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Using the Big Five Aspect Scales to translate between the HEXACO and Big Five personality models

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Abstract

Objective. The extensive use of two diverging personality taxonomies (the Big Five and HEXACO models) in contemporary research creates a need for understanding how traits connect to each other across taxonomies. Previous research has approached this at both a highly general (domain-) level as well as at a highly specific (facet-) level. The present report is the first to use the intermediate (aspect-) level of the Big Five Aspect Scales (BFAS) to understand the connections between the two models. **Method.** We explored these associations in a meta-analysis of four samples drawn from three countries (Total N = 1,586). **Results.** We observed that each HEXACO domain correlated $\geq |.51|$ with one or more BFAS aspects. Half of the aspects were more strongly associated with HEXACO facets than with HEXACO domains, sometimes markedly so. **Conclusion.** Although many domains, aspects, and facets are similarly represented across the two models, this was not always the case. Researchers seeking to use one model to extend findings built primarily off the other should carefully consider how well represented their traits of interest are in the other assessment. Psychology instructors are encouraged to use the BFAS to illustrate the subtler distinctions between the Big Five and HEXACO models.

Keywords: HEXACO; Big Five Aspect Scales; personality measurement; teaching of psychology

Using the Big Five Aspect Scales to translate between the HEXACO and Big Five personality models

Early research on personality was substantially hindered by the profusion of highly distinct personality taxonomies and measures, as results from any particular study could be challenging to translate into expectations for results under alternative taxonomies or measures. Although for a period this problem was largely eliminated by the dominance of the Big Five, it has returned (if in attenuated form) with the increasing popularity of the HEXACO Model of Personality (Ashton & Lee, 2007), which provides an alternative personality structure to the Five-Factor Model of Personality (John, Naumann, & Soto, 2008). Recognizing the issue, some of the earliest work on the HEXACO model provided direct comparisons with the Big Five, sometimes with a focus at a relatively general level (comparing Big Five and HEXACO domains: Ashton & Lee, 2005; Ashton, Lee, & de Vries, 2014; Lee, Ogunfowora, & Ashton, 2005), and at other times providing a more fine-grained analysis via facet-level correlations (Ashton & Lee, 2005).

In the years since the development of the HEXACO model, Big Five researchers have identified a level of specificity intermediate between the domains and facets. These are the “aspects” of the Big Five: two empirically-identified sub-components of each of the Big Five which provide greater specificity than the Big Five and greater generality than the facets used in measures such as the NEO PI-R (Costa & McCrae, 2008; DeYoung, Quilty, & Peterson, 2007). No previous work has examined how these aspects can be mapped to the HEXACO model, and we see three reasons why doing so would be of value to the field.

Gains from connecting the HEXACO model and Big Five aspects

A primary motivation for the present work is the contention that the Big Five aspects provide a comparatively meaningful basis for understanding the HEXACO model. Facet-level assessments in both the Big Five and HEXACO taxonomies developed via considerable deliberation, and have demonstrated significant empirical utility and other merits. However, the claims made on behalf of the Big Five aspects (which we do not critically evaluate here) are significantly more ambitious than those made on behalf of facet-level measurement in either taxonomy. Specifically, the Big Five aspects are purported to have a stronger claim to “cutting nature at its joints” than do either taxonomy’s facets given that, unlike the facets, the aspects are (a) empirically-derived, (b) non-arbitrary in number, (c) based on both a phenotypic and genetic factor structure, (d) can be obtained both from normal-range and pathological personality data,

and (e) appear to generally correspond to theoretically meaningful distinctions in underlying neurobiological mechanisms (see Allen & DeYoung, 2016; DeYoung, Carey, Krueger, & Ross, 2016; DeYoung et al., 2007).

Because the claim made on behalf of the aspects is not merely that the aspects reflect substantively important variance in personality but that the aspects have parceled that variance relatively effectively into meaningful and coherent units, the appropriate analytic procedure is relatively straightforward. Specifically, correlations between the aspects and the HEXACO facets and domains allow the identification of where the aspects are best mirrored within the HEXACO framework.¹

A second motivation for the present work is related to the first and necessitates the same analytic strategy. Due to the increasing productive application of the Big Five aspects to various research topics, including sociopolitical attitudes (Hirsh, DeYoung, Xiaowen Xu, & Peterson, 2010), gender differences (Weisberg, DeYoung, & Hirsh, 2011), personality neuroscience (Cunningham, Arbuckle, Jahn, Mowrer, & Abduljalil, 2010), prosociality and cooperation (Zhao, Ferguson, & Smillie, 2017), and well-being (Sun, Kaufman, & Smillie, 2016), researchers who prefer the HEXACO model but who wish to integrate with findings based on the Big Five aspects may wish to know how effectively different versions of the HEXACO can mirror these aspects. Specifically, if the Big Five aspects are effectively mirrored by HEXACO domains, then the use of abbreviated versions of HEXACO measures (such as the HEXACO-60; Ashton & Lee, 2009) is more easily justified for such research. If, instead, the HEXACO facet scales provide a significant improvement in the representation of some of the Big Five aspects, longer forms of HEXACO measures (such as the 100- or 200-item HEXACO Personality Inventory-Revised (Lee & Ashton, 2006, 2018) may be preferred for addressing certain research questions.

A third motivation pertains primarily to research communication and pedagogy. An aspect-level analysis allows the similarities and differences between the Big Five and HEXACO

¹A note on terminology: We are not aware of any commonly accepted, well-established criteria that one might use to label a given association as sufficient to indicate that any two measures are equivalent. Accordingly, in the present work we avoid terminology that might be mistaken for an unambiguous claim to equivalence, choosing instead to use broader formulations such as X “mirrors” or “indexes” Y, etc.

models to be recognized and recalled much more readily than does any facet-level analysis. This advantage reflects both the aspects being fewer in number and more centrally related to the Big Five than are most Big Five facets. The need for communicating similarities and differences between the models is well recognized: Whereas some domains are closely matched between the two models, others are not, despite similar domain names (i.e., Agreeableness and Neuroticism/Emotionality). This may cause students and fellow researchers alike to mistakenly overlook or ignore differences where they exist. Thus, although facet-level analyses of differences between the Big Five and HEXACO models might be useful for personality specialists with a deep familiarity with personality measures, representing these differences using the Big Five aspects provides a balance of precision and parsimony that is lacking in studies operating at the level of domains or facets.

Review of the various scales

Before turning to the data, we briefly review the various scales within the focal questionnaires. As indicated above, the Big Five Aspect Scales (BFAS; DeYoung et al., 2007), subdivides each Big Five trait into two aspects. Thus, Extraversion separates into Assertiveness (reflecting dominance and leadership) and Enthusiasm (capturing positive emotionality and sociability). Openness/Intellect divides into Openness (reflecting aesthetic and artistic interests) and Intellect (reflecting intelligence and intellectual engagement).² Conscientiousness is composed of Industriousness (capturing self-discipline and hard work) and Orderliness (reflecting neatness and organization). Agreeableness divides into Compassion (concerning empathy and sympathy) and Politeness (capturing compliance and lack of antagonism). Finally, Neuroticism is composed of Volatility (capturing irritability and anger) and Withdrawal (reflecting anxiety and depression).

