German Lexical Personality Factors: Relations with the HEXACO Model

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Abstract

We correlated the scales of the HEXACO Personality Inventory (HEXACO-PI) with adjective scale markers of factors previously obtained in indigenous lexical studies of personality structure in the German language. Self-ratings obtained from a sample of 323 German participants showed a pattern of strong convergent and weak discriminant correlations, supporting the content-based interpretation of the German lexical factors in terms of the HEXACO dimensions. Notably, convergent correlations were strong for both the broader and the narrower variants of the Honesty-Humility factor as observed in German lexical studies. Also, convergent correlations for HEXACO Openness to Experience were, as expected, stronger for German adjectives describing a creative and intellectual orientation than for German adjectives describing intellectual ability. Copyright © 2006 John Wiley & Sons, Ltd.

Key words: cross-cultural research; personality scales and inventories; lexical studies

INTRODUCTION

Attempts to discover the structure of human personality variation require the use of variable sets that are representative of the domain of personality characteristics. In order to obtain such variable sets, researchers have used the common personality-descriptive adjectives of various languages, and investigations of personality structure based on this lexical approach have now been conducted in at least a dozen languages. Early studies of the English language, involving analyses of rather small variable sets, suggested that there

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were five (and only five) robust factors of personality variation (Digman & Takemoto-Chock, 1981; Goldberg, 1990; Norman, 1963; Tupes & Christal, 1961/1992). These factors became known as the Big Five factors, and were popularized via the closely-related Five-Factor Model, a questionnaire-based model derived ultimately from lexical findings (see McCrae, 1989).

Beginning in the late 1980s, the results of lexical investigations in many languages other than English began to be reported in scientific journals or at international conferences. Although some investigations produced five-factor solutions closely reminiscent of the English Big Five, or at least of the space underlying the Big Five, other investigations failed to recover that five-factor space (see review by Ashton, Lee, Perugini, et al., 2004). But the most striking result of these investigations has been the finding that a space defined by six—not just five—factors has been recovered with some consistency across languages (Ashton, Lee, Perugini, et al., 2004). That is, a semantically similar set of six dimensions has been obtained from analyses of self-ratings (and when available, peer ratings) on the familiar personality-descriptive adjectives that are indigenous to various languages, both Indo-European (e.g. Dutch, French, Italian, Polish) and non-Indo-European (e.g. Hungarian, Korean; see also Di Blas, 2005, for the same structure as recovered from personality-relevant *attribute-nouns* in the Italian language.) More recently, re-analyses of archival data on the English personality lexicon have recovered a semantically similar six-factor structure (Ashton, Lee, & Goldberg, 2004), and other re-analyses of previous studies have indicated that this structure is also obtained from such additional languages as Greek (Lee & Ashton, 2006), Croatian (Ashton, Lee, & de Vries, 2005), and Turkish (Wasti, Lee, Ashton, & Somer, 2006).

Of the lexical studies of personality structure that have been reviewed to date, some important additional features of a German six-factor solution have recently been reported (Ostendorf, Mlacic, Hrebickova, & Szarota, 2004), providing new details regarding the content of some of the German factors. In light of this new information, it is important to revisit those six German lexical factors in some depth. Therefore, the purposes of the present research are first to explicate the nature of this German six-factor structure as revealed in some further detail by the new information, and then to quantify the similarity of those six German factors to imported marker variables of the six hypothesized cross-language dimensions. To the extent that a pattern of strong convergent and weak discriminant correlations would be observed, this would support the interpretation of the German six-factor solution previously suggested by Ashton et al. (2004). Below, we begin by describing the general features of the common six-factor structure as observed across several languages, and we then describe in greater detail the German solution in particular.

The six cross-language personality factors

The structural model of personality that is based on the set of six cross-culturally replicated dimensions described above is called the HEXACO model of personality structure, and has been operationalized in a questionnaire called the HEXACO Personality Inventory (HEXACO-PI; Lee & Ashton, 2004). The identity of the six HEXACO factors—Honesty-Humility (H), Emotionality (E), eXtraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O)—can be summarized as follows. First, the content of Extraversion (e.g. sociability, liveliness versus shyness, passivity) and of Conscientiousness (e.g. organization, discipline vs. laziness, sloppiness) is similar to that of the Big Five or Five-Factor Model factors of the same names. The Openness to Experience

(e.g. inquisitiveness, creativity vs. conventionality, unimaginativeness) factor is broadly similar to its namesake in the Five-Factor Model, and to some variants of the Intellect/Imagination/Unconventionality factor obtained in lexical studies. (Other variants of this factor are dominated by terms describing intellectual *ability* rather than personality characteristics of intellectual curiosity, imagination or unconventionality. We return to this issue throughout the present article.)

The remaining three HEXACO factors show some substantial departures from the factors of the Big Five or Five-Factor Model. Emotionality (e.g. anxiety, sentimentality vs. independence, fearlessness) and Agreeableness (e.g. patience, gentleness vs. stubbornness, ill-temper) represent rotated variants of the Big Five Neuroticism (i.e. low Emotional Stability) and Big Five Agreeableness factors, such that the anger-related content of Neuroticism is associated with the low pole of HEXACO Agreeableness.[1] Finally, Honesty-Humility (e.g. sincerity, fairness, modesty vs. greed, pretentiousness, slyness, hypocrisy) involves content that is only peripherally associated with the Big Five factors. Content related to sympathy and soft-heartedness, which is associated with the Big Five Agreeableness factor, is treated within the HEXACO framework as a blend of Honesty-Humility, Agreeableness, and (to some extent) Emotionality. In fact, adjectives representing this content—such as *sympathetic, soft-hearted, helpful*, and *generous* versus their opposites—have been found to shift their locations across those factors in different investigations (see, e.g. Ashton, Lee, Perugini, et al., 2004).

There appear to be strong semantic similarities among the six-factor solutions obtained in lexical studies of personality structure, as can be seen for example upon inspection of the tables of Ashton, Lee, Perugini, et al. (2004). However, it may be desirable to quantify the correspondence between the indigenous six-factor solution of a given language and the six HEXACO dimensions that we hypothesize to represent the major dimensions of personality variation. One way to achieve this aim is simply to examine the relations of marker scales representing the indigenous lexical factors with the (translated) HEXACO-PI operationalization of the cross-language six-factor structure. In our recent investigation using this approach (Ashton et al., in press), we correlated adjective marker scales representing the six *indigenous* lexical factors of the Italian, Dutch, and English languages with the six factor-level scales of the HEXACO-PI. Results showed patterns of strong convergent and weak discriminant correlations for the six factors in all three languages, thus supporting the suggestion that the HEXACO model does in fact characterize the six-factor structures observed in lexical studies of personality structure in those languages. In the present study, we aimed to follow the same general procedure as that employed by Ashton et al. (in press) for the Italian, Dutch, and English languages, but this time to investigate the indigenous lexical factors as observed in the German language. First, however, we describe the nature of those factors in detail.

