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A Basic Bivariate Structure of Personality Attributes

Evident Across Nine Languages

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Abstract

(Objective:) Here, two studies seek to characterize a parsimonious common-denominator personality structure with optimal cross-cultural replicability. Personality differences are observed in all human populations and cultures, but lexicons for personality attributes that contain so many distinctions that parsimony is lacking. Models stipulating the most important attributes have been formulated by experts or by empirical studies drawing on experience in a very limited range of cultures. (Method:) Factor-analyses of personality lexicons of nine languages of diverse provenance (Chinese, Korean, Filipino, Turkish, Greek, Polish, Hungarian, Maasai, and Senoufo) were examined, and their common structure compared to that of several prominent models in psychology. (Results:) A parsimonious bivariate model showed evidence of substantial convergence and ubiquity across cultures. Analyses involving key markers of these dimensions in English indicate that they are broad dimensions involving the overlapping content of the interpersonal circumplex, models of communion and agency, and of morality/warmth and competence. (Conclusions:) These "Big Two" dimensions – Social Self-Regulation and Dynamism – provide a common-denominator model involving the two most crucial axes of personality variation, ubiquitous across cultures. The Big Two might serve as an umbrella model serving to link diverse theoretical models and associated research literatures.

Keywords: Personality Structure, Lexical, Cross-Cultural, Interpersonal, Morality

Introduction and Background

'Personality' refers to relatively stable patterns of behavior, affect, and thinking. All living human languages seem to include numerous terms referring to attributes of personality and other human propensities (Dixon, 1982). But languages do not reference an identical set of attributes. They differ in what set of specific personality attributes has become efficiently represented in single words (Dixon, 1982), and which attributes are those most talked about.

Many of the words describing attributes within any language are synonyms and antonyms with one another. When applied to descriptions of target persons these terms are statistically correlated. Because of this, the many attribute-terms can be reduced to a much smaller number of basic dimensions, as many studies show (Saucier & Goldberg, 2001). These studies have failed to agree, however, on what the basic dimensions are, that is, on the "structure" of the attributes.

Based on a theory of pure cultural relativism, one would expect that no common dimensions will be found because the body of concepts within one language will be incommensurable with that found in any other. Vindication of this view now seems unlikely. There are at least some similarities between certain dimensions found in many languages.

Based on a theory of strong trait universals, one would expect that all important dimensions of personality attributes found in any language will be found in similar form within all languages. Vindication of an extreme trait-universals view is very unlikely: Natural-language personality descriptors in any one language tend to generate typically five to seven factors that are large, interpretable, and mutually independent, but these factors tend not to match perfectly between studies (and languages). Voluminous bodies of research have indicated considerable cross-cultural comparability for the dimensions that arise from certain prominent personality questionnaires (e.g., Eysenck & Eysenck, 1985; Costa & McCrae, 1992). But inferences of

strong trait universality from these questionnaire studies are limited because (a) rather than taking each language separately and seriously, they translate concepts from one language into another, in effect forcing the first language's structures on others, and (b) they have typically involved only samples of well-educated persons from a set of countries (e.g., college students) that may inadequately represent cultural differences. The oft-assumed universality of the currently popular 'Big Five' model of personality attributes (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Intellect/Openness) suffers from this limitation.

Nonetheless, the points of similarity between some dimensions in many languages suggest there could be a few truly ubiquitous aspects forming a "common denominator" of personality-attribute structure, even if previous research, with its focus on finding as many as a half-dozen dimensions, has not detected them. Such studies have often described the results obtained when analyses are constrained to produce a smaller number of dimensions. Reviews of such incidental analyses (e.g., Saucier & Goldberg, 2001) indicate apparent similarities at a very broad level – two dimensions that might be called Social Self-Regulation (propriety, socialization, community, solidarity) and Dynamism (activity, potency, ascendancy). Such dimensions seem to arise whether variable selection is broad or restricted (Saucier, 1997). No lexical structure reached truly acceptable levels of congruence across pairs of languages from 14 previous studies in the recent analyses of De Raad et al. (2010; cf. Ashton & Lee, 2010); however, no structure had higher cross-language congruence than the two-factor structures.

Our first study examined to what degree the content of statistically generated bivariate (two-dimensional) organizations of personality attributes demonstrate ubiquitous features across languages. Beyond being the first systematic comparison of these bivariate structures, the study is unprecedented in three ways. First, in terms of global diversity, it involves representatives of

more language families than any previous study, without the heretofore-typical preponderance of European languages skewing results in a Eurocentric direction. Second, it references a wider range of populations, with samples from rural and non-industrialized as well as urban or higher-education settings. And third, in contrast to the cross-cultural studies of single personality questionnaires from which claims of universality have been made before, the method gives each language equal weight, so that convergences point to a "culturally decentered" model not biased toward ways of thinking predominant in only one part of the world.

Study 1

Method

Overview. If there were an underlying common bivariate structure of personality attributes, studies of frequently used personality descriptors in a range of languages should find that each of the two dimensions is characteristically defined by recurrent concepts. When the concepts most associated with each dimension in each language (i.e., salient markers) are translated into a common comparison language – here, English – a recurrent concept would be evident when the same English term repeatedly appears, to translate the salient markers. Such a comparison of salient markers translated into a common comparison language has been made for six- and seven-dimensional structures (Ashton et al., 2004; Saucier, 2009). This method (as contrasted, say, with confirmatory factor analysis) is appropriate here particularly because of the emic nature of variable selection in lexical studies: Each study selects the most important descriptors from a language, without all languages forced to have the same variable selection.

Accordingly, we identified the salient markers for each of two dimensions from a group of languages, and then tabulate the recurrence of concepts in their English translation. Seven of the languages were previously examined in published studies, which have used samples drawn

from academic settings as in most relevant previous studies. But we added an examination of dimensions from two new languages based on samples from rural, traditional regions of Africa.

This set of languages maximizes diversity, rather than over-representing languages of European origin. The first seven languages (Turkish, Filipino, Chinese, Korean, Hungarian, Greek, and Polish) represent six language families, respectively: Altaic, Austronesian, Sino-Tibetan, the Korean language isolate, Finno-Ugric, and (with Greek and Polish) two major subgroups within the Indo-European family. The two African languages (Maa and Supyire Senoufo) represent two further language families: Nilotic and Niger-Congo. Maa is the language spoken by the Maasai people; we hereafter refer to Supyire Senoufo simply as Senoufo. There have been lexical studies of English (e.g., Saucier, 1997) but we did not include them, as doing so might indirectly over-represent the language that we employed as a *lingua franca*.