The HEXACO model retains substantial similarities with the Big Five, with three domains corresponding more or less to their Big Five namesakes (Extraversion,

² Note that the Big Five and HEXACO domain often discussed as “Openness to Experience” is labelled “Openness/Intellect” in the BFAS, whereas the term “Openness” in the context of the BFAS refers only to the Openness aspect. Given the focus of the present study we will use the BFAS naming conventions when discussing Big Five domains.

Openness/Intellect, and Conscientiousness). Conversely, HEXACO Agreeableness and Emotionality are rotational variants of Big Five Agreeableness and Neuroticism: HEXACO Emotionality is similar to Big Five Neuroticism, but adds the empathic component of Big Five Agreeableness and loses the components related to anger to HEXACO Agreeableness. HEXACO Agreeableness lacks the sympathy present in Big Five Agreeableness; this content has instead been shunted partly into Emotionality and partly into an interstitial facet scale called Altruism. Finally, the most pronounced difference between the two models is HEXACO's introduction of Honesty-Humility, which reflects general tendencies towards moral and non-self-serving or materialistic behavior (Ashton et al., 2014).

Given the atheoretical nature of the present work we do not discuss specific hypotheses or expectations, instead relying on our use of four separate samples to reduce the risk of over-interpreting chance associations. We therefore turn straight to the data.

Method

Samples

The present study makes secondary use of four samples collected for other purposes. Both Samples 1 and 2 represent amalgamations of several smaller samples collected for several distinct studies. In Sample 1, we have combined all samples consisting of undergraduates from an Australian university who completed the relevant materials, whereas Sample 2 consists of all samples who participated via Amazon's Mechanical Turk. Previous research has presented relevant analyses from a subset of participants from Samples 1 and 2: Correlations between the BFAS Agreeableness aspects and HEXACO Agreeableness and Honesty-Humility (but no other domains, aspects, or facets) are reported and discussed in Zhao, Ferguson, and Smillie (2016b, 2017), and correlations among all Big Five Aspects and all HEXACO domains (but not facets) are provided but not discussed in Supplementary Materials for Zhao, Ferguson, and Smillie (2016a). To the best of our knowledge, correlations between BFAS and HEXACO scales have never been reported for Sample 3 or Sample 4. For all samples, data was analyzed only from those with no missing data on either measure. Data and syntax are available at [OSF link suppressed for review].

Sample 1. 456 students (25% male) at an Australian university completed these materials in exchange for partial course credit. Ages ranged from 18 to 55 ($M = 20.17$, $SD = 4.22$).

Sample 2. 520 U.S. residents (43% male) were recruited through Amazon's Mechanical Turk service in exchange for a small cash payment. Ages ranged from 18 to 65 ($M = 30.45$, $SD = 9.29$).

Sample 3. 382 participants (40% male) were members of the Eugene-Springfield Community Sample (ESCS; Goldberg, 1999; Goldberg et al., 2006), who completed questionnaires via post in exchange for small cash payments. The HEXACO measure was completed in 2003, while BFAS items were completed during several different assessments (see DeYoung et al., 2007) as early as 1994, such that respondents had up to a 9 year gap between responses to BFAS and HEXACO items. However, any attenuation in correlations resulting from the time gap between the two assessments should also be partially ameliorated by the more thorough assessment of HEXACO traits in this sample (for which the average facet has eight rather than four items). Ages ranged from 25 to 83 ($M = 51.06$, $SD = 11.95$).

Sample 4. 228 participants (32% male) at a Canadian university completed both self-report and peer report personality assessments for partial course credit or for payment, as part of a study described by Ashton and colleagues (2009). Ages ranged from 16 to 58 ($M = 21.31$, $SD = 5.00$).

Measures

Big Five Aspect Scales. All participants completed the Big Five Aspect Scales (BFAS; DeYoung et al., 2007). Samples 1, 2, and 4 completed the BFAS in its entirety in one sitting, whereas Sample 3 participants answered individual BFAS items distributed among a much more extensive battery of personality items delivered across different assessments conducted over the course of several years.

HEXACO. Self-report data in Samples 1, 2, and 4 were collected using the HEXACO-100 (Lee & Ashton, 2018). Sample 3 completed the first version of the 192-item HEXACO Personality Inventory (Lee & Ashton, 2004), which differs modestly from the HEXACO-100 used in the

other samples. First, it assesses each facet with 8 items rather than 4. Second, it omits the Altruism interstitial facet. Finally, a facet of Extraversion differs between the two instruments (“Social Self-Esteem” has replaced “Expressiveness” from the version used in Sample 3). We see the most relevant Extraversion results as concerning the domain in its present form; accordingly, the self-report meta-analytic correlations reported below do not include Extraversion domain data from Sample 3 (though data on the three continuing facets – Social Boldness, Sociability and Liveliness – are still used for facet-level correlations).

Analytic strategy

Full single-study results are provided in the online supplementary materials, with the focus below on meta-analytic results across the four self-report samples. These were produced by obtaining sample-weighted meta-analytic correlations among the scales in question. The meta package was used to conduct the meta analyses and random effect meta-analytic correlations are reported (Schwarzer, 2007). Regressions were performed using this meta-analytic correlation matrix, using the setCor function in the psych package of *R* (Revelle, 2017).

Results

Table 1 presents meta-analytic correlations between the HEXACO domains and the BFAS domains and aspects across the four self-report samples. Table 2 identifies the best HEXACO correlates (at both the domain and facet level) for each aspect: Only those facets and domains which exhibited self-report meta-analytic correlations above .30 with a given aspect are listed. Below we limit our discussion to results from the meta-analysis of self-reports, though we note that “other report” data generally closely matches the self-report data (see Tables 2 and A5).

Domain-level HEXACO correlations

Table 1 reveals that the BFAS aspects varied widely in their degree of convergence with one or more HEXACO domains. BFAS Openness was most well represented within the HEXACO framework ($r = .73$ with HEXACO Openness to Experience), BFAS Compassion was least well represented (highest $r = .38$ with HEXACO Emotionality), and all other aspects had their highest correlate between $|.50|$ and $|.72|$.

