Journal of Research in Personality 42 (2008) 1216–1228

Contents lists available at ScienceDirect

Journal of Research in Personality

journal homepage: www.elsevier.com/locate/jrp

The prediction of Honesty–Humility-related criteria by the HEXACO and Five-Factor Models of personality

Michael C. Ashton [a,*], Kibeom Lee [b,*]

[a] Department of Psychology, Brock University, 500 Glenridge Avenue, St. Catharines, ON, Canada L2S 3A1
[b] Department of Psychology, University of Calgary, Calgary, AB, Canada T2N 1N4

ARTICLE INFO

Article history:
Available online 30 March 2008

Keywords:
Personality structure
Observer reports
Validity
Honesty–Humility
HEXACO
Five-Factor Model

ABSTRACT

We examined two questions involving the relative validity of the HEXACO and Five-Factor Models of personality structure. First, would the HEXACO model outpredict the Five-Factor Model (FFM) with regard to several diverse criteria that are conceptually relevant to the Honesty–Humility dimension of personality? If so, would the addition of a proxy Honesty–Humility scale—as computed from relevant facets of the FFM Agreeableness domain—allow the FFM to achieve predictive validities matching those of the HEXACO model? Results from self- and observer ratings in three samples (each $N > 200$) indicated that the HEXACO model showed considerable predictive validity advantages over the FFM. When a measure of Honesty–Humility derived from the FFM was added to the original five domains of that model, the predictive validity reached that of the HEXACO model for some criteria, but remained substantially below for others.

1. Introduction

An important recent development in personality psychology has been the finding that human personality variation is best summarized by a set of six broad dimensions. During the 1980s and 1990s, many researchers had adopted the Big Five or Five-Factor Model (FFM) of personality structure, but the results of more recent investigations have converged on a six-factor structure that we have called the HEXACO framework (e.g., Ashton & Lee, 2007). This six-dimensional space has emerged repeatedly in lexically-based studies of personality structure conducted in diverse languages, and supersedes the Five-Factor structure that was observed in early studies of the English personality lexicon. In this article, we examine the incremental validity provided by the HEXACO model—beyond the level of validity provided by the traditional Five-Factor structure—in predicting several important variables.

1.1. The Big Five and the FFM

The classic Big Five factors as observed in English-language lexical studies of personality structure are generally known as Extraversion, Agreeableness, Conscientiousness, Emotional Stability (versus Neuroticism), and Intellect/Imagination (see Digman & Takemoto-Chock, 1981; Goldberg, 1990; Hofstee, de Raad, & Goldberg, 1992; Saucier & Goldberg, 1996). The findings from these lexical investigations, and from analyses of personality questionnaire scales that had also been inspired by lexical research, led to the development of the FFM (e.g., McCrae & Costa, 1985; see history by McCrae, 1989). The Big Five

* Corresponding author. Fax: +1 905 688 6922.
E-mail addresses: mashton@brocku.ca (M.C. Ashton), kibeom@ucalgary.ca (K. Lee).

0092-6566/$ - see front matter © 2008 Elsevier Inc. All rights reserved.
doi:10.1016/j.jrp.2008.03.006

and the FFM are in most ways almost identical, but there are at least two noteworthy differences between these five-dimensional structures.

First, the Big Five Intellect/Imagination factor incorporates an element of intellectual ability that is not incorporated within the corresponding dimension of the FFM. The latter factor, called Openness to Experience (e.g., Costa & McCrae, 1992; McCrae & Costa, 1985), is instead defined by a rather broad array of traits, most of which are associated with imagination. Second, the Big Five Agreeableness factor is somewhat less broadly defined than is its counterpart in the FFM. The Big Five and FFM variants of Agreeableness share traits of kindness and cooperation, but FFM Agreeableness also incorporates some other traits, such as straightforwardness and modesty, which are not central aspects of Big Five Agreeableness (see detailed discussion in Ashton & Lee, 2005).

Although the Big Five—and ultimately, the FFM—were derived from lexical findings in the English language, the popularity of these five-dimensional systems is in large part attributable to the questionnaire-based research conducted by Costa and McCrae during the 1980s and 1990s. Their investigations showed that a wide variety of personality inventory scales had substantial associations with one or more of the dimensions of the FFM (e.g., McCrae, 1989). In addition, translated versions of FFM marker variables—specifically, the scales of the NEO Personality Inventory—Revised (NEO-PI-R; Costa & McCrae, 1992)—were found to define the same five-dimensional space in countries around the world (e.g., McCrae & Costa, 1997).

1.2. The HEXACO model of personality structure

The Big Five and FFM became widely accepted during the 1980s and 1990s as the optimal structural model of personality variation. Meanwhile, however, the question of personality structure was still being examined in lexically-based investigations within several language communities. These lexical studies of personality structure are generally based on factor analyses of self- or observer ratings on familiar personality-descriptive adjectives of a language. Such investigations have the crucial advantages of being based on variable sets that are *indigenous* to the culture in question (rather than imported or imposed from outside) and *representative* of the personality domain (rather than pre-selected to define any hypothesized structure). In contrast, studies in which a pre-selected set of factor markers is translated and imported into other languages and cultures will be biased toward the recovery of the hypothesized factor structure.

As researchers began to conduct lexical studies of personality structure in various languages other than English, they often focused on the question of whether or not they would recover the Big Five structure as obtained in the early English lexical investigations. But the results of these lexical investigations have produced the surprising result that the Big Five is not the largest widely-replicated space underlying the domain of personality dispositions. Instead, a set of six dimensions—but so far, not more than six—has been replicated across many languages (see reviews by Ashton & Lee, 2007; Ashton et al., 2004), including several non-Indo–European languages (e.g., Filipino, Hungarian, Korean, Turkish) as well as languages of several branches of the Indo–European family (e.g., Romance, Germanic, Slavic, Hellenic).

Three of these six cross-language factors are very similar to the Big Five Extraversion, Conscientiousness, and Intellect/Imagination dimensions. Two other factors roughly represent rotated variants of Big Five Agreeableness and Emotional Stability. The cross-language Agreeableness factor blends the gentleness of Big Five Agreeableness with the even temper of Big Five Emotional Stability, whereas the cross-language Emotionality factor blends the vulnerability of (low) Big Five Emotional Stability with the sentimentality of Big Five Agreeableness. Finally, the remaining factor of the six-dimensional structure, Honesty–Humility, is defined by such traits as sincerity and fairness versus conceit and greed. We have called this set of six dimensions the HEXACO structure, on the basis of the number and names of the factors: Honesty–Humility (H), Emotionality (E), eXtraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O).[1]

The recovery of this six-dimensional structure from the indigenous and representative personality descriptors of diverse languages establishes this solution as the best available summary of the domain of human personality dispositions. In addition to its empirical accuracy, the HEXACO framework also has some advantages in terms of theoretical interpretability. As we have discussed elsewhere (e.g., Ashton & Lee, 2007), the Honesty–Humility and Agreeableness factors correspond to two complementary aspects of reciprocal altruism, whereas the Emotionality factor corresponds to kin altruistic tendencies. In addition, the Extraversion, Conscientiousness, and Openness to Experience factors can be viewed as dimensions of social engagement, task-related engagement, and idea-related engagement, respectively. Several important phenomena—such as the mapping between the HEXACO dimensions and theoretical biologists' altruism constructs, or the defining content of (and sex differences on) the Emotionality factor—are explained parsimoniously within this theoretical framework, but cannot be readily explained in terms of the Big Five or FFM. (See Ashton & Lee, 2007, for further details, and also for discussions of the adaptive trade-offs associated with higher and lower levels of each dimension.)

