

predominant genetic influence on individual differences within cultures makes it reasonable to

suppose that the distribution of personality-related trait alleles may differ across nations and give

rise to different mean personality profiles. Over the course of centuries, these collective

personality differences may have been one influence on culture (McCrae, 2004). Both sides have been argued as an explanation for the links between aggregate traits and Hofstede dimensions (Hofstede & McCrae, 2004), but there is very little empirical evidence. Some support for environmental influences comes from the changes in values that accompany changes in economic development (Inglehart & Norris, 2003). Some evidence for genetic effects comes from studies of isolated populations (Ciani, Capiluppi, Veronese, & Sartori, 2007). Perhaps the most informative designs are acculturation studies, in which members of an ethnic group move from one culture to another. Do they retain their ethnic profile or come to resemble the citizens of the host culture? One such study has been reported (McCrae, Yik, Trapnell, Bond, & Paulhus, 1998); it found that Chinese born in Hong Kong scored about one-half standard deviation lower in Openness than ethnic Chinese born in Canada (an acculturation effect), but that these Canadian-born Chinese Canadians still scored significantly lower than European Canadians on O3: Feelings and O6: Values (ethnicity effects). Both ethnicity and acculturation may affect mean trait levels for Openness. As Rentfrow and colleagues (in press) pointed out, genetic and environmental influences are likely to be mutually reinforcing: Open people may be inclined to move to Massachusetts, and the cultural and academic opportunities it provides may encourage greater openness.

Conclusion

Concepts related to Openness—such as Authoritarianism, Need for Closure, and Integrative Complexity—have long been employed by social psychologists, but usually without a good grasp of their relation to basic personality traits. There is considerable advantage to construing such scales as indicators of Openness, because a great deal is known about the origins, development, and correlates of that factor. For example, there appear to be no studies on

the heritability of Need for Cognition, but there are many that show that Openness to Experience, and in particular Openness to Ideas, have a strong genetic basis (e.g., Jang, McCrae, Angleitner, Rieman, & Livesley, 1998); the large correlation between Need for Cognition and O5: Ideas (r = .78, Berzonsky & Sullivan, 1992) virtually guarantees that Need for Cognition must be substantially heritable. Again, we know that Openness reaches it highest mean level during the early 20's—a fact that surely affects the generalizability of findings from experiments on college students. Social psychologists are not accustomed to thinking about the long-term implications of their findings, but the longitudinal stability of Openness suggests that patterns of behavior observed in students may persevere for decades. How might awareness of that fact reshape theories of social behavior?

This volume is dedicated to integrating the topics of individual differences, most often studied by personality psychologists, and the social behavior that is the focus of social psychology. Because of its deep intrapsychic basis and its widespread social consequences, Openness to Experience may be a particularly useful construct on which to center a dialog between these two fields.

References

Anderson, M. G. (2006). The team personality-outcomes relationship moderated by task type: A meta-analytic investigation. *Dissertation Abstracts International, 67, 3B*, 1737.

Bell, S. T. (2007). Deep-level composition variables as predictors of team performance: A meta-analysis. *Journal of Applied Psychology, 92*, 595-615.

Benet-Martínez, V., & John, O. P. (1998). *Los cinco Grandes* across cultures and ethnic groups: Multitrait multimethod analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology, 75*, 729-750.

Berry, D. S., & Hansen, J. S. (2000). Personality, nonverbal behavior, and interaction quality in female dyads. *Personality and Social Psychology Bulletin, 26*, 278-292.

Berry, D. S., & Miller, K. M. (2001). When boy meets girl: Attractiveness and the Five-Factor Model in opposite-sex interactions. *Journal of Research in Personality, 35*, 62-77.

Berry, D. S., Willingham, J. K., & Thayer, C. A. (2000). Affect and personality as predictors of conflict and closeness in young adults' friendships. *Journal of Research in Personality, 34*, 84-107.

Berzonsky, M. D., & Sullivan, C. (1992). Social-cognitive aspects of identity style: Need for cognition, experiential openness, and introspection. *Journal of Adolescent Research, 7*, 140-155.