Lexical studies have examined both ratings of one's own attributes and ratings of one other person with whom the rater is well-acquainted, that is, both self and peer ratings. We sought diversity in data type, not relying solely on self-report. Chinese, Polish, Senoufo, and Maa data consisted of peer ratings; data from the other five samples – Korean, Filipino, Turkish, Hungarian, and Greek -- consisted of self ratings. In each of these languages, the original study used a large set of terms selected as the most frequently used personality descriptors in that language. The terms were administered to fluent native speakers of the language who rated the applicability of the term to the person (whether self or a peer). For each data set, Table 1 gives the sample size and number of terms. For Maa and Senoufo, the questionnaire was administered by oral interview, because very few individuals are literate in the new written forms of these languages. For the other languages the questionnaire was administered in written form. (For more detail on all data sets and their factors, see www.uoregon.edu/~gsaucier/bigtwo.htm)

For each language, exploratory factor analyses (principal components extraction with rotation by a varimax criterion; Kaiser, 1958) were conducted to identify two dimensions (factors). For each dimension in each language we identified 50 salient markers: the 50, among those terms having a higher correlation with that dimension than with the other dimension, with highest-magnitude (whether positive or negative) loadings the dimension. We then tabulated the frequency with which each term (in terms of its English translation) appeared across languages.

As noted, analyses in previous studies at the two-factor level seem to converge on two common dimensions (Saucier & Goldberg, 2001). A challenging question is whether such recurrent concepts – indicating the same dimensions -- will be found in languages from two new language-families, from a different continent (Africa), where the samples were mostly non-literate individuals in rural, traditional settings. Structures of three or more factors are beyond the scope of this research. However, our analyses indicated that at the level of three to seven dimensions, structures from these two African languages do not agree strongly either with each other or with results in previously studied languages. Moreover, studies in three other languages included here – Greek (Saucier et al., 2005), Hungarian (Szirmak & De Raad, 1994), and Chinese (Zhou et al., 2009) – failed to provide good support for the currently popular 'Big Five' dimensions, whereas studies in the remaining languages (Filipino, Polish, Turkish, and Korean) have identified dimensions that resemble in varying degrees the Big Five.

Materials and methods. As Table 1 indicates, research leading to the nine data sets used differing variable selection strategies, some more restrictive and others more broad. Restrictive variable selection strategies attempt to exclude descriptors that refer to evaluations of a person, the person's status or effects on others, or temporary states a person may experience, based on the argument that these are not the most prototypical kinds of personality attributes.

Broad strategies include most or all such descriptors, since all are potentially relevant to the study of personality (e.g., Tellegen, 1993). Results would be most generalizable if not dependent on strategy. So we included data sets based on both kinds of variable-selection approaches. We also allowed all word forms used in these data sets: Most concentrated on adjectives only, but Maa, Senoufo, and Chinese data involved nouns and even some person-descriptive verbs as well.

Data sets from previous studies involved printed questionnaires, in which the respondent rated the applicability of the term to the person (self or peer) using a multipoint rating scale. The Maasai and Senoufo data used such questionnaires, but since most participants were non-literate the questionnaire was orally administered by the same one (male) interviewer for each data set. Each questionnaire contained those terms (203 in Maa, 208 in Senoufo) judged by the consensus of several raters (all native-language speakers) to be the most frequently used terms in the language for describing attributes of persons, among those words in recently developed dictionaries for these languages (Carlson, undated; Payne & Ole-Kotikash, 2003)

In the Maasai and Senoufo studies, each participant was asked to first describe a person whom they knew well and thought highly of, and then to select a person they thought less highly of than the first. Of the 166 Maasai participants, 154 also described a second person; of the 110 Senoufo participants, 107 did so. To ensure fully independent observations, within each of these two languages we derived two-factor results separately for more admired and less admired targets, and then averaged the correlation of each term with each dimension. The two factors are characterized in these two languages based on these average loadings. In the more-admired subsample in Maasai data, 13 terms (e.g., lazy, beastlike) had zero or near-zero variance and very high skewness; these removed, analyses in this data-set were based on the remaining 190 terms.

We counted as the same concept any of variant words sharing the same root in English. Thus, *good* and *goodness* were counted as the same concept, as were *assured* and *self-assured*. Moreover, a root-sharing antonym (e.g., *disobedient* for *obedient*) was counted as the same concept, if it was a salient marker term for the opposite pole of the appropriate dimension.

All translations had their source in either native speakers of the appropriate language, or (for Maa and Senoufo) in the collaboration between a linguist and a set of native speakers. All translations were completed prior to any of the present analyses, and without anticipating the present analyses. Data from some languages (Chinese, Greek, Maa, Senoufo) included, for some terms, more than one English word translating a native-language term. For purposes of this study, we treated each of these multiple terms as an alternate, equally good translation.

We report results from data that have been ipsatized, with each rater's responses standardized across all terms used, equalizing the mean and standard deviation of responses across raters. Ipsatization is favored in lexical studies because it may produce slightly more interpretable and bipolar dimensions. Results from original data, however, were similar.

Results

As expected, the data sets from previously published studies each yielded two dimensions in each language interpretable as Social Self-Regulation and Dynamism. Social Self-Regulation appeared as the first dimension and Dynamism the second in all languages but Greek and Turkish; in these two languages the order of appearance (which is arbitrary) was reversed.

Similarly, the new data – Maa and Senoufo – yielded Social Self-Regulation (S) and Dynamism (D) dimensions in that order. For the Senoufo S factor the most salient terms could be translated as *contrary person*, *quarreler*, *evildoer*, *covetousness*, *trickery*, and (for the other, opposite pole) *honesty*, *goodness, good-natured, gentle,* and *[has sense of] shame,* for the D

factor *embarrassed*, *disappointment*, *suffering*, *cold*, *fatigue,* and (for the other pole) *well-being,*

luck, very clean, peace, and *happiness*. For the Maasai S factor, the most salient terms included

those translated as *deception/cheating, crude/vulgar*, *negligent*, *gossip*, *provoking fights* and (for

the other pole) *truthful, effective, good/nice, respect,* and *lucky person*; for the Maasai D factor

the most salient terms included those translated as *depressed*, *lame*, *illness*, *poverty, bewitchment*

and (for the other pole) *wealthiness, well-known, healthy, courageous*, and *brave*.

Overall, 680 different English terms were used to translate the 900 native-language terms

referenced (112 of these English terms never appeared as the first entry in translating a term,

only as a secondary, alternative gloss). Each of these 680 English terms was used to translate on

average 1.6 terms in the corpus. English has a huge vocabulary of person-descriptive terms, so a

translator must often choose between synonyms. Moreover, one should remember that these are

very broad factors – the largest two extractable from the intercorrelations of the terms in each

language – and a large percentage of terms in any language would have sizeable loadings on one

or both of them. So we should not be surprised that, in some language or other, the concepts

referenced by as many as 680 English terms are candidates to be markers for the two factors.

However, we did find 20 English terms that were used as glosses in a majority (at least

five) of the languages. These 20 were the most important for present purposes, because they

enabled linking the results in the nine languages. If these 20 terms fell into two groups in a

consistent way, and the groups corresponded to prior conceptions of Social Self-Regulation and

Dynamism, that would be persuasive evidence for a recurrent "Big Two" structure.

