

## **An Alternative Multi-language Structure for Personality Attributes**

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### *Abstract*

*A scientific taxonomy of human personality attributes should optimally be based on studies from multiple languages and cultures. Study 1 demonstrates convergence between seven-factor structures found in previous studies of Filipino and Hebrew languages. Study 2 shows that this 'Multi-Language Seven' (ML7) factor model overlaps partially with the Big Five model, but includes four rather than three affective–interpersonal factors, replicates in American English lexical data nearly as well as the Big Five, and has close correspondences to the structure upon which two Italian lexical studies have converged. Correlates were used to clarify interpretation of ML7 factors labelled Gregariousness, Self-Assurance, Even Temper (versus Temperamentalness), Concern for Others, Conscientiousness, Originality/Virtuosity, and Negative Valence (or Social Unacceptability). These studies indicate the viability of a lexically derived 'etic' alternative to the Big Five. Copyright © 2003 John Wiley & Sons, Ltd.*

### **INTRODUCTION**

Science involves an unrelenting search for consistencies in nature, but the paradigms that science generates are typically imperfect; anomalies that violate a paradigm are likely to accumulate in greater or lesser degree, creating the need for revisions or for new and better paradigms that can make sense of the anomalies (Kuhn, 1962). One common response to anomalies, of course, is to ignore them, which may be a defensive reaction on behalf of the currently popular paradigm, but ignoring anomalies might lead to a premature halt to scientific exploration, and then a scientific model might become little different from those customs and traditions prevalent in many other domains of human endeavour, preferred based on habit rather than on evidence. To avert this outcome, scientists should be willing to critique previous work (including their own), revisit previous assumptions, and consider a variety of alternative paradigms.

Another danger for psychological science is ethnocentrism. Psychology searches for consistencies in *human* nature, but the phenomena psychologists study are partly informed

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by culture. Not only is human behaviour affected by culture, but understandings of human behaviour are themselves to some degree affected by the understander's own cultural background. Most investigators would agree that psychology is the study of mind and behaviour of humans in general, not just of humans in a narrow range of sociocultural settings, but considerations of convenience influence research. Our understandings of human social behaviour disproportionately reflect how such behaviour is manifested in a limited set of populations—those that are nearest at hand for scientists in Western countries. This state of affairs compromises the scientific ideals of generalizability and replicability.

As a corrective for these compromising effects, it is crucial that Western psychologists be open to evidence gathered in non-Western settings, which may be a fertile source of alternative paradigms. They should be attentive to studies that do not force data into Procrustean beds previously created by Western psychologists. The present article is based on findings arising in such studies.

### **Lexical studies of indigenous personality descriptors**

Many studies have been directed toward developing an organizing structure (or taxonomy) for personality attributes. Such a taxonomy would help organize and integrate knowledge and research findings about various personality attributes, and aid in the accumulation of empirical findings. Among the methodological approaches used to develop a taxonomy, the 'lexical study' (Saucier & Goldberg, 1996, 2001) provides a valuable correction for the ethnocentric tendencies of other approaches. In a lexical study, the most salient words in the local language descriptive of person-related attributes are collected. These natural-language terms are used as variables in studies where these descriptors are applied to a range of targets (e.g. real persons). Exploratory factor analysis of the intercorrelations among the descriptors yields a candidate taxonomic, or organizing, model for personality attributes.

The structure derived from studying descriptors from a single language is, of course, indigenous (or 'emic') to that single language, but if a common factor structure based on indigenous lexical studies were to arise in diverse languages, indicating ubiquity across language communities, it would have a special 'etic' status. This structure could provide a culturally decentred model, usable in diverse cultural settings without markedly imposing the norms or standards of one culture into the context of another culture. Representing dimensions shared by many cultures, it would not only enable useful cross-cultural comparisons, but it would also aid in the identification of culturally specific features of personality structure.

The Big Five structural framework has been proposed (beginning with Goldberg, 1980, 1981) as a compelling candidate model for studies in diverse languages, directed toward arriving at a 'universal representation of individual differences' (Goldberg, 1981, p. 161). However, the verdict on the Big Five based on the dozen or so since-published lexical studies is unclear. The jury seems to be divided in part by geographical origin: the Big Five has been noticeably more replicable in studies using languages having their origin in northern Europe than in other languages (Saucier & Goldberg, 2001). It is generally useful to test and compare more than one model in a scientific study, but most of these studies have compared indigenous structures with only the Big Five. A few other studies have tested a Big Seven model, but this was also derived from (and labelled a 'Big' Seven entirely based on) a single language of northern European origin (English; Tellegen &

Waller, 1987). Thus, we have seen the one-way export of Western (primarily American) models to studies in a broader range of countries.<sup>1</sup> These efforts have met with only partial success; in short, they have generated some anomalies for a model (the Big Five) that is proposed as a universal structure. It is time to compare this 'export' model with promising imports. The present article concerns the 'etic' importability (to a Western context) of one promising multi-language competitor model to the Big Five.

### Basis for the present studies

The lexical approach (Saucier & Goldberg, 1996, 2001) includes both emic and etic aspects. The *etic* aspect involves synthesizing the results of emic studies in search of recurrent, cross-language patterns. Saucier and Goldberg (2001) grouped structures found in lexical studies from 13 languages into three major groups: (i) those resembling the Anglo-Germanic Big Five (English, German, Polish, Czech, Turkish, and Dutch); (ii) those with two Agreeableness-related factors (Italian, Hungarian, Korean, and more recently French); and (iii) those utilizing a wider selection of variables (in English, Hebrew, Filipino, and Spanish), and typically yielding an additional 'Negative Valence' factor. They noted that two structures from group (iii)—those from Hebrew and Filipino—seem related to group (ii) structures (e.g. Italian). It is evident, then, that a viable multi-language etic model, a competitor for the Big Five, might well include two Agreeableness-related factors.

The *emic* aspect of the lexical approach seeks to identify an optimal way of structuring variables reflecting the indigenous patterns of each culture. The structure derived by exploratory factor analyses is a best-fitting model for that data in that language. This provides a peculiar advantage: rather than testing only a preconceived model and putting on blinders with respect to alternatives, one can learn something unexpected, and potentially locate a useful competitor etic model by studying recurrent findings.

A prime example of unexpected recurrences is provided by independent studies of Hebrew (Almagor, Tellegen, & Waller, 1995) and of Filipino (Church, Reyes, Katigbak, & Grimm, 1997) descriptors. Neither study cleanly replicated the Big Five, nor the Big Seven. However, as noted in a recent review (Saucier & Goldberg, 2001), the structures found in these two studies appear on the surface to replicate each other. The commonality of structure was not immediately noticeable due to different labelling, or what Kelley (1927) labelled the 'jangle fallacy' that arises when two very similar constructs have differing names. Because the studies were conducted in unrelated languages using non-uniform methodologies in quite different cultural settings six time zones apart, these convergences seem especially impressive. They are also important because they represent both the group (ii) and group (iii) non-Big-Five structures identified by Saucier and Goldberg (2001), with two Agreeableness-related factors and an additional Negative Valence factor.

However, judgments as to similarity of factors based on mere 'eyeballing' have hazards. Factors have some ambiguity in their interpretation, and one can easily capitalize on

<sup>1</sup>The approach to establishing the 'universality' of the five-factor model taken by McCrae and Costa (1997) is markedly 'etic'—the variables studied in each new language/culture are simply translations of one US-derived instrument (the NEO-PI-R; Costa & McCrae, 1992), and no competitor models are tested. Such a methodology can demonstrate the exportability of an instrument, but cannot show that its model is truly pervasive or universal, nor that it is the optimal structure. Competitor models—Procrustean beds of alternative sizes and shapes—may turn out to be equally exportable.

misleading subjective impressions and on tendencies to confirmation bias. So I examined the degree of convergence between these structures with an empirical procedure.

### *Hebrew study*

Hebrew is a member of the Semitic language group from the Afro-Asiatic language family; the language family includes also not only Arabic and Hebrew but also numerous more distantly related languages spoken in the northern half of Africa from Tanzania to Mauritania. Hebrew person-descriptors were studied by Almagor et al. (1995) using a page-sampling approach. Every fourth page of a 1600-page Hebrew dictionary was searched, extracting the first personality-descriptive adjective, verb, or noun that was encountered. The resulting 326 terms were reduced to 252 after removing synonyms. University students ( $N = 637$ ) used the 252 words (62% were adjectives) for self-ratings. The obtained Hebrew factors labelled Agreeability and Dependability were fairly similar to Big Five factors of Agreeableness and Conscientiousness. A Negative Valence factor was bipolar (with salient variables on both poles of the factor) and unusually broad, apparently including content related to integrity and reliability, differentiating it from the Big Seven prototype. The terms with the highest loadings on a factor labelled Positive Valence were in fact all related to Big Five Intellect (e.g. Sophisticated, Sharp, Knowledgeable). Neuroticism terms were found both on factors labelled Positive Emotionality/Agentic (e.g. Depressed, Scared) and Negative Emotionality (e.g. Bad-Tempered, Angry). The remaining factor, labelled Positive Emotionality/Communal, included content highly related to sociability (e.g. Likeable, Enthusiastic, Friendly, Talkative). Using other labels, we might say this structure includes factors of Gregariousness (Sociability), Self-Assurance, Temperamentalness (Irritability), Concern for Others (Altruism), Conscientiousness, Intellect/Positive Valence, and Negative Valence.

The Hebrew study's authors suggested that this seven-factor structure replicated the 'Big Seven' structure found in an earlier study of English descriptors by Tellegen and Waller (1987). However, for none of the seven factors did judges consensually classify more than 50% of the associated descriptors as related to a single Big Seven factor. Moreover, two of the factors were classified as resembling Big Seven 'Positive Emotionality' more than any other Big Seven factor, and no Hebrew factor was judged to resemble Big Seven 'Conventionality' more than other Big Seven factors; indeed, no follow-up to the original Big Seven study by Tellegen and Waller (1987) has found a clearly identifiable Conventionality factor. Instead, it appears that the Hebrew structure more closely replicates a structure found nearly concurrently in data from the east rather than from the west.