Bing, M. N., & Lounsbury, J. W. (2000). Openness and job performance in U. S.-based Japanese manufacturing companies.

Bollmer, J. M., Harris, M. J., Milich, R., & Georgesen, J. C. (2003). Taking offense: Effects of personality and teasing history on behavioral and emotional reactions to teasing. *Journal of Personality, 71*, 557-603.

Bono, J. E., Boles, T. L., Judge, T. A., & Lauver, K. J. (2002). The role of personality in task and

relationship conflict. *Journal of Personality, 70*, 311-344.

Borkenau, P., Mauer, N., Riemann, R., Spinath, F. M., & Angleitner, A. (2004). Thin Slices of Behavior as Cues of Personality and Intelligence. *Journal of Personality and Social Psychology, 86*, 599-614.

Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality, 65*, 106-136.

Bouchard, G. (2003). Cognitive appraisals, neuroticism, and openness as correlates of coping strategies: An integrative model of adaptation to marital difficulties. *Canadian Journal of Behavioural Science, 35*, 1-12.

Bouchard, G., Lussier, Y., & Sabourin, S. (1999). Personality and marital adjustment: Utility of the Five-Factor Model of personality. *Journal of Marriage and Family, 61*, 651-660.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42*, 116-131.

Carnahan, T., & McFarland, S. (2007). Revisiting the Stanford Prison Experiment: Could participant self-selection have led to the cruelty? *Personality and Social Psychology Bulletin, 33*, 603-614.

Carney, D. R., Colvin, C. R., & Hall, J. A. (2007). A thin slice perspective on the accuracy of first impressions. *Journal of Research in Personality, 41*, 1054-1072.

Ciani, A. S. C., Capiluppi, C., Veronese, A., & Sartori, G. (2007). The adaptive value of personality differences revealed by small island population dynamics. *European Journal of Personality, 21*, 3-22.

Connolly, J. J., Kavanagh, E. J., & Viswesvaran, C. (2007). The convergent validity between self and observer ratings of personality: A meta-analytic review. *International Journal of*

Selection and Assessment, 15, 110-117.

Costa, P. T., Jr., & McCrae, R. R. (1992a). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., & McCrae, R. R. (1992b). Trait psychology comes of age. In T. B. Sonderegger (Ed.), *Nebraska Symposium on Motivation: Psychology and aging* (pp. 169-204). Lincoln, NE: University of Nebraska Press.

Costa, P. T., Jr., & McCrae, R. R. (1998). Trait theories of personality. In D. F. Barone, M. Hersen & V. B. VanHasselt (Eds.), *Advanced personality* (pp. 103-121). New York: Plenum.

D'Agostino, P. R., & Fincher-Kiefer, R. (1992). Need for cognition and the correspondence bias. *Social Cognition, 10*, 151-163.

De Fruyt, F., McCrae, R. R., Szirmák, Z., & Nagy, J. (2004). The Five-Factor Personality Inventory as a measure of the Five-Factor Model: Belgian, American, and Hungarian comparisons with the NEO-PI-R. *Assessment, 11*, 207-215.

De Raad, B., & Van Heck, G. L. (1994). The Fifth of the Big Five [Special issue]. *European Journal of Personality, 84(4)*.

Digman, J. M. (1990). Personality structure: Emergence of the Five-Factor Model. *Annual Review of Psychology, 41*, 417-440.

Dollinger, S. J., Ross, V. J., & Preston, L. A. (2002). Intellect and individuality. *Creativity Research Journal, 14*, 213-226.

Donnellan, M. B., Conger, R. D., & Bryant, C. M. (2004). The Big Five and enduring marriages. *Journal of Research in Personality, 38*, 481-504.

Duriez, B., & Soenens, B. (2006). Personality, identity styles, and authoritarianism: An

integrative study among late adolescents. *European Journal of Personality, 20*, 397-417.

Ekehammar, B., & Akrami, N. (2007). Personality and prejudice: From Big Five personality factors to facets. *Journal of Personality, 75*, 899-925.