Every HEXACO domain exhibited strong meta-analytic correlations with one or more BFAS aspects ($.51 \leq r \leq .73$). Because previous research has found the HEXACO model to largely preserve the content from Big Five measures of Extraversion, Conscientiousness, and Openness/Intellect (e.g., Ashton & Lee, 2005), it is no surprise that these are the HEXACO domains with the most straightforward correlations with BFAS aspects. HEXACO Conscientiousness exhibits substantial correlations with both BFAS Industriousness ($r = .66$) and BFAS Orderliness ($r = .63$; the aspects for Conscientiousness), and its secondary correlations of note (such as with BFAS Intellect $r = .36$ and BFAS Assertiveness $r = .31$) were comparable to those observed in previous research on Big Five Conscientiousness (DeYoung et al., 2007). HEXACO Extraversion exhibited large associations with BFAS Assertiveness ($r = .67$) and BFAS Enthusiasm ($r = .72$; the aspects for Extraversion), but also notable secondary associations with other aspects (particularly BFAS Withdrawal $r = -.59$ and BFAS Industriousness $r = .45$) that are somewhat larger to those reported from Big Five Extraversion measures in DeYoung et al. (2007). As might be expected given the highly similar correlation coefficients exhibited by the aspects with their putatively corresponding HEXACO domain, for both Extraversion and Conscientiousness there was no indication that one aspect had their association with their corresponding trait uniquely inflated by variance shared with the other aspect, as the β s for each were similar (β coefficients predicting Conscientiousness are Industriousness = .48 and Orderliness = .42; for Extraversion the values are Enthusiasm = .52 and Assertiveness = .44). HEXACO Openness to Experience represents a somewhat different case. It is mirrored particularly well by the Openness aspect ($r = .73$) and to a lesser extent by the Intellect aspect ($r = .50$), and has minimal association with other aspects ($-.19 \leq r \leq .24$), which parallels results based on NEO PI-R Openness to Experience (DeYoung et al., 2007). Using the two Openness/Intellect aspects to predict HEXACO Openness to Experience highlights the degree to which the Openness aspect drives the association (β for Intellect aspect = .27; β for Openness aspect = .63).

The remaining three HEXACO traits require closer attention. HEXACO Honesty-Humility is not intended to represent any Big Five trait, though strong relationships with Big Five Agreeableness have been observed for some Big Five measures, especially NEO-variants (Ashton & Lee, 2005; Hilbig, Moshagen, & Zettler, 2016). HEXACO Agreeableness and HEXACO Emotionality are known to be rotational variants of Big Five Agreeableness and

Neuroticism, and the aspects highlight the pronounced shifts the HEXACO traits have taken. In particular, the use of the term “Agreeableness” for both the HEXACO and Big Five traits appears likely to cause confusion, as HEXACO Agreeableness is not particularly linked with either Big Five Agreeableness aspect, but instead is most associated with BFAS Volatility ($r = -.61$; from Neuroticism); however, a notable secondary linkage with BFAS Politeness ($r = .41$; one Agreeableness aspect) shows the conceptual departure from Big Five Agreeableness is not absolute. Importantly, the Agreeableness aspects have not simply been rotated into HEXACO Emotionality: like HEXACO Agreeableness, HEXACO Emotionality is most associated with Neuroticism aspects ($r = .53$ with Withdrawal; $r = .40$ with Volatility), though as noted above there is a notable secondary association between HEXACO Emotionality and BFAS Compassion ($r = .38$; the other Agreeableness aspect). It is also noteworthy that when the two Neuroticism aspects are used as simultaneous predictors of Emotionality, the relationship appears predominantly attributable to Withdrawal ($\beta = .46$, compared to $.12$ for Volatility). Finally, the best representation of either aspect of Agreeableness is provided by HEXACO Honesty-Humility, which is primarily indexed by BFAS Politeness ($r = .51$) and, to a lesser extent, BFAS Compassion ($r = .29$). Using these two aspects to simultaneously predict Honesty-Humility shows that Compassion’s relationship derives from the Agreeableness variance shared with Politeness (Compassion $\beta = .07$; Politeness $\beta = .48$), in line with some previous observations (Barford, Zhao, & Smillie, 2015).

These aspect-level results help us understand relationships observed between the two instruments at the domain level which we present next, and which unlike the aspect results can be readily compared to published findings. Before turning to the results, note, however, that previously published comparisons of the Big Five and HEXACO domains have produced similar but not identical results to each other. Noteworthy differences can occur between different Big Five measures: For example, Hilbig et al. (2016) observed that the correlation between Big Five and HEXACO Agreeableness measures are $\geq .35$ higher when using the Big Five Inventory (John et al., 2008) or the NEO-FFI (Costa & McCrae, 1992) than when using the IPIP (Goldberg et al., 2006). And of course differences can also occur between studies: Correlations between HEXACO and IPIP Big Five scores differ by as much as $.26$ between Hilbig et al. (2016) and

Lee et al. (2005; here, for correlations of HEXACO Conscientiousness with Big Five Extraversion and Agreeableness).³

With these caveats in mind, similarities between our study and previous work include close convergence between Big Five and HEXACO measures of Extraversion ($r = .81$), Conscientiousness ($r = .76$), and Openness/Intellect ($r = .74$), as well as a strong correlation between Neuroticism and Emotionality ($r = .52$). In fact, very few correlations between HEXACO and BFAS domains are consistently and meaningfully different from those published in previous work. Hilbig et al. (2016) report the correlations between HEXACO and Big Five domains for three different instruments; we obtain a single correlation matrix for comparison to our results by taking the average of the three correlation results provided for each trait pairing. For nineteen of these thirty correlations, our results with the BFAS were within $|r| < .10$ of the averaged result from Hilbig et al. (2016). In only one instance was the BFAS-HEXACO domain correlation an identifiable outlier when compared to a range established by the five studies we identified that provide relevant comparisons in the published literature (three from Hilbig et al. (2016) as well as Ashton et al. (2014) and Lee et al. (2005)). This concerned a relatively pronounced link between BFAS Neuroticism and HEXACO Agreeableness in our data ($r = -.50$, compared to a range of $-.18$ to $-.45$), which plausibly reflects a more pronounced role for Volatility relative to Withdrawal in the BFAS than in measures such as the BFI and NEO (DeYoung et al., 2007), as well as the marked relationship between Volatility and HEXACO Agreeableness. Another result worth noting is the comparatively large link between BFAS Agreeableness and Honesty-Humility: At $r = .47$, it is BFAS Agreeableness's strongest domain-level HEXACO correlate, and although it is not the largest result for a correlation between Big Five Agreeableness and HEXACO Honesty-Humility ever reported (even more pronounced links have been observed using the NEO instruments (NEO PI-R and NEO-FFI: Ashton & Lee, 2005; Hilbig et al., 2016)), it is large relative to the remaining four results from the studies described above (range: $.17$ to $.36$). As noted above, this relationship was driven by the Politeness aspect, in line with some previous observations (Barford et al., 2015). Because Politeness is more

³The correlations between HEXACO Extraversion and Big Five Conscientiousness in fact differed even more across the two studies, but because the two studies used HEXACO instruments that differed meaningfully with regard to the assessment of Extraversion this difference could reflect characteristics of the sample and/or of the measure.

represented in the NEO instruments than in other Big Five measures (DeYoung et al., 2007), this result is thus reasonably attributable to previously-identified differences among Big Five instruments.

Retaining the BFAS aspects using HEXACO facets

As discussed above, Table 1 showed that several but not all BFAS aspects were well-mirrored by one or more HEXACO domains. Turning to Table 2, we can see that facet-level measurement of HEXACO provides improved mirroring of some but not all BFAS aspects. Beginning with those domains retained most cleanly across the two models: both Industriousness and Orderliness are well indexed by HEXACO Conscientiousness, and only Orderliness exhibits any higher correlation with a specific facet (Organization, within HEXACO Conscientiousness) than the domain scale. A similar picture holds for the Extraversion aspects: the strong correlations between Enthusiasm and HEXACO Extraversion is not surpassed by any facet, though Assertiveness is best indexed by the Social Boldness facet of HEXACO Extraversion. Within Openness/Intellect, the strong correlations between Openness and HEXACO Openness to Experience are not surpassed by any facet, and Intellect's smaller links with HEXACO Openness to Experience are also not improved at the facet level.

