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Psychometric Properties of the HEXACO Personality Inventory

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We introduce a personality inventory designed to measure six major dimensions of personality derived from lexical studies of personality structure. The HEXACO Personality Inventory (HEXACO-PI) consists of 24 facet-level personality trait scales that define the six personality factors named Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). In this validation study involving a sample of over 400 respondents, all HEXACO-PI scales showed high internal consistency reliabilities, conformed to the hypothesized six-factor structure, and showed adequate convergent validities with external variables. The HEXACO factor space, and the rotations of factors within that space, are discussed with reference to J. S. Wiggins' work on the circumplex.

Introduction

In this article, we will introduce the HEXACO Personality Inventory (HEXACO-PI), a new questionnaire that is intended to measure six dimensions of personality variation that have been recovered in lexical studies of personality structure in several languages. After reporting the psychometric properties of the HEXACO-PI, we will discuss the HEXACO factor axes in relation to the circumplex, with reference to the work of Jerry Wiggins.

Searching for the Structure of Personality Characteristics

One of the fundamental problems of personality psychology has been to discover the structure of human personality characteristics. Without an accurate structural model of personality, researchers who hope to understand

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the cause and function of personality variation can only approach these subjects in a haphazard and piecemeal way. But by finding the basic dimensions of personality, researchers will be able to investigate the origins and consequences of personality variation much more systematically.

Throughout most of the 20th century, there was no consensus regarding the structure of personality. By the 1980s, however, many researchers began to agree that personality variation was best summarized in terms of five broad, roughly independent dimensions. These five factors were discovered in the English language, first in investigations involving a small number of English personality descriptive adjectives (e.g., Digman & Takemoto-Chock, 1981; Norman, 1963; Tupes & Christal, 1961, 1992) and later in investigations involving a more comprehensive set of personality adjectives (Goldberg, 1990; Saucier & Goldberg, 1996). Subsequently, these five factors were collectively named the "Big Five" factors (Goldberg, 1990, 1993), which include (a) Extraversion (or Surgency), (b) Agreeableness, (c) Conscientiousness, (d) Emotional Stability (versus Neuroticism), and (e) Intellect/Imagination. These lexical dimensions were incorporated into personality questionnaire research by Costa and McCrae (1985; McCrae & Costa, 1985), who proposed a very similar, although not quite identical, structure known as the Five-Factor Model. This structure contains dimensions named Extraversion, Agreeableness, Conscien-tiousness, Neuroticism, and Openness to Experience (see Wiggins, 1996, for a discussion of various theoretical perspectives on the Five-Factor Model and the Big Five).

Personality research has benefited enormously during the past decade from the development of brief but reliable and valid markers of the Big Five and the Five-Factor Model. Goldberg (1992) introduced adjective scale markers for the Big Five, and later developed questionnaire scale markers of the same structure, using his International Personality Item Pool (IPIP; Goldberg, 1999). Costa and McCrae (1992) introduced a short and a long set of marker scales for the dimensions of the Five-Factor Model — namely, the NEO Five-Factor Inventory (NEO-FFI) and NEO Personality Inventory-Revised (NEO-PI-R) — and both of these tests have become extremely widely used. Goldberg (1999) has since produced another set of scales measuring the Five-Factor Model constructs, and these scales are essentially parallel forms to the NEO scales.

Despite the familiarity and the psychometric quality of these instruments, however, we believe that there are some limitations associated with five-dimensional models of personality structure. Recent lexical investigations in diverse languages have revealed that, when representative sets of personality variables are factor-analyzed, there are six factors — not just five factors —

that repeatedly emerge (see Ashton et al., 2004). Moreover, the rotational positions of some of these factors are somewhat different from the traditional axis locations prescribed by the Big Five and Five-Factor Model, and we believe that these alternative rotations allow for a simpler theoretical interpretation of the factors (Ashton & Lee, 2001). Therefore, we believe that a "re-organization" (Goldberg, 2001) of the Big Five and Five-Factor Model is warranted, in order to accommodate these recurring results.

As discussed below, our proposed model of personality structure contains six dimensions, whose number and names suggest the acronym HEXACO: Honesty-Humility (H), Emotionality (E), eXtraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). Hereafter, we will refer to our proposed model of personality structure as the HEXACO model, and we will refer to the questionnaire based on that model as the HEXACO Personality Inventory, or HEXACO-PI. In the next section, we discuss the empirical data that underlie the proposed six-dimensional structural model of personality upon which the HEXACO-PI is based.

Empirical Findings from Lexical Studies of Personality Structure and the Domains and Facets of HEXACO-PI

Ashton et al. (2004) recently compared six-factor solutions observed in eight independent investigations involving seven different languages — Dutch, French, German, Hungarian, Italian, Korean, and Polish — and found that a similar structure emerged from each language. We refer to these investigations as *standard* lexical studies of personality structure, which involve factor analyses of ratings on a large number of adjectives that describe variation in normal personality traits.[1] As such, the HEXACO-PI was developed with the aim of operationalizing the six factors that have been repeatedly found across various languages. In the sections below, we describe the content of the six factors as obtained in lexical studies of personality structure, and we identify the four facets of each factor as operationalized in the HEXACO-PI.

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[1] We should note that standard lexical studies in two other languages — English (Saucier & Goldberg, 1996) and Czech (Hrebickova, 1995) — did not recover the same set of six factors (see Ashton et al., 2004, for a discussion). In addition, this six-factor solution did not emerge from rigorous lexical studies conducted in the Turkish (Goldberg & Somer, 2000; Somer & Goldberg, 1999) and Filipino/Tagalog (e.g., Church, Katigbak, & Reyes, 1998) languages. These latter two studies, however, differed from what we have called standard lexical studies in terms of their variable selection, which included purely evaluative terms and/or terms describing physical attractiveness. Elsewhere, we have argued that these terms should be excluded from lexical studies (see Ashton & Lee, 2001, for this argument and for a detailed discussion of findings from the Turkish and Filipino/Tagalog studies).

Honesty-Humility and its Facets

A factor that is typically defined by honesty, fairness, sincerity, modesty, and lack of greed has been observed as either the fifth or the sixth largest factor in several lexical studies of personality structure (Ashton et al., 2004). Ashton, Lee, and Son (2000) previously suggested Honesty as a name for this dimension, but this name may not completely capture the broad content domain covered by this factor. Therefore, Ashton et al. suggested a new name, Honesty-Humility, to better reflect this breadth of content. The addition of the Honesty-Humility dimension is one of the most important characteristics of the HEXACO model, and represents a major departure from the Big Five or Five-Factor Model.

Based on the common content of this factor as found in various lexical studies of personality structure, we conceptualized the HEXACO-PI Honesty-Humility dimension in terms of four distinct facets: Sincerity, Fairness, Greed Avoidance, and Modesty. Brief definitions of the scales are provided in Table 1.[2]

Emotionality and its Facets

Lexical studies of personality structure have repeatedly recovered a factor that is defined by such characteristics as anxiety, fearfulness, sentimentality, dependence, and emotional reactivity versus self-assurance, toughness, and bravery. Although this factor has often been interpreted as the Big Five Emotional Stability factor by the authors of the lexical studies in which the factor has emerged, this factor differs from the traditional Emotional Stability dimension in some important ways. Most notably, this factor does not include the irritability and temperamentalness content that is an important element of the low pole of the traditional Emotional Stability factor (see Costa & McCrae, 1992; Saucier & Goldberg, 1996). Second, unlike the traditional (low) Emotional Stability dimension, this factor typically includes sentimentality and sensitivity content at its positive pole and bravery and toughness content at its negative pole. Given this combination of characteristics, we have suggested elsewhere that the name of *Emotionality* can better describe this factor than can Emotional Stability (Ashton et al.,

[2] The facets of the Honesty-Humility factor — unlike the other five HEXACO dimensions — do *not* contain any items that resemble adjective self-ratings (e.g., "I am an honest person."). We avoided Honesty-Humility items of this kind because of concern that such items might have somewhat higher means and more skewed response distributions, than would be the case for the other factors.