Fahs, B. (2007). Second shifts and political awakenings: Divorce and the political socialization of middle-aged women. *Journal of Divorce and Remarriage, 47*, 43-66.

Figueredo, A. J., Sefcek, J. A., & Jones, D. N. (2006). The ideal romantic partner personality. *Personality and Individual Differences, 41*, 431-441.

Flynn, F. J. (2005). Having an open mind: The impact of Openness to Experience on interracial attitudes and impression formation. *Journal of Personality and Social Psychology, 88*, 816-826.

Goldberg, L. R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology, 59*, 1216-1229.

Gosling, S. D., Ko, S., Mannarelli, T., & Morris, M. E. (2002). A room with a cue: Personality judgments based on offices and bedrooms. *Journal of Personality and Social Psychology, 82*, 379-398.

Gurtman, M. B. (1995). Personality structure and interpersonal problems: A theoretically-guided item analysis of the Inventory of Interpersonal Problems. *Assessment, 2*, 343-361.

Heaven, P. C. L., Smith, L., Prabhakar, S. M., Abraham, J., & Mete, M. E. (2006). Personality and conflict communication patterns in cohabiting couples. *Journal of Research in Personality, 40*, 829-840.

Hendriks, A. A. J., Hofstee, W. K. B., & De Raad, B. (1999). The Five-Factor Personality Inventory (FFPI). *Personality and Individual Differences, 27*, 307-325.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.

Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and dimensions of culture. *Cross-Cultural Research, 38*, 52-88.

Holland, J. L. (1985). *Making vocational choices: A theory of vocational personalities and work environments*. Englewood Cliffs, NJ: Prentice-Hall.

Inglehart, R., & Norris, P. (2003). *Rising tide: Gender equality and cultural change around the world*. New York: Cambridge University Press.

Jang, K. L., McCrae, R. R., Angleitner, A., Riemann, R., & Livesley, W. J. (1998). Heritability of facet-level traits in a cross-cultural twin sample: Support for a hierarchical model of personality. *Journal of Personality and Social Psychology, 74*, 1556-1565.

Johnson, W., McGue, M., Krueger, R. F., & Bouchard, T. J., Jr. (2004). Marriage and personality: A genetic analysis. *Journal of Personality and Social Psychology, 86*, 285-294.

Kammrath, L. K., Ames, D. R., & Scholer, A. A. (2007). Keeping up impressions: Inferential rules for impression change across the Big Five. *Journal of Experimental Social Psychology, 43*, 450-457.

Kenny, D. A., Albright, L., Malloy, T. E., & Kashy, D. A. (1994). Consensus in interpersonal perception: Acquaintance and the Big Five. *Psychological Bulletin, 116*, 245-258.

Kensinger, E. A. (1996). *Openness to Experience and the communication of meaning*. Unpublished manuscript, Gerontology Research Center, Baltimore, MD.

Kickul, G. H. (2000). Antecedents of self-managed work team performance in a computerized business simulation: Personality and group interaction. *Dissertation Abstracts International, 61, 6A*, 2270.

Kickul, J., & Neuman, G. (2000). Emergent leadership behaviors: The function of personality and cognitive ability in determining teamwork performance and KSAs. *Journal of*

Business and Psychology, 15, 27-51.

Kierkegaard, S. (1936). The Journals (A. Dru, Trans.). In R. Bretall (Ed.), *A Kierkegaard anthology* (pp. 1-18). New York: Random House.

Knoll, N., Burkert, S., & Schwarzer, R. (2006). Reciprocal support provision: Personality as a moderator? *European Journal of Personality, 20*, 217-236.

Konstabel, K. (2007). *"The more like me, the better": Individual differences in social desirability ratings of personality items*. Unpublished manuscript, University of Tartu, Estonia.

Kreitler, S., & Kreitler, H. (1990). *The cognitive foundations of personality traits*. New York: Plenum Press.

Kruglanski, A. W., & Webster, D. M. (1996). Motivated closing of the mind: "Seizing" and "freezing." *Psychological Review, 103*, 263-283.