Indeed, the terms did fall into two distinct groups as expected. Seventeen of these 20

terms (85% of them) behaved with perfect consistency across all of the languages in which they

were used as translations. No less than 112 of the 117 factor-associations of these 20 terms (96%

of such associations) conformed to the pattern. The pattern is evident in Table 2, which lists 17

terms – terms that were not only highly recurrent, appearing as salient markers in a majority of

the nine languages, but that also had a perfectly consistent pattern of association. Terms having a

negative correlation with the dimension are indicated by a parenthetical minus. The languages

contributed relatively equally to the overall pattern: Each language contained as salient marker

terms for the two dimensions a majority (from 9 to 12) of the 17 recurrent, consistent concepts.

There were ten such concepts for the Social Self-Regulation dimension; all reference

virtues arising out of constraining one's behavior and one's self-interest for socially approved

purposes. There were seven recurrent, consistent concepts for the Dynamism dimension, all

involving relative expression versus inhibition of exploratory behaviors (in situations where

either expression or inhibition would be socially acceptable). The three concepts (of 20) that did

not have a perfectly consistent pattern – not in Table 2 -- were predominantly though not always

associated with Dynamism; the three were Happy (high D), and Quiet and Bashful (low D).

If the criterion were to be relaxed slightly, and any term appearing as a salient marker in

four of nine languages were included, the content would be consistent with Dynamism (D) and

Social Self-Regulation (S). Under this scenario, additional S terms (not listed in Table 2, but also

perfectly consistent in their association with S) would be *calm, careful, disciplined, patient,* and

polite. Added D terms would be *cheerful, daring, dynamic, energetic, sociable*, *strong* and

(opposite pole) *cowardly, fearful, pessimistic, sad*, and *silent*. An even further relaxation of the

criterion to three of nine languages would add to the S dimension *benevolent, conscientious,*

courteous, discreet, dutiful, faithful, good-natured, humane, industrious, *magnanimous, simple,*

and *thoughtful*, as well as (opposite pole) *egocentric, envious, gossipy*, *hot-headed,* and

rebellious; it would have added to the D dimension *clever, confident, courageous, determined,*

enterprising, extraverted, intelligent, optimistic, talkative, and *vigorous*, as well as (opposite pole) *anxious, boring, depressed, dull, hesitant, introverted, melancholic,, taciturn, troubled,* and *withdrawn*. These additions bring out the breadth of the content in each of the two dimensions.

Discussion

When ratings of personality terms from a wide variety of languages are sorted into two dimensions, there is a high consistency in the nature of these dimensions. That is, those English terms appearing most often to translate native-language terms for these dimensions display marked consistency in which dimension they associate with. Thus, we provide important evidence for two personality dimensions recurrent across languages, and the content of these dimensions (evident in Table 2) suggests that previously developed labels (Social Self-Regulation and Dynamism) for them apply well. These two dimensions do not fully capture the essence of any one culture's conceptions of personality (as per Tellegen, 1993), but rather the set of concepts likely to transfer best across cultural boundaries.

Although, we do not focus on what occurs in these data when only a single dimension is extracted, we did examine these: They were also quite comparable across languages, in a way consistent with previous work by Osgood (1962): The single dimension contrasted favorable with unfavorable attributes and <u>could</u> be called Evaluation -- though especially <u>moral</u> evaluation. A one-factor structure provides less information than a two-dimensional structure. It is noteworthy that one of our factor labels – Dynamism – is borrowed from Osgood's label for that combination of potency and activity that arises frequently in judgments about human targets.

One possible limitation is our use of English translations for comparing results from nine other languages. However, the study would have been impossible without a common language of comparison. Results were no doubt affected by the choice of English glosses made by the

translators, such as choosing *truthful* rather than *honest* to translate a word. But these choices were prior to and unrelated to the present study, and so introduce only unsystematic error.

Another possible limitation is that we examined only nine languages (out of thousands spoken across the world). However, the nine languages selected span a great geographic range and eight language families, and lack the inadvertent bias toward European-origin languages found in previous lexical study comparisons (e.g., Ashton et al., 2004; Peabody & De Raad, 2002). If we had drawn on additional lexical studies, virtually all of them would be European, which would confer a pronounced ethnocentric bias on the convergent pattern emerging from the analysis. Because of the high diversity of the nine languages selected, the pattern on which they converge can be expected to generalize widely across multiple continents and language groups.

Cross-culturally ubiquitous patterns in human behavior might suggest biological causes. Indeed, there have been recent proposals as to the neurological basis of two personality dimensions like these: DeYoung and Gray (in press) report on similar dimensions (cf. Digman, 1997; DeYoung, 2006) derived by analyzing the intercorrelations among the 'Big Five' trait dimensions. Based on previous literature relating neuromodulators to personality, they link Stability (clearly related to Social Self-Regulation) with serotonin functioning and Plasticity (clearly related to Dynamism) with dopamine functioning.

This study suggests a strong theoretical proposition: Analyses of personality descriptors in any human language, used to describe the attributes of real persons, will yield a predictable set of "Big Two" dimensions. Each of the dimensions will include concepts from among those (seven or 10) presented for each dimension in Table 2, and if translations for all terms representing those concepts are in the data set they should fall into the two groupings as depicted in Table 2. If studies in numerous further languages, from diverse language groups, yield results

consistent with this theoretical proposition, then it might be upgraded in status, to an important scientific law of human personality variation. Such a law would apply – as it did in this study – about as well in village settings in Africa as in university settings in Budapest and Shanghai.

Study 2

The first study indicated a substantial degree of commonality in the content of two-factor structures of personality attributes across a very diverse range of languages and populations (and across self- and peer-reports). This common bivariate personality structure we call the Big Two.

But how are we to interpret the content of this Big Two structure in light of previous constructs? An obvious question is how this bivariate structure relates to prominent models of five or six factors. But there are other pertinent questions. To what degree can this basic bivariate structure be encapsulated within (or reduced to) previous bivariate models -- so that little new formulation will be needed because this structure already matches an established theoretical framework? Or, failing that, to what degree can this bivariate personality structure serve to link multiple theoretical frameworks? In Study 2, we addressed these questions by relating the dimensions of the bivariate model to dimensions in alternative models, using an American community sample. Relation can be inferred based on matrices of correlation; reducibility to another model can be inferred if residuals are essentially meaningless once the variables in the other model are partialed out of the Big Two.

What previous two-dimensional models might be relevant? Paulhus and John (1998) informatively reviewed of a variety of two-dimensional models of personality. And other potentially relevant two-dimensional models have become influential since that review. Based on the most prominent and potentially isomorphic of these models, we consider four hypotheses.