### *Filipino study*

Only one native language of a Pacific Island or tropical region has been examined in a lexical personality study. Filipino (Tagalog) is from the Austronesian family, which includes languages found throughout the Pacific and in Southeast Asia and Madagascar. Church, Katigbak, and Reyes (1996) searched a comprehensive Filipino dictionary. They extracted 6900 person-descriptive adjectives, which were classified using a system developed in studies of German descriptors (Angleitner, Ostendorf, & John, 1990). The 682 most familiar and personality relevant of these were used for self-ratings by both college and high school students (Church et al., 1997). The seven-factor solution included factors labelled Gregariousness, Concern for Others versus Egotism, Conscientiousness, Self-Assurance, Intellect, Negative Valence/Infrequency, and Temperamentalness. When only five factors were rotated, they were labelled Gregariousness, Egotism, Socialization, Perceived Competence, and Negative Valence; thus, this study did not neatly replicate the Big Five.

In a replication study (Church, Katigbak, & Reyes, 1998), 740 Filipino college students provided self-ratings using a revised set of 502 terms. The students also rated themselves on translations of Big Five marker scales. The seven-factor solution closely replicated that in the earlier study; Positive Valence markers (Big Seven) blended with terms related to Intellect and Competence/Talent to form a broader factor in this representation. The five rotated factors here were Gregariousness, Concern for Others, Conscientiousness, Perceived Competence (Intellect/Self-Assurance versus Temperamentalness), and Negative Valence; again, this was not a neat replication of the Big Five.

However, as noted, the Filipino structure seems similar to the Hebrew structure. The alternative labels for the seven Hebrew factors that I proposed above are in fact those used by Church et al. (1997, 1998) for the seven-factor Filipino structure. The applicability of the same labels to either set of factors would be one indication of their similarity. But will the apparent similarity be evident in quantitative comparisons?

Quantitative comparisons of the Filipino and Hebrew structures are important for several reasons. As already noted, these structures have characteristics of both of the groupings of non-Big-Five structures identified in a comprehensive review of lexical studies (Saucier & Goldberg, 2001); thus this is hardly an arbitrary selection of two languages. Moreover, previous lexical studies have implicitly assumed that all features of lexically derived structures that do not fit the Big Five are specific to one language and culture. That is, the research hypothesis has been that the Big Five will be found cross-culturally, with a null hypothesis that no structure will replicate cross-culturally, but if the Filipino and Hebrew structures can be seen as a replication of each other it would indicate the viability of an alternative research hypothesis—a structure other than the Big Five.

## STUDY 1

### Method

Almagor et al. (1995, Table 1) presented a set of Hebrew terms, translated into English, having salient loadings on each of the seven factors. I identified those 59 of these English terms that had also been administered to an American adult community sample. The Philippine structure was documented in a table with a much larger number of terms all translated into English (Church et al., 1997, Appendix B). To compare, a set of 59 marker terms for the Philippine factors was identified by systematically culling out those with the lowest loadings, arriving at the eight or nine highest-loading marker terms for each factor that had also been administered to the American sample. Table 1 presents the 59 terms representing Hebrew-emic and Filipino-emic factors.

The present American sample consisted of 592 residents recruited from the Eugene–Springfield community in western Oregon, ranging in age from the 20 s to the 90 s, with a mean birth year of 1946. These 592 participants had responded to all 791 of the personality adjectives administered within three questionnaire packets between 1993 and 1998. The 59 Hebrew and 59 Philippine marker terms were among these 791 adjectives. The 791 adjectives included (i) 500 selected because they were judged to be the most frequently used adjectival person descriptors in American English (Saucier, 1997), and (ii) an additional 291 selected because they were markers of Big Five factors (Goldberg, 1992) or subcomponents (Saucier & Ostendorf, 1999), sets of evaluative and descriptive factors (Saucier, 1994; Saucier, Ostendorf, & Peabody, 2001), or clusters presumably beyond the Big Five (Saucier & Goldberg, 1998).

Table 1. Translations of marker terms from Filipino and Hebrew emic-lexical studies used in study 1

Filipino-derived terms	Hebrew-derived terms
<i>Gregariousness</i> : Humorous, Cheerful, Noisy, Talkative, Chatty, Rowdy <i>versus</i> Quiet, Serious	<i>Positive Emotionality Communal</i> : Likeable, Enthusiastic, Joyful, Friendly, Talkative*, Pleasant <i>versus</i> Uncommunicative, Silent
<i>Self-Assured</i> : Alert, Strong-willed, Brave <i>versus</i> Cowardly, Nervous, Fearful, Weak, Shy	<i>Positive Emotionality Agentic</i> : Courageous, Lively, Stable, Energetic, Happy, Active, Independent <i>versus</i> Depressed, Sad, Frustrated, Scared, Moody*
<i>Temperamental</i> : Understanding, Kind*, Forgiving, Calm* <i>versus</i> Irritable, Hot-tempered*, Impatient, Moody, Jealous	<i>Negative Emotionality</i> : Calm <i>versus</i> Hot-tempered, Short-tempered, Angry, Nervous*, Grouchy, Impatient*, Impulsive
<i>Concern for Others</i> : Generous, Helpful*, Humble, Sincere <i>versus</i> Arrogant, Domineering, Selfish, Envious*, Conceited	<i>Agreeability</i> : Kind, Helpful, Generous*, Peaceful, Humble*, Courteous, Conscientious
<i>Conscientiousness</i> : Thrifty, Frugal, Pious, Religious, Orderly <i>versus</i> Wasteful, Lazy, Crazy, Sloppy*	<i>Dependability</i> : Neat, Meticulous, Systematic, Formal, Consistent, Careful <i>versus</i> Sloppy, Rebellious
<i>Intellect</i> : Talented, Intelligent, Competent, Sensible, Rational, Wise*, Dignified, Analytical	<i>Positive Valence</i> : Sophisticated, Knowledgeable, Impressive, Witty, Original, Wise, Productive
<i>Negative Valence</i> : Rude, Bad, Disrespectful, Greedy, Insane, Stupid, Ignorant, Unfriendly	<i>Negative Valence</i> : Envious, Corrupt, Narrow-minded <i>versus</i> Reliable, Responsible, Loyal, Dependable, Sincere*, Honest

Factor labels are from the original studies.

\*Term removed from marker scale for that language when eliminating all overlap between lists for the two languages.

I aggregated self-ratings on the terms (all adjectives) for each factor into approximations (unit-weighted scales) for each of the seven Hebrew-emic factors and for each of the seven Filipino-emic factors, and examined the correlations between these approximations.

## Results

The top half of Table 2 shows the correlations between the Hebrew and the Filipino factors, as represented in English by the approximations involving 59 terms from each language. The highlighted (over 0.60) correlations show a clear pattern of matched factors, with the mean correlation between matched factors being 0.69.

The marker scales used to obtain these correlations have some item overlap: some terms were found in marker sets representing factors from *both* languages, which might increase the correlations. When identical terms are used by the original authors to translate terms from corresponding factors in each of two languages, this is itself a strong indicator of convergence, and removing these terms would weaken the marker sets. Nonetheless, it is not clear how much of the initial correlation between marker scales was due to overlapping items. To ascertain this, I removed terms from the marker sets (redundant terms removed from whichever language's structure they had the lower-ranked loading on) to yield sets of

Table 2. Correlations between translated Hebrew-emic and translated Filipino-emic factor approximations

Hebrew-emic factors	Filipino-emic factors						
	Gregarious	Self-assured	Temperam.	Concern	Conscientious	Intellect	Neg. Valence
<i>Original scales</i>							
Positive Emotionality—Communal	<b>0.62</b>	0.44	-0.35	0.28	0.18	0.34	-0.41
Positive Emotionality—Agentic <sup>1</sup>	0.24	<b>0.64</b>	-0.57	0.35	0.27	0.41	-0.46
Negative Emotionality	0.12	-0.35	<b>0.87</b>	-0.52	-0.26	-0.18	0.48
Agreeability	0.05	0.23	-0.56	<b>0.69</b>	0.34	0.36	-0.51
Dependability	-0.15	0.20	-0.30	0.34	<b>0.64</b>	0.37	-0.41
Positive Valence	0.28	0.47	-0.19	0.05	0.07	<b>0.72</b>	-0.14
Negative Valence	-0.04	-0.44	0.51	-0.63	-0.31	-0.45	<b>0.63</b>
Mean correlation between matched factors: 0.69							
<i>Overlap-adjusted scales</i>							
Positive Emotionality—Communal	<b>0.52</b>	0.46	-0.38	0.28	0.16	0.34	-0.45
Positive Emotionality—Agentic <sup>1</sup>	0.26	<b>0.65</b>	-0.49	0.23	0.20	0.40	-0.44
Negative Emotionality	0.13	-0.25	<b>0.74</b>	-0.50	-0.25	-0.15	0.48
Agreeability	0.05	0.29	-0.48	<b>0.53</b>	0.29	0.40	-0.54
Dependability	-0.15	0.20	-0.29	0.30	<b>0.54</b>	0.39	-0.41
Positive Valence	0.28	0.47	-0.15	-0.04	0.04	<b>0.67</b>	-0.14
Negative Valence	-0.03	-0.44	0.48	-0.49	-0.24	-0.43	<b>0.62</b>
Mean correlation between matched factors: 0.61							

N = 592. In upper half of table, correlations greater than 0.60 in bold. In lower table, those greater than 0.50 in bold.

<sup>1</sup>Direction of scoring reversed from that in Almagor et al. (1995).

51 terms from each language with no overlap whatsoever. The terms removed are indicated with asterisks in Table 1.