Kurtz, J. E., & Sherker, J. L. (2003). Relationship quality, trait similarity, and self-other agreement on personality traits in college roommates. *Journal of Personality, 71*, 21-48.

Lecci, L., & Johnson, J. D. (2008). Black anti-White attitudes: The influence of racial identity and the Big Five. *Personality and Individual Differences, 44*, 182-192.

Lee-Baggley, D., Preece, M., & DeLongis, A. (2005). Coping with interpersonal stress: Role of big five traits. *Journal of Personality, 73*, 1141-1180.

LePine, J. A. (2003). Team adaptation and postchange performance: Effects of team composition in terms of members' cognitive ability and personality. *Journal of Applied Psychology, 88*, 27-39.

Lun, V. M.-C., & Bond, M. H. (2006). Achieving relationship harmony in groups and its consequence for group performance. *Asian Journal of Socia Psychology, 9*, 195-202.

Marcus, B., Machilek, F., & Schütz, A. (2006). Personality in cyberspace: Personal Web sites as media for personality expressions and impressions. *Journal of Personality and Social Psychology, 90*, 1014-1031.

Markey, P. M., & Wells, S. M. (2002). Interpersonal perception in internet chat rooms. *Journal of Research in Personality, 36*, 134-146.

McCrae, R. R. (1987). Creativity, divergent thinking, and Openness to Experience. *Journal of Personality and Social Psychology, 52*, 1258-1265.

McCrae, R. R. (1990). Traits and trait names: How well is Openness represented in natural languages? *European Journal of Personality, 4*, 119-129.

McCrae, R. R. (1994). Openness to Experience: Expanding the boundaries of Factor V. *European Journal of Personality, 8*, 251-272.

McCrae, R. R. (1996). Social consequences of experiential openness. *Psychological Bulletin, 120*, 323-337.

McCrae, R. R. (2002). NEO-PI-R data from 36 cultures: Further intercultural comparisons. In McCrae & J. Allik. (Eds.), *The Five-Factor Model of personality across cultures* (pp. 105-125). New York: Kluwer Academic/Plenum Publishers.

McCrae, R. R. (2004). Human nature and culture: A trait perspective. *Journal of Research in Personality, 38*, 3-14.

McCrae, R. R. (2007). Aesthetic chills as a universal marker of Openness to Experience. *Motivation and Emotion, 31*, 5-11.

McCrae, R. R., & Costa, P. T., Jr. (1997). Conceptions and correlates of Openness to Experience. In R. Hogan, J. A. Johnson & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 825-847). Orlando, FL: Academic Press.

McCrae, R. R., & Terracciano, A. (2008). The Five-Factor Model and its correlates in

individuals and cultures. In F. J. R. Van de Vijver, D. A. van Hemert & Y. H. Poortinga

(Eds.), *Individuals and cultures in multi-level analysis* (pp. 247-281). Mahwah, NJ:

Erlbaum.

McCrae, R. R., Costa, P. T., Jr., Martin, T. A., Oryol, V. E., Rukavishnikov, A. A., Senin, I. G.,

et al. (2004). Consensual validation of personality traits across cultures. *Journal of

Research in Personality, 38*, 179-201.

McCrae, R. R., Costa, P. T., Jr., Martin, T. A., Oryol, V. E., Senin, I. G., & O'Cleirigh, C.

(2007). Personality correlates of HIV stigmitization in Russia and the United States.

Journal of Research in Personality, 41, 190-196.

McCrae, R. R., Martin, T. A., H⊆ebí ková, M., Urbánek, T., Boomsma, D. I., Willemsen, G., &

Costa, P. T., Jr. (in press). Personality trait similarity between spouses in four cultures.

Journal of Personality.

McCrae, R. R., Terracciano, A., & 79 Members of the Personality Profiles of Cultures Project.

(2005a). Personality profiles of cultures: Aggregate personality traits. *Journal of

Personality and Social Psychology, 89*, 407-425.

McCrae, R. R., Terracciano, A., & 79 Members of the Personality Profiles of Cultures Project.