By contrast, both Neuroticism aspects were best mirrored by HEXACO facets rather than domains: Volatility is particularly characterized by low levels of Patience (HEXACO Agreeableness), whereas Withdrawal is indexed to similar degrees by high Anxiety (HEXACO Emotionality) and low Social Self-Esteem (HEXACO Extraversion). Turning finally to the Agreeableness aspects, the link between Politeness and HEXACO Honesty-Humility is not improved by any facet, whereas Compassion is substantially more associated with both Altruism (an interstitial HEXACO facet) and Sentimentality (HEXACO Emotionality) than with any HEXACO domain.

Integrating the BFAS and HEXACO models and comparing breadth of coverage

A final question of interest concerns how we might best think of the relationship between the lower-order measures from the BFAS and HEXACO models: Do they differ primarily in the degree of specificity they assess, or is there content in one instrument that is largely outside that assessed by the other instrument? As before, we focus on this not as a percentage of variance in a

given measure that is explained by a set of alternative measures, but instead on assessing how well any given measure is mirrored by others.

Figure 1 represents the meta-analytic correlations of each level of specificity with the adjacent level(s). Lines connect scales from any two measures if they are representing adjacent levels (e.g. the 10-scale BFAS aspects and 25-scale HEXACO facets are connected, but neither are connected to the 5-scale BFAS domains) and correlate at least .30. Connections between the top three levels (BFAS and HEXACO domains, and BFAS aspects) have been thoroughly discussed above, but more thoroughly exploring the interrelationships between the BFAS aspects and HEXACO facets can produce further insights.

A noteworthy result is that some HEXACO facets have little connection to the BFAS aspects. The Sincerity and Greediness facets of Honesty-Humility have no correlation over .30 with any aspect (see Table A6 for precise values), and four other facets (Dependence and Fearfulness from Emotionality; and Forgiveness and Flexibility from Agreeableness have no correlation over .40.⁴ Most noteworthy is that this list is not dominated by Honesty-Humility facets (the segment of the HEXACO model from which most researchers might initially expect expanded personality content) but instead primarily consists of facets from Emotionality and Agreeableness. Conceptually, a rotation of Big Five Neuroticism and Agreeableness could leave the facets underlying the newly rotated factors highly associated with the aspects (which are themselves components underlying the Big Five traits). However, the present results are perhaps more consistent with some facets from Emotionality and Agreeableness representing additional information beyond that contained in the Big Five space (see also Ashton & Lee, 2018).

A second result of interest in Figure 1 is how it helps to illustrate the diverse ways in which the aspects relate to the facet level. Some Big Five aspects seem to be largely preserved at

⁴ Two details require note. First, the largest aspect correlation for Greediness is .298, and the rounding of values in Table A6 result in this being listed as .30. However, Figure 1 is based on values that have not been rounded up, and so Greediness is indicated as having no aspect correlate of .30. Second, the Inquisitiveness facet of Openness has no aspect correlate above .40, but unlike the other facets discussed it does have a more substantial correlation with a BFAS domain ($r = .47$ with BFAS Openness/Intellect), suggesting that Inquisitiveness is less distinctive from BFAS content than are the other HEXACO facets under discussion.

the facet level: For example, Volatility, Orderliness, and Assertiveness each have one particularly strong facet-level correlate, and regressions predicting a given aspect using all of the best facet-level correlates for that aspect shows that for each aspect one facet remains particularly strong ($\beta > .5$ and more than double the size of any other predictor; see output in Supplementary Materials B). Other aspects, by contrast, are more consistent with the aspects representing a higher level of generality: Compassion, Withdrawal, Industriousness, and Enthusiasm all have two facet-level predictors with β s ranging between .28 and .35 (and none higher than this), suggesting that their variance has been roughly equally partitioned into these more specific components. Openness represents an intermediate case (seemingly split between Aesthetics and Creativity, with the former taking an over-weighted share), whereas Intellect and Politeness have comparatively diluted links with several facet-level predictors and (despite the comparatively large number of predictors) the lowest R^2 values of all aspects. Taken together, then, relative to the Big Five aspects, the HEXACO facets seem in places to represent a more-specific level of assessment, whereas in others they seem to have preserved the content of an aspect with relatively high fidelity in a single facet, while in others still they are best seen as adding assessment of further corners of personality space. Interestingly, this last category applies not only to facets within Honesty-Humility but also to Emotionality and Agreeableness.

A final result of interest highlighted by Figure 1 concerns the diversity of aspects that some facets connect to, and how this compares to results at the domain and aspect level. For example, Diligence (a facet of HEXACO Conscientiousness) was moderately correlated with aspects from four of the five Big Five domains (Orderliness, Industriousness, Intellect, Assertiveness, and [low] Withdrawal), and three of the four facets of HEXACO Extraversion (all but Sociability) were connected to aspects from three or four Big Five domains. These cross-domain correlations are perhaps best attributed to features of the BFAS rather than the HEXACO, not only because they primarily concern traits (Conscientiousness and Extraversion) which were not rotated when producing the HEXACO (unlike Emotionality and Agreeableness), but also because within-instrument cross-trait correlations are higher for the BFAS than the HEXACO model in both previous research (DeYoung et al., 2007; Lee & Ashton, 2018) and in our meta-analyses. This holds not only for the instrument as a whole (average absolute inter-domain correlation for BFAS = .22; for HEXACO = .12), but also for the average correlations between

the three domains shared between the two measures (average correlation among E, C, O in BFAS = .26; HEXACO = .17).

Comparing coverage

Previous research comparing personality taxonomies has sometimes focused not on identifying correlates across instruments but instead on quantifying the degree to which the variance contained in scales in Instrument X are assessed by Instrument Y (e.g., Ashton & Lee, 2018). When comparing an instrument based on a model that is deliberately extending the model focused on by another instrument (as is the case with HEXACO and the Big Five), one should of course have strong priors that the instrument based on the extended model will be less effectively captured by the instrument based on the less comprehensive model than vice versa. However, comparisons within each instrument may be instructive when compared to correlational results such as those already discussed. In particular, they enable us to explore how the rotation in Agreeableness and Neuroticism does or does not affect the retention of variance for these traits. These analyses gain additional motivation from the results described above that indicated that several HEXACO facets from the rotated factors represented content that had relatively modest correlations with aspects from the Big Five versions of those domains, which might indicate that BFAS Neuroticism and Agreeableness aspects will have less variance captured by HEXACO than will other Big Five traits. On the other hand, the HEXACO model's addition of Honesty-Humility, which exhibited notable links with the Agreeableness aspects, suggests that the Agreeableness aspects are (relative to other Big Five traits) thoroughly assessed by the HEXACO model. Furthering the lack of clear expectations, Ashton and Lee (2018) report that different samples using the same measures have found Big Five Agreeableness (John et al., 2008) to be either the most (Thalmayer, Saucier, & Eigenhuis, 2011) or least (Hilbig et al., 2016) exhaustively captured by HEXACO traits.