1.3. Incremental validity of the HEXACO framework beyond the big five and FFM

The research summarized above indicates that the HEXACO structure provides advantages over the Big Five or FFM both as an empirical summary and as a theoretical interpretation of human personality variation. But from the point of view of

[1] The content of the lexical Intellect/Imagination factor sometimes favors intellectual ability and sometimes favors unconventionality, depending on adjective selection guidelines. In the HEXACO acronym, we use the name of the corresponding FFM dimension.

practical utility, there remains the question of the incremental validity of the HEXACO framework over the five-dimensional system. That is, are there important personality-related constructs that are much better accommodated by the HEXACO structure than by the Five-Factor structure?

The results of several recent investigations indicate that the answer is yes. Perhaps the clearest example is the study by Lee, Ogunfowora, and Ashton (2005), who examined the variables of the Supernumerary Personality Inventory (SPI; Paunonen, 2002). The SPI was designed to assess a variety of important personality characteristics that are largely "beyond the Big Five", and Lee et al. did find the SPI scales to be rather modestly associated with measures of the classic Big Five factors. In contrast, however, most of the SPI scales—including Integrity, Egotism, Manipulativeness, Seductiveness, Risk Taking, and Femininity—showed rather large correlations with the factors of the HEXACO Personality Inventory (HEXACO-PI; Lee & Ashton, 2004), especially Honesty–Humility and Emotionality. For the SPI scales listed above, the difference between the multiple correlations obtained by the HEXACO and Big Five instruments ranged from .11 to .31, thus indicating a major advantage for the HEXACO framework in accommodating these variables.

As mentioned above, the investigation by Lee et al. (2005) was based on measures of the classic Big Five factors, as conceptualized on the basis of early English-language lexical studies of personality structure. This raises the question of whether the predictive advantage observed for the HEXACO structure over the classic Big Five would also be observed in comparisons with the FFM, as operationalized by such instruments as the NEO-FFI or the NEO-PI-R. As noted earlier in this report, the differences between the classic Big Five and the FFM are generally rather minor. Nevertheless, there is a noteworthy contrast between these five-dimensional structures in the content of the Agreeableness factor, and this contrast directly involves traits that define the HEXACO Honesty–Humility dimension. Although the two five-dimensional variants of Agreeableness both emphasize characteristics such as kindness and cooperation, the FFM Agreeableness construct is much broader in scope, as it also incorporates traits of honesty and humility that are absent from classic Big Five Agreeableness.

These latter traits are assessed by two of the six "facet" scales of NEO-PI-R Agreeableness—namely, Straightforwardness and Modesty—and in fact, these two facets are actually *more* strongly correlated with HEXACO-PI Honesty–Humility than with the classic Big Five Agreeableness (Ashton & Lee, 2005). This result indicates that the NEO-PI-R Agreeableness domain represents a blend of classic Big Five Agreeableness and of HEXACO Honesty–Humility, and it raises the possibility that the FFM variant of Agreeableness might match or closely approach the HEXACO Honesty–Humility factor in predicting some variables that are only weakly related to classic Big Five Agreeableness. To the extent that this is generally found to be the case, it would suggest that the replacement of the FFM by the HEXACO model would provide only a small gain in practical utility.

Some initial evidence related to the above question has already been reported. Ashton and Lee (2005) compared the dimensions of the HEXACO framework and the FFM in terms of their relations with two personality variables that share an element of insincerity or deceit—specifically, the Self-Monitoring scale (Snyder, 1974) and the Social Adroitness scale (Jackson, 1970). The results indicated a clear advantage for the HEXACO framework over the FFM: the composite of Self-Monitoring and Social Adroitness correlated −.46 with HEXACO-PI Honesty–Humility, but only −.26 with NEO-PI-R Agreeableness. Interestingly, however, the Straightforwardness and Modesty facets of NEO-PI-R Agreeableness did show rather strong associations with this criterion, and in fact the composite of those two facets correlated −.44 with the Self-Monitoring/Social Adroitness composite. This essentially matches the result obtained by HEXACO-PI Honesty–Humility, and suggests that these two aspects of the NEO-PI-R Agreeableness factor might be used as a proxy measure of Honesty–Humility. To the extent that such a result were to be observed across the entire array of Honesty–Humility-related criteria, it would suggest that this re-alignment of NEO-PI-R facets should be fully adequate in assessing this HEXACO dimension, and that alternative measures of Honesty–Humility would be redundant.

1.4. Purpose of the present research

In the present research, therefore, we aimed to address two main questions. Our first question was whether or not the predictive advantage previously observed for the six HEXACO dimensions in comparisons with the Big Five factors would also be observed in comparisons with the dimensions of the FFM. Given the incorporation of some elements of Honesty–Humility within the FFM variant of Agreeableness, one might expect that the latter factor would be a strong predictor of criteria that are conceptually related to Honesty–Humility. In this case, the advantage of the HEXACO model over the Big Five would not be generalizable; that is, there would be little or no advantage for the HEXACO framework over the FFM. On the other hand, however, the results of Ashton and Lee (2005) suggest that at least some Honesty–Humility-related criteria would show only modest associations with FFM Agreeableness. In this case, there would remain a substantial advantage for the HEXACO framework over the FFM.

Pending the answer to our first question described above, our second question was whether or not a proxy Honesty–Humility factor derived from the relevant aspects of FFM Agreeableness—that is, the NEO-PI-R Straightforwardness and Modesty facets—could match the predictive validity of the HEXACO-PI Honesty–Humility factor in predicting a wide variety of criterion variables. The results reported by Ashton and Lee (2005) indicate that such a result should be expected for at least some criteria. But as was also noted by Ashton and Lee, other criteria might be associated with aspects of (low) Honesty–Humility that have weaker links with the Straightforwardness and Modesty facets of NEO-PI-R Agreeableness. For example, the constructs of greed or status-seeking have a limited conceptual overlap with those facets, as do the "outlaw" tendencies that are also relevant to low Honesty–Humility. Thus, a proxy FFM-derived measure of Honesty–Humility

might not predict those criteria as strongly as would a broader measure of Honesty–Humility, one that is likely to contain both (a) a larger proportion of common factor variance than does a measure consisting of only two facets and (b) specific variance associated with a wider array of Honesty–Humility traits.

In answering the above questions, we decided to assess several important constructs that appear to be poorly accommodated by the Big Five space, but that also show some conceptual overlap with the HEXACO space, especially the Honesty–Humility dimension. For example, the construct of *materialism* (e.g., Richins & Dawson, 1992) shows relatively weak associations with the Big Five (Shafer, 2003; Sharpe & Ramanaiah, 1999), but resembles traits found at the low pole of Honesty–Humility. Several constructs involving exploitive and/or criminal activity—including *unethical business decisions, sexual harassment proclivity,* and *general delinquency*—are relevant to some aspects of the Big Five (specifically, the low poles of Big Five Agreeableness and Conscientiousness) but have an even stronger conceptual overlap with low Honesty–Humility. Some sexuality-related constructs, such as *seductiveness* (Paunonen, 2002) and *unrestricted sociosexual orientation* (Simpson & Gangestad, 1991)—are conceptually linked to some extent with Big Five (and HEXACO) Extraversion, but also have an element of manipulation or exploitation that suggests low Honesty–Humility. Finally, as noted earlier, another construct involving a form of manipulation is Jackson's (1970) *social adroitness*, which is weakly related to the Big Five but is associated with low Honesty–Humility. Thus, all of the constructs listed above are of much interest in the context of predictive validity comparisons between the HEXACO framework and the FFM.