DESCRIPTION OF THE GERMAN SIX-FACTOR SOLUTION

In previous reports, information about the German six-factor solution was taken from the very brief descriptions given by Angleitner and Ostendorf (1989; Ostendorf, 1990;

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[1]As noted by Ashton et al. (2004), the content of the Emotionality factor suggests that the label 'Emotional Instability' or 'Neuroticism' is too pejorative; in contrast, the content of the cross-language Agreeableness factor suggests that the label 'Agreeableness' is even more apt for this factor than for the Big Five variant, which emphasizes generosity rather than compliance.

Ostendorf & Angleitner, 1993). Although the full details of that solution remain unavailable, some further information was reported recently by Ostendorf et al. (2004), who provided lists of the highest loading terms for two of the six factors, in addition to other data confirming the strong similarity between other factors across the five- and six-factor solutions. Therefore, the data provided by Ostendorf et al. (2004) can, in combination with the previously released lists of terms defining the factors of the five-factor solution, give a reliable indication of the content of all six factors of the six-factor solution.

Replicability of the German six-factor solution

Before describing the content of the six German factors, however, we should discuss the replicability of the German six-factor solution. On the one hand, Ostendorf et al. (2004) reported low levels of *split-half* replicability for that solution, both within the self-rating sample and also within the peer rating sample of Ostendorf (1990; Angleitner & Ostendorf, 1989). On the other hand, however, Ostendorf and Angleitner (1993) discussed the six-factor solution as obtained from four different samples, including a new self-rating sample and a new peer rating sample in addition to the self-rating sample and the peer rating sample that were described in their earlier reports. Ostendorf and Angleitner (1993, p. 7) referred to the six-factor solutions obtained from the two self-rating and two peer rating samples, noting that 'the factor Agreeableness split into two factors, whereby, in all four analyses, the second factor could be interpreted as a special facet of Agreeableness'. For all four samples, they interpreted this factor (with reference to the interpersonal circle of Wiggins, 1979) as 'Calculating, Arrogant versus Ingenuous, Unassuming' (Ostendorf & Angleitner, 1993, p. 16), and reported extremely similar correlations across the four samples between adjectives' loadings on this factor and adjectives' prototypicality indices as rated for Big Five Agreeableness. In addition, all four six-factor solutions contained five other dimensions that were interpreted as the Big Five by Ostendorf and Angleitner (1993). These results indicate that the German six-factor solution is highly robust, even across rating sources, provided that sample sizes are sufficiently large. For the small split-half subsamples ($N \sim 200$) reported by Ostendorf et al. (2004), the solution is apparently less robust, but this instability is evidently attributable to the smaller sample sizes involved.

Defining content of the indigenous German lexical factors

Turning now to the content of the factors of the German six-factor solution, we begin with those factors that (a) were nearly identical between five- and six-factor solutions and that (b) were described in detail by Ostendorf (1990). For each factor, we will first summarize the defining adjectives of that dimension in the self-rating solution, and we will then comment on its substantive relations with corresponding dimensions of the Big Five or Five-Factor Model and the HEXACO model. Also, in special cases to be declared below, we also refer to the German seven-factor solutions and to the German peer rating six-factor solution.

First, the factor interpreted as Extraversion was defined by adjectives such as *sociable, lively, outgoing*, and *cheerful* versus *timid, reserved, withdrawn*, and *silent* (see Appendix).

The factor interpreted as Conscientiousness was defined by adjectives such as *hard-working, self-disciplined, orderly*, and *purposeful* versus *work-shy, inconsistent, indecisive,* and *frivolous* (see Appendix). Thus, the two factors suggested to represent Extraversion and Conscientiousness are defined by terms that are associated with both the Big Five and HEXACO Extraversion and Conscientiousness domains, respectively. The identity of these factors within the six-factor solutions is largely unchanged, as shown by the nearly identical correlations of the corresponding factors across five- and six-factor solutions with prototypicality indices for various constructs (see Ostendorf et al., 2004).

The factor interpreted as Intelligence by Ostendorf (1990) was defined by terms such as *intelligent, knowledgeable, clever, gifted, talented*, and *intellectual* versus their opposites (see Appendix). As was the case for the Extraversion and Conscientiousness factors described above, the relations of the five- and six-factor solution variants of this factor with prototypicality indices for various constructs were nearly identical (see Ostendorf et al., 2004). The content of this factor is semantically consistent with an interpretation of the factor as Big Five Intellect (i.e. Intelligence) rather than as five-factor Model or HEXACO Openness to Experience. Recall, however, that the conceptualization of the Openness to Experience factor was not based on a failure to recognize the emergence of Intelligence-like factors in lexical studies of personality structure, but rather on the view that intellectual ability, unlike intellectual orientation, is not a personality characteristic.

Related to the above point, the German lexical Intelligence factor divided within seven-factor solutions to produce a separate Creativity factor, whose defining terms had shown modest loadings on the Intelligence factor of solutions involving fewer factors (Ostendorf, 1990; Angleitner & Ostendorf, 1989). This Creativity factor, which was defined by terms describing 'creativity, interests, abilities and talents in art and aesthetics, fantasy, and to [a] lesser extent: joy in experimentation and sensitivity' (Angleitner & Ostendorf, 1989, p. 12), shows a stronger conceptual similarity to Openness to Experience than does the Intelligence component.

The factor interpreted as Emotional Stability by Ostendorf (1990; Angleitner & Ostendorf, 1989) was defined by such adjectives as *insensitive, steadfast*, and *emotionally stable* versus *vulnerable, sensitive*, and *emotional* (see Appendix). Interestingly, however, this factor—unlike the dimensions corresponding to Extraversion, Conscientiousness and Intelligence—did show some changes in its defining content between the five- and six-factor solutions. Specifically, Angleitner and Ostendorf (1989, p. 11) noted that four of the adjectives listed among the highest-loading terms on (low) Emotional Stability—*stubborn, obstinate, self-willed*, and *headstrong*—were conceptually related to low Agreeableness, and that by 'rotating more than five factors, the relationships between [these] Disagreeableness items and Emotional Stability decreased'. In addition to these four terms, two other adjectives defining (low) Emotional Stability—*short-tempered* and *not self-controlled*—also shifted to the (low) Agreeableness factor of the six-factor solution (see description below). Notably, the remaining 14 of the 20 highest-loading terms on low Emotional Stability are generally those that correspond closely to the content of HEXACO Emotionality, with an emphasis on vulnerability, emotionality and sensitivity versus their opposites.[2]

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[2]Also, these same terms dominated the 'Emotional Stability' factor of the self- and peer rating solutions of the follow-up study, involving new participant samples, by Ostendorf and Angleitner (1993), who listed the defining terms of that factor. In the latter solutions, this Emotionality-like factor was again dominated by content related to vulnerability, emotionality and sensitivity, but lacked any content suggestive of stubbornness or ill-temper.