1. The Big Two are related to or identifiable with the interpersonal circumplex.
Beginning in the 1950s, investigators proposed that attributes most salient in interpersonal interactions can be reduced to two dimensions, the basis for an interpersonal circumplex. This model received considerable research support, and Wiggins (1991) defined a widely used measure for the circumplex, as an octagon with adjective-scales for each of eight octants. The four octants taken usually to set the axes of this two-dimensional model are Assured-Dominant versus Unassured-Submissive, and Warm-Agreeable versus Cold-hearted. The hypotheses here are that: (a) the former axis is related to Big Two Dynamism and the latter axis to Social Self-Regulation, and (b) the Big Two are reducible to these two interpersonal dimensions.

2 *The Big Two are related to and reducible to current models of morality/warmth and competence.* Social psychologists often use personality concepts in studies of stereotypes and impression formation. Researchers propose that there are two important and differentiable types of content in perception and judgment of self and others. One tends to be labeled as competence, with the other being labeled either as morality (Wojciszke, 2005a, 2005b) or as warmth (Fiske et al., 2006; Judd et al., 2005). Morality and warmth are related concepts: Fiske et al. (2006) some-times refer to the warmth dimension as morality or moral-social; Leach, Ellemers, and Barreto (2007) identified warmth/sociability and morality as two components within Fiske et al.'s construct of warmth (cf. Rosenberg et al., 1968). More recently, Wojciszke, Abele, and Baryla (2009) applied the broader labels agency and communion in place of competence and morality, although the adjectives they select to measure these dimensions still retain the same emphasis on competence and morality. The hypotheses here are that: (a) Competence (or Agency) is related to Big Two Dynamism and Warmth/Morality (or Communion) to Social Self-Regulation, and (b) the Big Two are reducible to these two dimensions in person perception and judgment.

3. *The Big Two relate to and are reducible to the two largest dimensions in clinical symptom reports – internalizing and externalizing tendencies – as they manifest in normal-range populations.* Studies of the structure of mental disorders, based on comorbidity patterns and symptom checklists, indicate a recurrent set of two broad higher-order factors, each often described as a ''spectrum'' constituted by several major disorders (Achenbach & Edelbrock, 1984; Krueger et al., 1998). An <u>internalizing</u> factor includes anxious, phobic, depressed, somatic, obsessive, and compulsive symptoms, and a theme of withdrawing from the external world. An <u>externalizing</u> factor includes attention deficit, aggressive, delinquent, and substance-use symptoms, and a theme of moving against the world, the individual in conflict with society. Individual differences in these factors have highly stability (Krueger et al., 1998; Vollebergh et al., 2001), and strong genetic underpinnings (Kendler et al., 2003; Krueger et al., 2002), whereas unique environmental experiences more likely lead to differentiation between the syndromes within each factor (Kendler et al., 2003). The hypotheses here: (a) internalizing tendencies are (negatively) related to Big Two Dynamism, and externalizing tendencies (negatively) to Social Self-Regulation, and (b) the Big Two are reducible to these symptom-related factors.

4. *The Big Two relate and are reducible to approach and avoidance tendencies.* A prominent theoretical approach for constructing a biological-process model (Carver, 2005) draws on a longstanding contrast in psychology between avoidance and approach. The model conceives of two independent brain-based motivational systems. One is an aversion-oriented system primed to respond to threats, harm, punishment, and danger in the social/physical environment, stimuli the organism would typically want to avoid. The other is an appetitive system oriented to signals of potential benefit -- features of the social/physical environment that might bring reward or relief -- features the organism would typically tend to approach. These distinct avoidance and

approach motivational systems are thought to underlie important patterns of behavior and affect.

The two systems are referenced by variously labeled pairs of independently varying constructs,

including behavioral inhibition and activation systems (BIS and BAS; Carver & White, 1994)

and sensitivity to punishment and to reward (Torrubia et al, 2001). Here we explore the

hypotheses that: (a) approach tendencies are related to Big Two Dynamism and avoidance

tendencies to Social Self-Regulation (since those with lower self-regulation tendencies may

conceivably be less attentive to or concerned with potential threats and dangers), and (b) the Big

Two are reducible to these motivational dimensions.

Method

Whereas Study 1 focused entirely on other languages, this study relied on data from

American English speakers. Participants were members of the Eugene-Springfield community

sample (58% female, mean age 51 in 1993; Grucza and Goldberg [2007] provide more details).

This large community sample offers a large range of variables, including many person-

descriptive adjectives useful for tapping the bivariate structure as well as other models. Except as

indicated, all materials were administered in self-report format in English.

Table 2 provides the most consensual adjectival markers for the two ubiquitous factors.

But as noted earlier, the small core of lexical content in Table 2 (based on five of nine languages)

appears not to fully capture the full breadth of these factors. This is particularly so with respect to

Dynamism; the seven terms in Table 2 do not well encompass the negative emotionality and

intellect-related content more evident if one includes terms appearing in at least three of nine

languages. To provide a representation with greater breadth (and internal consistency), analyses

here relied also on a broader alternative. This was all terms appearing on the factor in at least

three languages, with only a few contingencies. First, the term had to be among the adjectives

administered to this sample; *discreet, hesitant,* and *magnaminous* were not. Second, the term

needed to not stray far from a reasonable univocality. When the core terms in Table 2 were

aggregated into two scales in the present sample, none of them correlated more than .29 with the scale for the other factor. This was set as a threshold for the larger set, to limit inflation of the interscale correlation. Terms were excluded if they correlated .30 or more with the other factor. This led to the removal of 8 terms from the Dynamism set that had sizeable correlations with both factors – *cheerful, energetic, sociable, confident, determined, optimistic, boring,* and *withdrawn.* The end result, then, was a set of 29 terms each for Dynamism and for Social Self-Regulation. The vast majority of these terms were administered to the sample in 1995 as part of a large 525-term compendium (Saucier, 1997); those few that were not were administered in 1993, 1998, 2001, or 2002. As expected, the 29-item aggregates for S (mean 5.58, SD .49) and D (mean 5.17, SD .83) had higher internal consistency than the shorter aggregates for S (mean 5.78, SD .56) and D (mean 5.01, SD .85): .83 versus .73 for S, and .89 versus .72 for D.

These Big Two scales were first compared to measures of Big Five and six-factor models. For the Big Five, Goldberg's (1992) 100 markers administered in 1993, Saucier's (1994) 40-term Mini-Markers subset of the 100 administered in 1994, and the domain scales from the 240-item NEO Personality Inventory – Revised (NEO-I-R; Costa & McCrae, 1992) administered in 1994. To capture a hierarchical level just below the Big Five, we utilized the 100-item Big Five Aspect Scales (DeYoung, Quilty, & Peterson, 2007) based on various 'IPIP' items administered between 1994 and 2004. For six-factor models, measures were six scales from the 200-item HEXACO-PI (Lee & Ashton, 2004) administered in 2003, and the 48-item Questionnaire Big Six scales (48QB6; Thalmayer, Saucier, & Eigenhuis, 2011) administered in 2008.