2004).[3] Based on the common content described above, we included Fearfulness, Anxiety, Dependence, and Sentimentality as the four facets of the HEXACO-PI Emotionality domain. The definitions of these four scales can be found in Table 1.

Extraversion and its Facets

A factor interpretable as Extraversion has typically been found as the largest or the second largest varimax-rotated factor in most lexical studies of personality structure. Content related to talkativeness, sociability, and cheerfulness versus shyness, passivity, and quietness has consistently defined this dimension, which is therefore very similar to the Big Five Extraversion factor. (It should be noted, however, that such traits as bravery, self-assurance, and toughness, which are sometimes viewed as part of the Big Five Extraversion factor, usually do not define this factor; instead, such traits are assimilated within the Emotionality dimension in the HEXACO model.) Accordingly, the HEXACO-PI Extraversion dimension was conceptualized to subsume facets that we have called Expressiveness, Social Boldness, Sociability, and Liveliness. Definitions of these four scales are shown in Table 1.

Agreeableness and its Facets

The common content of this dimension as obtained in various lexical studies of personality structure includes good-naturedness, tolerance, and agreeableness versus temperamentalness, irritability, argumentativeness, and criticalness. We believe that the term Agreeableness can summarize the nature of this factor fairly well. It is important to note, however, that this dimension is somewhat different from Big Five Agreeableness in its content. Most notably, the HEXACO version of Agreeableness includes the temperamentalness and irritability content that is an element of low Emotional Stability in the Big Five (see above). Based on the common content of this dimension as described above, we included four facets within the HEXACO Agreeableness dimension: Forgiveness, Gentleness, Flexibility, and Patience. Brief definitions of these scales are provided in Table 1.

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[3] The choice of Emotionality as the name of this factor is consistent with the behavior of the adjective *emotional* in lexical studies of personality structure. Apparently, people's implicit understanding of this term primarily involves sentimentality rather than, say, irritability or joyfulness. Nevertheless, some readers might reasonably feel that Emotionality is an ambiguous name for this factor, and we suggest that they understand this label to represent *Emotional Vulnerability* or *Emotional Sensitivity*.

Table 1
Definitions of the HEXACO-PI Scales

Scale	Definition
	Honesty-Humility Domain
Sincerity	Assesses a tendency to be genuine in interpersonal relations. Low scorers will flatter others or pretend to like them in order to obtain favors, whereas high scorers are unwilling to manipulate others.
Fairness	Assesses a tendency to avoid fraud and corruption. Low scorers are willing to gain by cheating or stealing, whereas high scorers are unwilling to take advantage of other individuals or of society at large.
Greed Avoidance	Assesses a tendency to be uninterested in possessing lavish wealth, luxury goods, and signs of high social status. Low scorers want to enjoy and to display wealth and privilege, whereas high scorers are not especially motivated by monetary or social-status considerations.
Modesty	Assesses a tendency to be modest and unassuming. Low scorers consider themselves as superior and as entitled to privileges that others do not have, whereas high scorers view themselves as ordinary people without any claim to special treatment.
	Emotionality Domain
Fearfulness	Assesses a tendency to experience fear. Low scorers feel little fear of injury and are relatively tough, brave, and insensitive to physical pain, whereas high scorers are strongly inclined to avoid physical harm.
Anxiety	Assesses a tendency to worry in a variety of contexts. Low scorers feel little stress in response to difficulties, whereas high scorers tend to become preoccupied even by relatively minor problems.
Dependence	Assesses one's need for emotional support from others. Low scorers feel self-assured and able to deal with problems without any help or advice, whereas high scorers want to share their difficulties with those who will provide encouragement and comfort.
Sentimentality	Assesses a tendency to feel strong emotional bonds with others. Low scorers feel little emotion when saying good-bye or in reaction to the concerns of others, whereas high scorers feel strong emotional attachments and an empathic sensitivity to the feelings of others.

Table 1 (*cont'd.*)

Scale	Definition
	Extraversion Domain
Expressiveness	Assesses a tendency to be excitable and dramatic in one's interpersonal style. Low scorers tend not to speak in an excited or animated way, whereas high scorers tend to do most of the talking and have a dramatic style of speaking.
Social Boldness	Assesses one's comfort or confidence within a variety of social situations. Low scorers feel shy or awkward in positions of leadership or when speaking in public, whereas high scorers are willing to approach strangers and are willing to speak up within group settings.
Sociability	Assesses a tendency to enjoy conversation, social interaction, and parties. Low scorers generally prefer solitary activities and do not seek out conversation, whereas high scorers enjoy talking, visiting, and celebrating with others.
Liveliness	Assesses one's typical enthusiasm and energy. Low scorers tend not to feel especially cheerful or dynamic, whereas high scorers usually experience a sense of optimism and high spirits.
	Agreeableness Domain
Forgiveness	Assesses one's willingness to feel trust and liking toward those who may have caused one harm. Low scorers tend "hold a grudge" against those who have offended them, whereas high scorers are usually ready to trust others again and to re-establish friendly relations after having been treated badly.
Gentleness	Assesses a tendency to be mild and lenient in dealings with other people. Low scorers tend to be critical in their evaluations of others, whereas high scorers are reluctant to judge others harshly.
Flexibility	Assesses one's willingness to compromise and cooperate with others. Low scorers are seen as stubborn and are willing to argue, whereas high scorers avoid arguments and accommodate others' suggestions, even when these may be unreasonable.
Patience	Assesses a tendency to remain calm rather than to become angry. Low scorers tend to lose their tempers quickly, whereas high scorers have a high threshold for feeling or expressing anger.

Table 1 (*cont'd.*)

Scale	Definition
	Conscientiousness Domain
Organization	Assesses a tendency to seek order, particularly in one's physical surroundings. Low scorers tend to be sloppy and haphazard, whereas high scorers keep things tidy and prefer a structured approach to tasks.
Diligence	Assesses a tendency to work hard. Low scorers have little self-discipline and are not strongly motivated to achieve, whereas high scorers have a strong "work ethic" and are willing to exert themselves.
Perfectionism	Assesses a tendency to be thorough and concerned with details. Low scorers tolerate some errors in their work and tend to neglect details, whereas high scorers check carefully for mistakes and potential improvements.
Prudence	Assesses a tendency to deliberate carefully and to inhibit impulses. Low scorers act on impulse and tend not to consider consequences, whereas high scorers consider their options carefully and tend to be cautious and self-controlled.
	Openness to Experience Domain
Aesthetic Appreciation	Assesses one's enjoyment of beauty in art and in nature. Low scorers tend not to become absorbed in works of art or in natural wonders, whereas high scorers have a strong appreciation of various art forms and of natural beauty.
Inquisitiveness	Assesses a tendency to seek information about, and experience with, the natural and human world. Low scorers have little curiosity about the natural or social sciences, whereas high scorers read widely and are interested in travel.
Creativity	Assesses one's preference for innovation and experiment. Low scorers have little inclination for original thought, whereas high scorers actively seek new solutions to problems and express themselves in art.
Unconventionality	Assesses a tendency to accept the unusual. Low scorers avoid eccentric or nonconforming persons, whereas high scorers are receptive to ideas that might seem strange or radical.