In assessing the personality constructs of the FFM and the HEXACO structure, we used both self-reports and observer reports as our methods of measurement. The validity of self-report measures of personality in predicting objective criteria—such as directly observed behaviors or recorded life outcomes—is well established (e.g., Kolar, Funder, & Colvin, 1996; Ozer & Benet-Martinez, 2006). However, there is also some evidence that observer reports of personality, as provided by persons who are well acquainted with the target individual, may provide even more valid assessments than do self-reports (Kolar et al., 1996). In some predictive contexts, moreover, observer report may be the preferred method of personality assessment (for example, in selection settings the target individuals might be motivated to provide highly socially desirable self-reports, and in some clinical settings the target individuals might have limited ability to provide accurate self-reports). The use of observer report measures of personality is particularly useful in the context of the present investigation, because the criterion constructs described above are generally measured by self-report scales. Therefore, by including observer reports as well as self-reports of personality, we would be able to examine the cross-source validity of the FFM and HEXACO dimensions, and to determine whether any predictive advantage of the latter framework would be generalizable across the two sources of personality data.

2. Methods

2.1. Participants

The present study involved three different samples of undergraduate students who participated in exchange for course credits or for cash payment. Within each sample, we assessed participants on the FFM and HEXACO personality variables and on a subset of the criterion variables (see Section 2.2, below). For Sample 1, 282 participants provided self-reports; of these participants, 176 were female (62.4%), and ages ranged from 18 to 52 years with a median of 20. For the second and third samples, we decided to obtain both self- and observer reports, and therefore we recruited pairs of undergraduate students through on-campus advertisements. To be eligible for participation, the two students of each pair were required to have known each other for at least 6 months. Each participant completed a series of self-report questionnaires assessing personality and outcome variables, as well as an observer report questionnaire that consisted only of the personality scales assessing the constructs of the FFM and the HEXACO framework, and for which participants were asked to respond with reference to the other member of his or her pair. In Sample 2, there were 248 participants, of whom 166 (66.9%) were women; participant ages ranged from 16 to 65 years with a median of 22. The median duration of acquaintanceship for the participants of each pair was 3 years, and the participants' ratings of how well they know the other person of their pair averaged 8.3 ($SD = 1.3$) on a 0-to-10 scale. Finally, there were 226 participants in Sample 3; 150 (66.2%) of these were women, and ages ranged from 16 to 60 years with a median of 20. The median duration of acquaintanceship was 3 years, and the "how well known" ratings averaged 8.2 ($SD = 1.5$) on the 0-to-10 scale.

2.2. Materials

2.2.1. Personality inventories assessing FFM and HEXACO dimensions

We assessed the personality dimensions of the FFM and the HEXACO framework in each of the three samples. In the first sample, we obtained self-reports only, using the NEO-PI-R (Costa & McCrae, 1992) and the (full-length) HEXACO-PI (Lee & Ashton, 2004, 2006). In the second and third samples, we obtained both self- and observer reports on shorter versions of these instruments. By arrangement with the test publisher, we administered to both samples a subset of the NEO-PI-R items that included the items of the five NEO-FFI scales as well as the remaining items of the Straightforwardness and Modesty

facet scales, with items permuted randomly. The second sample completed the half-length form of the HEXACO-PI, and the third sample completed the half-length form of the HEXACO-PI-R.[2]

2.2.2. Criterion variables

We also assessed the following criterion scales in the three participant samples; except as noted otherwise, all items used 1-to-5 response scales.

In the first participant sample, we administered the seven-item Materialism Centrality scale (Richins & Dawson, 1992), along with an eight-item version of Jackson's (1970) Social Adroitness scale (as used by Ashton, 1998) and a 21-item Delinquency scale. (The Delinquency scale was based on that of Ashton (1998), but was expanded to include a wide array of delinquent behaviors, including vandalism, impaired driving, workplace safety violations, cheating on exams, speeding, stealing from employers, and vandalism. Each item used a 1-to-8 response scale, with options arranged in increasing order of the amount of delinquent activity, expressed as a frequency or a dollar value. This instrument is available from the authors.)

In the second participant sample, we administered the 15-item SPI Seductiveness scale (Paunonen, 2002), and the five attitude-based items of the Sociosexual Orientation Inventory (Simpson & Gangestad, 1991). For a subsample of 180 participants from Sample 2, we also administered a six-item scale measuring unethical business decisions, the items of which consist of detailed hypothetical scenarios rather than simple statements (adapted from Lee, Ashton, Morrison, Cordery, & Dunlop, 2008; see Appendix A).[3] The items of the Unethical Business Decisions scale used a 1-to-4 response scale.

In the third participant sample, we again administered the Materialism Centrality scale and the Unethical Business Decisions scale, as well as a four-item scale assessing willingness to participate in sexual "quid pro quos". Like the Unethical Business Decisions scale, the Sexual Quid Pro Quos scale is also a scenario-based measure (see Appendix B). The latter scale includes two items that describe a willingness to provide workplace-related favors in exchange for sex, and two items that describe a willingness to provide sex in exchange for workplace-related favors; all of these items use a 1-to-4 response scale.

2.3. Method of analysis

Our method of examining the predictive validity of the HEXACO and FFM dimensions was straightforward: For each criterion variable, we computed the zero-order and multiple correlations of that variable with the six (full- or half-length) HEXACO-PI(-R) scales and with the five NEO-PI-R or NEO-FFI scales. For all of the above analyses, we also computed the disattenuated zero-order and disattenuated multiple correlations (we obtained disattenuated multiple correlations by using the reliability-corrected correlations among all of the variables included in each equation, including the criterion; Hunter, 1987).

We used the same method to calculate the predictive validity of a re-organized FFM that includes a separate measure of Honesty–Humility. A NEO-PI-R Honesty–Humility scale was computed as the mean across the 16 items of the NEO-PI-R Straightforwardness and Modesty facets. In addition, a residual FFM Agreeableness scale was obtained by removing the Straightforwardness and Modesty items from the NEO-PI-R Agreeableness scale (in Sample 1) and from the NEO-FFI Agreeableness scale (in Samples 2 and 3). In the former case this left a 32-item residual NEO-PI-R Agreeableness scale, and in the latter case this left an 11-item residual NEO-FFI Agreeableness scale (note that only one of the 12 NEO-FFI Agreeableness items is taken from the Straightforwardness or Modesty facets).

All of the above analyses were conducted using the self-report forms of the personality scales that were administered to each sample. For Samples 2 and 3, the analyses were also conducted using the observer report forms of the personality scales.

3. Results

Table 1 shows the descriptive statistics and internal-consistency reliabilities for the personality and criterion scales in all three samples, along with the self/observer convergent correlations for the personality variables in Samples 2 and 3. All of these statistics were within expected limits and were comparable to values previously reported for other samples (e.g., Costa & McCrae, 1992; Lee & Ashton, 2004). Correlations among the scales assessing the HEXACO and FFM frameworks (not shown in Table 1) were also similar to those observed in previous research.

As described in the Method section, the participants of each sample provided self-reports on three or four criterion scales that were expected to correlate with Honesty–Humility. The criterion variables included in the present research are diverse in their content, and showed moderate correlations with each other. Specifically, the average inter-correlation among the criterion variables ranged from .22 (in Sample 3) to .28 (in Sample 1).

[2] The HEXACO-PI-R differs from the HEXACO-PI in the replacement of one of the facet scales of the Extraversion factor, with the HEXACO-PI-R Social Self-Esteem facet replacing the HEXACO-PI Expressiveness facet. This revision is of little consequence for the prediction of the criterion variables considered in this study.

[3] Participants of the second sample also completed an instrument assessing phobic tendencies, for the purpose of another investigation; see Ashton, Lee, Visser, & Pozzebon (2008). None of the data from the first or third participant samples have been reported previously.