The correlations between the 'overlap-adjusted scales' are presented in the bottom half of Table 2. A similarly clear pattern of matched factors is evident in the highlighted (here over 0.50) correlations in this table as well, with a mean correlation between matched factors of 0.61. Of course, it is not clear that this latter coefficient is a better indicator of the degree of convergence than the 0.69 given earlier, because overlapping terms indicate high convergence.

There are some relatively high divergent, hetero-trait correlations in the off-diagonal sections of Table 2. In absolute-value terms, these off-diagonal correlations average 0.32 (range 0.04–0.63) for the original scales and 0.31 (range 0.03–0.54) for the overlap-adjusted scales. Nonetheless, the convergent correlations are on average considerably higher than the divergent correlations.

## STUDY 2: COMPARING THE FACTORS WITH PREVIOUS MODELS

The first study provided an integrative synthesis of two prior lexical studies. It indicated that the Filipino and Hebrew lexical studies converge to a substantial degree on a common seven-factor structure. This common structure has characteristics of the non-Big-Five structures found in other lexical studies (Saucier & Goldberg, 2001) and therefore deserves further study.

However, there are some differences between corresponding factors from the two languages. In other words, each factor from each language has both convergent and divergent content with respect to the corresponding factor in the other language. The divergent content would be specific (emic) to a language or a culture, to methodology, or to capitalization on chance. The convergent content we might identify with a general etic structure, which I will call a Multi-Language Seven (ML7). This ML7 may be just as objectionable as the Big Five to those cultural psychologists inclined to dislike etic approaches. However, a redeeming feature of this ML7 model is its basis in studies of non-European languages: it may have less ethnocentric, Eurocentric bias than one will find with the Big Five, a structure found most readily in languages of northern European origin (Saucier & Goldberg, 2001).

Study 1 indicated a portentous convergence between two previous lexical studies. In order to understand the exact implications of this convergence, however, several important questions would need to be answered. How well does this Multi-Language Seven (ML7) replicate in other lexical variable selections beyond just those afforded by the Filipino and Hebrew languages? How does it converge with and diverge from the Big Five? How is it different from the previously labelled Big Seven? Does it correspond to models of personality structure developed in questionnaire rather than lexical studies? Finally, if validity concerns the degree to which a measure measures what it is supposed to measure, it is necessary first to develop a supposition about what is being measured. What are the best suppositions for—and the best ways of labelling—the factors in the convergent structure of this ML7?

### Measuring the seven factors in English

As a prelude to addressing other questions, I sought to capture the convergent general structure in English. Table 1 provides a set of English adjectives that were used as

translations of terms in the Filipino or the Hebrew factor structures. There are several reasons why these adjectives provide an inadequate representation of the convergent structure in English: (i) they represent not a single structure but rather two variations of a hypothetical single structure, (ii) they do not discriminate the factors perfectly, as indicated by some substantial off-diagonal correlations in Table 2, and (iii) a few terms (Sincere, Kind, Moody, Envious, Nervous) are associated with one factor in one language, but a non-corresponding factor in the other language.

The best representatives of this ML7 structure would be highly related to one factor, but also have relatively low associations with other factors, in a way that allows the factors to be well discriminated from one another (i.e. with relatively low factor–scale intercorrelations). As an initial draft marker set for the common structure, I reduced the terms in Table 1 to the 40 that best met these criteria, when examined against the averages of standard scores of corresponding factor scales (e.g. Filipino Temperamentalness and Hebrew Negative Emotionality). These 40 ‘core English adjectives’ were, however, judged to be insufficiently discriminating and reliable. Therefore, they were supplemented by 20 other terms (mostly not among, but synonyms of, those listed in Table 1) from among the 791 person-descriptive adjectives that had been administered to participants in the community sample used in Study 1. The supplementary terms were selected so as to increase the discriminability of the factor scales (lowering interscale correlations, reducing cross-loadings in exploratory factor analysis) while increasing their internal consistency (coefficient alpha). In the 60-adjective marker set, each factor was approximated by an aggregate of eight or nine terms.

For the seven factor scales (or ‘approximations’) Table 3 provides coefficient alpha values (in the diagonal) and interscale correlations (off the diagonal) in the same sample as used in Study 1. Coefficient alpha values ranged from 0.70 to 0.81 (median 0.74). Interscale correlations were as high as 0.34, with a mean observed value of 0.145 and a mean absolute value of 0.155, values that are lower than those for most Big Five scales, except recent ones constructed to maximize scale orthogonality (Saucier, 2002b).

Table 4 presents the factor loadings for the 60 terms, based on a normalized varimax rotation of principal-axis factors whose first ten initial eigenvalues were 7.17, 4.05, 3.16, 2.87, 2.27, 1.55, 1.32, 1.17, 0.95, and 0.77. When the seven factors were allowed to correlate (via promax rotation, kappa 4) factor intercorrelations ranged as high as 0.46 in magnitude, but the mean absolute value of these factor intercorrelations was only 0.21. Because all 60 terms in Table 4 load most highly on the intended factor, Table 4 also

Table 3. Reliability and interscale correlations for English-language ML7 (EML7) scales

Scale	1	2	3	4	5	6	7
1. Gregariousness	<b>0.78</b>						
2. Self-Assurance	0.20	<b>0.74</b>					
3. Even Temper	0.03	0.23	<b>0.81</b>				
4. Concern for Others	0.10	0.09	0.34	<b>0.70</b>			
5. Conscientiousness	−0.01	0.20	0.02	0.24	<b>0.72</b>		
6. Intellect	0.05	0.34	0.03	−0.05	0.06	<b>0.73</b>	
7. Negative Valence (refl.)	0.02	0.26	0.31	0.30	0.33	−0.05	<b>0.76</b>

*N* = 592. Coefficient alpha values in the diagonal; interscale correlations off the diagonal. Scores on Negative Valence and Temperamentalness are reflected so that all scales are scored in the direction that tends to be more favourable.

Table 4. Varimax-rotated loadings for 60 marker adjectives on seven factors

Adjective	Temperam.	Intellect	Conscient.	NV	Gregar.	Conc. Others	Self-Ass. (-)
Short-tempered	<b>0.78*</b>	-0.10	0.05	0.09	-0.03	-0.03	0.01
Irritable	<b>0.72*</b>	0.01	-0.10	0.16	-0.05	-0.12	0.13
Hot-tempered	<b>0.71*</b>	-0.05	0.02	0.15	0.02	-0.07	-0.02
Grouchy	<b>0.66*</b>	-0.02	-0.09	0.17	-0.12	-0.15	0.17
Impatient	<b>0.56*</b>	0.02	0.01	0.07	0.07	-0.11	0.03
Possessive	<b>0.45*</b>	0.00	0.06	0.05	0.05	-0.03	0.13
Defensive	<b>0.40*</b>	-0.02	0.02	0.14	-0.05	-0.02	0.31
Undemanding	-0.31*	-0.13	-0.13	-0.03	-0.10	0.07	0.04
Talented	0.03	<b>0.59*</b>	0.07	0.01	0.02	0.03	-0.29
Imaginative	0.00	<b>0.58*</b>	-0.04	-0.01	0.04	0.20	-0.23
Knowledgeable	-0.02	<b>0.57*</b>	0.07	-0.15	0.04	0.01	-0.24
Artistic	-0.01	<b>0.52*</b>	-0.06	0.12	-0.04	0.16	-0.13
Philosophical	-0.08	<b>0.52*</b>	0.00	0.04	0.02	0.15	0.05
Analytical	0.08	<b>0.40*</b>	0.13	-0.01	-0.09	-0.20	0.05
Sophisticated	-0.06	0.39*	0.19	0.03	0.05	-0.10	-0.14
Average	0.00	- <b>0.46*</b>	0.09	0.03	-0.06	0.25	0.04
Unreflective	-0.02	-0.39*	0.09	0.14	-0.05	-0.07	0.01
Neat	0.01	-0.02	<b>0.72*</b>	-0.09	0.09	0.24	-0.09
Orderly	-0.04	-0.08	<b>0.69*</b>	-0.09	-0.04	0.07	-0.06
Meticulous	0.07	0.12	<b>0.61*</b>	-0.09	-0.01	-0.01	-0.07
Perfectionistic	0.16	0.16	<b>0.52*</b>	0.00	0.04	-0.02	0.07
Strict	0.25	-0.02	<b>0.40*</b>	-0.04	0.00	0.07	-0.08
Thrifty	-0.13	0.01	0.28*	-0.07	-0.13	0.07	0.06
Pious	0.06	-0.09	0.21*	0.12	-0.06	0.13	-0.01
Sloppy	0.13	0.05	- <b>0.59*</b>	0.25	-0.08	-0.20	0.17
Forgetful	0.19	-0.06	-0.24*	0.19	-0.05	0.17	0.12
Insane	0.05	0.05	-0.10	<b>0.58*</b>	-0.02	0.06	0.12
Crazy	0.15	0.15	-0.24	<b>0.53*</b>	0.06	0.06	0.01
Good-for-nothing	0.07	-0.13	-0.10	<b>0.52*</b>	0.00	-0.02	0.21
Corrupt	0.11	-0.05	0.01	<b>0.50*</b>	0.03	-0.20	0.07
Evil	0.12	0.01	0.02	<b>0.50*</b>	-0.06	-0.12	-0.02
Weird	0.16	0.24	-0.35	<b>0.48*</b>	-0.04	-0.05	0.07
Stupid	0.07	-0.14	0.04	<b>0.47*</b>	-0.02	-0.04	0.11
Trustworthy	-0.03	0.12	0.21	-0.38*	0.04	0.36	-0.10
Normal	-0.15	-0.18	0.24	-0.32*	0.05	0.20	-0.15
Talkative	0.09	0.21	0.03	0.01	<b>0.71*</b>	0.16	-0.03
Chatty	0.04	0.04	0.01	0.04	<b>0.63*</b>	0.16	0.03
Sociable	-0.14	0.12	0.12	-0.14	<b>0.52*</b>	0.24	-0.16
Noisy	0.19	-0.06	-0.15	0.32	<b>0.45*</b>	-0.04	-0.05
Quiet	-0.10	0.13	0.13	-0.03	- <b>0.67*</b>	0.11	0.05
Silent	-0.02	-0.12	-0.02	0.11	- <b>0.63*</b>	-0.07	0.11
Seclusive	0.19	0.08	-0.07	0.16	- <b>0.48*</b>	-0.07	0.18
Serious	0.22	0.21	0.27	-0.11	-0.28*	0.01	0.09
Compassionate	-0.09	0.24	0.04	-0.13	0.12	<b>0.67*</b>	0.01
Helpful	-0.16	0.18	0.17	-0.23	0.13	<b>0.53*</b>	-0.16
Generous	-0.15	0.14	0.06	-0.04	0.21	<b>0.51*</b>	-0.10
Soft-hearted	-0.13	0.00	0.04	-0.08	0.11	<b>0.51*</b>	0.20
Sentimental	0.08	-0.05	0.17	0.00	0.17	<b>0.47*</b>	0.06
Humble	-0.16	-0.07	0.13	0.11	-0.21	0.36*	-0.02
Self-centred	0.29	0.25	-0.03	0.20	0.08	- <b>0.42*</b>	0.20
Conceited	0.24	0.27	-0.01	0.14	0.20	-0.28*	0.03