Conscientiousness and its Facets

Across lexical studies of personality structure, this factor has been consistently defined by such content as organization, hard work, carefulness, and thoroughness. Therefore, this factor is almost identical to the Big Five Conscientiousness dimension. (Note that this Conscientiousness factor is usually not defined by terms suggesting a specifically *moral* conscience, such as *honest* or *sincere*; these terms generally load on the Honesty-Humility factor.) The HEXACO Conscientiousness dimension was conceptualized as having four facets named Organization, Diligence, Perfectionism, and Prudence. Definitions of the scales are provided in Table 1.

Openness to Experience and its Facets

There is one last factor — namely, Intellect/Imagination — that is perhaps most controversial in terms of the nature of its common content across various lexical studies. The Imagination aspect, subsuming traits such as originality and creativity, appears to be a robust common element of this factor in previous lexical studies. Other elements, however, have not uniformly defined this factor. For example, the Intellect aspect (e.g., *intelligent, smart*) was one of the primary elements in this factor for some languages (e.g., German, Polish). In other languages (e.g., Dutch, Italian), content related to unconventionality and rebelliousness has been a central element of this factor.

In conceptualizing the HEXACO Openness to Experience dimension, we did not include Intellect content, in the sense of intelligence or mental ability. This reflects our belief that much variance in overall intelligence is likely to be due to a *non-personality* construct of fluid intelligence or "fluid *g*," in combination with the personality dimension of Intellect, Imagination, or Openness to Experience (Ashton, Lee, Vernon, & Jang, 2000). However, we did include Intellect content in the sense of intellectual curiosity or inquisitiveness, which, unlike intelligence per se, suggests a typical behavioral tendency rather than raw cognitive ability.[4]

Within the HEXACO framework, we decided to use the name Openness to Experience for this factor instead of Intellect/Imagination, because of the greater familiarity of the former name. HEXACO Openness to Experience is conceptualized to subsume the following four facets: Aesthetic Appreciation,

[4] Interestingly, intelligence-related terms have separated from imagination- or unconventionality-related terms within the seven- or eight-factor solutions of some lexical studies of personality structure, including those conducted in German, Italian, and Czech.

Inquisitiveness, Creativity, and Unconventionality. Definitions of these scales are provided in Table 1.[5]

Expected Relations with Other Variables

Extraversion, Conscientiousness, and Openness to Experience. These three dimensions of the HEXACO-PI were expected to show quite strong correlations with the corresponding factors in the Big Five framework. In particular, Extraversion and Conscientiousness in the HEXACO-PI are quite similar to their Big Five counterparts, albeit not perfectly isomorphic with them (e.g., as noted above, HEXACO Extraversion does not contain such content as self-assurance and bravery). The level of the convergence between HEXACO Openness to Experience and Big Five Intellect/Imagination is expected to be somewhat lower than the levels observed for Extraversion and Conscientiousness. This expectation is attributable to our a priori decision that intelligence-related content should be excluded from the HEXACO Openness to Experience dimension, even though this content is sometimes represented within Big Five Intellect/Imagination.

Emotionality and Agreeableness. Above, we have noted some differences between the HEXACO and Big Five frameworks with respect to Emotionality and Agreeableness. Our re-conceptualization of these two factors can be understood as a re-rotation of the axis locations of the two corresponding factors in the Big Five framework. Therefore, we expected that the two HEXACO scales would show nearly isomorphic relations with marker scales of rotational variants of Agreeableness and Emotional Stability in the Big Five.

Honesty-Humility. Previously, Ashton et al. (2000) reported that some existing personality traits did not correlate strongly with any of the lexical Big Five, but did correlate significantly with Honesty-Humility. Specifically, Honesty-Humility substantially increased the explained variance in such traits as Primary Psychopathy (Levenson, Kiehl, & Fitzpatrick, 1995), Machiavellianism (Christie & Geis, 1970), and Social Adroitness (Jackson, 1994) beyond the level that the Big Five factors could achieve. Although that study was conducted in a Korean context using Korean adjective marker scales for Honesty-Humility, a similar pattern of relationships is expected to

[5] Although the Unconventionality facet is defined by nonconformity of opinions, the items of this facet do not refer to specific political attitudes or religious beliefs. We believe that these important variables are likely to be strongly influenced by personality, but that they are not themselves personality characteristics.

be observed in the present study. Therefore, we expected a strong negative correlation between HEXACO-PI Honesty-Humility and the Primary Psychopathy scale.

Gender Differences. Gender differences in the Big Five factors have generally been found in Agreeableness and Emotional Stability. Specifically, women describe themselves as being more agreeable and less emotionally stable than men describe themselves as being (Costa & McCrae, 1992, p. 55). We therefore expected substantial gender differences in the HEXACO-PI Emotionality dimension, which represents the axis corresponding to high Agreeableness and low Emotional Stability in the Big Five space. Moreover, we expected that the gender differences in Emotionality would exceed those found in any other HEXACO-PI dimension.

One other noteworthy gender difference was also expected, however. Some evidence suggests that women tend to score higher than do men on those scales whose content is highly saturated with Honesty-Humility (e.g., low Primary Psychopathy; Levenson et al., 1995). We expected, therefore, that there would be a significant gender difference on the HEXACO Honesty-Humility dimension. For both the Emotionality and the Honesty-Humility factors, the expected gender differences as described above are consistent with the theoretical interpretations suggested by Ashton and Lee (2001).

Method

Participants

409 undergraduate students in two Canadian universities participated in this study (50% women, mean age 22.3 years with $SD = 6.3$). The students received course credits or financial reimbursement for their participation.

Measures

The response format for all the measures described below was a five-point scale (1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*).

HEXACO-PI. This personality inventory was developed to measure the six major dimensions that have been found in several previous lexical studies of personality structure, as described in the Introduction (see also Ashton et al., 2004). The HEXACO-PI consists of 24 facet-level traits that are subsumed within the six higher-order personality dimensions. Each scale consists of eight

items, thus constituting a questionnaire of 192 items.[6] To control the effects of acquiescence, we tried to include a roughly equal number of positively- and negatively-keyed items within each scale. As a result, all of the scales have a minimum of two and a maximum of six negatively-keyed items.

The facet scales representing the lower-level factors associated with each of the six broad HEXACO factors were derived by the authors with direct reference to the various results of previous lexical studies (see Ashton et al., 2004). We selected the final set of 192 items from over 600 items that we had initially written, and that we had administered to various samples involving more than 1000 participants in various stages. The process of test construction was based largely on the strategy described by Jackson (1971).