Table 1
Descriptive statistics, internal-consistency reliabilities, and self/observer convergent correlations of variables

	Sample 1 (N = 282)				Sample 2 (N = 248)								Sample 3 (N = 226)						
	Self				Self			Observer			r_{so}		Self			Observer			r_{so}
	α	M	SD		α	M	SD	α	M	SD			α	M	SD	α	M	SD	
Full-length HEXACO-PI				*Half-length HEXACO-PI*								*Half-length HEXACO-PI-R*							
Honesty–Humility	.92	3.43	.57	Honesty–Humility	.84	3.23	.64	.87	3.16	.66	.44	Honesty–Humility	.84	3.14	.65	.86	3.15	.65	.58
Emotionality	.89	3.34	.51	Emotionality	.85	3.40	.64	.86	3.29	.61	.68	Emotionality	.83	3.44	.60	.87	3.31	.62	.59
Extraversion	.93	3.41	.59	Extraversion	.87	3.39	.62	.88	3.37	.63	.66	Extraversion	.82	3.47	.55	.88	3.47	.61	.57
Agreeableness	.93	2.98	.60	Agreeableness	.84	2.96	.59	.89	3.07	.64	.45	Agreeableness	.82	2.95	.56	.90	3.04	.68	.47
Conscientious-ness	.89	3.43	.51	Conscientiousness	.83	3.53	.57	.86	3.45	.60	.50	Conscientiousness	.78	3.38	.52	.84	3.38	.59	.47
Openness to Experience	.88	3.38	.51	Openness to Experience	.84	3.44	.66	.87	3.17	.70	.63	Openness to Experience	.84	3.53	.63	.86	3.28	.66	.57
NEO-PI-R				*NEO-FFI*								*NEO-FFI*							
Neuroticism	.92	2.95	.47	Neuroticism	.83	2.83	.66	.85	2.75	.65	.40	Neuroticism	.84	2.94	.65	.83	2.86	.62	.34
Extraversion	.90	3.42	.42	Extraversion	.81	3.55	.55	.82	3.50	.59	.55	Extraversion	.79	3.56	.53	.83	3.48	.59	.52
Openness to Experience	.89	3.52	.39	Openness to Experience	.77	3.46	.57	.77	3.21	.57	.58	Openness to Experience	.76	3.51	.56	.77	3.33	.57	.52
Agreeableness	.91	3.46	.41	Agreeableness	.76	3.66	.52	.77	3.69	.52	.45	Agreeableness	.72	3.58	.48	.82	3.58	.58	.39
Conscientiousness	.92	3.38	.43	Conscientiousness	.82	3.62	.55	.87	3.68	.62	.48	Conscientiousness	.79	3.45	.54	.85	3.57	.61	.37
Agreeableness (residual)	.89	3.47	.44	Agreeableness (residual)	.74	3.67	.51	.75	3.70	.52	.45	Agreeableness (residual)	.69	3.59	.47	.80	3.60	.58	.38
Honesty–Humility (NEO-PI-R)	.82	3.42	.51	Honesty–Humility (NEO-PI-R)	.84	3.43	.57	.86	3.46	.59	.48	Honesty-Humility (NEO-PI-R)	.81	3.38	.52	.86	3.38	.59	.46
Criterion scales				*Criterion scales*								*Criterion scales*							
Materialism	.79	3.09	.67	Seductiveness	.88	2.87	.64					Materialism	.78	3.06	.73				
Delinquency	.88	1.98	.78	Sociosexuality	.82	2.38	.96					Sexual Quid Pro Quos	.88	1.45	.66				
Social Adroitness	.73	2.74	.55	Unethical Business Decisions[a]	.71	2.02	.58					Unethical Business Decisions	.77	1.93	.60				

Note. Scale scores calculated as item means. Response scale was 1-to-8 for Delinquency items, 1-to-4 for Unethical Business Decisions and Sexual Quid Pro Quo items, and 1-to-5 for all others. See text for description of calculation of NEO-derived Honesty-Humility and residual Agreeableness scales. r_{so} is self/observer correlation.

[a] N = 180 for Unethical Business Decisions in Sample 2.

3.1. FFM versus HEXACO variables: Self-reports

We begin by comparing the validity of self-reports on the FFM and HEXACO variables in predicting the criterion variables. Table 2 shows the zero-order and multiple correlations of the self-report personality scales with the criteria, as obtained in each of the three samples.

As seen in the table, the FFM predictors obtained moderately high multiple correlations with the various criteria, with values ranging from .31 to .53. However, the HEXACO predictors generally achieved considerably higher multiple correlations with the same criteria, with values ranging from .39 to .71. The predictive advantage of the HEXACO variables was chiefly due to the Honesty–Humility scale, which in several cases showed zero-order correlations that exceeded the multiple correlations produced by the FFM measures.

With regard to the specific criteria, the greatest differences in predictive validity between the FFM and HEXACO instruments were observed for the Materialism scale (Samples 1 and 3) and the Social Adroitness scale (Sample 1). For both of these criteria, the advantage for the HEXACO model over the FFM was rather large, with differences of about .20 in the observed multiple correlations. A moderately large difference between the predictive validities of the two frameworks was also observed with regard to the Delinquency criterion (Sample 1), for which the multiple correlation obtained by the HEXACO variables was .11 units higher than was that obtained by the FFM scales. A similar pattern was also observed for the Unethical Business Decisions scale, for which the difference in multiple correlations yielded by the HEXACO and FFM variable sets was .15 in Sample 2 and .08 in Sample 3. The HEXACO predictors also showed modest advantages over those of the FFM in predicting the remaining criteria of Samples 2 or 3, all of which involved some element of sexuality—Seductiveness, (Unrestricted) Sociosexuality, and Sexual Quid Pro Quos—with differences in multiple correlations ranging from .05 to .08.

3.2. FFM versus HEXACO variables: Observer reports

Next we compare the validity of observer reports on the FFM and HEXACO variables in predicting the (self-report) criterion variables. Table 3 displays the zero-order and multiple correlations of the observer report personality scales with the criteria, as obtained in both of the samples in which observer reports of personality were collected (i.e., Samples 2 and 3).

The correlations reported in Table 3 are somewhat lower than those of Table 2, but generally are still substantial in size. The multiple correlations obtained by the FFM scales in predicting the criterion variables ranged from .21 to .40; for the HEXACO scales, the multiple correlations with those criteria ranged from .29 to .50. As was observed in the self-report data, the Honesty–Humility measure of the HEXACO framework yielded zero-order correlations with some criteria that exceeded the multiple correlations achieved by the FFM measures.

For the Materialism criterion, the predictive advantage of the HEXACO variable set over that of the FFM was rather large, with a difference of .18 in the observed multiple correlation. A similarly large difference in the multiple correlations was observed in Sample 2 for the Unethical Business Decisions criterion (.18), but in Sample 3 the difference was only moderately large (.10). The predictive advantage of the HEXACO predictors over those of the FFM was small for the Seductiveness and Sociosexuality criteria of Sample 2 (about .05 correlation units), but rather large for the criterion of Sexual Quid Pro Quos of Sample 3, with a difference in multiple correlations of .13.

In general, the predictive advantages of the HEXACO framework over the FFM as observed in self-report data were also recovered in observer report data; in fact, the differences between the multiple correlations obtained by the two models tended to be at least as large in observer reports as in self-reports.

3.3. FFM plus NEO-PI-R Honesty–Humility composite: Self-reports

We next examined the ability of an augmented FFM—one that incorporates a separate variable assessing Honesty–Humility—to predict the various criterion variables. Recall that we computed an ad hoc NEO-PI-R Honesty–Humility composite scale as the mean of the Straightforwardness and Modesty facets of that inventory. For the analyses below, we examine the validity of that variable in combination with the remaining FFM variables, but with the FFM Agreeableness variable being recomputed to remove the Straightforwardness and Modesty content (see Section 2.3).

Within the self-report personality data, the inclusion of the NEO-PI-R Honesty–Humility composite generally added substantially to the validity of the FFM scales in predicting several criterion variables (see Table 2). The increment in observed multiple correlations was especially large (.18) for the criterion of Social Adroitness (Sample 1), but was also moderately large (about .10) for the Seductiveness and Sociosexuality criteria (Sample 2) and for Materialism (in Sample 3). Somewhat smaller increments were achieved in predicting Materialism (in Sample 1), Unethical Business Decisions (Sample 3), and Sexual Quid Pro Quos (Sample 3). The criterion variables for which the addition of the NEO-PI-R Honesty–Humility scale did not produce any appreciable improvement in predictive validity were the Delinquency criterion (Sample 1) and the Unethical Business Decisions criterion (Sample 2).