*Continues*

Table 4. Continued

Fearful	0.11	-0.01	0.02	0.16	-0.01	0.09	<b>0.55*</b>
Scared	0.20	-0.07	-0.06	0.30	-0.05	0.12	<b>0.54*</b>
Cowardly	0.07	-0.09	0.03	0.10	-0.05	-0.07	<b>0.49*</b>
Weak	0.09	-0.17	-0.12	0.29	-0.10	-0.01	<b>0.41*</b>
Confident	-0.10	0.32	0.22	-0.19	0.21	0.07	<b>-0.52*</b>
Brave	0.11	0.33	0.00	0.08	0.07	0.12	<b>-0.47*</b>
Secure	-0.22	0.09	0.17	-0.09	0.12	0.08	<b>-0.40*</b>
Active	-0.12	0.11	0.19	-0.02	0.19	0.09	<b>-0.39*</b>
Rugged	0.15	0.08	-0.04	0.21	-0.08	-0.17	<b>-0.35*</b>

*N* = 592. \*Loading on intended factor, indicating item's grouping for scale scoring. All loadings of 0.40 or greater in magnitude are printed in boldface type. Temperam.—Temperamentality; Conscient.—Conscientiousness; NV—Negative Valence; Gregar.—Gregariousness; Conc. Others—Concern for Others; Self-Ass. (—)—Self-Assurance, reversed.

functions as a guide to how the terms can be grouped and scored for the seven factors.<sup>2</sup> Henceforth, this 60-adjective ML7 marker set will be labelled '60ML7'.

### Analyses examining the degree of replication of other models

Can the ML7 be found, as the Big Five has, in lexical variable selections in English? I correlated 60ML7 scores with factor scores from an earlier study (Saucier, 1997) conducted using the same sample. In that study, the 500 most frequently used person-descriptive adjectives in American English, arguably the most objectively based variable selection found in any lexical study of English descriptors, were administered to 700 members of the community sample, who rated the accuracy for self-description of each adjective using a 1–7 rating scale. In that study, seven-factor solutions derived from these 500 adjectives were reported, but one of the seven factors was, consistently, Attractiveness. Attractiveness content was not strongly represented in the relevant Filipino or Hebrew variable selections, and thus not in the ensuing lexical factors, nor in the ML7 based on those factors. So I also examined eight-factor solutions, where one might conceivably find the ML7 *plus* Attractiveness.

How high do correlations need to be in order to constitute a good replication? In an influential study in German (Ostendorf, 1990, Table 61), lexical factors correlated on average 0.73 with Big Five marker scales when matched with them in a one-to-one manner. In another study (Saucier, 1997, Table 6) the correlations of Big Five markers matched one-to-one with lexical factors (from disposition-oriented variable selections) were just under 0.70. I used this reference point—the approximately 0.70 average correlations found for the Big Five in German and English—to define a good replication.

Among those lexical studies that have *not* clearly confirmed the Big Five, those in Italian stand out because there were two independently constructed taxonomic projects (in Rome—Caprara & Perugini, 1994; and in Trieste—Di Blas & Forzi, 1998) that led to a convergent five-factor structure (De Raad, Di Blas, & Perugini, 1998). De Raad et al.

<sup>2</sup>Scores on the seven scales were checked against the approximations for the Filipino and Hebrew factors (based on 59 terms for each language) from Study 1. Correlations with corresponding Filipino and Hebrew factor approximations ranged from 0.71 to 0.88 for all cases except that of Hebrew Negative Valence. Although the new Negative Valence markers correlated 0.72 with Filipino Negative Valence, the correlation was 0.49 with Hebrew Negative Valence. The lower correlation was likely due in large part to Hebrew Negative Valence being measured primarily with favourable terms (see Table 1), whereas the new Negative Valence markers were primarily unfavourable terms, consonant with most prior instantiations of this factor (Benet-Martinez & Waller, 1997; Saucier, 1997; Tellegen & Waller, 1987).

(1998) characterized this solution as representing ‘the kernel of the Italian trait language’ (p. 28), and noted that this Italian Five corresponded imperfectly to the Big Five. Indeed, the difficulty in finding a clear Big Five structure in either of the Italian lexical projects is an important anomaly for the Big Five paradigm. For each of the five Italian factors, De Raad et al. (1998, Table 4) presented 16 marker terms, in Italian with English translations. Either 12 or 13 of these terms for each factor (a total of 63 of the 80 terms) were among those 791 already administered to the community sample (or among 75 additional terms administered later, in 2001). I aggregated ratings on these terms to provide imported counterparts of the Italian factors.<sup>3</sup>

To examine the extent to which this ML7 replicates the Big Five, I correlated the 60ML7 scales with those from three measures of related five-factor models. The 100 Markers (Goldberg, 1992) consist of 100 adjectives, 20 scored for each factor. The Big Five Modular Markers (Saucier, 2002b; Saucier & Goldberg, 2002) consist of 90 adjectives, 14–22 for each factor, aggregated into scales that have markedly lower intercorrelations than previous Big Five measures. The Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992) consists of 240 questionnaire items, 48 for each of the five factors. To examine the degree to which the ML7 replicate the Big Seven (Tellegen & Waller, 1987), Big Seven markers were needed. I constructed item-aggregates drawing on the adjectival items from the Inventory of Personal Characteristics (IPC7; Benet & Waller, 1995, Table 1). For each of the IPC7 scales, I identified those adjectives (four to eight) that had been administered previously to the community sample. To represent each Big Seven factor, the corresponding adjectives were aggregated in a unit-weighted scale.<sup>4</sup> I correlated these seven-factor approximations with the 60ML7.

### Clarifying the constructs: concurrent validity

In order to obtain a clearer interpretation and better labelling for the ML7 factors, I looked for high concurrent-validity correlations among a wide variety of measures. I correlated the 60ML7 with specific ‘facet’ scales and aggregate ‘domain’ scales from diverse questionnaires that had been administered to the same community sample, including seven inventories in addition to the NEO-PI-R: the Hogan Personality Inventory (HPI; Hogan & Hogan, 1995), the Temperament and Character Inventory (TCI; Cloninger, Przybeck, Svrakic, & Wetzel, 1994), the California Psychological Inventory (CPI; Gough, 1996), the 16 Personality Factors questionnaire (16PF; Conn & Rieke, 1994; Russell & Karol, 1994), the Multidimensional Personality Questionnaire (MPQ; Tellegen, in press), the Six-Factor Personality Questionnaire (Jackson, Paunonen, & Tremblay, 2000), and the Revised Jackson Personality Inventory (JPI-R; Jackson, 1994).<sup>5</sup> Moreover, I examined correlations of the

<sup>3</sup>In the present data, the only *missing* terms from Table 4 of De Raad et al. (1998) were the following: Exuberant, Unconstrained, and Solitary from factor ‘I’; Choleric, Autocratic, and Polemical from factor ‘II’; Wary, Unruly, Inaccurate, and Uncautious from factor ‘III’; Resolute, Dynamic, and Fragile from factor ‘IV’; and Humane, Altruistic, Disloyal, and Perfidious from factor ‘V’. The Italian term *disciplinato* was rendered in the present study by the English term Self-Disciplined, rather than Disciplined as given by De Raad et al. in their Table 4.

<sup>4</sup>The adjectives were as follows: For *Positive Valence*, Outstanding, Impressive, Excellent, Exceptional, Admirable, and Important, versus Ordinary and Average; for *Negative Valence*, Wicked, Awful, Cruel, Dangerous, Disgusting, Vicious, and Depraved; for *Positive Emotionality*, Talkative, Animated, Sociable, Playful, and Impulsive, versus Reserved and Quiet; for *Negative Emotionality*, Nervous, Irritated, Frustrated, and Guilty; for *Dependability*, Organized, Orderly, Prompt, and Consistent versus Disorganized; for *Agreeability*, Lenient versus Argumentative, Stubborn, and Tough; for *Conventionality*, Traditional, Strict, Conventional, and Old-fashioned versus Progressive and Radical.

<sup>5</sup>It might be useful to clarify that scales used were original inventory scales, not equivalents that have been subsequently developed using the International Personality Item Pool.

60ML7 with short measures containing content distinct from that on these eight inventories: the Rosenberg Self-Esteem scale (RSE; Rosenberg, 1965), the IPC locus-of-control scale (with subscales tapping Internality, Chance, Powerful Others; Levenson, 1981), and the Balanced Inventory of Desirable Responding (Paulhus, unpublished manual) which contains Self-Deceptive Enhancement and Impression Management scales.