Other Measures for Tests of Convergent Validity. We selected six scales that were hypothesized to show strong correlations with the HEXACO-PI scales. Five scales were selected from those included in Goldberg's (1999) International Personality Item Pool (IPIP). First, 10-item markers of three of the lexical Big Five personality factors, Extraversion, Conscientiousness, and Intellect/Imagination, were included. As noted in the Introduction, these are expected to show strong correlations with HEXACO-PI Extraversion, Conscientiousness, and Openness to Experience, respectively. Second, the IPIP also provides scales that measure the 45 facets of the Abridged Big Five Dimensional Circumplex (AB5C), which includes the personality traits that are located interstitially between each pair of the Big Five factors (Hofstee, De Raad, & Goldberg, 1992). Among these AB5C facets, we included the IPIP scales labeled as Pleasantness and Imperturbability in the present research. The former represents a personality trait contrasting high Agreeableness/high Emotional Stability with low Agreeableness/low Emotional Stability (II+/IV+ versus II-/IV-), and the latter represents a personality trait contrasting high Emotional Stability/low Agreeableness with low Emotional Stability/high Agreeableness (IV+II- versus IV-II+). Thus, these scales correspond to variants of Agreeableness and Emotional Stability that have been rotated 30 degrees from their usual axis locations. Therefore, these two variables correspond very closely to our proposed axis locations for Agreeableness and (low) Emotionality. The Imperturbability and Pleasantness scales have 9 and 11 items, respectively.

[6] In some previous studies, we have used a 108-item version of the HEXACO-PI, for which only domain scores are reported. This earlier version of the HEXACO-PI has shown quite satisfactory psychometric properties both in its original, English-language version, and in its Dutch, French, Italian, and Korean translations. We are currently revising this shorter version of the test, to further improve its psychometric performance and to make it somewhat shorter still.

Finally, the 16-item Primary Psychopathy scale (Levenson et al., 1995) was selected because of its strong (negative) correlation with a lexical Honesty-Humility factor, as measured by a Korean adjective marker scale (Ashton et al., 2000).

These measures were administered to a subset (N = 250) of the total sample. Internal-consistency reliabilities were .90 for IPIP Extraversion, .82 for IPIP Conscientiousness, .84 for IPIP Intellect, .90 for IPIP Imperturbability, .80 for IPIP Pleasantness, .86 for Primary Psychopathy.

Results and Discussion

Internal-Consistency Reliabilities and Descriptive Statistics of the HEXACO-PI Scales

Table 2 shows that the internal-consistency reliabilities (coefficient alpha) for the HEXACO-PI scales, at both factor and facet levels, were high. Reliabilities ranged from .89 (Conscientiousness) to .92 (Honesty-Humility)

Table 2
Internal Consistency Reliabilities of the HEXACO-PI Scales (Coefficient alpha)

Scale	Reliability	Scale	Reliability
Honesty-Humility	.92	Agreeableness	.89
Sincerity	.79	Forgiveness	.88
Fairness	.85	Gentleness	.77
Greed Avoidance	.87	Flexibility	.75
Modesty	.83	Patience	.80
Emotionality	.90	Conscientiousness	.89
Fearfulness	.84	Organization	.85
Anxiety	.84	Diligence	.79
Dependence	.85	Perfectionism	.79
Sentimentality	.81	Prudence	.78
Extraversion	.92	Openness to Experience	.90
Expressiveness	.84	Aesthetic Appreciation	.86
Social Boldness	.86	Inquisitiveness	.81
Sociability	.79	Creativity	.79
Liveliness	.85	Unconventionality	.80

Note. N = 409. Each facet-level scale has 8 items, and each of factor-level scale has 32 items.

at the factor level, and from .75 (Flexibility) to .88 (Forgiveness) at the facet level. The levels of reliability observed in the present research compare favorably with those of other existing personality inventories.

Table 3 provides means and standard deviations of the scales for the entire sample, and also for men and women separately. It was observed that there are significant gender differences in some facet-level traits. Interestingly, however, only those facets belonging to Emotionality and Honesty-Humility showed a consistent pattern of sizeable gender differences in the same direction. Consequently, it was these two factor-level traits that showed the largest gender differences (d = 1.08 for Emotionality and d = .59 for Honesty-Humility). This is consistent with our theoretical expectation elaborated elsewhere (see Ashton & Lee, 2001). Somewhat weak but statistically significant gender differences were also found for other factor-level traits. Specifically, women averaged slightly higher than men in Conscientiousness (d = .26, $p < .01$), and women averaged slightly lower than men in Openness to Experience ($d = -.22$, $p < .05$).

Factor Analyses

The 24 facet scales in the HEXACO-PI were submitted to a principal axis factor analysis.[7] The first ten eigenvalues were 3.5, 3.4, 2.7, 2.5, 1.7, 1.3, 0.8, 0.8, 0.7, and 0.6; the last important decrease in eigenvalues occurred between the sixth and seventh factors. The first six factors collectively explained 63.2 % of the total variance, and when these factors were rotated to a varimax solution, a clear simple factor structure emerged (see Table 4). All of the scales showed their highest loadings on the designated factors, and the sizes of the corresponding factor loadings were large, ranging from .54 to .73. The factor loadings of the scales on non-corresponding factors were generally small; none of the secondary loadings exceeded an absolute value of .30 in this sample.

Specificity of Facets. We estimated an index of specificity of the facet scales, to quantify the amount of the specific variance in each facet that is not explained by the six higher-order factors. We used the following procedures to obtain the index of specificity for each facet measure (see

[7] We report principal axis factor analysis here because our subsequent analyses are intended to identify the amount of specificity in each trait, which would be slightly underestimated by principal component analysis. Principal components analysis produced results nearly identical to those reported here. In addition, the six varimax-rotated factors were almost identical to the six obliquely-rotated factors: all corresponding factor score correlations were above .98 (for oblimin-rotated factors) or above .97 (for promax-rotated factors).

Table 3
Means and Standard Deviations of the HEXACO-PI Scales

	Total		Women		Men		*d*
Scale	Mean	*SD*	Mean	*SD*	Mean	*SD*	(Women - Men)
Honesty-Humility	3.36	.60	3.53	.53	3.19	.62	.59**
Sincerity	3.39	.67	3.48	.64	3.30	.69	.28**
Fairness	3.44	.85	3.69	.74	3.19	.89	.62**
Greed Avoidance	3.04	.85	3.13	.82	2.94	.86	.23*
Modesty	3.58	.72	3.83	.60	3.35	.75	.71**
Emotionality	3.20	.55	3.46	.50	2.93	.48	1.08**
Fearfulness	2.76	.77	3.03	.77	2.50	.68	.73**
Anxiety	3.33	.77	3.58	.73	3.08	.74	.68**
Dependence	3.09	.77	3.32	.78	2.87	.69	.61**
Sentimentality	3.59	.69	3.91	.58	3.28	.65	1.01**
Extraversion	3.29	.57	3.33	.59	3.25	.55	.13
Expressiveness	3.19	.73	3.30	.72	3.08	.73	.30**
Social Boldness	3.11	.80	2.99	.86	3.23	.73	−.30**
Sociability	3.43	.69	3.54	.68	3.33	.68	.31**
Liveliness	3.42	.71	3.48	.71	3.37	.71	.15
Agreeableness	2.94	.49	2.91	.47	2.97	.50	−.11
Forgiveness	2.85	.74	2.82	.72	2.89	.76	−.09
Gentleness	2.96	.62	2.96	.61	2.96	.63	.00
Flexibility	2.73	.61	2.76	.62	2.71	.59	.08
Patience	3.22	.66	3.12	.61	3.32	.69	−.30**
Conscientiousness	3.32	.51	3.38	.51	3.25	.49	.26**
Organization	3.12	.83	3.20	.83	3.04	.83	.19
Diligence	3.40	.63	3.44	.65	3.35	.62	.14
Perfectionism	3.51	.70	3.60	.71	3.43	.68	.25*
Prudence	3.24	.64	3.29	.63	3.20	.64	.15
Openness to Experience	3.37	.57	3.30	.56	3.43	.58	−.22*
Aesthetic Appreciation	3.42	.87	3.59	.79	3.25	.91	.39**
Inquisitiveness	3.31	.79	3.07	.77	3.54	.74	−.62**
Creativity	3.23	.73	3.14	.74	3.32	.71	−.25*
Unconventionality	3.51	.64	3.41	.61	3.60	.65	−.31**

Note. $N = 203$ women, 206 men.
* $p < .05$ ** $p < .01$.