The predictive validity of this expanded FFM variable set—that is, with the addition of the NEO-PI-R Honesty–Humility composite—can be compared with that of the HEXACO framework. For several criteria—Social Adroitness, Seductiveness, Sociosexuality, and Sexual Quid Pro Quos—the predictive validity of the augmented "FFM-plus-H" framework was about equal to that of the HEXACO framework, as the multiple correlations achieved by the former framework either closely approached or slightly exceeded those achieved by the latter. This was also observed for the Unethical Business Decisions

Table 2
Correlations of self-reports on Five-Factor Model and HEXACO personality variables with criterion variables

	Sample 1 (N = 282)			*Sample 2 (N = 248)*			*Sample 3 (N = 226)*		
	Materialism	Delinquency	Social Adroitness	Seductiveness	Socio-sexuality	Unethical Business Decisions[a]	Materialism	Sexual Quid Pro Quos	Unethical Business Decisions
Five-Factor Model									
Neuroticism	.22 (.26)	.09 (.10)	.28 (.35)	−.06 (−.07)	−.08 (−.10)	−.04 (−.05)	.04 (.05)	.01 (.01)	−.01 (−.01)
Extraversion	.12 (.14)	.01 (.01)	−.07 (−.09)	.38 (.45)	.07 (.09)	.10 (.13)	.21 (.27)	−.04 (−.05)	.01 (.02)
Openness to Experience	−.04 (−.04)	.02 (.02)	−.01 (−.01)	.08 (.09)	.00 (.00)	−.20 (−.27)	−.12 (−.16)	−.13 (−.16)	−.38 (−.49)
Agreeableness	−.29 (−.34)	−.32 (−.36)	−.45 (−.55)	.00 (.00)	−.16 (−.21)	−.20 (−.27)	.02 (.03)	−.32 (−.41)	−.37 (−.50)
Conscientiousness	−.08 (−.10)	−.27 (−.30)	−.08 (−.10)	−.12 (−.15)	−.20 (−.24)	−.12 (−.16)	−.08 (−.10)	−.09 (−.11)	.02 (.03)
Multiple *R*	.41 (.49)	.41 (.45)	.51 (.62)	.45 (.55)	.31 (.39)	.36 (.51)	.32 (.45)	.35 (.44)	.53 (.71)
HEXACO Model									
Honesty–Humility	−.57 (−.66)	−.46 (−.51)	−.68 (−.83)	−.38 (−.44)	−.31 (−.37)	−.43 (−.56)	−.46 (−.57)	−.37 (−.44)	−.53 (−.67)
Emotionality	.19 (.23)	−.21 (−.24)	.08 (.10)	.10 (.12)	−.25 (−.30)	−.16 (−.20)	.13 (.16)	−.14 (−.16)	−.20 (−.25)
Extraversion	.07 (.08)	−.02 (−.02)	−.10 (−.12)	.36 (.41)	.07 (.08)	.08 (.10)	.15 (.19)	−.03 (−.03)	−.03 (−.03)
Agreeableness	−.21 (−.25)	−.14 (−.16)	−.21 (−.25)	−.07 (−.09)	−.12 (−.14)	−.11 (−.14)	−.22 (−.27)	−.09 (−.11)	−.18 (−.22)
Conscientiousness	−.07 (−.08)	−.26 (−.30)	−.06 (−.07)	−.11 (−.13)	−.18 (−.22)	−.16 (−.21)	−.19 (−.24)	−.12 (−.15)	−.05 (−.06)
Openness to Experience	−.19 (−.22)	−.02 (−.02)	−.03 (−.04)	.03 (.04)	−.03 (−.04)	−.25 (−.33)	−.18 (−.22)	−.09 (−.10)	−.30 (−.37)
Multiple *R*	.61 (.72)	.52 (.58)	.71 (.87)	.53 (.62)	.39 (.46)	.51 (.65)	.54 (.66)	.40 (.47)	.61 (.75)
R_{HEXACO}–R_{FFM}	.20 (.23)	.11 (.13)	.20 (.25)	.08 (.07)	.08 (.07)	.15 (.14)	.22 (.21)	.05 (.03)	.08 (.04)
Five-Factor Model plus NEO Honesty–Humility									
Neuroticism	.22 (.26)	.09 (.10)	.28 (.35)	−.06 (−.07)	−.08 (−.10)	−.04 (−.05)	.04 (.05)	.01 (.01)	−.01 (−.01)
Extraversion	.12 (.14)	.01 (.01)	−.07 (−.09)	.38 (.45)	.07 (.09)	.10 (.13)	.21 (.27)	−.04 (−.05)	.01 (.02)
Openness to Experience	−.04 (−.04)	.02 (.02)	−.01 (−.01)	.08 (.09)	.00 (.00)	−.20 (−.27)	−.12 (−.16)	−.13 (−.16)	−.38 (−.49)
Agreeableness (residual)	−.17 (−.21)	−.27 (−.31)	−.25 (−.32)	.04 (.05)	−.13 (−.16)	−.16 (−.23)	.07 (.09)	−.28 (−.36)	−.32 (−.44)
Conscientiousness	−.08 (−.10)	−.27 (−.30)	−.08 (−.10)	−.12 (−.15)	−.20 (−.24)	−.12 (−.16)	−.08 (−.10)	−.09 (−.11)	.02 (.03)
Honesty–Humility (NEO-PI-R)	−.38 (−.48)	−.29 (−.34)	−.63 (−.81)	−.33 (−.39)	−.36 (−.43)	−.23 (−.30)	−.26 (−.32)	−.37 (−.44)	−.48 (−.60)
Multiple *R*	.47 (. 57)	.41 (.46)	.69 (.92)	.54 (.65)	.41 (.52)	.36 (.49)	.42 (.60)	.40 (.46)	.59 (.74)
$R_{FFM\text{-}plus\text{-}H}$–$R_{FFM}$	.06 (.08)	.00 (.01)	.18 (.30)	.09 (.10)	.10 (.13)	.00 (−.02)	.10 (.15)	.05 (.02)	.06 (.03)
R_{HEXACO}–$R_{FFM\text{-}plus\text{-}H}$	.14 (.15)	.11 (.12)	.02 (−.05)	−.01 (−.03)	−.02 (−.06)	.15 (.16)	.12 (.06)	.00 (.01)	.02 (.01)

Note. See text for description of calculation of NEO-derived Honesty-Humility and residual NEO Agreeableness scales.

[a] *N* = 180 for Unethical Business Decisions in Sample 2. Correlations in parentheses are corrected for unreliability of predictor and criterion variables.