(2005b). Universal features of personality traits from the observer's perspective: Data

from 50 cultures. *Journal of Personality and Social Psychology, 88*, 547-561.

McCrae, R. R., Yik, M. S. M., Trapnell, P. D., Bond, M. H., & Paulhus, D. L. (1998).

Interpreting personality profiles across cultures: Bilingual, acculturation, and peer rating

studies of Chinese undergraduates. *Journal of Personality and Social Psychology, 74*,

1041-1055.

Mehl, M. R., Gosling, S. D., & Pennebaker, J. W. (2006). Personality in its natural habitat: Manifestations and implicit folk theories of personality in daily life. *Journal of Personality and Social Psychology, 90*, 862-877.

Metsäpelto, R. L., & Pulkkinen, L. (2003). Personality traits and parenting: Neuroticism, Extraversion, and Openness to Experience as discriminative factors. *European Journal of Personality, 17*, 59-78.

Moss, S. A., McFarland, J., Ngu, S., & Kijowska, A. (2006). Maintaining an open mind to closed individuals: The effect of resource availability and leadership style on the association between Openness to Experience and organizational commitment. *Journal of Research in Personality, 41*, 259-275.

Nemechek, S. & Olson, K. R. (1999). Five-factor personality similarity and marital adjustment. *Social Behavior and Personality, 27*, 309-318.

Neuman, G. A., Wagner, S. H., & Christiansen, N. D. (1999). The relationship between work-team personality composition and the job performance of teams. *Group & Organization Management, 24*, 28-45.

Neyer, F. J., & Voigt, D. (2004). Personality and social network effects on romantic relationships: A dyadic approach. *European Journal of Personality, 18*, 279-299.

Noftle, E. E., & Robins, R. W. (2007). Personality predictors of academic outcomes: Big Five correlates of GPA and SAT scores. *Journal of Personality and Social Psychology, 93*, 116-130.

Oniszczenko, W., & Jakubowska, U. (2005). Genetic determinants and personality correlates of sociopolitical attitudes in a Polish sample. *Twin Research, 8*, 47-52.

Piedmont, R. L., & Aycock, W. (2007). An historical analysis of the lexical emergence of the Big Five personality adjective descriptors. *Personality and Individual Differences, 42*,

1059-1068.

Poortinga, Y. H., van de Vijver, F., & van Hemert, D. A. (2002). Cross-cultural equivalence of the Big Five: A tentative interpretation of the evidence. In McCrae & J. Allik (Eds.), *The Five-Factor Model of personality across cultures* (pp. 273-294). New York: Kluwer Academic/Plenum Publishers.

Rentfrow, P. J., & Gosling, S. D. (2006). Message in a ballad: The role of music preferences in interpersonal perception. *Psychological Science, 17*, 236-242.

Rentfrow, P. J., Gosling, S. D., & Potter, J. (in press). The geography of personality: A theory of the emergence, persistence, and expression of regional variation in basic traits. *Perspectives on Psychological Science*.

Rouse, S. V., & Haas, H. A. (2003). Exploring the accuracies and inaccuracies of personality perception following internet-mediated communication. *Journal of Research in Personality, 37*, 446-467.

Sadowski, C. J., & Cogburn, H. E. (1997). Need for Cognition in the Big-Five structure. *Journal of Psychology: Interdisciplinary and Applied, 131*, 307-312.

Schulte, M. J., Ree, M. J., & Carretta, T. R. (2004). Emotional intelligence: Not much more than *g* and personality. *Personality and Individual Differences, 37*, 1059-1068.

Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim, H. C. Triandis, C. Kagitcibasi, S.-C. Choi & G. Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 85-119). Thousand Oaks, CA: Sage.

Sneed, C. D., McCrae, R. R., & Funder, D. C. (1998). Lay conceptions of the Five-Factor Model and its indicators. *Personality and Social Psychology Bulletin, 24*, 115-126.

Snyder, D. K., Mangrum, L. F., & Wills, R. M. (1993). Predicting couples' response to marital

therapy: A comparison of short- and long-term predictors. *Journal of Consulting and

Clinical Psychology, 61*, 61-69.