## Results

### *Relation with lexical factors in English*

Can the ML7 can be found in an exploratory factor analysis of representative English-language person-descriptors? Table 5 presents correlations of the multi-language factor scales with lexical factors from 500 high-frequency English person-descriptive adjectives (Saucier, 1997). The lexical factors in the left-hand column are labelled based on the two adjectives having the highest loading on the factor, giving some indication as to content. As noted earlier, these solutions contain an Attractiveness factor that includes content for which there is no direct counterpart in the ML7.

The seven-factor structure in Table 5 includes factors corresponding well to Gregariousness, Even Temper, Concern for Others, Conscientiousness, and Intellect, as well as to an Attractiveness factor, but the seventh factor did not correspond well to either of the remaining factors (Self-Assurance or Negative Valence). The comparability improved markedly in the eight-factor solution, which had factors corresponding highly ( $r > 0.60$ ) with all of the ML7 except Self-Assurance. The seventh (of eight) lexical factors correlated markedly with Self-Assurance, although the coefficient was only about 0.45.

Table 5. Correlations of lexical factors from 500 most frequently used person-descriptors with English-language ML7 marker scales

Lexical factor	Gregariousness	Self-Assurance	Even Temper	Concern for Others	Conscientiousness	Intellect	Negative Valence
<i>Seven-factor solution</i>							
Outgoing/Talkative (6)	<b>0.70</b>	0.33	-0.25	-0.14	0.00	-0.03	0.04
Crabby/Irritated (1)	-0.05	-0.42	<b>-0.73</b>	-0.29	-0.15	-0.03	<b>0.61</b>
Warm-/Kind-hearted (2)	0.34	0.07	0.22	<b>0.70</b>	0.07	0.11	-0.17
Practical/Thorough (5)	-0.11	0.21	-0.23	0.10	<b>0.63</b>	0.00	-0.44
Smart/Intelligent (3)	-0.03	0.42	-0.02	-0.16	-0.13	<b>0.76</b>	0.06
Gorgeous/Beautiful (4)	0.16	0.29	0.07	-0.03	0.26	0.21	0.03
Relaxed/Carefree (7)	-0.06	0.35	0.23	-0.11	-0.11	-0.01	0.09
<i>Eight-factor solution</i>							
Quiet/Soft-spoken (8)	<b>-0.73</b>	-0.26	0.12	0.01	0.00	0.06	-0.06
Secure/Satisfied (7)	0.07	<b>0.45</b>	0.11	-0.20	-0.05	-0.06	-0.14
Crabby/Grumpy (2)	0.04	-0.30	<b>-0.82</b>	-0.35	-0.08	-0.03	0.37
Kind-/Warm-hearted (1)	0.29	0.11	0.16	<b>0.69</b>	0.18	0.10	-0.25
Organized/Neat (6)	-0.10	0.18	-0.14	0.09	<b>0.73</b>	-0.08	-0.32
Exceptional/Extraord. (3)	0.03	<b>0.51</b>	0.02	-0.13	0.01	<b>0.78</b>	0.10
Disgusting/Senile (4)	-0.02	-0.12	0.01	-0.02	-0.10	-0.06	<b>0.56</b>
Good-looking/Beautiful (5)	0.14	0.15	0.05	0.01	0.21	0.10	-0.01

$N = 592$ . Lexical factors are based on original (non-ipsatized) data, and are labelled in terms of two terms with highest loadings. Extraord. = Extraordinary. Numbers in parentheses refer to order of factor appearance. Coefficients 0.45 and greater in magnitude are printed in boldface type. Correlations of 0.09 and greater are statistically significant ( $p < 0.05$ ).

Because the seven-factor lexical solution, unlike the ML7, includes an Attractiveness factor, I will focus on the eight-factor lexical solution. The index of replication used here is correlations between sets of best-match factors, that is, the factors in one set (lexical solution) each matched with one factor from the other set (e.g. ML7) in such a way that the average correlation between matched factors is maximized.

If one excludes Attractiveness, and lines up these lexical factors one-to-one with their best match among the 60ML7 scales, the analogous best-match replication coefficients in Table 5 are  $-0.73$ ,  $0.45$ ,  $-0.82$ ,  $0.69$ ,  $0.73$ ,  $0.78$ , and  $-0.56$ , for a mean absolute value of  $0.68$ . By comparison, Big Five factor scales (Modular Markers) averaged a  $0.71$  correlation with five best-match factors in the seven-factor solution, and a  $0.70$  correlation with the five best-match factors in the eight-factor solution. Also by comparison, Big Seven factor scales averaged a  $0.48$  correlation with best-match factors in the seven-factor solution, and a  $0.55$  correlation with the seven best-match factors in the eight-factor solution. Thus, ML7 scales matched these lexical factors nearly as well as the Big Five did, and clearly better than the Big Seven did.<sup>6</sup>

The ML7 seems nearly as recoverable in lexical studies of English as the Big Five, when one includes the full range of terms descriptive of personal attributes. Obviously, a model consisting of the ML7 plus Attractiveness provides an even better match with these eight-factor solutions.

#### *Relation with Lexical Factors from Italian*

Table 6 provides correlations between the ML7 markers and translated markers for the Italian-emic structure of De Raad et al. (1998). The five Italian factors match up neatly with the first five of the ML7 factors, that is, with the seven factors minus Intellect and Negative Valence. The five pairs of best-matched factors correlated  $0.67$ – $0.77$  (mean  $0.73$ ) with each other. In absolute-value terms, the divergent, hetero-trait correlations averaged  $0.22$ , with a range from  $0.00$  to  $0.49$ . ML7 Intellect was modestly ( $0.25$  and  $0.34$ ) correlated with the first two Italian factors. ML7 Negative Valence correlated in the  $0.18$  to  $0.45$  range with each of the five Italian factors, indicating that substantial Negative Valence variance is spread among these five Italian factors.

Given the impressive matching of ML7 and Italian factors, one would naturally wonder whether American Big Five markers match the Italian factors equally well. When correlated with Goldberg's (1992) 100 unipolar marker scales and Saucier's (2002b) Modular Markers for the Big Five, respectively, the best match correlations ( $N = 533$ )

<sup>6</sup>All analyses reported used original data. One can object to ipsatizing the data—standardizing scores within subject—because in equalizing subject means (to zero) and subject variances (to unity) one would remove some valid individual differences: some subjects may have more of the traits referenced in the items, or more extreme traits, than do other subjects, but ipsatizing effaces these differences (Saucier, 2002b). Ipsatizing (or otherwise controlling for acquiescence) across sets of items that do not have balanced keying with respect to content can lead to inadvertently discarding content variance (Hofstee, 1998). Nonetheless, because ipsatizing is common in lexical studies, the same analyses were repeated in ipsatized data. When each participant's ratings using the 500 adjectives were ipsatized (i.e. standardized within-subject), one found a clear Negative Valence factor not just in the eight-factor solution but also in the seven-factor solution. In the eight-factor solution from ipsatized data, there were two factors having their highest correlation with ML7 Self-Assurance. One of these was a blend of Self-Assurance and Even Temper, and was thus close to a classic Emotional Stability factor. The other was a small (eighth) factor, capturing a few aspects of Self-Assurance not easily subsumed under an Emotional Stability factor. For Gregariousness to Negative Valence in the same order as in Table 5, correlations with best-match factors in this eight-factor (ipsatized) solution were  $0.72$ ,  $0.36$ ,  $0.49$ ,  $0.72$ ,  $0.64$ ,  $0.71$ , and  $0.62$ , for a mean of  $0.61$ . The lower ( $0.61$ ) mean value reflects the appearance of a more Big-Five-like solution (including an Emotional Stability factor) when these data were ipsatized. It may also reflect the tendency of ipsatization to yield (perhaps force) bipolar factors; many of the 60ML7 marker scales have more items at one pole than the other, and this mismatch probably attenuates intercorrelations to some degree.

Table 6. Correlations of Italian lexical-factor markers with English-language ML7 (EML7) marker scales

Italian factor	Gregariousness	Self-Assurance	Even Temper	Concern for Others	Conscientiousness	Intellect	Negative Valence
Exuberant vs. Silent (I)	<b>0.77</b>	<b>0.49</b>	0.21	0.20	0.12	0.25	-0.18
Assured vs. Suggestible (IV)	0.15	<b>0.76</b>	0.17	-0.08	0.18	0.34	-0.20
Peaceful vs. Irritable (II)	-0.21	0.13	<b>0.67</b>	0.45	0.04	0.05	-0.28
Sensitive vs. Insensitive (V)	0.26	0.19	0.31	<b>0.74</b>	0.18	0.12	-0.35
Precise vs. Unruly (III)	0.00	0.35	0.19	0.32	<b>0.70</b>	0.14	-0.45

$N = 533$ . Italian factor markers involve 63 adjectives that are Italian terms in English translations presented by De Raad et al. (1998, Table 4). English terms listed are those with highest loadings on each pole of each Italian factor; Roman numerals are those used by De Raad et al. (1998). All correlations of 0.50 and greater are printed in boldface type. Correlations of 0.09 and greater are statistically significant ( $p < 0.05$ ).

were, respectively, 0.83 and 0.82 for Extraversion, 0.42 and 0.62 for Agreeableness, 0.77 and 0.77 for Conscientiousness, 0.51 and 0.52 for Emotional Stability, and 0.21 and 0.12 for Intellect, for means of 0.55 (100 Markers) and 0.57 (Modular Markers). In absolute-value terms, the divergent, hetero-trait correlations averaged 0.27 (range 0.04–0.72) for the 100 Markers and 0.23 (range from 0.03–0.68) for the Modular Markers. Given the discrepancy between a mean of 0.73 (for the ML7) and means of 0.55 or 0.57 (for the Big Five), it seems fair to say that the Italian results replicate the ML7 better than they replicate the Big Five.<sup>7</sup> The difference stems largely from the replacement of Intellect by a second Agreeableness factor in this Italian structure, but also from the Italian Agreeableness and Emotional Stability factors being a better match with ML7 than Big Five factors. Thus, employing the ML7 as an etic reference structure serves to account for heretofore anomalous aspects of the Italian trait structure.