We next turn to the remaining two factors of the German six-factor solution, for which the defining adjectives were listed by Ostendorf et al. (2004). On one of these factors, the highest-loading variables were such adjectives as *gentle* and *patient* versus *obstinate, stubborn, violent-tempered* and *hot-headed* (see Appendix). The content of this factor suggests to us that it is similar to the HEXACO Agreeableness domain, and we interpret this factor accordingly. Note that this factor is not so closely similar to the *Big Five variant* of Agreeableness, which does not have such a strong element of ill temper and stubbornness.

On the other factor described by Ostendorf et al. (2004), the highest-loading terms were such adjectives as *helpful, honest, sincere* and *altruistic* versus *pompous, avaricious, ostentatious* and *fame-addicted/'lusting for glory'* (see Appendix). This content suggests to us a similarity to the HEXACO Honesty-Humility domain, and we interpret the factor accordingly. However, this German lexical factor is a somewhat broad variant of Honesty-Humility, as it is defined in part by several terms suggestive of sympathy, soft-heartedness, and generosity (specifically, *good-hearted, helpful, considerate, warm-hearted, altruistic, magnanimous*). Such terms, which are among the prototypical defining content of *Big Five* Agreeableness, sometimes load on the Honesty-Humility factor of six-factor solutions, but sometimes load on the (HEXACO) Agreeableness factor of those solutions (see Ashton, Lee, Perugini, et al., 2004).

Interestingly, the inconsistent positions of these terms can be observed within the German lexical investigations themselves. The results of Ostendorf et al. (2004) indicate that the six terms listed above—*good-hearted, helpful, considerate, warm-hearted, altruistic, magnanimous*—showed their strongest loadings on the self-rating factor defined by Honesty-Humility-related adjectives, but did not load alongside those adjectives within the peer rating solution. Instead, those six terms loaded alongside adjectives that defined an Agreeableness factor in the peer rating six-factor solution, thereby producing a rather broad variant of HEXACO Agreeableness and leaving a narrower variant of HEXACO Honesty-Humility.[3]

Note that, despite the migration of these six terms, both of the above German solutions are consistent with the HEXACO model, which requires the separation of content related to Honesty-Humility (e.g. at the negative pole, slyness, greed, pretentiousness) and content related to Agreeableness (e.g. at the negative pole, ill temper, harshness, stubbornness) within six-factor solutions.[4] As discussed above, the crucial feature that distinguishes the HEXACO model from the Big Five framework is the existence of three separate factors corresponding to Honesty-Humility, Agreeableness, and Emotionality, rather than only

[3]Despite the difference between the self- and peer rating Honesty-Humility factors in the breadth of their defining content, the two versions of this factor shared a large common element of content, as reflected in their similar and strong correlations with prototypicality indices for such constructs as 'Arrogant-Unassuming,' 'Calculating-Ingenuous,' and 'Honesty,' as reported by Ostendorf et al. (2004). Also, we should point out that the pattern of results described above is unlikely to be due to the rating source (i.e. self vs. peer) as such, but rather to be due to sampling fluctuation. As noted above, the results of lexical studies involving self-ratings in various languages have indicated that terms related to sympathy and altruism tend to divide their loadings between the Agreeableness and Honesty-Humility factors of six-factor solutions, sometimes loading more highly on one factor and sometimes on the other.

[4]By absorbing this content associated with sympathy and altruism, the peer rating version of Agreeableness was broader than the self-rating version of that factor and the congruence coefficient between those two versions of the factor was 0.82, in contrast to the values of 0.90 or higher for the other five factors of the six-factor solution (as reported by Ostendorf et al., 2004, using data only from Ostendorf, 1990, and from Angleitner & Ostendorf, 1993). Note, however, that the peer rating and self-rating versions of the factor showed similarly strong correlations (0.82 and 0.76, respectively) with prototypicality indices for the construct of 'agreeableness versus quarrelsomeness,' thus indicating that this element of content was common to the two variants of the factor.

two factors corresponding to Big Five Agreeableness and Emotional Stability. Within the HEXACO model, content related to sympathy and soft-heartedness is well accommodated, but as a blend of factors rather than as the core element of one factor alone.[5]

Hypothesized relations between German lexical and HEXACO-PI factors

As outlined above, the defining content of the dimensions obtained in the German lexical six-factor solutions is very similar to that of the six HEXACO factors, as observed in the lexical investigations of various other languages and as operationalized in the HEXACO-PI. Thus, the next purpose of the present article is to examine empirically the extent to which the six indigenous German adjective factors, as operationalized by marker scales containing large numbers of high-loading terms for each factor, would correspond to the six HEXACO factors, as operationalized by a German translation of the HEXACO-PI. In general, our hypotheses are straightforward, insofar as we expect to see a reasonably clear pattern of strong convergent and weak discriminant correlations between the two sets of factors, similar to the patterns of results observed recently by Ashton et al. (in press) for the Italian, Dutch and English languages. We delineate those hypotheses, below, with special attention to such features as the distinctions between Intelligence and Creativity and between the broad and narrow variants of Honesty-Humility.

First, we expected to observe strong convergent correlations between the German lexical and HEXACO-PI variants of Extraversion, Conscientiousness and Emotionality. In addition, we expected that the German lexical Intelligence factor would show its strongest correlation with HEXACO-PI Openness to Experience, but that this value would be rather weak as a consequence of the deliberate omission of intellectual ability-related content from the Openness to Experience variable. We hypothesized, however, that the German lexical Creativity factor, as observed in the seven-factor solution, would show a stronger correlation with HEXACO-PI Openness to Experience. With regard to the remaining two factors, we expected to see a rather clear pattern of convergent correlations between the German lexical and HEXACO-PI variants of Agreeableness and of Honesty-Humility. Furthermore, we hypothesized that these results would generalize across both the 'broad' and 'narrow' versions of lexical Honesty-Humility.

To the extent that the results predicted above would in fact be obtained—that is, a pattern of strong convergent and weak discriminant correlations for the six German lexical marker scales and the six HEXACO-PI scales—this would support the claim that the set of six personality dimensions observed across languages has also been recovered in the German language. Moreover, such a finding would also be consistent with recent results obtained in analogous investigations in the Italian, Dutch, and English languages, in which indigenous lexical marker scales correlated strongly with their HEXACO-PI counterparts. Therefore, the results of this investigation might add further evidence indicating that as

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[5]Note that, if one were to consider six-factor solutions from the perspective of the Big Five framework, then one would interpret whichever dimension were defined by sympathy and soft-heartedness as the Big Five Agreeableness factor. Consequently, one would interpret the remaining dimension either as a narrow Honesty-Humility or as a narrow factor of patience versus hostility, depending on which of these two results were observed in a particular solution. But the difficulty with this interpretation is that it fails to account for the common feature across those six-factor solutions, which is the separation of the core content of Honesty-Humility from the core content of HEXACO Agreeableness (i.e. patience, gentleness vs. hostility, ill-temper). Depending on the position of the factor axes in a given solution, either of these factors may be rather broad in content, being strongly flavored by the sympathy and altruism that characterize Big Five Agreeableness; across those solutions, however, each factor retains its unique elements.

many as six dimensions of personality description can be recovered cross-culturally, from the personality lexicons of various languages.