To examine whether two higher-order factors from each of these inventories were related to the Big Two, in each case a principal-factors analysis was run on the five (or six) scales with regression-based factor scores saved for the two extracted (and varimax-rotated) factors.

To capture the interpersonal circumplex, we used scores aggregated from adjectives associated with four of the eight octants of the Interpersonal Adjectives Scales (IAS-R; Wiggins, 1991). For one score the Unassured octant score was subtracted from the Dominant octant score.

For the other, the Warm-hearted octant score was subtracted from the Cold-hearted octant score. From IAS-R Dominance, the adjectives Forceless, Unauthoritative, and Unbold were not in this data; from IAS-R Nurturance, the adjectives Tender, Tenderhearted, Gentlehearted, Coldhearted, Hardhearted, and Warmthless were lacking. Thus, Dominance involved 13 of 16 IAS-R adjectives, and Nurturance 10 of 16. For both Nurturance (mean 5.80, SD .61) and Dominance (mean 4.71, SD .85) the coefficient Alpha values, respectively .77 and .81, were quite adequate.

For the Warmth/Morality and Competence constructs from the Stereotype Content Model, we used the 8 adjectives from Cuddy et al. (2009): *friendly, good-natured, sincere,* and *warm* for one construct, and *capable, competent, confident,* and *skillful* for the other. Coefficient Alpha values were .74 for both Warmth/Morality (mean 6.02, SD .65) and Competence (mean 5.89, SD .67). For the variant version of these constructs used in studies by Wojciszke and colleagues, we used adjectives matching or closely corresponding to the 10 items used by Wojciszke, Abele, and Baryla (2009): *fair, honest, loyal, sincere,* and *unselfish* for one construct, and *clever, competent, efficient, energetic,* and *organized* for the other. Coefficient Alpha values were .55 for Morality/Communion (mean 6.02, SD .60) and .67 for Competence/Agency (mean 5.83, SD .74).

There is no single measure of internalizing and externalizing problem tendencies, so we relied upon collections of single variables. For internalizing tendencies, we used the CES depression scale (Radloff, 1977) and the Fears Questionnaire (Marks & Mathews, 1979), a measure of phobic symptoms, administered 2002 and 2006 respectively. For externalizing tendencies, we used the Levenson Self-Report Psychopathy scale (Levenson, Kiehl, & Fitzpatrick, 1995), administered 2000, as well as a set of indicators used previously and described by Saucier (2009, p. 1601) and all administered in 2006: compulsive drinking (aggregating 14 indicators), risk-posing behavior after drinking (aggregating six risky behaviors), and history of lawbreaking behaviors (aggregate of 8 items). Coefficient Alpha values were .93

for depression, .88 for fears, .82 for psychopathy, .86 for compulsive drinking, .73 for risk-posing behavior, and .64 for lawbreaking behaviors.

To capture approach and avoidance tendencies, analyses used the BAS and BIS scales of Carver and White (1994), administered in 2003. Coefficient Alpha values were .73 for BIS, .79 for BAS. We also derived factor scores (two factors) from 35 items drawn from Torrubia et al.'s (2001) sensitivity to reward and sensitivity to punishment scales, administered in 2006.

The main analyses were correlation matrices relating the Big Two to various other constructs. Such analyses are sufficient for assessing the general degree of relation between models, But insufficient for assessing whether the Big Two can be fully reduced to one versus another of the various models. Such full reduction would imply that once scores from a candidate model is partialed out of the Big Two, residual Big Two variance will be essentially meaningless and unrelated to variables from the other candidate models. Therefore, to examine reducibility, variables from other models were correlated with appropriate residuals of the Big Two.

Results

Table 3 presents correlations of the Big Two aggregates with Big Five and six-factor measures, including relevant higher-order factors, based on those 416 participants who had completed all these measures. To allow comparison between alternative measures differing in length, coefficients for both the core and extended Big Two aggregates are displayed.

Honesty scales correlated discriminantly with S (Social Self-Regulation). So did Agreeableness (A) scales, with the exception of that from the Mini-Markers; this A scale, which has the most warmth/sympathy content, also had a substantial secondary association with D (Dynamism). Conscientiousness (C) scales usually had higher correlations with S than with D, but sometimes these correlations were roughly equal; dividing C into self-controlled, inhibitory, communal aspects and achieving, proactive, agentic aspects (e.g., Wiggins & Trapnell, 1996);

the former seems to associate with S, the latter with D. Resiliency or Emotional Stability (vs. Neuroticism) scales had meaningful correlations with both D and S, but higher for D, whereas HEXACO Emotionality had a modest correlation with D but not S. Extraversion scales had strong correlations with D only. As for the remaining factor in each model, Intellect or Openness or Originality had quite moderate correlations with D only. Table 3, then, shows that Social Self-Regulation draws on Honesty and Agreeableness, as well as parts of the Conscientiousness and Emotional Stability domains. Dynamism draws on Extraversion especially, but also on Intellect/Originality, and parts of Conscientiousness and Emotional Stability.

Because Conscientiousness and Emotional Stability tend to load on both S and D, an examination of correlations with Big Five Aspect Scales (BFAS) might be informative, since BFAS scales split each Big Five domain in two. Table 4 presents BFAS correlations with the same S and D aggregates. The Orderliness aspect of Conscientiousness associates discriminantly with S, the Industriousness aspect with both S and D. The Volatility aspect of Emotional Stability associates primarily (negatively) with S, the Withdrawal aspect primarily (negatively) with D. Interestingly, the Openness aspect was unrelated to D (not to mention S), whereas the Intellect aspect was moderately related to D. For Big Five aspects, then, we see that Social Self-Regulation draws on politeness, compassion, orderliness, and (low) volatility in particular, but Dynamism draws on assertiveness, enthusiasm, intellect, and (low) withdrawal.

Table 4 also provides correlations between higher-order factor scores from each inventory and the Big Two. Pairs of HEXACO and QB6 higher-order factors related one-to-one, isomorphically, with S and D, with noticeably lower *r* values for the HEXACO stemming from that inventory's greater interscale orthogonality. For higher-order factors from the Mini-Markers, there was some isomorphism, but also substantial cross-correlations. For the NEO-PI-

R, the larger higher-order factor was associated with both Social Self-Regulation and Dynamism, the second only with Dynamism. So can we assume an equivalence between the Big Two and two higher-order factors derived from these personality inventories? The answer appears to be decisively 'yes' with respect to six-factor inventories. As for the Big Five, the answer would be 'yes, but' the apparent S factor from five-factor inventories includes a substantial amount of dynamism content. Given the correlations in Table 4, this is probably due to the exclusion or reduction of honesty content in the Big Five and a resulting greater emphasis on aspects of emotional stability in one of the Big Five higher-order factors, the one that has, apparently appropriately, been labeled 'Stability' (DeYoung, 2006) rather than Social Self-Regulation.