Table 3
Correlations of observer reports on Five-Factor Model and HEXACO personality variables with criterion variables

	Sample 2 (N = 248)			*Sample 3 (N = 226)*		
	Seductiveness	Sociosexuality	Unethical Business Decisions[a]	Materialism	Sexual Quid Pro Quos	Unethical Business Decisions
Five-Factor Model						
Neuroticism	−.06 (−.06)	−.07 (−.09)	.01 (.01)	.07 (.08)	−.01 (−.01)	−.02 (−.02)
Extraversion	.27 (.32)	.01 (.01)	.01 (.02)	.13 (.17)	−.12 (−.14)	−.10 (−.13)
Openness to Experience	.09 (.11)	.04 (.05)	−.15 (−.20)	−.15 (−.19)	−.08 (−.10)	−.32 (−.42)
Agreeableness	.05 (.06)	−.06 (−.07)	−.12 (−.16)	−.12 (−.16)	−.18 (−.21)	−.24 (−.31)
Conscientiousness	−.06 (−.07)	−.19 (−.23)	−.13 (−.16)	−.02 (−.02)	−.10 (−.12)	−.13 (−.16)
Multiple *R*	.31 (.37)	.23 (.27)	.21 (.29)	.28 (.36)	.22 (.26)	.40 (.51)
HEXACO Model						
Honesty–Humility	−.15 (−18)	−.17 (−.21)	−.26 (−.33)	−.38 (−.46)	−.26 (−.30)	−.41 (−.50)
Emotionality	.08 (.09)	−.19 (−.23)	−.14 (−.17)	.07 (.09)	−.20 (−.23)	−.21 (−.26)
Extraversion	.28 (.32)	.03 (.03)	.01 (.01)	.12 (.14)	−.14 (−.17)	−.08 (−.09)
Agreeableness	.00 (.00)	−.05 (−.06)	.02 (.02)	−.14 (−.17)	−.10 (−.11)	−.14 (−.17)
Conscientiousness	−.09 (−.11)	−.22 (−.26)	−.15 (−.19)	−.13 (−.17)	−.18 (−.21)	−.22 (−.27)
Openness to Experience	.07 (.08)	−.05 (−.06)	−.29 (−.37)	−.20 (−.25)	−.11 (−.12)	−.34 (−.42)
Multiple *R*	.35 (.40)	.29 (.33)	.39 (.49)	.46 (.56)	.35 (.39)	.50 (.61)
$R_{HEXACO}-R_{FFM}$	.04 (.03)	.06 (.06)	.18 (.20)	.18 (.20)	.13 (.13)	.10 (.10)
Five-Factor Model plus NEO Honesty–Humility						
Neuroticism	−.06 (−.06)	−.07 (−.09)	.01 (.01)	.07 (.08)	−.01 (−.01)	−.02 (−.02)
Extraversion	.27 (.32)	.01 (.01)	.01 (.02)	.13 (.17)	−.12 (−.14)	−.10 (−.13)
Openness to Experience	.09 (.11)	.04 (.05)	−.15 (−.20)	−.15 (−.19)	−.08 (−.10)	−.32 (−.42)
Agreeableness (residual)	.08 (.10)	−.04 (−.05)	−.09 (−.13)	−.10 (−.13)	−.16 (−.19)	−.22 (−.29)
Conscientiousness	−.06 (−.07)	−.19 (−.23)	−.13 (−.16)	−.02 (−.02)	−.10 (−.12)	−.13 (−.16)
Honesty–Humility (NEO-PI-R)	−.17 (−.19)	−.19 (−.23)	−.06 (−.08)	−.22 (−.27)	−.20 (−.24)	−.32 (−.39)
Multiple *R*	.36 (.43)	.27 (.35)	.21 (.31)	.33 (.43)	.24 (.28)	.44 (.55)
$R_{FFM\text{-}plus\text{-}H}-R_{FFM}$	.05 (.06)	.04 (.08)	.00 (.02)	.05 (.07)	.02 (.02)	.04 (.04)
$R_{HEXACO}-R_{FFM\text{-}plus\text{-}H}$	−.01(−.03)	.02 (−.02)	.18 (.18)	.13 (.13)	.11 (.11)	.06 (.06)

Note. See text for description of calculation of NEO-derived Honesty–Humility and residual Agreeableness scales.
[a] *N* = 180 for Unethical Business Decisions in Sample 2. Correlations in parentheses are corrected for unreliability of predictor and criterion variables.

criterion within Sample 3, but the HEXACO model maintained a considerable predictive advantage in Sample 2, with a difference in multiple correlations of about .15. For several other criterion variables, the expansion of the FFM to include the NEO-PI-R Honesty–Humility variable did not produce predictive validities matching those of the HEXACO model; instead, the latter framework produced multiple correlations about .10 units higher in predicting the criteria of Delinquency and Materialism.

3.4. FFM plus NEO-PI-R Honesty–Humility composite: Observer reports

Within the observer report data, the addition of the ad hoc NEO-PI-R Honesty–Humility scale to the FFM variable set again produced some improvements in predictive validity with regard to several criteria (see Table 3). Across the criterion variables of Samples 2 and 3, the augmented "FFM-plus-H" achieved multiple correlations roughly .05 units higher than those of the original FFM. For the criteria of Seductiveness and Sociosexuality, this resulted in predictive validities that matched those yielded by the HEXACO dimensions. However, for the remaining criterion variables of Samples 2 and 3, the advantage of the HEXACO model over the FFM was preserved in spite of the addition of the NEO-PI-R Honesty–Humility composite to the latter framework. In particular, the HEXACO variable set produced multiple correlations with the criteria of Materialism, Unethical Business Decisions, and Sexual Quid Pro Quos that were .06 to .18 units higher than those generated by the "FFM-plus-H" variable set.

Thus, the increment in predictive validity that was afforded by the addition of NEO-PI-R Honesty–Humility to the FFM variable set was found to be generalizable across self- and observer reports of personality. However, the observed differences between the predictive validities of the expanded FFM and the HEXACO framework were somewhat larger in observer reports than in self-reports, with the advantage of the HEXACO framework being maintained across more of the criterion variables within observer report data.

4. Discussion

In this investigation, we addressed two main questions. Our first question was whether or not the predictive advantage previously observed for the six HEXACO dimensions in comparisons with the classic Big Five factors would also be observed in comparisons with the dimensions of the FFM. If this advantage were found to be generalizable, our second question was

whether or not the addition of a proxy Honesty–Humility factor—as derived from relevant facets of FFM Agreeableness—would allow the FFM to match the HEXACO framework in predicting a wide variety of criterion variables. Our results indicated that the answer to the first question was clearly yes, but that the answer to the second question depended on the particular criterion variable being considered.

4.1. Predictive validity of the HEXACO and FFM

As shown in Tables 2 and 3, the six HEXACO dimensions consistently showed substantially higher multiple correlations than did the FFM dimensions in predicting the various criteria. Across such diverse variables as Materialism, Delinquency, Unethical Business Decisions, Sexual Quid Pro Quos, Seductiveness, and Sociosexuality, the multiple correlations yielded by the HEXACO factors were generally about .05 to .20 units higher than were those yielded by the FFM dimensions. These differences generalized across self- and observer reports of the personality predictor variables, and in fact were at least as strong for observer reports as for self-reports.

It should be noted, of course, that the criterion variables examined in this investigation were selected specifically because of their relevance to those aspects of the HEXACO factor space that are largely outside the space of the FFM. In particular, these criteria generally show some clear conceptual link to traits associated with Honesty–Humility. Naturally, the difference in predictive validity reported here would not be observed for criterion variables that are conceptually relevant to the much larger region of the personality space that is spanned by both the HEXACO framework and the FFM. But the fact remains that the various criteria considered in this investigation represent a diverse array of variables that are of obvious importance in human affairs. For example, the serious physical and financial harms caused to individuals and to societies by "common" criminality (as assessed by the delinquency criterion) and by "white-collar" exploitation (as assessed by the Unethical Business Decisions criterion) are self-evident. The prediction of variables such as these is an important aim for personality assessment, and hence the ability of the HEXACO model to predict these variables successfully is an important indication of its practical utility.