Method

Participants

Participants for this study were recruited by means of a 'snowballing' procedure. More precisely, undergraduates enrolled at a university located in the eastern part of Germany were offered course credit for their own participation and additional credit for recruiting up to two persons who hold regular employment. The main reason for choosing this strategy was that we collected some additional data to address a number of applied research questions that are beyond the scope of the present paper. However, one consequence of this method of recruiting participants, with relevance to the issues of general personality psychology addressed in this investigation, is that our sample was considerably more diverse than it would have been if composed exclusively of students. Of the 323 participants, only 114 were undergraduate students, whereas 209 were employees holding various positions. We collapsed data for both groups in order to maximize statistical power (separate subgroup analyses are available upon request). Of the entire sample, 211 participants were women and 112 were men. Participants' ages ranged from 18 to 58 years, with a median of 27.

Materials

Adjective markers of German indigenous lexical personality factors

We administered to our participants a set of German personality-descriptive adjectives containing markers of the indigenous German lexical personality factors that were reported by Ostendorf (1990; Angleitner & Ostendorf, 1989; Ostendorf et al., 2004) on the basis of analyses of ratings on a set of 430 adjectives. More specifically, we selected these marker adjectives (see Appendix) as follows.

First, to represent the indigenous German lexical factors that we interpret as Agreeableness and Honesty-Humility, we selected the terms with the highest loadings on those factors in the *six-factor* self-rating solutions as reported by Ostendorf et al. (2004), who listed the 15 highest-loading terms for the factor that we interpret as Agreeableness and the 20 highest-loading terms for the factor that we interpret as Honesty-Humility. In addition, because the self-rating Honesty-Humility factor obtained in the German six-factor solution was rather broad, containing several terms associated with sympathy, soft-heartedness and generosity, we also computed a narrower Honesty-Humility adjective scale containing only the 15 terms that showed their highest loading on the corresponding factor obtained in the *peer* rating six-factor solution.

For the remaining four factors of the six-factor solution, lists of the highest-loading terms were not available. Therefore, we selected markers of these factors on the basis (a) of lists of the highest-loading terms of the five-factor solution (Ostendorf, 1990) and (b) of the relations between the five- and six-factor solutions (Angleitner & Ostendorf, 1989; Ostendorf et al., 2004), as described in the Introduction.

We selected the 20 terms with the highest absolute loadings on each of the Extraversion, Conscientiousness and Intelligence factors of the five-factor solution reported by Ostendorf (1990). However, because only three of those top 20 Conscientiousness adjectives had negative loadings, we also included the next three highest negative-loading Conscientiousness terms (also as given in Ostendorf, 1990), in order to achieve a reasonably balanced scale.

We also selected eight adjectives as markers of a Creativity factor that emerged in the German seven-factor solution, by identifying the terms in the list of 430 German adjectives that corresponded to the content listed (in English) by Angleitner and Ostendorf (1989) as the strongest defining elements of that factor.

For the factor that we interpret as Emotionality, we began by selecting the 20 highest-loading terms on the Emotional Stability factor as reported by (Ostendorf, 1990; Angleitner & Ostendorf, 1989). However, we then removed (a) the four terms listed by Angleitner and Ostendorf (1989) as being less strongly associated with this factor when more than five factors were extracted and (b) the two additional terms that defined the (low) Agreeableness factor of the six-factor solution reported by Ostendorf et al. (2004).

Our adjective selection procedures, as described above, involved the straightforward application of a simple algorithm—that is, the selection of adjectives having the highest loadings on the respective factors obtained in indigenous German lexical research. The use of these procedures removed any subjective element in adjective selection, and thereby prevented any researcher biases from influencing the content of the resulting scales representing the indigenous German dimensions of the six-factor solution (and of the Creativity factor of the seven-factor solution).

Also included among the adjectives were the remaining top 20 markers of the Agreeableness and Emotional Stability factors of the five-factor solution reported by Ostendorf (1990).

Each participant rated, using a seven-point response scale, the extent to which the adjectives described him or her correctly ($1 = extremely\ incorrect$ to $7 = extremely\ correct$). Scale scores were computed as means of raw responses to adjectives, after reverse-coding of responses to negative-pole adjectives.

HEXACO Personality Inventory

We used the short, 104-item form of the HEXACO-PI in the present research (see Lee & Ashton, 2004, in press). Although this half-length version does allow the assessment of the 24 narrow facet scales making up the six higher-order factors, its use is recommended primarily for the measurement of the six higher-order factors. In addition to the original 24 facet-level scales, the HEXACO-PI now includes two new, 'interstitial' facet scales (see Lee & Ashton, in press), but for the purpose of the present research, we will focus mainly on the six factor scales as computed from the original 24 facet scales. The content of the facet scales of each factor is described in detail by Lee and Ashton (2004).

The HEXACO-PI was translated into the German language by fluently bilingual persons. This translated version was subsequently reviewed by two of the authors to ensure accuracy of content. Previous studies have indicated that scales in the English and other language versions of this inventory are generally reliable and structurally valid, and show theoretically appropriate correlations with external variables (see Ashton et al., in press; Boies, Yoo, Ebacher, Lee, & Ashton, 2003; Lee & Ashton, 2004).

Table 1.   Descriptive statistics, internal-consistency reliabilities, and intercorrelations of the six HEXACO-PI factor scales

HEXACO-PI scale	Mean	SD	α	1	2	3	4	5
1. Honesty-Humility	3.52	0.58	0.84					
2. Emotionality	3.35	0.53	0.82	0.03				
3. Extraversion	3.26	0.46	0.77	−0.16	0.12			
4. Agreeableness	2.99	0.45	0.76	0.34	−0.16	−0.10		
5. Conscientiousness	3.50	0.48	0.81	0.29	0.04	0.00	0.13	
6. Openness to Experience	3.33	0.52	0.77	0.07	0.01	0.20	0.10	−0.02

Note: $N = 323$.