Staudinger, U. M., Maciel, A. G., Smith, J., & Baltes, P. B. (1998). What predicts wisdom-

related performance? A first look at personality, intelligence, and facilitative contexts.

European Journal of Personality, 12, 1-17.

Stewart, G. L., Fulmer, I. S., & Barrick, M. R. (2005). An exploration of member roles as a

multilevel linking mechanism for individual traits and team outcomes. *Personnel

Psychology, 58*, 343-365.

Taggar, S. (2000). Personality, cognitive ability and behaviour: The antecedents of effective

autonomous work teams. *Dissertation Abstracts International, 60, 9A*, 3438.

ter Bogt, T. F. M., Engels, R. C. M. E., & Dubas, J. S. (2006). Party people: Personality and

MDMA use of house party visitors. *Addictive Behaviors, 31*, 1240-1244.

Terracciano, A., Costa, P. T., Jr., & McCrae, R. R. (2006). Personality plasticity after age 30.

Personality and Social Psychology Bulletin, 32, 999-1009.

Terracciano, A., Merritt, M., Zonderman, A. B., & Evans, M. K. (2003). Personality traits and

sex differences in emotion recognition among African Americans and Caucasians. *Annals

of the New York Academy of Sciences, 1000*, 309-312.

Tetlock, P. E., Peterson, R. S., & Berry, J. M. (1993). Flattering and unflattering personality

portraits of integratively simple and complex managers. *Journal of Personality and

Social Psychology, 64*, 500-511.

Trapnell, P. D. (1994). Openness versus Intellect: A lexical left turn. *European Journal of

Personality, 8*, 273-290.

van Hiel, A., & Mervielde, I. (2004). Openness to Experience and boundaries in the mind:

Relationships with cultural and economic conservative beliefs. *Journal of Personality, 72*, 659-686.

van Hiel, A., Kossowska, M., & Mervielde, I. (2000). The relationship between Openness to Experience and political ideology. *Personality and Individual Differences, 28*, 741-751.

Vazire, S., & Gosling, S. D. (2004). e-Perceptions: Personality impressions based on personal websites. *Journal of Personality and Social Psychology, 87*, 123-132.

Watson, D., Klohnen, E. C., Casillas, A., Simms, E. N., Haig, J., & Berry, D. S. (2004). Match makers and deal breakers: Analyses of assortative mating in newlywed couples. *Journal of Personality, 72*, 1029-1068.

Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology, 67*, 1049-1062.

Wilkinson, T. J. (2007). *Individual difference and sport fans: Who roots for the underdog?* Unpublished Dissertation Abstracts International, 67, 8B, 4750.

Yamagata, S., Suzuki, A., Ando, J., Ono, Y., Kijima, N., Yoshimura, K., et al. (2006). Is the genetic structure of human personality universal? A cross-cultural twin study from North America, Europe, and Asia. *Journal of Personality and Social Psychology, 90*, 987-998.

Zuckerman, M., Kuhlman, D. M., Joireman, J., Teta, P., & Kraft, M. (1993). A comparison of three structural models for personality: The Big Three, the Big Five, and the Alternative Five. *Journal of Personality and Social Psychology, 65*, 757-768.

Footnotes

[1]Recall that the facets of Openness are only loosely related, and thus that individuals may be high in some facets and low in others. As a group, the people of India are high in Openness to Aesthetics and low in Openness to Values (McCrae, 2002), as were, perhaps, T. S. Eliot and Ezra Pound. Those pioneers of modern poetry ended up, respectively, as an orthodox Anglican and a propagandist for Mussolini. Or perhaps their Openness to Values was so high that they questioned and rejected the tenets of conventional liberalism.

[2]Spiro Agnew studied chemistry at Johns Hopkins University before obtaining a law degree.

[3]By convention, the 30 facet scales of the NEO-PI-R are designated by the factor initial, a facet number from 1 to 6, and the facet name. The names of facets of Openness are understood to include "Openness to," so that O5: Ideas is read "Openness to Ideas."