Related to this point, we should note that the advantage of the HEXACO model over the FFM in predicting the criterion variables of this investigation was mainly due to the Honesty–Humility factor of the former model. For example, when we added HEXACO-PI(-R) Honesty–Humility to the regression equations involving the NEO-PI-R or NEO-FFI scales, the multiple correlations were in most cases quite similar to those yielded by the six HEXACO-PI(-R) scales.[4] In contrast, however, other investigations have examined criteria that show a predictive advantage for the HEXACO model over the FFM, but for which this advantage is not due to Honesty–Humility. Perhaps the best such example is that of the criterion of "phobic tendency" (see Ashton et al., 2008), which was predicted better by the HEXACO-PI Emotionality scale than by the five NEO-FFI scales in combination.[5]

4.2. Assessing Honesty–Humility with facets of the FFM

With regard to the second question, we found that the addition to the FFM of a proxy Honesty–Humility scale—as constructed from the NEO-PI-R Straightforwardness and Modesty facets—could in some cases produce criterion validities matching those achieved by the HEXACO dimensions. For criteria such as social adroitness and several sexuality-related variables, the inclusion of the NEO-PI-R-derived Honesty–Humility factor did allow predictive validities that equaled those of the HEXACO model. For several other criteria, however—including materialism and delinquency—the NEO-PI-R-based Honesty–Humility factor did not add greatly to the predictive validity achieved by the FFM dimensions, and so the level of validity remained well below that yielded by the HEXACO dimensions. This latter result can be understood, in part, in terms of the limited conceptual overlap between the criterion variables and the aspects of Honesty–Humility that are subsumed within the Straightforwardness and Modesty facets. These criteria involve tendencies such as greed and law-breaking, none of which are directly accommodated by the Honesty–Humility-relevant facets of the NEO-PI-R. It can also be noted that the composite of those two facets is likely to contain a smaller proportion of common factor variance than would a more broadly defined Honesty–Humility scale, and thus would be less able to predict criteria that are associated with that common factor variance. Thus, although much of the variance captured by the HEXACO-PI(-R) Honesty–Humility scale can be extracted from the FFM as assessed by the NEO-PI-R, this variance is not sufficient to predict the full array of variables that are accommodated by the HEXACO framework. Instead, criteria involving materialistic or delinquent tendencies are better predicted by aspects of the HEXACO space that fall outside the space even of the augmented six-factor derivative of the FFM.

[4] The two exceptions were equations in which observer reports of personality were used as prdictors of Unethical Business Decisions (Study 2) and Sexual Quid Pro Quos (Study 3). In these cases, the multiple correlations achieved by the six HEXACO-PI-R scales exceeded those obtained by the five NEO-FFI scales in combination with the HEXACO-PI-R Honesty–Humility scale, thus indicating that HEXACO dimensions other than Honesty-Humility contributed to the predictive advantage of that model.

[5] We should also note that the advantage of the HEXACO model over the FFM in predicting the criterion variables of the present study was chiefly attributable to the common variance shared by the various facets of the Honesty-Humility factor, rather than to the specific variance of any particular facet of that factor. We tested this by computing, for each of the criterion variables, an Honesty–Humility scale that excluded the constituent facet scale having the strongest association with that criterion. For most of the criteria of Tables 2 and 3, the zero-order correlations and multiple correlations yielded by the reduced Honesty–Humility scale continued to exceed substantially those achieved by NEO-FFI Agreeableness (The only exceptions were the Sexual Quid Pro Quos and Unethical Business Decisions criteria as predicted by self-reports in Study 3, in which cases the advantage of the HEXACO variables was eliminated when the Fairness facet was removed from the Honesty–Humility scale. In observer reports, the predictive advantage persisted in spite of the removal of that facet).

4.3. Responses to objections

We should also mention briefly a few potential misunderstandings concerning the issues addressed by this article (see detailed discussion in Ashton & Lee, 2005). First, one might object to our use of the Straightforwardness and Modesty facets as a proxy measure of Honesty–Humility, given the fact that these facets do not define a separate sixth factor in analyses of NEO-PI-R scales or items. However, the recovery of such a sixth factor in the NEO variable sets would not really be expected, given that these facet scales, along with the other four facet scales of NEO-PI-R Agreeableness, were constructed with the goal of producing a single coherent factor. That is, even though four facets mainly represent Big Five Agreeableness and two others mainly represent HEXACO Honesty–Humility, all six facets represent blends of those two dimensions, and hence tend to define a single factor axis. We emphasize again that the question of personality structure cannot be answered by examining variable sets that were constructed with the express aim of defining a given structural model, because such variable sets are necessarily biased in favor of that hypothesized model. In order to identify the major dimensions of personality variation, it is necessary to examine variable sets that are representative of the entire personality domain. Investigations based on variable sets that approach this ideal—in particular, lexical studies of personality structure—do consistently recover separate dimensions representing the HEXACO Agreeableness and Honesty–Humility factors.

Related to the above objection, it might also be suggested that the findings reported here are merely an instance of the superior predictive validity of facet-level over factor-level personality variables (e.g., Paunonen, Haddock, Forsterling, & Keinonen, 2003), to the extent that one views Honesty–Humility-related traits as facets of a very broad Agreeableness factor. But again, the crucial fact is that the HEXACO Agreeableness and Honesty–Humility dimensions are two distinct factors, which emerge as separate dimensions in six-factor solutions derived from the indigenous personality lexicons of diverse languages. This finding is not observed for any combinations of facets from, say, Extraversion or Conscientiousness, and indicates that such combinations of facets do not constitute separate factors. Thus, the validity comparisons given in this report are indicative of the utility of examining all six factors as separate dimensions, not of the utility of examining separate facets within each factor.

5. Conclusion

The Agreeableness domain of the FFM, unlike its counterpart in the classic Big Five framework, incorporates some traits associated with the Honesty–Humility factor of the HEXACO model of personality structure. Nevertheless, several important criterion variables that have conceptual links with Honesty–Humility are better predicted by the HEXACO model of personality structure than by the FFM. When a separate Honesty–Humility variable is computed from measures of the FFM dimensions, some of these criteria can be predicted as effectively as by the HEXACO factors. However, several criteria—particularly those associated with materialism, ethical violations, and criminality—are not well captured by those aspects of Honesty–Humility that are represented in the FFM, and are better accommodated by the dimensions of the HEXACO framework.

Acknowledgment

This project was supported by Social Sciences and Humanities Research Council of Canada Grants 410-2007-2159 and 410-2007-0700.

Appendix A. Items of Unethical Business Decisions scale

1. Suppose that you are managing a pension fund and are looking for good new investments. Recently, a violent new sport called TotalFighting has recently become fairly popular, with many people watching televised championship fights. Following the past few championship fights, rates of assault and homicide increased about 10%, nationwide, for several days.

The company that runs the sport of TotalFighting has become very profitable, and is likely to become even more profitable in the future as similar sports are introduced into the market. Your pension fund now has the opportunity to buy some shares in this company, which would likely result in major gains in the value of the pension fund and also in your own commission payments.

Would you invest your pension fund's money in the company that runs this sport?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes

2. Suppose that you are on the board of directors of a mining company. This company has recently identified major deposits of precious metals in a remote region of a tropical country. These deposits are large enough that a mine would be extremely profitable.

However, the mining operations would cause serious long-term pollution of the region's water and soil, and would do heavy damage to the natural environment. Also, the native people who inhabit of the region have expressed their opposition to any mining projects, and these people would need to be relocated by the country's government prior to the development of the mine.

The government of that country is eager to profit from the mining operation, regardless of any impacts on the environment or on the local inhabitants; the government officials are ready to sign an agreement and to allow the mining to begin. The mining operation would be very profitable for your company, and this would mean a large bonus for you.

Would you vote to have your company begin the mining operation?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes

3. Suppose that you are in charge of new products for a food processing company. Your research-and-development team has come up with a new snack food, "Tastee Nuggets", that has received high marks in preliminary "taste tests".

Part of the reason for the good taste of Tastee Nuggets is the use of some flavourful new artificial sweeteners and oils. However, some laboratory tests performed by your company suggest that these sweeteners and oils are likely to have addictive properties similar to those of some drugs, and are also likely to increase the risks of obesity, heart disease, and cancer in people who consume large amounts of those substances.