Participants' self-reports on the HEXACO-PI items were made using a five-point response scale (1 = *strongly disagree* to 5 = *strongly agree*). Scale scores were computed as means across items, after reverse-coding of negatively keyed items.[6]

Results

German HEXACO-PI scales: descriptive statistics, reliabilities, intercorrelations, and factor structure

Table 1 lists the means, standard deviations and internal-consistency reliabilities (coefficient alpha) for the HEXACO-PI scales. The descriptive statistics and reliabilities were similar to those observed in other participant samples for other languages' versions of the HEXACO-PI. The six higher-order scales showed internal-consistency reliabilities ranging from 0.76 to 0.84; these values are reasonably high given that the half-length versions of these scales (16 items each) were used in this study.

Table 1 also shows the correlations among the HEXACO-PI scales. As seen in the table, these values were generally rather low, with only three values exceeding 0.20: Honesty-Humility correlated 0.34 with Agreeableness and 0.29 with Conscientiousness, and Extraversion correlated 0.20 with Openness to Experience. These values suggest that the HEXACO-PI scales are roughly independent of each other; in comparison, the factor-level scales of other instruments have shown substantially higher interscale correlations (e.g. Costa & McCrae, 1992).

As a check of the factor structure of the HEXACO-PI, we conducted a principal components analysis on the original 24 facet scales, extracting six factors (i.e. components) and rotating them to a varimax solution. All but one of the 24 facet scales had their highest loadings on their intended factor; the exception was Expressiveness, which loaded more strongly on low Agreeableness than on Extraversion. When we re-rotated the Agreeableness and Extraversion factors through 22.5 degrees, all 24 scales showed their highest loading on their intended factors.

[6]For one negatively keyed item of the Social Boldness facet of Extraversion, the term 'self-conscious' was inadvertently translated as 'self-confident,' and hence produced a statement opposite in meaning to that which was intended. (The German word 'bewusst' means 'conscious,' but the German 'selbstbewusst' means self-confident, not self-conscious.) This German item performed satisfactorily as a *positively-keyed* item in the same scale and accordingly we decided to keep this item as such.

Table 2. Descriptive statistics, internal-consistency reliabilities, and intercorrelations of German indigenous adjective factor scales

Adjective scale	Mean	SD	α	1	2	3	4	5	6	7
1. Extraversion	4.98	0.82	0.93							
2. Conscientiousness	5.03	0.64	0.91	0.18						
3. Intelligence	5.02	0.64	0.93	0.31	0.43					
4. Creativity	4.57	0.95	0.85	0.35	0.12	0.55				
5. Emotionality	4.46	0.68	0.81	−0.02	−0.20	−0.13	0.19			
6. Agreeableness	4.71	0.68	0.82	0.01	0.40	0.26	0.24	−0.25		
7. Honesty-Humility (broad)	5.57	0.60	0.90	0.15	0.47	0.24	0.21	0.07	0.51	
8. Honesty-Humility (narrow)	5.66	0.67	0.89	0.06	0.46	0.21	0.14	0.02	0.45	0.94

Note: $N = 323$. Names of Emotionality, Agreeableness and Honesty-Humility scales are based on interpretations suggested in the present article. The broad and narrow variants of Honesty-Humility share many adjectives in common; see text.

German indigenous adjective factor scales: descriptive statistics, reliabilities, and intercorrelations

Table 2 lists the means, standard deviations and internal-consistency reliabilities (coefficient alpha) for the German indigenous adjective factor scales. The descriptive statistics are generally similar to those observed for similar scales of other languages (e.g. Ashton et al., in press), and the reliabilities were rather high, all exceeding 0.80.

Table 2 also shows the correlations among the adjective scales. Apart from the correlation between the (heavily overlapping) broad and narrow Honesty-Humility scales ($r = 0.94$), there were several other fairly large correlations among the adjective scales: Conscientiousness showed correlations in the 0.40s with Intelligence, with Agreeableness, and with both broad and narrow Honesty-Humility. Also, Agreeableness correlated 0.45 and 0.51 with the broad and narrow versions, respectively, of Honesty-Humility. In addition, Intelligence and Creativity correlated 0.55.

Correlations of German indigenous adjective factor scales with HEXACO-PI scales

Table 3 shows the correlations of the German indigenous adjective factor scales with the HEXACO-PI scales. In general, this table shows a pattern of strong convergent and weak discriminant correlations. Convergent correlations were especially high for Extraversion ($r = 0.77$) and Conscientiousness ($r = 0.75$), and also rather high for Emotionality ($r = 0.62$). For both the adjective Intelligence and Creativity scales, the highest correlations were those involving HEXACO-PI Openness to Experience; as expected, the value for Creativity ($r = 0.54$) exceeded that for Intellect ($r = 0.35$).

The convergent correlation for Agreeableness was also high ($r = 0.60$), as was the convergent correlation between HEXACO-PI Honesty-Humility and both the broad and narrow versions of adjective Honesty-Humility ($rs = 0.51$ and 0.56, respectively). These values easily exceeded the largest discriminant correlation, which was the 0.34 value between HEXACO-PI Agreeableness and the broad version of adjective Honesty-Humility.[7] The relatively strong convergent correlations for both the broad and narrow

[7] We used Meng, Rosenthal, & Rubin's (1992) test of differences between correlated correlation coefficients to compare the convergent and discriminant correlations for the broad Honesty-Humility adjective marker scale, which correlated 0.51 with HEXACO-PI Honesty-Humility and 0.34 with HEXACO-PI Agreeableness. This contrast was significant ($z = 3.05$, $p < 0.01$).

Table 3.   Correlations of German indigenous adjective factor scales with HEXACO-PI scales

Adjective scale	HEXACO-PI scale					
	X	C	O	E	A	H
Extraversion	**0.77**	−0.01	0.13	0.13	−0.16	−0.16
Conscientiousness	0.10	**0.75**	−0.02	−0.02	0.13	0.32
Intelligence	0.17	0.23	**0.35**	−0.05	−0.06	−0.01
Creativity	0.31	0.04	**0.54**	0.19	−0.06	−0.01
Emotionality	−0.06	−0.09	0.03	**0.62**	−0.27	−0.09
Agreeableness	−0.06	0.33	0.11	0.00	**0.60**	0.30
Honesty-Humility (broad)	0.00	0.29	0.09	0.21	0.34	**0.51**
Honesty-Humility (narrow)	−0.09	0.32	0.03	0.11	0.30	**0.56**

Note: $N = 323$. Hypothesized convergent correlations are in bold type. Names of adjective Emotionality, Agreeableness, and Honesty-Humility scales are based on interpretations suggested in the present article. Abbreviations of HEXACO-PI scale names are as follows: X = Extraversion, C = Conscientiousness, O = Openness to Experience, E = Emotionality, A = Agreeableness, H = Honesty-Humility.

versions of Honesty-Humility suggests that the differences in content between the variants of this German factor as obtained from self-ratings and from peer ratings are not so great as to obscure the relations with the HEXACO Honesty-Humility construct.