High correspondence between the Italian factors and five ML7 factors indicates that the Italian structure is not an anomaly, but rather reflects most of the same etic structure as the ML7. The differences are the lack of Intellect and Negative Valence factors in the Italian studies, but the absence of these two factors might be readily accounted for. First, five factors may be too few for the Italian lexical variables; there is no published report of what additional factors were in the Roman data, but for the Trieste data additional factors did include content related to some degree to both Intellect and Negative Valence (Di Blas & Forzi, 1998, Table 5). Second, both studies excluded extremely evaluative descriptors from the final variable selection, which would make the appearance of a Negative Valence factor

<sup>7</sup>A slight improvement in Big Five replication can be realized if the 'sensitive versus insensitive' factor that De Raad et al. (1998) labelled Openness/Intellect (V) is taken to represent Agreeableness, the 'peaceful versus irritable' factor they labelled Agreeableness (II) is taken to represent Emotional Stability, and the Assured/Suggestible factor they labelled as Emotional Stability (IV) is substituted as the closest stand-in for Intellect. These manoeuvres improve the mean convergent correlation to 0.62 and 0.58 for 100 Markers and Modular Markers, respectively, but the change is not large enough to affect the overall conclusion that ML7 replication appears higher than Big Five replication.

less likely. Moreover, both studies may have had a sparser representation of Intellect and other ability terms less than in some other lexical studies.

#### *Relation to five-factor measures*

The comparisons with Italian imply that the ML7 is not the same as the 'Big Five plus two'. Table 7 presents more direct evidence regarding this issue: correlations of the multi-language factor scales with five-factor measures. Two of the factors (Conscientiousness and Intellect) on five-factor measures showed quite good one-to-one correspondence with ML7 scales having the same labels. Five-factor Extraversion scales were highly correlated with ML7 Gregariousness, but also to a lesser degree with ML7 Self-Assurance. Five-factor Agreeableness scales were correlated primarily with ML7 Concern for Others, but also with ML7 Even Temper. Five-factor Emotional Stability (or Neuroticism) scales were highly correlated with both ML7 Even Temper and ML7 Self-Assurance. Apparently, whereas five-factor models include three affective–interpersonal factors (Extraversion, Emotional Stability, and Agreeableness; cf. Saucier, 1992), the ML7 includes four (Gregariousness, Self-Assurance, Even Temper, and Concern for Others). The ML7 partitions negative emotionality into two factors, one more related to fear (low Self-Assurance), the other more to anger and hostility (Temperamentalness versus Even Temper).

The Negative Valence marker scale correlated negatively to a moderate degree with Agreeableness, Conscientiousness, and Emotional Stability. This pattern of correlations is consistent with that of Digman's (1997) higher-order Big Five factor labelled 'alpha' or Socialization. Negative Valence seems to be part of this same higher-order factor.

The Big Seven (Tellegen & Waller, 1987) can be regarded as largely a 'Big Five plus two', an extension of the Big Five containing two additional factors (Positive Valence and Negative Valence). Table 8 presents the correlations of the ML7 scales with approximations for a Big Seven factor model. Evident are some good one-to-one correspondences between Big Seven and ML7 factors: Gregariousness corresponded well with Positive Emotionality, and the two representations of Negative Valence corresponded well. Big Seven Dependability corresponded well with ML7 Conscientiousness, although the latter also correlated substantially with Big Seven Conventionality. Big Seven Negative Emotionality correlated most highly with ML7 Even Temper, but had substantial correlations also with Self-Assurance (negative) and Negative Valence (positive). Big Seven Agreeability correlated with both ML7 Even Temper and ML7 Concern for Others. Big Seven Positive Valence correlated highly with two ML7 factors: Intellect and Self-Assurance. Table 8 makes clear that the ML7 has important differences from the previous Big Seven; most importantly, like the Big Five the Big Seven has three affective–interpersonal factors (Positive Emotionality, Negative Emotionality, and Agreeability).

#### **Interpreting ML7 constructs**

In order to obtain clearer interpretation and labelling for the ML7 factors, I examined concurrent-validity correlations among a wide variety of measures.

A first question is whether the broad scales in any personality questionnaire correspond to the ML7. The personality questionnaire having the best correspondence was the Hogan Personality Inventory. Matching correlations of HPI primary scales with 60ML7 scales were as follows: Sociability (0.40) with ML7 Gregariousness, Ambition (0.58) with ML7 Self-Assurance, Adjustment (0.55) with ML7 Even Temper, Likeability (0.40) with ML7 Concern for Others, Prudence (0.37) with ML7 Conscientiousness, and both Intellectance

Table 7. Correlations of five-factor measures with English-language ML7 (EML7) marker scales

	Gregariousness	Self-Assurance	Even Temper	Concern for Others	Conscientiousness	Intellect	Negative Valence
<i>Big five Modular Markers</i>							
Extraversion	<b>0.73</b>	<b>0.54</b>	0.00	0.04	0.06	0.32	-0.04
Agreeableness	0.14	0.04	<b>0.62</b>	<b>0.65</b>	0.03	-0.05	-0.38
Conscientiousness	0.03	<b>0.41</b>	0.13	0.23	<b>0.79</b>	0.21	-0.41
Emot. Stability	-0.08	<b>0.49</b>	<b>0.64</b>	0.09	0.03	0.10	-0.30
Intellect	-0.03	0.11	-0.14	-0.22	-0.17	<b>0.70</b>	0.27
<i>Big Five 100 Markers</i>							
Extraversion	<b>0.71</b>	<b>0.53</b>	0.03	0.05	0.11	0.23	-0.05
Agreeableness	0.25	0.23	<b>0.40</b>	<b>0.64</b>	0.19	0.06	-0.34
Conscientiousness	0.02	0.30	0.12	0.27	<b>0.69</b>	0.09	-0.36
Emot. Stability	-0.04	<b>0.53</b>	<b>0.59</b>	0.12	0.05	0.11	-0.28
Intellect	0.10	0.29	0.01	0.03	0.00	<b>0.74</b>	0.03
<i>NEO-PI-R</i>							
Extraversion	<b>0.64</b>	<b>0.43</b>	0.06	0.15	0.13	0.21	-0.04
Agreeableness	0.07	0.02	<b>0.49</b>	<b>0.60</b>	0.06	-0.11	-0.26
Conscientiousness	0.00	0.33	0.17	0.15	<b>0.66</b>	0.12	-0.31
Neuroticism	-0.09	- <b>0.63</b>	- <b>0.52</b>	-0.04	-0.11	-0.22	0.31
Openness to Experience	0.16	0.12	0.04	0.05	-0.24	<b>0.56</b>	0.19

*N* = 592, except *N* = 567 for NEO-PI-R analyses. Coefficients of 0.40 and greater in magnitude are printed in boldface type. Correlations of 0.09 and greater in magnitude are statistically significant ( $p < 0.05$ ).

Table 8. Correlations of Big Seven factor approximations with English-language ML7 markers

	Gregariousness	Self-Assurance	Even Temper	Concern for Others	Conscientiousness	Intellect	Negative Valence
Positive Emotionality	<b>0.84</b>	0.29	-0.06	0.12	-0.02	0.21	0.02
Negative Emotionality	-0.11	<b>-0.56</b>	<b>-0.57</b>	-0.19	-0.18	-0.11	0.43
Agreeability	-0.09	-0.06	<b>0.55</b>	0.29	-0.02	-0.16	-0.25
Dependability	-0.03	0.25	0.12	0.26	<b>0.74</b>	0.04	-0.38
Positive Valence	0.17	0.49	0.07	-0.05	0.10	<b>0.65</b>	-0.01
Negative Valence	-0.05	-0.20	-0.39	-0.33	-0.16	-0.06	<b>0.66</b>
Conventionality	-0.09	-0.04	-0.02	0.20	0.45	-0.28	-0.31

N = 592. Coefficients of 0.50 and greater in magnitude are printed in boldface type. Correlations of 0.09 and greater are statistically significant ( $p < 0.05$ ).

(0.47) and School Success (0.33) with ML7 Intellect.<sup>8</sup> Thus one finds an orderly set of one-to-one correspondences with the ML7 (minus Negative Valence). Although Intellectance and School Success corresponded with a single ML7 factor, in fact these two HPI scales were combined in an earlier version of the HPI (Hogan & Hogan, 1986). Correspondences between an *imported* lexical structure and an American personality questionnaire provide further evidence for the etic usefulness of the ML7.

Table 9 provides, for each of the ML7, the questionnaire scales having the most salient correlations with the multi-language factor scales. 'Salient correlations' were those with (i) magnitudes of 0.40 or greater and (ii) a reasonable degree of factor discrimination, such that the highest correlation with a factor scale is at least two-thirds (1.6667 times) higher than the second highest correlation. Use of the factor-discrimination criterion enabled identification of questionnaire scales whose relation to the ML7 is not overly complex.