Projections by your company's marketing team suggest that this product will be extremely profitable, and this will almost certainly lead to a major raise and promotion for you personally. It is now your decision as to whether or not Tastee Nuggets should be added to your company's product line, so that advertising and sales can soon begin.

Would you decide to have your company add Tastee Nuggets to its product line?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes

4. Suppose that you are an executive for a major forest products company. In recent years, your timber production (and profits) been reduced somewhat by new conservation laws. These laws are intended to preserve some forests for logging in future generations, but also to preserve the natural environment by securing the habitats of various species and allowing "greenhouse gases" to be removed from the atmosphere.

Despite the new laws, it is very clear that the government has neither the resources nor the political will to enforce them. In fact, it is now obvious to you that your company could get away with cutting down several times more timber than the law allows.

Extracting the excess timber would be extremely profitable for your company (and for your stock options), because the wood is of excellent quality, and recent forest preservation efforts have reduced worldwide supply, driving prices way up.

Would you recommend that your company cut down timber beyond the legal amount?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes

5. Suppose that you are in charge of sales for a large corporation that exports telecommunications equipment to countries around the world. Recently, you have been trying to obtain the contract for supplying a new telecom system to Impoveria, a developing nation that has only recently begun to modernize.

In negotiations with the president of Impoveria and his cabinet, you have learned that your company's bid is not the lowest; instead, two of your competitor companies have lower bids. However, the president and his cabinet members have told you that you can still have the contract, if you agree to send back 5% of the money received from the Impoverian government to their own personal bank accounts in Switzerland. It is clear to you that, even with this 5% "kickback", your company will still make a substantial profit on this contract, and that you will be seen as the person who made it happen.

Would you recommend that your company agree to the conditions and sign the contract?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes

6. Suppose that you are a lawyer for an industrial products company that sells equipment used in drilling for oil and natural gas. You are aware that the country of Petronia is interested in buying large amounts of equipment from your company. However, because Petronia's government has a very poor human rights record, it is illegal for any company from your country to do business with Petronia.

Despite the laws against doing business with Petronia, you have discovered a legal loophole. If your company sets up a subsidiary company overseas—for example, in a small Caribbean island—then you can sell the equipment to Petronia through this company, and thereby avoid being prosecuted by your own government for breaking the law. This would result in large profits for your company, and also a large raise and promotion for yourself.

Would you advise your company about the loophole of setting up an overseas subsidiary?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes.

Appendix B. Items of Sexual Quid Pro Quos scale

1. Suppose that you are a high-level supervisor at a large company. You are very strongly attracted to one of the employees whom you supervise. This employee has hinted indirectly to you about being willing to "do anything" to get an important raise and promotion in your department. You are sure that this employee would perform sexual favors in exchange for a raise and promotion, and you are also sure that you would not be caught or punished if you were to make such a deal with the employee.

Would you give this employee a raise and promotion in exchange for sexual favors?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes.

2. Now imagine a situation similar to the one above, but suppose instead that you are an employee instead of a supervisor. Assume that you could definitely receive the raise and promotion in exchange for giving sexual favors, and that no one would find out about this exchange.

Would you be willing to provide sexual favors in exchange for the raise and promotion?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes.

3. Suppose that you are a high-level government official. You are currently making decisions about the award of a major government contract, and there are several companies that are competing for this contract. You are very strongly attracted to the representative of one of these companies, and this person seems to be very strongly motivated to get the contract (which would mean a large commission for that representative). In fact, you are sure that this person would perform sexual favors in exchange for a major government contract, and you are also sure that you would not be caught or punished in any way for making this arrangement.

Would you give this representative the contract in exchange for sexual favors?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes.

4. Now imagine a situation similar to the one above, but suppose instead that you are a company representative instead of a government official. Assume that you could definitely receive the contract and commission in exchange for sexual favors, and that no one would find out about this exchange.

Would you be willing to provide sexual favors in exchange for the contract?

(1) Definitely Not (2) Probably Not (3) Probably Yes (4) Definitely Yes.

References

Ashton, M. C. (1998). Personality and job performance: The importance of narrow traits. *Journal of Organizational Behavior, 19*, 289–303.

Ashton, M. C., & Lee, K. (2005). Honesty–Humility, the Big Five, and the Five-Factor Model. *Journal of Personality, 73*, 1321–1353.

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review, 11*, 150–166.

Ashton, M. C., Lee, K., Perugini, M., Szarota, P., de Vries, R. E., Di Blas, L., et al (2004). A six-factor structure of personality-descriptive adjectives: Solutions from psycholexical studies in seven languages. *Journal of Personality and Social Psychology, 86*, 356–366.

Ashton, M. C., Lee, K., Visser, B. A., & Pozzebon, J. A. (2008). Phobic tendency within the Five-Factor and HEXACO Models of personality structure. *Journal of Research in Personality, 42*(3), 699–711.

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

Digman, J. M., & Takemoto-Chock, N. K. (1981). Factors in the natural language of personality: Re-analysis, comparison, and interpretation of six major studies. *Multivariate Behavioral Research, 16*, 149–170.

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

Hofstee, W. K. B., de Raad, B., & Goldberg, L. R. (1992). Integration of the Big Five and circumflex approaches to trait structure. *Journal of Personality and Social Psychology, 63*, 146–163.

Hunter, J. E. (1987). *PACKAGE program*. East Lansing, MI: Michigan State University, Department of Psychology.

Jackson, D. N. (1970). *Jackson Personality Inventory manual*. Port Huron, MI: Research Psychologists Press.

Kolar, D. W., Funder, D. C., & Colvin, C. R. (1996). Comparing the accuracy of personality judgments by the self and knowledgeable others. *Journal of Personality, 64*, 311–337.

Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO personality inventory. *Multivariate Behavioral Research, 39*, 329–358.

Lee, K., & Ashton, M. C. (2006). Further assessment of the HEXACO Personality Inventory: Two new facet scales and an observer report form. *Psychological Assessment, 18*, 182–191.

Lee, K., Ashton, M. C., Morrison, D. L., Cordery, J., & Dunlop, P. (2008). Predicting integrity with the HEXACO personality model: Use of self- and observer reports. *Journal of Occupational and Organizational Psychology, 81*, 146–167.

Lee, K., Ogunfowora, B., & Ashton, M. C. (2005). Personality traits beyond the Big Five: Are they within the HEXACO space? *Journal of Personality, 73*, 1437–1463.

McCrae, R. R. (1989). Why I advocate the Five-Factor model: Joint analyses of the NEO-PI with other instruments. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 237–245). New York: Springer-Verlag.

McCrae, R. R., & Costa, P. T. Jr., (1985). Updating Norman's "adequate taxonomy": Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology, 49*, 710–721.

McCrae, R. R., & Costa, P. T. Jr., (1997). Personality trait structure as a human universal. *American Psychologist, 52*, 509–516.

Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57*, 401–421.

Paunonen, S. V. (2002). *Design and construction of the Supernumerary Personality Inventory (Research Bulletin 763)*. London, ON: University of Western Ontario.

Paunonen, S. V., Haddock, G., Forsterling, F., & Keinonen, M. (2003). Broad versus narrow personality measures and the prediction of behaviour across cultures. *European Journal of Personality, 17*, 413–433.

Richins, M. L., & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: Scale development and validation. *Journal of Consumer Research, 19*, 303–316.

Saucier, G., & Goldberg, L. R. (1996). Evidence for the Big Five in analyses of familiar English personality adjectives. *European Journal of Personality, 10*, 61–77.

Shafer, A. B. (2003). Mediation of Big Five's effect on career decision making by life task dimensions and on money attitudes by materialism. *Personality and Individual Differences, 28*, 93–109.

Sharpe, J. P., & Ramanaiah, N. V. (1999). Materialism and the Five-Factor Model of personality. *Psychological Reports, 85*, 327–330.

Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 70*, 1185–1204.

Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology, 30*, 526–537.