Our own regression results largely paralleled the degree to which Big Five aspects had comparatively strong or weak greatest correlates within the HEXACO model. When using the six HEXACO domains as predictors, the three least comprehensively captured measures were Intellect ($R^2 = .42$), Compassion ($R^2 = .40$), and Politeness ($R^2 = .45$), whereas the aspects which had the largest share of their variance captured (about 40% more) were Openness ($R^2 = .57$) and Enthusiasm ($R^2 = .56$). Analyses using the facets closely paralleled these results, both with the

same three aspects representing the least well captured, and with the same proportion separating the most and least well-captured aspects.⁵

Discussion

Based on the results discussed above we draw three primary conclusions. First, we suggest that there are meaningful and substantial correspondences between the Big Five aspects and the HEXACO domains:⁶ When using facet-level measurement of HEXACO, every aspect had at least one measure with a “strong” (i.e. $\geq .50$) correlate in the self-report meta-analysis. Similarly, the HEXACO domains are mirrored reasonably well by the BFAS, with each HEXACO domain exhibiting a meta-analytic correlation of $|\geq .51|$ or above with at least one aspect.

Second, the HEXACO facets provided substantial improvements over HEXACO domains for the direct assessment of some, but not all, BFAS aspects. This is most clearly visible in the case of Compassion, which was minimally indexed by any of the HEXACO domains but exhibited meta-analytic correlations .19 higher with a facet than with any domain. Assertiveness, Volatility, Withdrawal, and Orderliness exhibited more modest improvements (.03 to .09). The five remaining BFAS aspects were best indexed at the HEXACO domain level. For three of these (Industriousness, Enthusiasm, and Openness), the domain-level correlations were quite pronounced ($r_s \geq .66$). Finally, although Intellect and Politeness were not marked exceptionally well by any facet, we discuss below how this may partially represent the challenging nature of

⁵ At the request of a reviewer, we performed additional regression analyses using the meta-analytic correlation matrix concerning the ability of the BFAS and HEXACO domains to predict one another. The BFAS was most effective for capturing the variance in those HEXACO traits that are present in the Big Five in unrotated form (Extraversion ($R^2 = .73$), Conscientiousness ($R^2 = .63$) and Openness ($R^2 = .57$)), less effective for the rotated traits (Emotionality $R^2 = .49$; Agreeableness $R^2 = .41$), and least effective for Honesty-Humility ($R^2 = .27$). HEXACO was comparably effective as a predictor of the three preserved traits (Big Five Extraversion ($R^2 = .69$), Conscientiousness ($R^2 = .63$), and Openness ($R^2 = .57$)) but was also effective at predicting Neuroticism ($R^2 = .61$) and Agreeableness ($R^2 = .49$). Additional requested analyses showed that improving the predicting of Honesty-Humility could not be easily achieved by dividing Big Five Agreeableness into its two component parts, which only improved the R^2 modestly (to .29).

⁶ Of course, any claim to demonstrating equivalence between measures is best made with detailed considerations of their broader nomological network and prediction consistency (Hilbig et al., 2016; Thielmann & Hilbig, 2018).

these aspects, which are poorly represented by some Big Five measures as well (DeYoung et al., 2007).

The third conclusion is that the content represented by the Big Five Agreeableness aspects is perhaps the greatest point of contention between the two models, though two findings from previous studies must be considered before interpreting the present results. First, various Big Five measures appear to differ more in their assessment of Agreeableness than of most other domains, where this heterogeneity significantly impacts the association of Big Five Agreeableness with HEXACO traits and even behavioral outcomes (Hilbig et al., 2016). Second, there are meaningful differences in the degree to which different BFAS aspects correlate with their corresponding Big Five domains in other Big Five common measures (such as the Big Five Inventory [John & Srivastava, 1999] and the NEO-PI-R [Costa & McCrae, 2008]). The values for the correlations between the BFAS aspects and three alternative Big Five inventories as reported by DeYoung and colleagues (2007) are presented in Table A7. The absolute size of correlations from the community sample in that table are likely attenuated by the several-year gap between assessments, but what matters for the present purpose is the *relative* degree to which different aspects correlate with various Big Five measures. Here, we see that the Agreeableness aspects exhibit comparatively modest correlations with their respective Big Five trait – similar, in fact, to Intellect, the other aspect which had comparatively modest linkages with HEXACO domains and facets. Given this, the fact that the Agreeableness aspects do not map clearly onto HEXACO Agreeableness may not entirely reflect the alternative conceptualization of this trait within the HEXACO model. Nevertheless, because the content from Big Five Agreeableness appears to be a substantial focus of the HEXACO inventory — with Emotionality, Honesty-Humility, Agreeableness, and the interstitial facet of Altruism all containing components of the trait — the fact that even the facet-level of HEXACO lacks a particularly effective marker of the BFAS Agreeableness aspects is noteworthy and represents an intriguing gap between the HEXACO and BFAS models. Further, the regression results suggest that the BFAS Agreeableness aspects are not simply parceled out among the various HEXACO domains, but instead have (relatively to the rest of the Big Five) a comparatively smaller amount of their variance contained within the HEXACO domains or facets. Instead, the HEXACO domains of Agreeableness and Emotionality appear to have added substantial content, as indicated by the presence of several facets with comparatively modest associations with the

Agreeableness and Neuroticism aspects. Future work might explore the impact of these content losses and gains on the predictive utility of the Big Five and HEXACO.

Implications for instrument selection

The present results may help guide researchers' choice of tools for measuring basic personality dimensions. For example, researchers interested in connecting personality with sociopolitical attitudes may wish to avoid the short form of the HEXACO measure given the demonstrated utility of separating the Agreeableness and Conscientiousness facets and the absence of highly effective proxies for some of these aspects at the HEXACO domain level (Hirsh et al., 2010; Osborne, Wootton, & Sibley, 2013). Similarly, researchers interested in personality psychopathology might also benefit from choosing the longer rather than shorter form of the HEXACO measure, given the importance of Neuroticism aspects for this domain and the improvements observed in mirroring these aspects at the facet level (DeYoung et al., 2016). Even studies in the industrial/organizational domain – perhaps the HEXACO model's area of greatest adoption – would seem to benefit from using longer forms of the HEXACO assessment, given the importance of assertiveness for activities such as job search and wage negotiations, and the improvements in mirroring this characteristic with the facet rather than domain level (Schmit, Amel, & Ryan, 1993; Volkema & Fleck, 2012).

Of course, for those facing strong space constraints in their research might find creative alternatives to using the full 100-item HEXACO measure. Helpful suggestions provided by a reviewer include selectively adding content to one's use of the 60-item HEXACO measure (such as the altruism scale, or extra items needed to expand a facet to a fuller version than that present in the 60 item), or even combining items from the abbreviated HEXACO measure to make proxies for various BFAS aspects, though of course any such deviations from standard instrument selection and scoring might create other problems (and, e.g., increases the importance of pre-registration).