Table 5 presents zero-order correlations between the Big Two aggregates and indicators relevant to the six hypotheses, based on those 308 participants who had completed this very diverse range of measures. Correlations are shown for both core and extended Big Two aggregates, to enable one to generalize results across these measures.

The Big Two showed a fairly discriminant pattern of correlations with the two axes of the interpersonal circumplex. Nurturance correlated over .60 with S, Dominance over .65 with D. The cross-correlations were low to moderate. These are clearly related models.

With respect to the two constructs in the Stereotype Content Model, the Big Two showed a weakly discriminant pattern of correlations. Warmth/Morality correlated over .55 with S, and Competence over .50 with D. The cross-correlations were, however, quite substantial: over .40 for Warmth with D, and over .35 for Competence with S. These are clearly related models, but the substantial cross-correlations indicate a less than perfect one-to-one mapping.

We would expect similar results from the Morality/Communion and Competence/Agency constructs of Wojciszke et al. Again, the Big Two showed a weakly discriminant pattern of

correlations, but discrimination was better than for the SCM constructs. Morality/Communion correlated over .60 with S, and Competence/Agency over .50 with D. The cross-correlations were substantial: over .30 for Morality with D, and over .35 for Competence with S. These are clearly related models, even if the one-to-one mapping is somewhat imperfect.

There was slight item overlap between Big Two adjectives and those for each of these models. Good-natured (SCM), Selfish (Wojciszke), and Kind (IAS) were among the S terms. Clever (Wojciszke), and Shy and Timid (IAS) were among the D terms. The overlap is itself an indicant of similarity, but it may lead to slight overestimates of the relation among these models.

What about internalizing and externalizing problem tendencies? The self-report psychopathy scale correlated more (higher than -.40) with S than with D (lower than -.25). The other three externalizing indicators – compulsive drinking, alcohol-related risk-taking, and lawbreaking behavior – had moderate (-.20 to -.28) correlations with S and low (-.11 at most) correlations with D. Thus, as hypothesized, externalizing tendencies were more (inversely) related to S than D. As for internalizing tendencies, the phobia scale correlated about -.25 with D and nearly zero with S, the depression scale moderately (-.20 to -.28) with D and less (-.11 to -.18) with S. There is some isomorphism of S and D with externalizing and internalizing problem tendencies, but the relation is not as strong or direct as for the constructs described above.

The pattern for the approach and avoidance scales was quite different. BIS and BAS scales were respectively correlated negatively and positively with D, though only modestly (.17 to .31 in magnitude), but neither with S. Sensitivity to Punishment correlated highly (-.55 and higher) with D and much lower (at most, -.20) with S. Sensitivity to Reward had a very modest (-.17 to -.25) negative correlation with S, and a lower but positive (.10 to .17) correlation with D. A clearer interpretation of results is enabled if one creates a single bipolar index from each pair

of scales, by standard-scoring each scale and subtracting one from the other. 'BAS minus BIS' – the relative predominance of behavioral activation or behavioral inhibition – correlated .39 with D and near zero with S. 'Sensitivity to reward minus punishment' correlated .50 to .54 with D and near zero with S. So Dynamism taps into the relative predominance of activation and reward-sensitivity over inhibition and punishment-sensitivity, whereas Social Self-Regulation is not directly related to these motive systems (though perhaps to Constraint; Carver, 2005).

The last analyses were correlations between Big Two residuals and those indicators, used in Table 5, for which a hypothesis of one-to-one correspondence remained tenable (which was not the case for the approach-avoidance variables). These tables of coefficients are much longer than Table 5, and are not reproduced here (but are available from the first author). To the extent that a set of variables is equivalent to the Big Two, when it is partialed out the number of nonsignificant correlations will grow toward a maximum, because then the Big Two residuals would be relatively random and meaningless. Naturally, partialing a set of variables from the Big Two will lead the residuals to have little correlation with the Big Two; the crucial coefficients are those of the Big Two with the other three models (not including approach-avoidance).

Partialing all the internalizing and externalizing indicators from the Big Two led to the number of nonsignificant coefficients (Big Two with variables in other models) to change from three to two. Partialing interpersonal circumplex variables led to no change (11 nonsignificant coefficients both before and after partialing). Partialing Wojciszke et al. Competence/Agency and Morality/Communion led to change from 14 to 12 nonsignificant coefficients. Partialing the SCM variables led to an increase from 14 to 17 nonsignificant coefficients, and thus a decrease from 26 to 23 significant coefficients. Thus, the Big Two cannot be reduced to any of these other sets of variables; each of them at most mediates only a small subset of the Big Two's effects.

Discussion

Study 2 analyses compared the content of Big Two dimensions of personality attributes, as consensually represented across nine languages from eight language families and four continents, to previous theoretical frameworks. Results indicate that the Big Two can only partially be encapsulated within previous bivariate models. Social Self-Regulation is highly related to communion, morality and warmth, interpersonal nurturance, and the absence (vs. presence) of externalizing problem tendencies, but it cannot be reduced to any of these variables. Dynamism is highly related to agency, competence, interpersonal dominance, and the absence (vs. presence) of internalizing problem tendencies, and moreover to the ratio of activation and reward sensitivity to inhibition and punishment sensitivity, but it cannot be reduced to any of these. The Big Two might serve as an umbrella model serving to link these theoretical models, and their associated research literatures. Socioanalytic theory (e.g., Hogan & Roberts, 2004) suggests two fundamental human social tasks of 'getting along' and 'getting ahead,' echoing themes in the Big Two; this theory could be an especially promising account of the Big Two.

Study 2 revealed that Dynamism is related to biological-process-model variables (perhaps best encapsulated in the ratio of activation and reward sensitivity to inhibition and punishment sensitivity). Here, it appears that identification of cross-culturally ubiquitous phenomena has usefully served to highlight a biological-process-related commonality across populations. But it may be more interesting that Social Self-Regulation (S) is not related to a biological-process model here. Evidence suggests heritability for the variables associated with S, but the highly S-related variable most often studied in behavior genetics – Agreeableness – seems to show somewhat lower heritabilities than other Big Five dimensions (e.g., Bouchard, 1994). From a

theoretical perspective, it would be useful for future research to examine whether S and S-related variables do indeed show systematically lower heritability.

More broadly, there are interesting questions about what underlies Social Self-Regulation dimension. If not approach-avoidance, is S related to something else of a biological nature? Or does it draw dominantly on something running rather more outside the sphere of biology?