Table 4
Factor Analysis of the 24 HEXACO-PI Facet Scales

	Factor						
Scale	1	2	3	4	5	6	*s*
Liveliness	**.73**	–.03	.11	.01	.26	.11	.47
Expressiveness	**.72**	.09	.19	–.07	–.17	–.13	.47
Sociability	**.68**	.20	–.09	–.13	.05	–.07	.50
Social Boldness	**.66**	–.24	.24	–.04	–.02	.03	.55
Sentimentality	.18	**.70**	.09	.21	.08	.05	.47
Anxiety	–.26	**.67**	–.09	–.11	–.25	.07	.48
Dependence	.27	**.61**	–.11	–.05	.00	–.03	.62
Fearfulness	–.18	**.57**	–.28	.10	–.02	.06	.62
Unconventionality	.13	–.15	**.70**	.07	–.09	–.10	.49
Aesthetic Appreciation	.06	.24	**.70**	.18	.07	.11	.52
Creativity	.25	–.14	**.65**	.07	–.11	.03	.51
Inquisitiveness	–.05	–.18	**.57**	–.03	.10	.14	.65
Greed Avoidance	–.09	–.08	.19	**.72**	.19	.01	.51
Sincerity	–.05	–.08	.18	**.70**	–.03	.19	.48
Modesty	–.03	.17	–.11	**.68**	.12	.06	.56
Fairness	–.05	.14	.02	**.58**	.12	.29	.62
Patience	.07	–.27	.05	.04	**.68**	.01	.50
Flexibility	–.09	.08	–.08	.08	**.66**	–.05	.53
Gentleness	–.07	.14	–.03	.21	**.62**	.07	.56
Forgiveness	.23	–.11	.04	.04	**.57**	–.11	.69
Diligence	.21	–.04	.10	.09	–.06	**.72**	.45
Perfectionism	.00	.16	.11	.06	–.10	**.59**	.62
Organization	–.05	.02	–.01	.11	–.01	**.56**	.72
Prudence	–.28	–.07	–.07	.18	.12	**.54**	.59

Note. $N = 409$. s = index of specificity. Absolute loadings greater than .30 are typed in bold.

Costa & McCrae, 1995; Harman, 1976). First, the specific variance of each facet scale was estimated by subtracting its communality from its reliability. Second, we took the square root of this specific variance to make this index directly comparable to a factor loading. That is, this index can be thought of as a factor loading of each facet scale on its own specific "factor". The index of specificity is shown in the last column in the Table 4.

The results indicated that all facets contained substantial specificity, with a mean index of .55 and a range from .45 to .69. This level of specificity slightly exceeds that of the NEO-PI-R facets (with a mean of .44 and a range from .29 to .68) (Costa & McCrae, 1995). Taken together, the factor analytic results indicate that the HEXACO-PI facets contain adequate amounts of both theoretically relevant common variance and (potentially) practically useful unique variance.

Inter-Correlations among the Factor-Level Scales

An important question involves the extent to which the six factor-level scales are intercorrelated. As shown in Table 5, the correlations among the six factor-level scales were fairly low, indicating that those constructs are roughly independent. The highest correlation (r = .28) was found between Honesty-Humility and Conscientiousness. Honesty-Humility also correlated modestly with Agreeableness (r = .21).[8] The relatively weak correlations of Honesty-Humility with the other factors indicate that Honesty-Humility variance is not well represented by the other HEXACO factors.[9]

It is important to note that the correlations among the six HEXACO-PI domain scales observed in the present research are actually somewhat *lower* than those observed among the scales of five-dimensional measures such as the NEO-PI-R (Costa & McCrae, 1992), the NEO-FFI (see Egan, Deary, & Austin, 2001) or the IPIP-NEO and IPIP-Big Five scales (Goldberg, 1999). For example, Costa and McCrae (1992, p. 100) reported that NEO-PI-R Neuroticism correlated –.53 with NEO-PI-R Conscientiousness and that NEO-PI-R Openness to Experience correlated .40 with NEO-PI-R Extraversion.

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[8] One might be surprised by the weak correlation observed between HEXACO Agreeableness and Honesty-Humility, given that Five-Factor Model Agreeableness (as assessed by the NEO-PI-R) contains facets that are closely related to Honesty-Humility. As discussed in the Introduction, however, one should note that HEXACO Agreeableness, with its emphasis on lack of anger and of hostility, was conceptualized differently from Five-Factor Model Agreeableness. Interestingly, two facet measures in the NEO-PI-R that seem roughly parallel to aspects of HEXACO Honesty-Humility and (low) Agreeableness are Straightforwardness (A2) and Anger/Hostility (N2), respectively. The correlation between these two NEO-PI-R facets (r = .29, from Costa & McCrae, 1992, p.101) is comparable to that observed between HEXACO Honesty-Humility and Agreeableness in the present study.

[9] To further evaluate the extent to which the six factor-level scales are independent from each other, we computed the multiple correlations for each of the six factor-level scales using the other five factor scales as predictors. In general, the multiple correlations were found to be modest: .42 for Honesty-Humility, .24 for Emotionality, .30 for Extraversion, .28 for Agreeableness, .31 for Conscientiousness, and .36 for Openness to Experience.

Table 5
Intercorrelations Among the Six Factor-level Scales

Scale	1	2	3	4	5
1. Honesty-Humility					
2. Emotionality	.07				
3. Extraversion	−.11*	−.04			
4. Agreeableness	.21**	−.11*	.07		
5. Conscientiousness	.28**	.07	−.06	−.03	
6. Openness to Experience	.16**	−.16**	.23**	.01	.10*

Note. $N = 409$.
* $p < .05$, ** $p < .01$.

Convergent Validities of HEXACO-PI Scales

Recall that we included six marker scales of constructs that are expected to be strongly related to our HEXACO-PI scales. As discussed in the Introduction, HEXACO Extraversion, Conscientiousness, Openness to Experience are almost parallel to their lexical Big Five counterparts. Therefore, we included three IPIP scales representing the lexical Extraversion, Conscientiousness, and Intellect/Imagination factors. As also discussed in the Introduction, HEXACO Agreeableness and Emotionality can be interpreted as rotated variants of Big Five Agreeableness and Emotional Stability. Two scales selected from the Abridged Big Five Dimensional Circumplex (AB5C) (named Imperturbability and Pleasantness) correspond to variants of Agreeableness and Emotional Stability that have been rotated 30 degrees from their usual axis locations. Therefore, we hypothesized that HEXACO Agreeableness and Emotionality should show a nearly one-to-one correspondence with these two IPIP scales. Finally, as an external marker variable of HEXACO Honesty-Humility, we included Primary Psychopathy (Levenson et al., 1995), which was previously found to correlate primarily with lexical Honesty-Humility, and to be weakly correlated with the lexical Big Five (Ashton et al., 2000).