Table 9. Most discriminating questionnaire correlates of the ML7 marker scales

<i>Gregariousness</i>	<i>Concern for Others</i>
0.63 Social Boldness (16PF)	0.63 Altruism (NEO-PI-R A3)
0.60 Warm Communication (TCI RD2)	0.54 Sentimentality (TCI RD1)
0.59 Affiliation (SFPQ)	0.42 Tender-mindedness (NEO-PI-R A6)
0.56 Attachment (TCI RD3)	
0.54 Social Closeness (MPQ)	<i>Conscientiousness</i>
0.51 Likes People (HPI)	0.72 Order (NEO-PI-R C2)
0.48 Liveliness (16PF)	0.68 Perfectionism (16PF)
0.47 Sociability (JPI-R)	0.65 Conscientiousness (NEO-PI-R)
	0.65 Methodicalness (SFPQ)
−0.53 Privatness (16PF)	0.65 Order (SFPQ)
<i>Self-Assurance</i>	0.61 Organization (JPI-R)
0.54 Self-Esteem (Rosenberg)	0.48 Mastery (HPI)
0.50 Self-Confidence (HPI)	0.42 Cognitive Structure (SFPQ)
0.48 Self-Deceptive Enhancement (BIDR)	−0.49 Flexibility (CPI)
0.45 Well-Being (MPQ)	−0.41 Impulsiveness (TCI NS2)
0.40 Internal Locus of Control (IPC total)	
	<i>Intellect</i>
−0.65 Harm Avoidance (TCI)	0.59 Innovation (JPI-R)
−0.61 Vulnerability (NEO-PI-R N6)	0.54 Openness to Experience (NEO-PI-R)
−0.56 Self-Consciousness (NEO-PI-R N4)	0.54 Ideas (NEO-PI-R O5)
−0.55 Fear of Uncertainty (TCI HA2)	0.49 Openness to Experience (SFPQ)
−0.46 Apprehensiveness (16PF)	0.48 Openness to Change (16PF)
−0.42 Fatigability/Asthenia (TCI HA4)	0.45 Breadth of Interest (SFPQ)
<i>Even Temper</i>	0.44 Understanding (SFPQ)
0.57 Even-tempered (SFPQ)	0.43 Complexity (JPI-R)
0.56 Even-tempered (HPI)	0.43 Achievement—Intellectance (CPI)
0.53 Empathy (HPI)	0.43 Aesthetics (NEO-PI-R O2)
0.49 Agreeableness (SFPQ)	0.40 Breadth (JPI-R)
−0.71 Hostility (NEO-PI-R N2)	
−0.46 Tension (16PF)	

<sup>8</sup>HPI Likeability correlated 0.40 with ML7 Gregariousness as well as 0.39 with ML7 Concern for Others. For other broad HPI scales, the correlation given is the highest one with any ML7 scale.

Table 9 omits questionnaire scales with a highly complex relation to the ML7, such as Big Five Extraversion, Agreeableness, and Emotional Stability (see Table 7). Table 9 also omits correlations with Negative Valence, because no questionnaire scale met the factor-discrimination criterion in its correlation with this factor.

Validity is often described as the extent to which a measure measures what it is supposed to be measuring. Therefore, it is important that a measure be appropriately labelled (i.e. linked with a construct), in a way that clearly indicates what the measure is 'supposed to be measuring'. I shall offer brief comments regarding optimal labels for the ML7 factors, based on the present data. These interpretations should be tested and revised in analyses using new data, including data using variables from other languages.

*Gregariousness* is a factor whose constituent adjectives (Tables 1 and 4) and correlates (Table 9) include not just sociability but also exuberance and lack of restraint. In terms of psychopathology, it seems to overlap with a histrionic (or manic) versus schizoid dimension. It contrasts attention-seeking tendencies with attention-avoiding tendencies.

*Self-Assurance* is a factor whose items and correlates include not just self-confidence, but also self-esteem, self-deceptive enhancement, fortitude, fearlessness, invulnerability, fatiguelessness, and an internal locus of control. Self-esteem and locus of control are particularly heavily used constructs in psychology. I noted earlier the correlation of ML7 Self-Assurance with HPI Ambition, which is designed to capture leadership-related traits. A factor encompassing self-esteem, locus of control, and leadership would be of considerable significance.

*Even Temper* is a reflection of the Temperamentalness label used for the Filipino version of the factor. Its items and correlates include (on the generally unfavourable reverse pole) irritability, hostility, tension, possessiveness and defensiveness (i.e. territoriality), and demandingness. Labels like Even Temper and Temperamentalness highlight proneness to anger, but this factor also seems to involve frustration intolerance and proneness to conflict. In terms of classical humours theory, this corresponds to the 'choleric' type.

*Concern for Others* is another label taken from the Philippine studies, in which its opposite pole was labelled as Egotism. Components and correlates include (on the favourable pole) altruism, generosity, sensitivity, soft-heartedness, tendermindedness, humility, and lack of egotism.

One might question whether these first four factors are simply lower order facets of the broad-band Big Five factors of Extraversion, Emotional Stability, and Agreeableness, or whether these four factors simply redivide three Big Five factors into four, without adding any new content. If this were true, the first 29 correlations listed in Table 9, which relate to these four ML7 factors, should be mediated by the lexical Big Five and be no longer statistically significant once the Big Five are partialled from each of the ML7 factors. I partialled 100 Markers and Modular Markers Big Five scales out of each of these ML7 factors, and then examined the 29 part correlations. All 29 correlations remained significant, with magnitudes ranging from 0.15 to 0.40 (median 0.27) when the 100 Markers were partialled out, and from 0.12 to 0.37 (median 0.23) when the Modular Markers were partialled out.<sup>9</sup> This indicates that these ML7 factors capture considerable variance in numerous questionnaire scales that the Big Five does not.

<sup>9</sup>When NEO-PI-R domain scales were partialled out, the 29 correlations ranged from 0.02 to 0.37 in magnitude (median 0.22), and 26 of the 29 correlations remained significant. NEO Tender-mindedness and Vulnerability and 16PF Apprehensiveness became nonsignificant (part correlation under 0.10). Surprisingly, the ML7 factor correlations with three NEO facets (Self-Consciousness, Hostility, and Altruism) remained significant after partialling out NEO domain scales, indicating that the ML7 is capturing content in these NEO facet scales that is residual to the NEO domain scales.

The next two ML7 factors have fairly close similarity to Big Five factors.

Although *Conscientiousness* is a label used for a Big Five as well as an ML7 factor, there are some subtle differences in emphasis between the two, however. Specifically, the ML7 factor emphasizes strictness, thrift, and constraint to a greater degree. These distinctive ML7 emphases bring out an orientation (whether in attitudes or behaviour) to *rules and standards* (especially internally imposed ones) as an overarching theme. This factor concerns regulation of behaviour, especially by the self.

*Intellect* is another label used for both a Big Five and an ML7 factor. The two factors appear to differ little, except that the terms Average and Ordinary are markers for low Intellect in the ML7, whereas in the Big Five low Intellect has marker terms like Unintelligent and Imperceptive, suggesting subnormal capacities. In other words, ML7 Intellect is comparatively more focused on whether one stands out, that is, whether one is special (a virtuoso) or merely ordinary with respect to talents and ways of thinking. Virtuosity (or Genius or Talent) would be an appropriate label: it appears better than 'Intellect' in that the opposite appears to be not stupidity but mediocrity. Elsewhere, 'O' and 'V' have served as one-character labels for a related factor. We could imagine the O standing for Original versus Ordinary. As a Roman numeral, V has long been used for the lexical Intellect factor, but the *letter V* can denote Virtuosity—special skills and abilities.

*Negative Valence* is the label for a Big Seven as well as an ML7 factor, representing a now widely replicated empirical phenomenon in lexical-factor studies. It is noteworthy that Negative Valence had no correlations meeting the salience criterion applied in Table 9. The personality questionnaires examined do not have scales that correspond in a direct and discriminating manner with Negative Valence. However, several questionnaire scales had a higher correlation with Negative Valence than with any other ML7 scale, including Socialization (CPI;  $-0.35$ ), Achievement via Conformance (CPI;  $-0.33$ ), Responsibility (CPI;  $-0.28$ ), and Impulse Control (HPI;  $-0.28$ ). Negative Valence taps into aspects of personality variation. Ignoring this factor one would ignore some of the components of variation found in frequently used personality questionnaires.

The label 'Negative Valence' assumes that variables associated with the factor will all be undesirable, but as just demonstrated the factor has some favourable-trait correlates at the opposite pole. The opposite pole in the Hebrew-emic version of the factor includes numerous desirable terms, and the Filipino-emic version includes the Filipino word *Normal* (whose translation is obvious; Church et al., 1997, Appendix B). The 60ML7 includes not only Normal but also Trustworthy as desirable-pole marker terms (terms like Useful, Decent, and Respectable might also have been used). The 60ML7 marker terms for Negative Valence include all four content themes that Benet-Martinez and Waller (2002) characterized in highly evaluative personality judgments: Morality/Depravity (e.g. Trustworthy versus Evil, Corrupt), Power/Distinction/Worthlessness (e.g. Good-for-nothing), Peculiarity/Unconventionality (e.g. Normal versus Weird, Insane, Crazy), and Intelligence/Stupidity (e.g. Stupid). Although the 'Negative Valence' label seems to suggest a factor that is purely evaluative, there is clearly descriptive content involved.

The descriptive content shares a theme of Social Unacceptability, or extreme social impropriety. Although a wide variety of personality traits are regarded as undesirable, most undesirable traits are associated with behaviours that turn out to be useful in some situation or another. People (and the society they form) will tolerate undesirable attributes in moderate degree. Those more extremely undesirable attributes associated with Negative Valence, however, are more socially unacceptable; in samples drawn from the normal population, measures of these attributes will generate a more (positive) skewed distribution.

Attributes such as immorality, evil, insanity, and incompetence may be so socially unacceptable because they imply that a person is unwilling or unable to be a player in the typical interactions of reciprocity upon which a society depends. These attributes define one as socially deviant, as outside the mainstream of normal society. Having passed the key threshold of unacceptability, they trigger a more dramatic response: potentially, one with these attributes can be ostracized, can gain the status of an outcast or pariah, or in the modern setting can be institutionalized or incarcerated.