Pedagogical issues

The comparative dominance of the Big Five provides a challenge for students and teachers discussing the HEXACO model, as the similar terminology between the two models obscures noteworthy differences in content. The present results may facilitate clear illustrations

of the most salient differences between these two models: Namely, that BFAS Agreeableness colors three HEXACO domains and one interstitial facet, with its component concerning social rule-following (Politeness) primarily captured by Honesty-Humility and its component concerning sympathetic concern for others (Compassion) primarily captured by the Altruism interstitial facet. HEXACO Agreeableness is a rather different beast from BFAS Agreeableness, primarily reflecting one's degree of emotional composure and irritability (Volatility) – a difference that would be more easily recognized if the HEXACO domain's full name (Agreeableness versus Anger) were used more routinely than it is at present.

Possible implications for the HEXACO vs Big Five debate

The present study did not aim to make a particular contribution to the ongoing debate concerning the relative advantages of the HEXACO and Big Five models. Nevertheless, given the importance of this debate it is worth considering how, if at all, the present results might be used to inform that discussion.

One obvious point of entry to the debate concerns Honesty-Humility and its links to the aspects. DeYoung (2014) claimed that the content from Honesty-Humility was captured by the Politeness aspect of the BFAS. There does indeed seem to be some similarities and convergences between these scales. For instance, these traits occupy a very similar location in the space defined by the interpersonal circumplex (Barford et al., 2016), and converge in the prediction of relevant behavioral criteria (Zhao et al., 2016a). Further, recent work has suggested “honesty” represents a component of BFAS Politeness (Allen, Rueter, Abram, Brown, & DeYoung, 2017). On the other hand, correlations between these scales are lower than one would expect if they overlapped completely. On this last issue, results from a recent study reporting the correlations of a recently developed Big Five instrument with four other popular Big Five measures are instructive: Soto and John (2017) observed within-trait correlations ranging from .68 to .88 (mean = .77).⁷ The presently observed meta-analytic correlation of .52 between the two measures

⁷ These correlations are those reported in Table 9 of Soto & John (2017), representing the relationship of the BFI-2 with the BFAS, the Mini-Markers, the NEO-FFI and the NEO PI-R. Results between the BFI-2 and BFI are omitted for present purposes as the item overlap artificially inflates the correlation between scales. The results pairing the BFI with these same criterion measures are somewhat more modest than were those for the BFI-2 (ranging from .66

is thus not so high that one would want to treat the two measures interchangeably, but may be high enough that any claim to marked distinctness between the two measures should be closely examined. Future research might further address the question by exploring similarities and differences in the nomological networks of these two constructs.

Conclusion

The Big Five aspects provided a parsimonious understanding of the connections between the HEXACO and Big Five models, particularly with regard to the importantly different primary locations for Politeness (Big Five: Agreeableness; HEXACO: Honesty-Humility), Compassion (Big Five: Agreeableness; HEXACO: Altruism), and Volatility (Big Five: Neuroticism; HEXACO: Agreeableness). Because HEXACO facets often provided improved indexing of Big Five aspects over that provided by HEXACO domains, HEXACO-oriented researchers working in domains where the Big Five aspects have proven fruitful may benefit from using longer forms of the HEXACO-PI-R.

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to .90, mean = .75), presumably reflecting the more abbreviated nature of the BFI. Because the HEXACO and BFAS measures used in the present study were both longer than the BFI, results with the longer BFI-2 are more instructive.

References

- Allen, T. A., & DeYoung, C. G. (2016). Personality neuroscience and the Five-Factor Model. In *Oxford Handbook of the Five Factor Model*.
<https://doi.org/10.1093/oxfordhnb/9780199352487.013.26>
- Allen, T. A., Rueter, A. R., Abram, S. V., Brown, J. S., & DeYoung, C. G. (2017). Personality and neural correlates of mentalizing ability. *European Journal of Personality*, 31(6), 599–613.
<https://doi.org/10.1002/per.2133>
- Ashton, M. C., & Lee, K. (2005). Honesty-humility, the Big Five, and the Five-Factor Model. *Journal of Personality*, 73(5), 1321–1353. <https://doi.org/10.1111/j.1467-6494.2005.00351.x>
- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review : An Official Journal of the Society for Personality and Social Psychology, Inc*, 11(2), 150–166.
<https://doi.org/10.1177/1088868306294907>

- Ashton, M. C., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment*, 91(4), 340–345.
<https://doi.org/10.1080/00223890902935878>
- Ashton, M. C., & Lee, K. (2018). How well do Big Five measures capture HEXACO scale variance? *Journal of Personality Assessment*, 0(0), 1–7.
<https://doi.org/10.1080/00223891.2018.1448986>
- Ashton, M. C., Lee, K., & de Vries, R. E. (2014). The HEXACO Honesty-Humility, Agreeableness, and Emotionality factors: A review of research and theory. *Personality and Social Psychology Review*, 18(2), 139–152.
- Ashton, M. C., Lee, K., Goldberg, L. R., & de Vries, R. E. (2009). Higher order factors of personality: Do they exist? *Personality and Social Psychology Review*, 13(2), 79–91.
<https://doi.org/10.1177/1088868309338467>
- Barford, K. A., Zhao, K., & Smillie, L. D. (2015). Mapping the interpersonal domain: Translating between the Big Five, HEXACO, and Interpersonal Circumplex. *Personality and Individual Differences*, 86, 232–237. <https://doi.org/10.1016/j.paid.2015.05.038>
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI)*.
- Costa, P. T., & McCrae, R. R. (2008). The Revised NEO Personality Inventory (NEO-PI-R). In G. J. Boyle, G. Matthews, & D. Saklofske (Eds.), *The SAGE handbook of personality theory and assessment*, 2 (pp. 179–198). Los Angeles, CA: SAGE.
- Cunningham, W. a, Arbuckle, N. L., Jahn, A., Mowrer, S. M., & Abduljalil, A. M. (2010). Aspects of neuroticism and the amygdala: chronic tuning from motivational styles. *Neuropsychologia*, 48(12), 3399–3404.
<https://doi.org/10.1016/j.neuropsychologia.2010.06.026>
- DeYoung, C. G. (2014). Cybernetic Big Five Theory. *Journal of Research in Personality*, 56, 33–58. <https://doi.org/10.1016/j.jrp.2014.07.004>
- DeYoung, C. G., Carey, B. E., Krueger, R. F., & Ross, S. R. (2016). Ten aspects of the Big Five in

the Personality Inventory for DSM–5. *Personality Disorders: Theory, Research, and Treatment*, 7(2), 113–123. <https://doi.org/10.1037/per0000170>

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, 93(5), 880–896. <https://doi.org/10.1037/0022-3514.93.5.880>

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. J. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg, The Netherlands: Tilburg University Press. Retrieved from http://projects.ori.org/lrg/PDFs_papers/A broad-bandwidth inventory.pdf

Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The International Personality Item Pool and the future of public-domain personality measures. *Journal of Research in Personality*, 40(1), 84–96. <https://doi.org/10.1016/j.jrp.2005.08.007>

Hilbig, B. E., Moshagen, M., & Zettler, I. (2016). Prediction consistency: A test of the equivalence assumption across different indicators of the same construct. *European Journal of Personality*, 30(6), 637–647. <https://doi.org/10.1002/per.2085>

Hirsh, J. B., DeYoung, C. G., Xiaowen Xu, & Peterson, J. B. (2010). Compassionate liberals and polite conservatives: Associations of agreeableness with political ideology and moral values. *Personality and Social Psychology Bulletin*, 36(5), 655–664. <https://doi.org/10.1177/0146167210366854>

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy. *Handbook of Personality: Theory and Research*, 114–158. [https://doi.org/10.1016/S0191-8869\(97\)81000-8](https://doi.org/10.1016/S0191-8869(97)81000-8)

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York, NY: Guilford Press.

- Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research*, 39(January), 329–358.
<https://doi.org/10.1207/s15327906mbr3902>
- 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(2), 182–191.
<https://doi.org/10.1037/1040-3590.18.2.182>
- Lee, K., & Ashton, M. C. (2018). Psychometric properties of the HEXACO-100. *Assessment*, 15(5), 543–556. <https://doi.org/10.1177/1073191116659134>
- Lee, K., Ogunfowora, B., & Ashton, M. C. (2005). Personality traits beyond the Big Five: are they within the HEXACO space? *Journal of Personality*, 73(5), 1437–1463.
<https://doi.org/10.1111/j.1467-6494.2005.00354.x>
- Osborne, D., Wootton, L. W., & Sibley, C. G. (2013). Are liberals agreeable or not? *Social Psychology*, 44(5), 354–360.
- Revelle, W. R. (2017). psych: Procedures for Personality and Psychological Research. Retrieved from <https://www.scholars.northwestern.edu/en/publications/psych-procedures-for-personality-and-psychological-research>
- Schmit, M. J., Amel, E. L., & Ryan, A. M. (1993). Self-reported assertive job-seeking behaviors of minimally educated job hunters. *Personnel Psychology*, 46(1), 105–124.
<https://doi.org/10.1111/j.1744-6570.1993.tb00869.x>
- Schwarzer, G. (2007). meta: An R package for meta-analysis. *R News*, 7(3), 40–45.
- Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113(1), 117–143.
<https://doi.org/10.1037/pspp0000096>
- Sun, J., Kaufman, S. B., & Smillie, L. D. (2016). Unique associations between Big Five personality aspects and multiple dimensions of well-being. *Journal of Personality*, 314, 1–46.
<https://doi.org/10.1111/jopy.12301>

- Thalmayer, A. G., Saucier, G., & Eigenhuis, A. (2011). Comparative validity of brief to medium-length Big Five and Big Six Personality Questionnaires. *Psychological Assessment*, 23(4), 995–1009. <https://doi.org/10.1037/a0024165>
- Thielmann, I., & Hilbig, B. E. (2018). Nomological consistency: A comprehensive test of the equivalence of different trait indicators for the same constructs. *Journal of Personality*, 1–16. <https://doi.org/10.1111/jopy.12428>
- Volkema, R. J., & Fleck, D. (2012). Understanding propensity to initiate negotiations. *International Journal of Conflict Management*, 23(3), 266–289. <https://doi.org/10.1108/10444061211248976>
- Weisberg, Y. J., DeYoung, C. G., & Hirsh, J. B. (2011). Gender differences in personality across the ten aspects of the Big Five. *Frontiers in Psychology*, 2(August), 1–11. <https://doi.org/10.3389/fpsyg.2011.00178>
- Zhao, K., Ferguson, E., & Smillie, L. D. (2016a). Individual differences in good manners rather than compassion predict fair allocations of wealth in the Dictator game. *Journal of Personality*. <https://doi.org/10.1111/jopy.12237>
- Zhao, K., Ferguson, E., & Smillie, L. D. (2016b). Prosocial personality traits differentially predict egalitarianism, generosity, and reciprocity in economic games. *Frontiers in Psychology*, 7(AUG), 1–18. <https://doi.org/10.3389/fpsyg.2016.01137>
- Zhao, K., Ferguson, E., & Smillie, L. D. (2017). Politeness and compassion differentially predict adherence to fairness norms and interventions to norm violations in economic games. *Scientific Reports*, 7(1), 3415. <https://doi.org/10.1038/s41598-017-02952-1>

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Table 1

Meta-analysis of Self-Report HEXACO Domains with BFAS Domains and Aspects

	H	E	X	A	C	O	Altruism
Agreeableness	.47	.38	.14	.37	.20	.10	.63
-Compassion	.29	.38	.28	.22	.17	.20	.58
-Politeness	.51	.25	-.04	.41	.18	-.03	.51
Neuroticism	-.14	.52	-.50	-.50	-.25	-.08	-.07
-Volatility	-.17	.40	-.32	-.61	-.21	-.06	-.11
-Withdrawal	-.08	.53	-.59	-.28	-.24	-.08	-.02
Conscientiousness	.08	.02	.33	-.01	.76	-.09	.15
-Industriousness	.10	-.17	.45	.09	.66	.04	.13
-Orderliness	.03	.20	.10	-.11	.63	-.19	.12
Extraversion	-.07	-.02	.81	.02	.26	.18	.24
-Enthusiasm	.02	.17	.72	.18	.13	.06	.35
-Assertiveness	-.14	-.19	.67	-.13	.31	.24	.07

Openness/Intellect	.11	-.07	.24	.08	.26	.74	.24
-Intellect	.06	-.23	.34	.03	.36	.50	.16
-Openness	.12	.12	.06	.10	.07	.73	.25

Note. H = Honesty-Humility, E = Emotionality, X = eXtraversion, A = Agreeableness, C = Conscientiousness, O = Openness to Experience. Values $|\geq .30|$ or larger are in bold.