Table 6 provides correlations of all HEXACO-PI scales, at both factor- and facet levels, with the above-mentioned marker scales. All of the factor-level traits and their associated facets showed strong correlations with their corresponding marker variables. The highest convergent validity was found for Extraversion ($r = .86$), followed by Conscientiousness ($r = .83$). The lowest convergent validity was found between IPIP Intellect/Imagination and

Table 6
Correlations of the HEXACO-PI scales with marker variables of the six factors

Scale	Marker Variable					
	Primary Psychopathy	IPIP Imperturbability	IPIP Extraversion	IPIP Pleasantness	IPIP Conscientiousness	IPIP Intellect/Imagination
Honesty-Humility	**–0.75**	–0.10	–0.04	0.31	0.23	0.11
Sincerity	**–0.54**	0.03	–0.02	0.17	0.23	0.20
Fairness	**–0.69**	–0.11	–0.02	0.21	0.24	0.08
Greed Avoidance	**–0.60**	–0.08	–0.06	0.27	0.11	0.11
Modesty	**–0.50**	–0.14	–0.01	0.30	0.15	–0.04
Emotionality	–0.18	**–0.74**	–0.06	–0.01	0.04	–0.16
Fearfulness	–0.14	**–0.52**	–0.19	–0.10	0.05	–0.21
Anxiety	0.08	**–0.54**	–0.27	–0.17	0.02	–0.21
Dependence	–0.14	**–0.48**	0.19	0.04	–0.05	–0.07
Sentimentality	–0.39	**–0.68**	0.11	0.25	0.11	0.02
Extraversion	–0.07	0.05	**0.86**	0.19	–0.01	0.35
Expressiveness	–0.08	–0.17	**0.67**	0.02	–0.08	0.30
Social Boldness	–0.02	0.24	**0.70**	0.04	0.02	0.34
Sociability	0.02	–0.07	**0.71**	0.18	–0.04	0.14
Liveliness	–0.14	0.12	**0.57**	0.38	0.07	0.28
Agreeableness	–0.19	0.16	0.01	**0.72**	–0.05	–0.08
Forgiveness	–0.10	0.11	0.08	**0.53**	–0.08	0.02
Gentleness	–0.20	–0.01	–0.07	**0.66**	–0.01	–0.14
Flexibility	–0.11	0.00	–0.04	**0.47**	–0.04	–0.23
Patience	–0.16	0.34	0.04	**0.51**	–0.03	0.06
Conscientiousness	–0.18	0.00	0.01	0.09	**0.83**	0.18
Organization	–0.10	0.00	0.03	0.08	**0.81**	0.12
Diligence	–0.14	0.01	0.18	0.10	**0.55**	0.24
Perfectionism	–0.11	–0.08	0.01	–0.06	**0.51**	0.16
Prudence	–0.16	0.09	–0.22	0.15	**0.46**	–0.02
Openness to Experience	–0.30	0.04	0.28	0.04	0.09	**0.68**
Aesthetic Appreciation	–0.32	–0.22	0.12	0.07	0.17	**0.41**
Inquisitiveness	–0.14	0.27	0.13	0.03	0.09	**0.44**
Creativity	–0.23	0.03	0.30	0.03	0.03	**0.72**
Unconventionality	–0.20	0.07	0.31	0.00	–0.06	**0.53**

Note. $N = 250$. Absolute values greater than .40 are typed in bold.

HEXACO-PI Openness to Experience (r = .68). As noted in the Introduction, this reflects our decision to exclude items involving self-ratings of intelligence, which were quite heavily represented in the IPIP Intellect/Imagination scale. (Nevertheless, the Creativity facet of HEXACO-PI Openness to Experience did correlate strongly, r = .72, with Intellect/Imagination.)

The pattern of convergent and discriminant correlations shown by the facet-level scales was generally quite similar to that shown by the higher-order factor scales. It should be noted, however, that the facet correlations are not so high as to suggest that they are redundant. This, along with the considerable unique variance associated with each facet, suggests that measuring traits at the facet level would potentially be useful in predicting various important criteria.

Summary

The psychometric properties of the scales in the newly developed HEXACO-PI appear to be satisfactory. All the scales were demonstrated to possess high levels of internal consistency reliabilities. In addition, the hypothesized factor structure of the HEXACO-PI scales was clearly identified. All aspects of the results of the factor analyses, including the scree plot and the patterns of primary and secondary loadings, were consistent with expectations.

The six factor-level scales were found to show relatively little overlap with each other, suggesting that these six lexical-derived factors were roughly orthogonal. The HEXACO-PI scales also showed theoretically meaningful relations with external variables included in the present research. Moreover, the HEXACO-PI scales, at both factor and facet levels, uniformly showed acceptable convergent validities with the six external marker variables that were hypothesized to have nearly isomorphic relationships with the HEXACO-PI scales. These six marker scales did not correlate strongly with any of the HEXACO-PI scales other than their conceptually similar scales, thus providing evidence of discriminant validity. Also, as expected, the HEXACO-PI Emotionality and Honesty-Humility scales showed the largest gender differences (see Ashton & Lee, 2001, for a theoretical interpretation of this phenomenon).

In conclusion, the HEXACO-PI appears to be a psychometrically sound measure of the six major personality dimensions that have been found in lexical studies of personality structure across several diverse languages (see Ashton et al., 2004).

Circumplexes and the HEXACO Structure

As reported in the previous section, the facet scales of the HEXACO-PI show a reasonably simple structure. Nevertheless, several HEXACO-PI scales exhibit secondary loadings that are both appreciable in size and theoretically meaningful, and this result is a reflection of the inherently circumplexical nature of several of the planes defined by pairs of HEXACO factors. In the next section, we first briefly describe the notion of the circumplex — and the contributions of Jerry Wiggins to the development of that concept — and we then discuss the relevance of the circumplexical approach to the HEXACO structure, in the context of the problem of deciding on the optimal rotation of factor axes.

Circumplexes and Personality Structure: Historical Background

Guttman (1954) used the term "circumplex" to describe a circular arrangement of variables, and this term was soon applied in the context of the so-called interpersonal circle, a two-dimensional classification of interpersonal behaviors (e.g., Freedman, Leary, Ossorio, & Coffey, 1951; Leary, 1957; see McCormick & Goldberg, 1997, for a historical overview). The interpersonal circle was later refined and extended by Wiggins (1979; Wiggins, Trapnell, & Phillips, 1988), who developed a set of adjective markers of various constructs that fall within that two-dimensional space. Trapnell and Wiggins (1990) integrated the interpersonal circumplex, which corresponds roughly to the Extraversion/Agreeableness plane of the Big Five, with the remaining three dimensions of the Big Five factor structure. Meanwhile, other researchers also began to study circumplexes beyond the traditional interpersonal plane. For example, Saucier (1992) explored circumplexes involving Emotional Stability and each of the two interpersonal axes, and Hofstee et al. (1992) described the Abridged Big Five Circumplex (AB5C), which contains all 10 of the planes formed by the Big Five factors.