Attributes associated with Negative Valence involve judgments that are moral in a limited but basic sense. They do not involve the presence of virtues, that is, of positive moral attributes like fairness or honesty or charity; they involve only the presence or absence of deplorable attributes.<sup>10</sup> Having these deplorable attributes would tend to get one in trouble with one's group, so the moral issue is the limited but basic one of whether one manages to stay out of trouble (by demonstrating a minimal level of social acceptability). This limited moral issue is implicit in moral-analogous behaviour in animals, as described by Bischof (1978). Bischof notes that in social species 'unfamiliar' behaviour is generally seen as dangerous and leads to emotional arousal and fear, and this leads to the 'socioethologically fundamental distinction between group members and strangers' (p. 52). Being regarded as strange is thus fairly synonymous with, and tends to lead to, exclusion from the group. Distinctions having to do with normality and acceptability as opposed to strangeness, weirdness, and inferred craziness are moral in a limited but basic sense, and are characteristic of the Negative Valence factor. The independence of Negative Valence from other personality dimensions (such as the Big Five, or the other six in the ML7) simply indicates that other personality dimensions, while capturing important aspects of moral behaviour including virtues and positive traits, fail to capture distinctions pertaining to the threshold between acceptable and unacceptable behaviour, between what is socially tolerable and what is not tolerated. These distinctions involve attributes that are extremely evaluative, because of course only extremely negatively valued attributes are by consensus intolerable.

One might expect those relatively normal people who usually participate in personality studies to all score at the extreme low end of Negative Valence, but in fact in the community sample from Study 2 ( $N=592$ ) only 18% of the participants gave the '1' response (on the 1–7 scale, with reflection of the two reverse-keyed items) for all nine Negative Valence adjectives in the 60ML7. Most had a response mean between 1.00 and 2.00, but 23% had a mean of 2.00 or higher. There are several potential ways of accounting for these higher-than-expected scores: (i) a significant percentage of subjects were inattentive to their own responses for at least some part of the inventory, (ii) the distribution reflects individual differences in acquiescent responding, (iii) many respondents are self-critical in acknowledging that they are sometimes 'crazy' or not always competent and trustworthy, or (iv) the level of socially unacceptable attributes is higher in the general population than previously thought. Further studies could determine which view is more correct.

<sup>10</sup>Ashton and Lee (2001) have proposed a six-factor 'Big Five plus Honesty' model, a proposal the strengths and weaknesses of which I have reviewed previously (Saucier, 2002a). Pertinent here is that Ashton and Lee describe this Honesty factor as closely related to morality. It appears that this Honesty construct focuses on positive moral attributes and not on the 'minimal social acceptability' moral criterion implied by Negative Valence. This constitutes an important contrast between two factors that appear to have moral connotations. The correlation of the Honesty factor with Agreeableness is an indirect indication that positive moral attributes are already captured to a substantial degree by the Big Five.

Is the Negative Valence factor just a collection of low-base-rate attributes whose similarly skewed distributions make them correlate and form a factor, or does it have substantial descriptively useful content? A crucial question for future studies is whether (and to what degree) high scores indicate aberrant attributes as opposed to aberrant responding. If there is a descriptive basis, Social Unacceptability would seem to be the appropriate label; if not then Unlikelihood of Endorsement (or Infrequency or Low Base Rate Attributes) would seem better.

## Discussion

Study 2 addressed a wide variety of issues related to the convergent Filipino–Hebrew-derived factor structure (the ML7) demonstrated in Study 1. With respect to the Big Five, two of these factors—Conscientiousness and Intellect—correspond fairly well to ML7 factors of the same name, but the ML7 includes four affective–interpersonal factors (Gregariousness, Concern for Others, Self-Assurance, and Even Temper) whereas the Big Five has only three (Extraversion, Agreeableness, and Emotional Stability).

The ML7 structure (with an added Attractiveness factor) *can* be recovered in lexical data using English descriptors, if one uses very inclusive variable-selection criteria, in contrast to the less inclusive criteria associated with recovery of the Big Five. Taking into account these differing methodological prerequisites, the replicability of the ML7 in English lexical data appears to be comparable to that for the Big Five. In Italian lexical data, the present analyses indicate that the ML7 will have replicability superior to that of the Big Five. Moreover, the ML7 has some resemblance to the structural model basic to at least one personality questionnaire developed in the American setting—the Hogan Personality Inventory.

### *Advantages and limitations of the framework*

Scientific studies gain more clarity when more than one model is tested and compared. Claims of replicability, pervasiveness, and universality are more easily evaluated in comparison to some alternative. The structural framework of the Multi-Language Seven is an alternative model. ‘Competition’ with the Big Five framework could lead to edifying results. We should be clear, of course, that the Big Five and ML7 are partially overlapping models, so that only two questions need be addressed: (i) whether it is better to divide affective–interpersonal personality description into four rather than three dimensions, and (ii) whether it is scientifically beneficial to add a Negative Valence (or Social Unacceptability) factor to create a more comprehensive model of person description.

The Big Five model has been used as a way of organizing scientific findings, so that something of a Big Five nomological net is now available. It should not be dismantled precipitously. Any competitor alternative model must show promise of having compensating advantages. In other words, a case must be made for the superiority of the new model. There are five major ways in which the ML7 framework is potentially superior to the five-factor framework.

- (i) If widely applied, the new framework has promise of being more replicable across studies in different languages, when these studies use an emic approach. In other words, if one does not force the indigenous data into the Procrustean beds of imported constructs, the results may support the new framework better. Obviously, the Filipino and Hebrew studies, from which the model was directly derived, support the ML7 more than the Big Five. Study 2 suggested that the same is true for Italian lexical data.

A recent review (Saucier & Goldberg, 2001) of lexical studies of personality structure in a dozen languages noted that many studies generated structures with two Agreeableness-related factors. The ML7, of course, also includes two Agreeableness-related factors—Even Temper and Concern for Others. If the ML7 does prove to be more replicable across cultures and languages, that would indicate better usability across settings, and something better approaching a ‘culturally decentred model’.

- (ii) The methodological prerequisites for arriving at the structure appear to be less demanding than is true for the Big Five. The Big Five includes only ‘disposition’ variables—which refer to characteristics that are likely to be stable and somewhat internal to the person. Unfortunately, making a clear dichotomous separation of the dispositional from other variables is no easy task. Many person-descriptive terms, for example, are difficult to classify as either traits or states in a discrete manner (Chaplin, John, & Goldberg, 1988; Saucier, 1997). As Allport (1937) demonstrated, experts have many divergent ways of defining what ‘personality’ is and is not. To arrive at the ML7 structure, the methodological procedure is much simpler and less prone to generate disagreement between studies: one selects all terms that describe attributes of persons, and then reduces these to the ones that are in most frequent use. This methodological approach may, of course, lead to an Attractiveness factor in addition to the ML7.
- (iii) The new framework has more factors, and appears to provide a more comprehensive model of important dimensions of individual differences. This may help better integrate some lines of personality investigation with personality structure. For example, the Self-Assurance factor is substantially related to locus of control and self-esteem, and likely as well to leadership potential. One can tap aspects of these constructs via the Big Five, but not as directly.
- (iv) Several of the Big Five constructs are overly ambiguous. Extraversion, Agreeableness, and Emotional Stability/Neuroticism are somewhat difficult to define because each contains at least two highly divergent subcomponents (e.g. both Sociability and Assertiveness, both Coldness and Hot-temperedness, both Anger and Fear). The new framework in essence reduces each of these three factors to a major subcomponent, and assigns the residuals into a new factor, thus placing the divergent subcomponents on different factors. The resulting four affective–interpersonal factors seem less ambiguous and more clearly interpretable than are the three corresponding Big Five factors.
- (v) There is reason to expect that the new framework will be more closely aligned with biological variables. Whenever one derives a model from patterns that agree between two very distant and divergent cultural settings, one increases the likelihood that one has partialled out cultural specifics and focused on pancultural elements. Pancultural elements, in turn, are likely to reflect (a) biological influences that drive outcomes regardless of sociocultural context, or possibly (b) universal features of human society or human cognition that are emergent or systemic rather than biological. Either way, pancultural features will be desirable to locate.

Several limitations of the new structural framework—and of the present studies—should be acknowledged. Its representation in the present studies may have been affected by the quality of translation (in the original Filipino and Hebrew studies) and by accidents regarding which of these English-translated terms had been included among the 791 adjectives used in the key American data set employed. These biasing effects are not likely to be large, but they could be meaningful. The American English representation of the

ML7 developed here no doubt differs to some degree from both the Filipino and the Hebrew representations of it; it would be useful to conduct follow-up studies in which the 60ML7 markers are translated back into Filipino and Hebrew, as well as Italian, in order to examine how well the structure fits person description in these languages. Finally, lexical studies need to be conducted in a wider range of countries and continents; the ML7 model and the Big Five may *both* need to be superseded at some point by an even stronger model, whose features we will be able to delineate only after further studies.

## Conclusion

Previous work on developing a descriptive taxonomy of personality attributes has been strongly oriented toward testing a model of personality structure that was derived primarily from studies in languages of northern-European origin. Unfortunately, replicability of this model—the Big Five—across emic lexical studies in differing languages has been imperfect. As a result, we should revisit previous assumptions and consider the structural problem from more than one perspective. Because psychology is the study of mind and behaviour of humans across the globe, it is desirable that scientists be open to evidence gathered in non-Western settings. These studies support a new structural framework based on commonalities of findings from studies in two nations whose languages did not originate in Europe. It appears to be a very useful import. It may be as replicable in English as the Big Five, and it is perhaps *more* replicable elsewhere. It is associated with a less complex variable-selection methodology. It offers a more comprehensive model of individual differences than the Big Five.

The Big Five is a still provisional taxonomic structure; it is not an end point but a starting point for further research (De Raad & Perugini, 2002). Although the Big Five is a very useful model, the difficulty in finding the Big Five in lexical studies in some languages constitutes an anomaly. Researchers should not shy away from testing the Big Five against viable alternative models that might help resolve such anomalies. Needed are fair empirical contests, in search of the most scientifically useful structural model for personality attributes.

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