Correlations based on factor scores

As described above, the results reported in Table 3 are based on scale scores for the indigenous adjective scales and for the imported questionnaire scales. In some sense the use of scale scores may be preferable to the use of factor scores, because the locations of factor axes and the relative loadings of variables on factors will tend to vary from sample to sample (see Goldberg, 1992). However, an anonymous reviewer pointed out that factor scores are widely used when comparing lexically derived constructs with imported variables. In order to examine the extent to which the use of factor scores might lead to different results, we also calculated the correlations between factor scores calculated on the varimax-rotated six-factor solutions derived from the indigenous marker adjectives (after ipsatization) of the original German six-factor solution and from the HEXACO-PI items that belong to each of the six broad domains. The convergent correlations were 0.72 (Extraversion), 0.71 (Conscientiousness), 0.62 (Emotionality), 0.50 (Agreeableness), 0.47 (Honesty-Humility), and 0.35 (Openness to Experience with Intelligence). The discriminant correlations were much smaller, with the largest absolute values being observed between HEXACO-PI Emotionality and adjective Honesty-Humility ($r = 0.24$), and between HEXACO-PI Openness to Experience and adjective Conscientiousness ($r = 0.23$). Thus, the use of factor scores applied to item-level variables produced results very similar to those obtained from the use of scale scores, with the only noteworthy difference being somewhat smaller correlations—both convergent and discriminant—as a consequence of the orthogonality of the factor scores.

Markers of the indigenous five-factor solution and of the big five

As described above, the main purpose of this investigation was to investigate the relations between markers of the indigenous German lexical six-factor solution and markers of the

hypothesized HEXACO structure. However, for the purpose of comparison, it may also be of some interest to examine the relations between markers of the indigenous German lexical five-factor solution and markers of the Big Five structure, particularly Agreeableness and Emotional Stability. Although our adjective set contained markers of the German lexical five-factor solution, we did not administer questionnaire markers specifically developed to assess the Big Five. Therefore, for the purpose of making these comparisons, we correlated adjective marker scales of the German five-factor solution with measures of the Big Five as derived from the HEXACO-PI scales.

Specifically, we computed Big Five scales for Agreeableness and Emotional Stability using an algorithm derived from an analysis of the content of the Big Five and the HEXACO-PI facets, and supported by empirical relations (Ashton & Lee, 2006).[8] Big Five Agreeableness was calculated as the mean score across the facets of Sincerity, Modesty, Forgiveness, Gentleness, Flexibility, Sentimentality, and Altruism. Big Five Emotional Stability was calculated as the mean score across the facets of Anxiety, Negative Self-Evaluations, Patience, and Prudence, but with Anxiety and Negative Self-Evaluations each weighted by a ratio of -2. In a previous sample of 326 participants, these scales showed convergent correlations of 0.71 and -0.78 (0.92 and -0.92 after correction for unreliability) with the Agreeableness and Neuroticism scales of the NEO five-factor Inventory (Ashton & Lee, 2006).

The HEXACO-PI variants of Big Five Agreeableness and Emotional Stability correlated 0.56 and 0.65 with the corresponding German adjective markers of dimensions of the indigenous five-factor solution. These results suggest that the correspondence of the Big Five dimensions with the indigenous factors of the German five-factor solution is similar to that of the HEXACO with the indigenous factors of the German six-factor solution (specifically, $r = 0.60$ and $r = 0.62$ for Agreeableness and Emotionality, respectively; see Table 3).

DISCUSSION

Summary and Implications

The results of this study can be summarized as follows: First, the content of the six indigenous German lexical factors showed a strong conceptual similarity to that of the six factors obtained in lexical investigations of various other languages, and also to that of the HEXACO-PI operationalization of those cross-language factors. Also, a pattern of strong convergent and weak discriminant correlations was observed between the indigenous German adjective scales and the HEXACO-PI scales operationalizing the hypothesized cross-language six-factor structure. With the exception of the German Intelligence factor discussed below, the convergent correlations ranged from the 0.50s to the 0.70s, whereas the discriminant correlations only reached the 0.30s. This pattern of results—which is very similar to the patterns observed previously for the Italian, Dutch, and English languages (Ashton et al., in press)—is consistent with the conceptual similarity between the two sets of dimensions, and supports the generalizability of the HEXACO model to the German language.

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[8] We did not compute new scales for the Extraversion and Conscientiousness factors, because of their near-identity across the Big Five and HEXACO models. With regard to Big Five Intellect, we did not administer scales directly representing self-rated intelligence; again, this is because of our a priori theoretical position that rated intelligence is not part of the domain of personality characteristics.

With regard to the rather weak correlation between HEXACO-PI Openness to Experience and the German adjective marker scale representing Intelligence, this result was also consistent with expectations. As noted earlier, the Intelligence factor is defined by terms describing intellectual *ability*, whereas we considered those terms to fall outside the domain of personality proper, and therefore excluded this content from the HEXACO-PI Openness to Experience scale. (This exclusion of intellectual ability traits is shared with the Five-Factor Model and also with some lexical research, such as the Dutch and Italian (Roman) studies of personality structure; see De Raad, Hendriks, & Hofstee, 1992; Caprara & Perugini, 1994.) In contrast, a rather strong convergent correlation was observed between HEXACO-PI Openness to Experience and the adjective marker scale representing the German Creativity factor that emerged in the seven-factor solution of Ostendorf (1990; Angleitner & Ostendorf, 1989). This latter factor represents an intellectual and aesthetic *orientation*—that is, a personality characteristic—rather than intellectual ability, and its correspondence with the HEXACO-PI Openness to Experience factor supports the claim that Openness to Experience is one of the six largest dimensions of personality proper (i.e. excluding cognitive ability).

The convergent correlations involving the Agreeableness and Honesty-Humility factors are also of some interest, given that the two indigenous German adjective marker scales interpreted in terms of these constructs were substantially correlated with their respective presumed HEXACO-PI counterparts. It is noteworthy that, even though the German Honesty-Humility factor obtained by Ostendorf et al. (2004) was somewhat broader in self-ratings than in peer ratings, both the broader and the narrower versions of the adjective Honesty-Humility marker scale correlated above 0.50 with HEXACO-PI Honesty-Humility. This result is therefore consistent with our suggestion that both variants of this German factor show a close conceptual similarity with other languages' variants of the Honesty-Humility dimension. Moreover, the difference in breadth of content between the self-rating and peer rating versions of German lexical Honesty-Humility is itself a noteworthy within-language case of the same phenomenon that is also observed across languages, whereby terms describing sympathy and related traits sometimes load on Honesty-Humility and sometimes load on Agreeableness. Again, this phenomenon is consistent with the theoretical interpretation of the HEXACO factors (Ashton & Lee, 2001, 2005; Lee & Ashton, 2004), in which terms describing an overall altruistic versus antagonistic orientation are viewed as a blend of factors representing aspects of reciprocal and kin altruism rather than as a single major dimension.