We believe that studies of the interpersonal circle, and of personality circumplexes within other planes, have had an important influence on the thinking of personality psychologists. The work of Wiggins, and later of Hofstee et al. and of Saucier, has reminded researchers that much of the personality space is not characterized by simple structure, but by a rather continuous arrangement of variables between factor axes. Therefore, within at least some of the planes defined by pairs of personality dimensions, a variety of equally plausible reference vectors could be selected. This is especially true of the regions defined by the Big Five axes of Extraversion, Emotional Stability, and Agreeableness; within this "affective-interpersonal

sphere" (Saucier, 1992), factor axis locations may fluctuate across samples and across variable sets, without any obviously ideal location. For example, one researcher might prefer three factors that are defined most strongly by shyness, irritability, and sentimentality, respectively, whereas another might favor a mathematically equivalent space whose axes are instead located through friendliness, anxiety, and bossiness.

The HEXACO Factor Rotation: Empirical Basis

At this point, it might be useful to explain the origins of the factor axis locations that characterize the six HEXACO dimensions. Such a discussion may be especially useful given that the HEXACO Agreeableness and Emotionality dimensions represent a re-rotation of the Big Five Agreeableness and Emotional Stability axes, and may therefore be a source of some discomfort for those readers who view the traditional axis locations as the "correct" orientation. Below, we first recall the lexical origins of the HEXACO structure, and we then consider the theoretical considerations that also contribute to our preference for the HEXACO axis locations.

As described in the Introduction to this article, lexical studies of personality structure in several languages have produced a similar six-factor structure. Within this structure, two of the varimax-rotated factor axes correspond to rotated variants of Agreeableness and Emotional Stability, with perhaps some additional tilting of this plane with respect to the Extraversion axis. One of these axes tends to be defined by content related to patience, tolerance, and good-naturedness versus quick temper, criticalness, and stubbornness, and the other tends to be defined by content related to anxiety, vulnerability, and sentimentality versus toughness, bravery, and independence. Such a result might seem unsatisfying to those readers who view the traditional Agreeableness and Emotional Stability vectors as the natural axis locations; indeed, those readers might wonder why the "interpersonal" dimension of Agreeableness should be mixed with the "affective" dimension of Emotional Stability. But it must be remembered that, even though this solution may seem new and unusual, it is nonetheless the result that nature tends to favor, at least in the context of lexical studies of personality structure from diverse languages. Thus, on the basis of these results, the HEXACO factor rotation has an empirical basis that is every bit as plausible as that of the traditional Big Five axes.

We have noted above that in several languages the results of lexical studies of personality structure — the investigations that have the best claim to a representative sampling of personality variables — tend to favor the HEXACO factor axis locations. But given the highly circumplexical nature

of much of the personality space, it seems somehow unsatisfying to decide on the ideal reference vectors simply by counting the number of languages in which competing rotational positions have emerged: if, say, the HEXACO solution emerges in two-thirds of the cases, and a competing orientation in one-third of the cases, this would not be a particularly convincing basis for the selection of the former structure as the ideal. Instead, it would be better to have a more compelling theoretical rationale for the selection of a given set of axes. Previously, we have tried to provide such a rationale.

The HEXACO Factor Rotation: Theoretical Basis

In an earlier article (Ashton & Lee, 2001), we explained factors corresponding to HEXACO Emotionality and Agreeableness, and also Honesty-Humility, in terms of three dimensions that are relevant to altruistic versus antagonistic behavior. According to this explanation, Honesty-Humility and Agreeableness are the basis of individual differences in reciprocally altruistic behavior. Specifically, high levels of Honesty-Humility are associated with a tendency to cooperate even when one could exploit another individual who seems relatively unlikely to retaliate, whereas high levels of Agreeableness are associated with a tendency to cooperate even when one could be exploited by another individual who seems relatively unlikely to reciprocate.[10]

The role of Emotionality within this theory is to govern individual differences in behaviors relevant to kin altruism and inclusive fitness. In our earlier article (Ashton & Lee, 2001) we emphasized certain aspects of Emotionality — specifically, empathic concern and emotional attachment — that correspond chiefly to the Sentimentality facet of the HEXACO-PI Emotionality domain. The link between sentimentality and kin-altruistic tendencies is straightforward, but the other aspects of Emotionality are also relevant to individual differences in kin altruism, or in inclusive fitness more generally. For example, Campbell (1999) has suggested that sex differences in fear and anxiety can be understood in terms of parental investment: because women have a greater biological investment in their children than do men, personal survival has been more strongly associated with reproductive success in women than in men; consequently, the optimal thresholds for feelings of physical fear and of anxiety have tended to be somewhat lower

[10] The common link to reciprocity might explain the tendency for Honesty-Humility and Agreeableness to form a single dimension within solutions involving fewer than five or six factors, and for many traits to show same-signed loadings on these two factors. Future research should investigate the conditions that influence the extent to which these two factors approach orthogonality.

for women than for men. Similarly, gender differences in the help-seeking tendencies that characterize the dependence aspect of Emotionality might also be explained in terms of kin altruism and inclusive fitness: Taylor et al. (2000, p. 412) have suggested that women are more likely than men to "selectively affiliate in response to stress, which maximizes the likelihood that multiple group members will protect both them and their offspring."

Thus, we believe that the HEXACO Agreeableness and Emotionality axes possess, in addition to their widespread empirical prevalence, a strong theoretical basis. Of course, this is not to suggest that other rotations cannot be defended. For example, consider an interesting result from the Italian lexical studies conducted in Trieste (Di Blas, 2003; Di Blas & Forzi, 1998; 1999; see also Di Blas & Perugini, 2002). Within these studies, the varimax-rotated six-factor solution produced a factor defined by content related to sentimentality and aesthetic appreciation (corresponding to high Emotionality and high Openness to Experience) and another factor defined by content related to fearlessness and creativity (corresponding to low Emotionality and high Openness to Experience). Presumably, one could imagine plausible adaptive trade-offs that could underlie individual differences in these two dimensions. But on the other hand, it might be difficult to integrate those interpretations with those of the other four factors, in such a way as to give a parsimonious explanation of the entire six-dimensional framework, as we have attempted to provide (Ashton & Lee, 2001). Thus, a re-rotation of these two Italian (Trieste) factors to align more closely with the more familiar axis locations (Ashton et al., 2004; Di Blas, 2003) might be preferred.

The need for a parsimonious explanation of the entire personality space might provide an argument against certain rotations of the major personality factors. For example, suppose that one wanted to view "self-esteem" or "self-efficacy" as a major dimension of personality. It might not be difficult to imagine an adaptive trade-off between high or low levels of this factor, and thereby to generate hypotheses regarding the function of this dimension. However, because self-esteem and self-efficacy are apparently related to the socially desirable poles of several of the traditional Big Five factors — particularly Emotional Stability, Extraversion, and Conscientiousness — the adoption of self-esteem/self-efficacy as a basic factor would then require a re-rotation of several axes within the personality space, in order to maintain roughly orthogonal factors. The new vectors obtained in this way would likely be quite complex in terms of their content, representing desirability-neutral combinations of several of the traditional factors; consequently, it might be rather difficult to interpret simultaneously the psychological meaning and adaptive function of all of these dimensions, whose content would be much different from that of any simple-structure dimensions.