To begin to address these questions, it would be helpful to examine more closely the core content of the S dimension. To that end, Table 6 lists those items in the International Personality Item Pool – consisting of over 2400 items administered to the same sample as employed in Study 2 – correlating most highly with each of the Big Two dimensions (based on the 29-adjective aggregates from Study 2). For Social Self-Regulation, themes are readily evident in the recurring words and word-roots: *rules, proper, respect, promises, authority*. The S dimension concerns how much a person adheres to rules, behaves properly, shows respect for others and for authority, and keeps promises. Each of these relates in some way to using norms as standards for regulating one's own behavior. Many such standards are cultural rather than personal and idiographic. A good account of the Big Two S factor, even a biological account, clearly needs to factor in the cultural rule-system, especially the individual's interaction with that system.

An examination of the core Dynamism items in Table 6 shows recurrent themes dealing with social situations, skills for these situations, and whether one feels comfortable or shy. Implicit is whether one should withdraw based on potential risks, or engage based on potential rewards, with the choice naturally being affected by one's perceived skill level. Social situations give some latitude: Individuals can variously engage or disengage, without the cultural rule-system imposing strong expectations. So these situations might be quite diagnostic of one's

activation-to-inhibition ratio. More broadly, the dynamic person gets "out front" and engages even if there are some risks in the situation, and hence has capacity to be an innovator or leader.

How "out front" one is tends to run independent of how "in line" one keeps oneself, Social Self-Regulation referencing how much one keeps oneself "in line." From the perspective of others, those who fail to keep themselves well in line with sociomoral rules (i.e., are low on S) are likely to be a source of annoyance, threat, or pain, whereas those who get out front (innovators, leaders, high on D) are likely to be more interesting, stimulating, and entertaining. A deep truth about personality in the Big Two may be that hedonic priorities of *the perceiver* drive attribute-structure; basics of negative and positive reinforcement may be at work (Saucier, 2010).

A few caveats are in order. The models of warmth/morality and competence are extended here in an unusual way, to self-reports in a dispositional-assessment framework. Measures of internalizing and externalizing problem tendencies would, on their own, best be studied in clinical samples with higher base-rates of psychological disorders. Nonetheless, we do not believe that our slightly atypical uses of these models in any way disqualifies the results.

There are limits to the claims made here vis-à-vis structural models of personality attributes. First, Study 2 focused entirely on an American population, the same one in which the variables investigated have mainly been studied previously; we do not yet know whether the same pattern of results can be replicated in other sociocultural contexts. Second, although the Big Two offer parsimony, cross-cultural replicability, and rich theoretical potential, alternative models have complementary advantages. Models with more dimensions (like the Big Five, or models stipulating many subcomponents or facets) provide more information and a higher predictive capacity in applied settings (Paunonen & Ashton, 2001). Cross-cultural replicability is important, but some behavioral tendencies are culture-specific; we need not, for each population

of interest, cut our methods down to the Procrustean bed of <u>only</u> what functions well in the widest variety of populations. The Big Two may be necessary components for an understanding of behavioral attributes in any particular population, but they are not sufficient components.

It is possible that considerable agreement might be found also for a Big Three – dimensions that emerge across languages in lexical studies when three factors are extracted and rotated (as per De Raad et al., 2010). But there are several reasons to be less sanguine about the prospects for a highly replicable Big Three: (a) the Big Three has not been well scrutinized, as were the Big Two in Study 1, for robustness across variable selection and type of data, (b) or across a truly wide variety of languages, it being difficult to locate the full set of the Big Three in the two African languages examined in our Study 1, and (c) the content of the separate Conscientiousness factor – the largest difference between the Big Three and the Big Two – does not seem to be strongly represented in the content of some languages (Saucier, Thalmayer, & Bel-Bahar, 2012). Before conclusions can be drawn, further work is needed on these issues.

Conclusions

The rich natural lexicons for personality attributes offer so many potential variables that it is difficult to determine which attributes are most important. Models stipulating which are most important have been formulated and studied in a very limited range of cultures. The result, unsurprisingly, has been imperfect replication of previous models, and uncertainty as to which features are most ubiquitous and comparable across cultural settings.

The "Big Two" – Social Self-Regulation and Dynamism – form a common-denominator necessary-but-not-sufficient model of those axes of personality variation most ubiquitous across cultures. The Big Two model offers parsimony, cross-cultural replicability, and theoretical utility. Multiple research literatures might be linked under this broad bivariate framework.

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Table 1

Data Sets Used in the Analysis

Language Group	Language	Previous Publication	Variable Selection	Rater	Sample Size	No. of Terms
Nilotic	Maa	--	Broad	Peer	320	190
Niger-Congo	Senoufo (Supyire)	--	Broad	Peer	217	208
Sino-Tibetan	Chinese	Zhou, Saucier, Gao, & Liu (2009)	Broad	Peer	500	413
Indo-European	Polish	Szarota (1996)	Restricted	Peer	369	287
Indo-European	Greek	Saucier, Georgiades, Tsaousis, & Goldberg (2005)	Broad	Self	901	400
Austronesian	Filipino	Church, Katigbak, & Reyes (1998)	Broad	Self	740	502
Altaic	Turkish	Goldberg & Somer (2000)	Broad	Self	631	498
Finno-Ugric	Hungarian	Szirmak & De Raad (1994)	Restricted	Self	400	561
Korean	Korean	Hahn, Lee, & Ashton (1999)	Restricted	Self	435	406

Note. 'Broad' variable selection means inclusion of a wide array of attributes on which individuals. "Restricted" variable selection means inclusion only of those attributes most agreed to be descriptors of stable personality dispositions.

Table 2

Personality Concepts Associated Consistently With Either of Two Dimensions in a Majority of the Languages

Term/Concept	Maa	Senoufo	Chinese	Polish	Greek	Filipino	Turkish	Hungarian	Korean	*# Languages*
Social Self-Regulation										
Honest		1	1	1	2	1	2	1		7
Kind	1	1	1		2	1		1	1	7
Generous	1	1	1			1		1	1	6
Gentle	1	1		1			2	1	1	6
Good	1	1	1		2	1	2			6
Obedient	1*	1*	1	1	2			1		6
Respectful	1	1			2*	1	2	1		6
Diligent		1	1	1		1		1		5
Responsible		1		1*	2		2	1		5
(-) Selfish			1	1		1	2*		1	5
Dynamism										
Active		2	2		1	2	1	2	2	7
(-) Timid	2		2	2		2	1	2	2	7
Brave	2	2		2	1		1		2	6
(-) Weak	2	2			1	2	1		2	6
Bold			2	2	1		1		2	5
Lively			2	2		2		2	2	5
(-) Shy			2	2		2		2	2	5
Recurrent Terms	*9*	*12*	*12*	*11*	*10*	*12*	*11*	*12*	*11*	

Note. A 1 or 2 indicates language had at least one term with the given English translation, among those 50 terms with their highest correlation with the given dimension. The 1 signifies it was the first of two dimensions, the 2 that it was the second of two dimensions. Only terms that met this criterion in a majority of (at least 5 of 9) languages, and were perfectly consistent in their associations with the dimension, are shown. * The term that appeared was a direct antonym with the same root as that shown.