Readers might also wonder why the recovery of a given factor structure across cultures is of much importance, given that the personality literature already contains examples of factor structures that recur across languages, such as the five dimensions of the NEO Personality Inventory—Revised scales (see review by McCrae & Costa, 1997) or at least six or seven dimensions of the Comrey Personality Scales (see review by Paunonen & Ashton, 1998). But the crucial significance of the results based on lexical studies of personality structure is that those investigations are based on variable sets that are (a) *indigenous* to the cultures being studied (rather than imported) and (b) *representative* of the domain of subjectively important personality characteristics (rather than markers of a hypothesized factor structure). It is therefore of some importance to observe that a structure of six factors emerges from independent variable sets derived from the personality lexicons of many diverse languages, because this suggests that the domain of personality variation itself is summarized by this six-dimensional structure.

Apart from the fact that a factor space larger than that of the Big Five can be recovered from the personality-descriptive lexicons of various languages, there are other advantages of the six-dimensional framework over the five-dimensional framework. One such advantage is that, in some instances, it is necessary to extract six factors in order to recover the dimensions of the Big Five space: as noted in the Introduction, lexical studies in Italian and Hungarian only produced an Intellect-related factor within six-factor solutions. Another advantage involves the improved accommodation of some personality characteristics within the six-factor space relative to the five-factor space: even when the Big Five space is recovered within five-factor solutions, there are frequently many variables whose communalities are rather low, but become substantially higher within six-factor solutions.

Finally, another advantage is seen in the relations of personality dimensions with important external constructs. For example, Ashton, Lee, and Son (2000) found in their examination of Korean personality-descriptive adjectives that the six-factor space (which included an Honesty-Humility factor) was superior to the five-factor space (which excluded that factor) in predicting constructs such as Machiavellianism, Primary Psychopathy and Social Adroitness.[9] Similarly, Lee, Ogunfowora, and Ashton (2005) found that several characteristics previously observed to be largely beyond the space of the Big Five factors (see Paunonen & Jackson, 2000) were substantially correlated with the HEXACO-PI Emotionality or Honesty-Humility factors. The present investigation, which was focused on the replicability of the six-dimensional framework in the German personality lexicon, was not designed to address any of these potential advantages, but future research should examine these issues.

The main findings of the present investigation have important implications for personality theory and research. The conceptual and empirical correspondence between the HEXACO and indigenous German lexical factors, as based on the new details recently reported concerning the latter dimensions, supports the suggestion that the German personality lexicon does produce the common six-factor structure. This result was not at all inevitable: the indigenous German six-factor solution might easily have differed in any number of ways from the HEXACO structure. For example, the indigenous German six-factor structure might instead have produced the Big Five factors plus some sixth factor representing a narrow facet of one of those factors, such as industriousness, adventurousness, depressiveness, relaxedness, or any other. But the observed six-factor structure did in fact correspond to the HEXACO model, revealing an Honesty-Humility factor and two factors corresponding almost isomorphically to the HEXACO variants of Agreeableness and Emotionality. It is difficult to explain the observed pattern of relatively strong convergent correlations and relatively weak discriminant correlations except in terms of the hypothesis that the German personality space corresponds rather closely to that of the HEXACO framework. Given the potential advantages of this framework for

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[9]If one were to consider HEXACO Honesty-Humility and HEXACO Agreeableness as loosely-related sub-components of a broad 'reciprocal altruism' factor, then one could view the advantage of the HEXACO model in predicting these variables simply as an example of the 'bandwidth-fidelity trade-off,' whereby broad factors are often outpredicted by their narrower constituent traits. Equally, however, one could apply this interpretation to the Five-Factor Model: given the substantial correlation between Neuroticism and (low) Conscientiousness, one might view those dimensions as aspects of a broader factor (see discussion by Ashton & Lee, 2005). To the extent that a given criterion variable would be better predicted by either Neuroticism or Conscientiousness than by this broad dimension, this would also represent an example of the bandwidth-fidelity trade-off. However, we believe that the evidence for the existence of separate Neuroticism and Conscientiousness factors is very strong, as is the evidence for the existence of separate Honesty-Humility and Agreeableness factors.

theoretical interpretation and practical prediction (e.g. Ashton & Lee, 2005), the empirical recovery of this six-dimensional structure is of some significance.

We should emphasize that the recovery of the HEXACO structure from the German personality lexicon does not in any way suggest that the Big Five structure cannot be recovered. On the contrary, the adjective scale markers of the German five-factor solution were closely aligned with the surrogate Big Five scales computed as alternative alignments of HEXACO-PI facets. These results indicate that the German personality lexicon simultaneously produces Big Five and HEXACO solutions, at the level of five- and six-factor structures, respectively. Far from being completely different, these solutions represent different levels within the hierarchy of factor solutions, with strong similarities between those levels in addition to some interesting differences.

Limitations

It could be suggested that one limitation of the present study is the fact that the indigenous German lexical dimensions were assessed using only a subset of the adjectives used in the original investigations. That is, one might suggest that the adjective marker variables would distort the identity of the indigenous German lexical factors, by consisting only of those adjectives that showed the highest factor loadings in the earlier studies. According to this view, a better strategy for the present investigation would have been to obtain participants' ratings on the full adjective sets. However, we should point out that the use of adjective markers of the indigenous factors may allow a more meaningful comparison with the HEXACO-PI scales, because the latter variables were not constructed as a representative sampling of the entire personality space, but rather as a 'cluster sampling' (Goldberg, 1992) of characteristics that show relatively high loadings on each of the six factor axes obtained across languages. As noted by Goldberg (1992), the use of a cluster sampling approach in constructing marker scales has the advantages of producing reliable scales (even for the smaller factors) and allowing cross-sample stability of factor axis locations. Thus, given that the hypothesized cross-language factors are operationalized by scales developed with the use of a cluster sampling approach, it may also be advisable to operationalize the indigenous lexical factors according to the same strategy, even though those dimensions were (of course) *identified* through a 'representative sampling' of the entire personality lexicon.[10]

Another objection to the methods of the present study might be raised on the grounds that the adjectives selected as markers of the indigenous German six-factor structure might not, in fact, correspond perfectly to the lists of highest-loading adjectives of the six factors. We should therefore note that our procedures for selecting adjectives to represent the German factors, as described in detail in the Introduction and Method sections of this article, ensure a very close correspondence to the content of the high-loading terms in the German six-factor solution. In the case of the factors that we interpret as Honesty-Humility and Agreeableness, we emphasize that these correspondences were perfect, because we selected adjectives based on their loadings on these factors within the indigenous six-factor solutions, as reported by Ostendorf et al. (2004). With regard to Extraversion, Conscientiousness, and Intelligence, our selections were based on the results of the five-factor solutions, and therefore may differ from those of the six-factor solutions; however, those differences will most likely be slight, given

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[10]Note, however, that the indigenous factor markers should be selected on the basis of an appropriate rotation of the factor axes. This will usually mean simply a varimax rotation (as in the German case considered here), but might in some cases involve some theoretically specified re-rotation of those axes.

the near-identity of these factors across the five- and six-factor solutions (see Ostendorf et al., 2004). Finally, for the factor that we interpret as Emotionality (and also for the Creativity factor of the seven-factor solutions), we should acknowledge that our selections may depart to a modest extent from those that would be taken directly from the indigenous six-factor solutions; again, however, the departure is likely to be rather limited given (a) the close correspondences between five- and six-factor solutions and (b) our exclusion of the few adjectives known to have defined the five- but not the six-factor version of Emotionality. Nevertheless, it would have been preferable to have selected adjectives directly on the basis of loadings on all six factors of the German six-factor solutions as obtained in the original lexical studies of that language.