The HEXACO Model and the Interpersonal Circle

We should conclude this section by considering the implications of the HEXACO structure for the interpersonal circle. On one hand, we believe that the interpersonal circumplex has been superseded as a (partial) representation of personality structure; instead of just two factors that are directly relevant to interpersonal behavior, several lexical studies have found that there are four — Extraversion, Honesty-Humility, Agreeableness, and Emotionality. Nonetheless, we believe that the interpersonal circle has been — and will remain — a very useful framework, for two reasons. First, the interpersonal circle manages to capture most of the variance associated with interpersonal interactions within a plane that represents the *intensity* and the *valence* of those interactions (Ashton & Lee, 2001); this simple framework thereby provides a very efficient, if somewhat rough, description of interpersonal behavior. But perhaps even more importantly, the crucial contribution of Wiggins's work on the interpersonal circle has been to remind us that meaningful factor axis locations can often be found in many regions of a given personality space, and that the problem of optimal factor rotations is a challenging one that personality researchers must confront with an open mind.

General Discussion

In this article we have described the HEXACO Personality Inventory, a new measure that is intended to assess six factors that have been found in lexical studies of personality structure conducted in several languages. An initial psychometric examination of the HEXACO-PI appears to be promising. All of the factor- and facet level scales in the HEXACO-PI were found to be highly reliable and factorially valid. In addition, the six HEXACO factors were roughly orthogonal to each other. With respect to convergent validities, the HEXACO scales showed strong correlations with the external measures in the predicted directions.

We view the psychometric results described in the previous section, as good reasons to consider the HEXACO-PI as a useful operationalization of the six-dimensional model of personality structure that we have proposed. However, we should emphasize that these results are *not* the reasons why we believe that this six-dimensional model should be adopted. It is possible that other psychometricians could construct a set of six broad personality scales — perhaps by subdividing one or more of the Big Five or Five-Factor Model factors — that would exhibit reasonable levels of internal-consistency reliability, of mutual independence, and of convergent and discriminant validity. Instead, we advocate the HEXACO model on the basis of empirical

findings from lexical studies in multiple languages (see Ashton et al., 2004), and also of theoretical considerations (see Ashton & Lee, 2001).

Potential Predictive Advantages of the HEXACO Model

There remains the important question of what predictive advantages might be provided by the HEXACO-PI in comparison with currently popular inventories representing the Five-Factor Model, such as the NEO-PI-R. Below, we suggest some of these potential predictive advantages.

We believe that the HEXACO-PI is likely to possess some predictive advantages over other inventories, due to its inclusion of a separate Honesty-Humility factor that is defined by several facets. Although the NEO-PI-R clearly contains some Honesty-Humility-related content within its Agreeableness domain, there are nevertheless two HEXACO-PI Honesty-Humility facets — Fairness and Greed-Avoidance — that have no analogue within the NEO-PI-R. We believe that these facets are likely to be strongly correlated with certain important constructs that would probably show only moderate correlations with the NEO-PI-R variables. For example, scores on overt integrity tests and similar variables would likely be more strongly correlated with the HEXACO-PI Fairness facet than with any NEO-PI-R facet. Similarly, variables related to materialism or status seeking would also be likely to correlate more strongly with the HEXACO-PI Greed Avoidance facet than with any NEO-PI-R facet.

There are also likely to exist some personality-related variables that can be predicted fairly well by the broad HEXACO-PI factors, but that are somewhat poorly predicted by the factor-level variables of alternative personality models such as the Five-Factor Model. For example, because the HEXACO model is equipped with the Honesty-Humility domain, it is likely to explain more variance in various exploitative and deceptive behaviors than the Five-Factor Model can. The initial evidence seems generally consistent with this speculation. In recent studies, it was found that the Honesty-Humility factor was more strongly related than was any of the Big Five factors to workplace deviance (Lee, Ashton, & Shin, in press) and to sexual harassment proclivities (Lee, Gizzarone, & Ashton, 2003). In addition, Lee, Ashton, and De Vries (2003) recently found that the HEXACO six factors significantly better predicted a workplace delinquency measure than did the Five-Factor Model as measured by the NEO-FFI (Costa & McCrae, 1992) and the IPIP versions of the NEO variables (Goldberg, 1999). This predictive gain was primarily due to the inclusion of the Honesty-Humility factor.

Although we expect that the HEXACO-PI factors will show good levels of criterion validity, we should point out that the optimal prediction of many criteria will be achieved with the use of narrower trait measures selected according to

their substantive relations to the criteria in question. Many recent studies (e.g., Ashton, 1998; Paunonen & Ashton, 2001) have shown that predictive validity is improved significantly when "facets" of the major personality factors, chosen according to their substantive relevance to the targeted criteria, are used instead of the broader, more heterogeneous factor-level measures. Because the HEXACO-PI is hierarchically organized and provides the measurement of personality traits at both factor and facet levels, the predictive validity of the HEXACO-PI is likely to be improved when prediction is made on the basis of combinations of rationally selected narrow facet measures. Furthermore, we should note that facet scales in the HEXACO-PI were found to have substantial amounts of variance that cannot be explained by their higher-order factors, and that it is precisely this specific variance that is responsible for the increased predictive validity associated with narrow trait measures. Therefore, the facet-level measurement provided by the HEXACO-PI is likely to increase prediction significantly beyond the level that is achieved by the factor-level personality traits alone.

Is the Honesty-Humility Scale Merely Measuring Response Style Variance?

As mentioned in the Introduction, we constructed four Honesty-Humility facet scales based on the results of several lexical studies of personality structure. High levels of these traits — sincerity, fairness, modesty, and greed avoidance — are likely to be desirable in many social and occupational contexts. Therefore, it would be interesting to investigate the performance of the Honesty-Humility scales in situations in which respondents are motivated to fake good — for example, when applying for a job. Interestingly, some existing measures of intentional distortion are heavily represented by honesty-related behavioral descriptions, and this suggests that Honesty-Humility scores would likely increase when self-reports are provided for purposes of selection. However, in situations in which respondents have no particular motivation to make a good impression, the Honesty-Humility scale appears to capture true substantive personality variance rather than merely response style variance associated with making a good impression.

For example, in one of our previous studies (Lee et al., 2003), we collected data from 150 male participants who provided both self- and peer ratings on the earlier version of 18-item Honesty-Humility scale and on the IPIP-Big Five scales. In this data set, the correlation between self- and peer ratings on Honesty-Humility was .43, a value that falls within the typical range of cross-source correlations of personality traits (see Watson, Hubbard, & Wiese, 2000). The self/peer correlations for the Big Five

factors in the same data set ranged from .27 (Emotional Stability) to .48 (Extraversion). In fact, in terms of cross-source correlations, HEXACO Honesty-Humility was the second highest, surpassed only by IPIP-Big Five Extraversion. Moreover, Lee et al. further found that *peer rated* Honesty was the strongest peer rating predictor of self-reported sexual harassment proclivities, surpassing the validity of peer ratings on the Big Five scales in predicting this criterion. These results are inconsistent with the argument that variance in self-reports on the HEXACO Honesty-Humility scale is largely due to response styles.

Conclusion

In this article, we have introduced a new inventory — the HEXACO-PI — that is designed to measure six major dimensions of personality and their constituent facets. On the basis of the psychometric analyses reported here, we believe that this new inventory will be useful to researchers who wish to measure the major dimensions of personality, for theoretical and for applied purposes.

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