Table 3

Correlations of Big Two Aggregates With Five- and Six-Factor Scales for Personality Attributes

Scale	Social Self-Regulation		Dynamism	
	30 items	10 items	29 items	7 items
NEO-PI-R				
Agreeableness	.52*	.50*	.07	-.05
Conscientiousness	.40*	.29*	.30*	.25*
Neuroticism	-.33*	-.19	-.52*	-.37*
Extraversion	.09	.16	.66*	.61*
Openness to Experience	-.06	-.04	.19	.14
Big Five Mini-Markers				
Agreeableness	.69*	.75*	.35*	.20
Conscientiousness	.52*	.47*	.32*	.28*
Emotional Stability	.43*	.33*	.45*	.26*
Extraversion	.10	.16	.79*	.78*
Intellect/Imagination	.09	.09	.33*	.27*
HEXACO-PI				
Honesty/Humility	.31*	.25*	-.06	-.12
Agreeableness	.38*	.28*	.06	-.03
Conscientiousness	.34*	.25*	.21	.19
Emotionality	.03	.18	-.17	-.18
Extraversion	.03	.11	.67*	.61*
Openness	-.05	-.08	.20	.14
Questionnaire Big Six (48QB6)				
Honesty/Propriety	.44*	.40*	-.02	-.12
Agreeableness	.40*	.30*	.04	-.06
Conscientiousness	.36*	.27*	.31*	.29*
Resiliency	.30*	.18	.45*	.32*
Extraversion	.16	.25*	.54*	.45*
Originality/Talent	.02	-.02	.37*	.30*

Note. N = 416. All coefficients .10 or greater in magnitude are significant, $p < .05$. * indicates coefficients of .25 or greater in magnitude.

Table 4

Correlations of Big Two Aggregates With Big Five Aspect Scales and Higher-Order Factors

Scale	Social Self-Regulation		Dynamism	
	30 items	10 items	29 items	7 items
A: Compassion	.43*	.47*	.24	.13
A: Politeness	.57*	.52*	-.03	-.15
C: Order	.29*	.27*	.04	.06
C: Industriousness	.35*	.30*	.38*	.31*
N: Volatility	-.36*	-.20	-.26*	-.13
N: Withdrawal	-.34*	-.24	-.64*	-.53*
E: Assertiveness	.04	.06	.62*	.60*
E: Enterprising	.22	.31*	.61*	.48*
I/O: Intellect	-.01	-.03	.32*	.26*
I/O: Openness	.01	.04	.06	.01
NEO-PI-R				
Factor 1	.46*	.33*	.53*	.41*
Factor 2	-.01	.02	.44*	.38*
Big Five Mini-Markers				
Factor 1	.74*	.69*	.53*	.34*
Factor 2	.28*	.31*	.73*	.65*
HEXACO-PI				
Factor 1	.39*	.29*	.00	-.09
Factor 2	.00	-.03	.50*	.43*
Questionnaire Big Six (48QB6)				
Factor 1	.22	.13	.60*	.47*
Factor 2	.52*	.45*	.07	-.05

Note. N = 403 for BFAS, N = 416 for other scales. A-Agreeableness, C – Conscientiousness, N – Neuroticism, E – Extraversion, I/O: Intellect/Openness. All coefficients .10 or greater in magnitude are significant, $p < .05$. * indicates coefficients of .20 or greater in magnitude.

Table 5

Correlations of Big Two Aggregates with Indicators for Various Two-Dimensional Models

Scale	Social Self-Regulation		Dynamism	
	30 items	10 items	29 items	7 items
Interpersonal Circumplex (IAS-R) axes				
Nurturance	.61*	.65*	.31*	.19
Dominance	.05	.07	.69*	.73*
Stereotype-Content Model				
Warmth/Morality	.59*	.68*	.54*	.42*
Competence	.36*	.36*	.54*	.52*
Wojciszke et al. Dimensions				
Morality/Communion	.61*	.65*	.38*	.31*
Competence/Agency	.39*	.39*	.58*	.53*
Internalizing and Externalizing Tendencies				
Levenson Self-Report Psychopathy	-.53*	-.43*	-.27*	-.14
Problem Drinking Items	-.27*	-.20*	-.09	-.02
Risky Behaviors after Drinking	-.28*	-.20*	-.04	.03
Lawbreaking Behaviors	-.25*	-.20*	-.01	.11
Fears Scale	-.01	.02	-.25*	-.24*
CES-Depression	-.18	-.11	-.28*	-.20*
Approach and Avoidance				
BIS	.01	.10	-.22*	-.17
BAS	.00	.09	.26*	.31*
Sensitivity to Punishment	-.20*	-.17	-.59*	-.56*
Sensitivity to Reward	-.25*	-.17	.10	.17
BAS minus BIS	-.01	-.01	.39*	.39*
Reward minus Pun. Sensitivity	-.03	.00	.51*	.54*

Note. N = 308. All coefficients .11 or greater in magnitude are significant, $p < .05$. * indicates coefficients of .20 or greater in magnitude.

Table 6

Strongest International Personality Item Pool Correlates of the Big Two

Social Self-Regulation	Dynamism

1. Insult people (-.45)*
2. Respect authority (.44)
3. Follow the rules (.43)
4. Behave properly (.43)
5. Keep my promises (.43)
6. Break rules (-.42)*
7. Make a mess of things (-.42)*
8. Respect others (.42)
9. Do improper things (-.41)*
10. Try to follow the rules (.41)
11. Rebel against authority (-.41)*
12. Make a fool of myself (-.41)*
13. Don't follow the rules (-.40)*
14. Have bad manners (-.40)*
15. Can be trusted to keep my promises (.40)
16. Speak ill of others (-.40)*
17. Make people feel welcome (.40)
18. Have a sharp tongue (-.40)*
19. Resist authority (-.39)*
20. Am true to my own values (.39)

1. Am a shy person (-.55)*
2. Feel comfortable around people (.55)
3. Feel comfortable with myself (.54)
4. Don't know how to handle myself in a new social situation (-.54)*
5. When with a group, have difficulties selecting a good topic to talk about (-.52)*
6. Am very shy in social situations (-.52)*
7. Often feel uncomfortable around others (-.52)*
8. Am skilled in handling social situations (.50)
9. Have a strong personality (.50)
10. Feel isolated from people (-.50)*
11. Have a low opinion of myself (-.50)*
12. Keep in the background (-.49)*
13. Am quiet around strangers (-.49)*
14. Tend to find social situations confusing (-.49)*
15. Find it difficult to approach others (-.49)*
16. Love life (.48)
17. Make friends easily (.48)
18. Often think that I could do more things if it was not for my insecurity or fear (-.48)*
19. Often feel blue (-.47)*
20. Start conversations (.47)

Note. Correlations (based on N=378) in parentheses. * indicates items with negative correlations.