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Table 2

Correlations (above .30) of BFAS and HEXACO

(a) Compassion							Politeness						
HEXACO measure	Self-report sample				SR meta-analysis	Other-report	HEXACO measure	Self-report sample				SR meta-analysis	Other-report
	S1	S2	S3 ^a	S4		S4		S1	S2	S3 ^a	S4		S4
Emotionality	.35	.40	.36	.45	.38	.32	H	.50	.53	.53	.48	.51	.53
E-Sentiment	.56	.54	.56	.60	.56	.60	H-Fairness	.41	.42	.40	.48	.42	.42
X - Sociability	.34	.24	.29	.42	.31	.34	H-Modesty	.52	.50	.50	.44	.49	.54
Altruism	.59	.58	—	.54	.58	.58	A	.51	.36	.38	.36	.41	.62
							A-Flexibility	.43	.32	.33	.27	.34	.46
							A-	.50	.37	.40	.34	.41	.52
							Gentleness						
							A-Patience	.40	.23	.28	.27	.30	.46
							Altruism	.48	.50	—	.56	.51	.55
(b) Volatility							Withdrawal						
HEXACO measure	Self-report sample				SR meta-analysis	Other-report	HEXACO measure	Self-report sample				SR meta-analysis	Other-report
	S1	S2	S3 ^a	S4		S4		S1	S2	S3 ^a	S4		S4

E	.38	.43	.38	.40	.40	.32	E	.51	.59	.50	.52	.53	.61
E-Anxiety	.42	.48	.48	.44	.46	.35	E-Anxiety	.63	.63	.58	.56	.61	.61
X	-.24	-.46	—	-.24	-.32	-.22	E-Dependency	.23	.32	.35	.37	.31	.45
X-Sose	-.30	-.49	—	-.37	-.39	-.27	E-Fearfulness	.38	.43	.29	.42	.38	.51
A	-.66	-.60	-.55	-.62	-.61	-.67	X	-.57	-.67	—	-.50	-.59	-.56
A-Flexibility	-.39	-.40	-.35	-.32	-.37	-.48	X-Liveliness	-.53	-.63	-.46	-.53	-.54	-.48
A-Forgiveness	-.45	-.37	-.28	-.40	-.38	-.46	X-Socb	-.40	-.47	-.39	-.40	-.42	-.43
A-Gentleness	-.40	-.31	-.44	-.31	-.37	-.50	X-Sose	-.60	-.70	—	-.54	-.62	-.61
A-Patience	-.75	-.68	-.65	-.72	-.70	-.68							
C-Prudence	-.32	-.36	-.35	-.31	-.34	-.13							
(c)	Industriousness							Orderliness					
HEXACO measure	Self-report sample				SR meta-analysis	Other-report	HEXACO measure	Self-report sample				SR meta-analysis	Other-report
	S1	S2	S3 ^a	S4		S4		S1	S2	S3 ^a	S4		S4
X	.45	.53	—	.32	.45	.18	C	.61	.62	.64	.67	.63	.73
X-Liveliness	.38	.48	.28	.30	.37	.15	C-Diligence	.23	.34	.35	.34	.32	.40

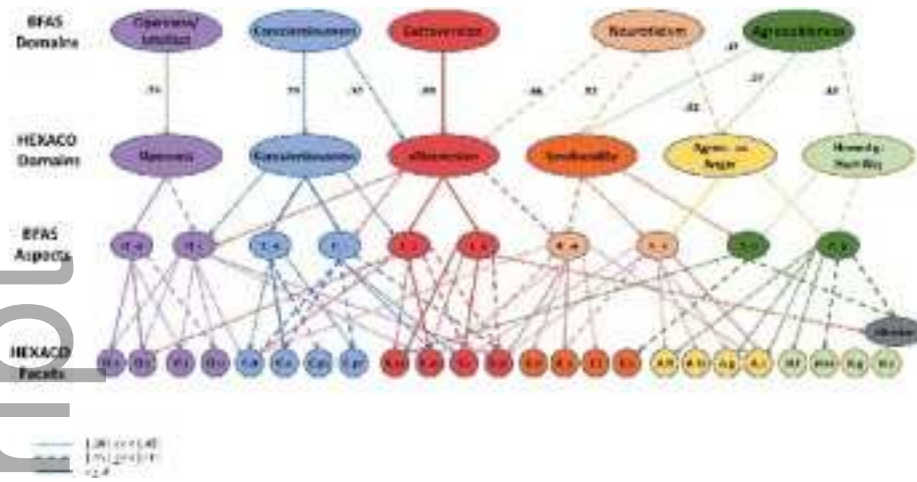
X-Social Boldness	.37	.43	.25	.23	.33	.17	C-Organize	.68	.66	.71	.67	.68	.80
X-Sose C	.46	.51	—	.37	.46	.24	C-Perfection	.47	.38	.43	.50	.44	.57
C	.67	.68	.60	.69	.66	.69	C-prudence	.40	.38	.29	.37	.37	.45
C-Diligence	.60	.60	.53	.62	.59	.62							
C-Organize	.56	.59	.50	.57	.56	.55							
C-prudence	.48	.48	.46	.49	.47	.45							
(d)	Enthusiasm						Assertiveness						
HEXACO measure	Self-report sample				SR meta-analysis	Other-report	HEXACO measure	Self-report sample				SR meta-analysis	Other-report
	S1	S2	S3 ^a	S4		S4		S1	S2	S3 ^a	S4		S4
X	.75	.73	—	.66	.72	.71	X	.69	.64	—	.69	.67	.62
X-Liveliness	.70	.61	.50	.60	.61	.63	X-Liveliness	.53	.43	.39	.43	.45	.37
X-Socb	.48	.48	.40	.31	.43	.44	X-Socb	.75	.71	.73	.76	.74	.71
X-Sociabilit	.63	.63	.56	.66	.62	.70	X-Sociabilit	.40	.41	.31	.34	.37	.50
X-Sose	.53	.55	—	.41	.51	.48	X-Sose	.48	.43	—	.50	.46	.35
Altruism	.36	.36	—	.32	.35	.41	C	.32	.34	.24	.31	.31	.11
							C-Diligence	.42	.48	.39	.38	.43	.29

							O-Creativity	.31	.27	.42	.22	.31	.14
(e)	Intellect						Openness						
HEXACO measure	Self-report sample				SR meta-analysis	Other-report	HEXACO measure	Self-report sample				SR meta-analysis	Other-report
	S1	S2	S3 ^a	S4		S4		S1	S2	S3 ^a	S4		S4
X	.38	.35	—	.24	.34	.20	O	.74	.78	.68	.68	.73	.74
X-Socb	.42	.38	.40	.34	.39	.26	O-Aest	.69	.70	.69	.61	.68	.72
X-Sose	.34	.30	—	.29	.31	.14	O-Creativity	.65	.69	.50	.54	.60	.57
C	.39	.34	.23	.35	.36	.34	O-Inquiry	.39	.40	.41	.32	.39	.36
C-Diligence	.49	.52	.32	.38	.43	.38	O-Unconven	.54	.59	.52	.41	.53	.53
O	.53	.50	.59	.36	.50	.41							
O-Aest	.39	.35	.36	.16	.33	.28							
O-Creativity	.40	.39	.50	.20	.38	.21							
O-Inquiry	.40	.36	.48	.30	.39	.42							
O-Unconven	.43	.45	.49	.38	.45	.32							

Note. S1 = Student sample, S2 = MTurk sample, S3 = ESCS sample, S4 = Canadian sample, H = Honesty-Humility, E = Emotionality, X = eXtraversion, A = Agreeableness, C = Conscientiousness, O = Openness to Experience, Sentiment = sentimentality, Socb = Social Boldness, Sose = Social Self-Esteem, Organize = Organization, Perfection = Perfectionism, Aest = Aesthetical Appreciation, Inquiry = Inquisitiveness, Unco = Unconventionality.

^a In the third sample, an older version of the HEXACO scale lacking Altruism and X-Sose was used. Accordingly, we also do not present results for the X domain in this sample, and the self-report meta-analyses for each do not use the third sample.

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