One other potential limitation of this study should also be mentioned: to the extent that the HEXACO-PI may be an imperfect operationalization of the six cross-language factors, the relations of the scales of that instrument with the indigenous lexical factors of a given language will tend to be obscured. Given that the HEXACO-PI scales will inevitably differ to some extent from the cross-language factors that they are intended to represent, in terms of such features as content representation and distributional properties, these imperfections will in most cases tend to suppress convergent correlations, and will in some cases inflate discriminant correlations, with the indigenous lexical factors of a given language. Thus, the results reported in the present investigation, like those of the recent study by Ashton et al. (in press), are likely to underestimate the degree of correspondence between the hypothesized cross-language six-factor solution and the indigenous six-factor solution.

CONCLUSION

The results of this investigation suggest that the factors obtained in indigenous German lexical studies of personality structure do correspond closely to the six factors observed in investigations of other languages' personality lexicons. As was expected on the basis of the content of the German lexical factors, adjective scale markers of those factors showed a pattern of strong convergent and weak discriminant correlations with the six cross-language factors, as operationalized by the scales of the HEXACO-PI.

ACKNOWLEDGEMENTS

REFERENCES

Angleitner, A., & Ostendorf, F. (1989). *Personality factors via self- and peer-ratings based on a representative sample of German trait descriptive terms*. Paper prepared for the First European Congress of Psychology, Amsterdam, The Netherlands.

Ashton, M. C., & Lee, K. (2001). A theoretical basis for the major dimensions of personality. *European Journal of Personality, 15*, 327–353.

Ashton, M. C., & Lee, K. (2005). *Empirical, theoretical, and practical advantages of the HEXACO model of personality structure*. Manuscript submitted for publication.

Ashton, M. C., & Lee, K. (2006). *Assessment of the Big Five or Five-Factor Model constructs of Agreeableness and Emotional Stability (versus Neuroticism) using the HEXACO Personality Inventory*. Manuscript in preparation.

Ashton, M. C., Lee, K., & de Vries, R. E. (2005). *Six factors in the Croatian personality lexicon*. Unpublished manuscript.

Ashton, M. C., Lee, K., de Vries, R. E., Perugini, M., Gnisci, A., & Sergi, I. (in press). The HEXACO model of personality structure and indigenous lexical personality dimensions in Italian, Dutch, and English. *Journal of Research in Personality*.

Ashton, M. C., Lee, K., & Goldberg, L. R. (2004). A hierarchical analysis of 1,710 English personality-descriptive adjectives. *Journal of Personality and Social Psychology, 87*, 707–721.

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

Ashton, M. C., Lee, K., & Son, C. (2000). Honesty as the sixth factor of personality: Correlations with Machiavellianism, primary psychopathy, and social adroitness. *European Journal of Personality, 14*, 359–368.

Boies, K., Yoo, T.-Y., Ebacher, A., Lee, K., & Ashton, M. C. (2004). Psychometric properties of scores on French and Korean versions of the HEXACO Personality Inventory. *Educational and Psychological Measurement, 64*, 992–1006.

Caprara, G. V., & Perugini, M. (1994). Personality described by adjectives: Generalizability of the Big Five to the Italian lexical context. *European Journal of Personality, 8*, 357–369.

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

De Raad, B., Hendriks, A. A. J., & Hofstee, W. K. B. (1992). Towards a refined structure of personality traits. *European Journal of Personality, 6*, 301–319.

Di Blas, L. (2005). Personality-relevant attribute-nouns: A taxonomic study in the Italian language. *European Journal of Personality, 19*, 537–557.

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

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

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment, 4*, 26–42.

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

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

Lee, K., & Ashton, M. C. (2006). *Re-analysis of the structure of the Greek personality lexicon*. Unpublished manuscript.

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

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

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

Meng, X.-L., Rosenthal, R., & Rubin, D. B. (1992). Comparing correlated correlation coefficients. *Psychological Bulletin, 111*, 172–175.

Norman, W. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal and Social Psychology, 66*, 574–583.

Ostendorf, F. (1990). *Sprache und Persönlichkeitsstruktur: Zur Validität des Fünf-Faktoren-Modells der Persönlichkeit*. Regensburg, Germany: S. Roderer Verlag.

Ostendorf, F., & Angleitner, A. (1993). *A German replication study of the Five-Factor Model based on a comprehensive taxonomy of personality-descriptive adjectives.* Paper presented at the Sixth Meeting of the International Society for the Study of Individual Differences, Baltimore, MD.

Ostendorf, F., Mlacic, B., Hrebickova, M., & Szarota, P. (2004). *In search of the sixth big factor of personality in four European languages.* Paper presented at the Twelfth European Conference on Personality, Groningen, The Netherlands.

Paunonen, S. V., & Ashton, M. C. (1998). The structured assessment of personality across cultures. *Journal of Cross-Cultural Psychology, 29*, 150–170.

Paunonen, S. V., & Jackson, D. N. (2000). What is beyond the Big Five? Plenty! *Journal of Personality, 68*, 821–835.

Tupes, E. C., & Christal, R. E. (1961). *Recurrent personality factors based on trait ratings.* (USAF Tech. Rep. No. 61-97). US Air Force: Lackland Air Force Base, TX.

Tupes, E. C., & Christal, R. E. (1992). Recurrent personality factors based on trait ratings. *Journal of Personality, 60*, 225–251.

Wasti, A., Lee, K., Ashton, M. C., & Somer, O. (2006). *The Turkish personality lexicon and the HEXACO model of personality structure.* Manuscript submitted for publication.

Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology, 37*, 395–412.

APPENDIX

Adjective markers of indigenous German lexical factors

Factor	Adjectives
Extraversion	Kontaktfreudig (Outgoing), Gesellig (Sociable), Lebhaft (Lively), Temperamentvoll (Spirited), Freiheraus (Frank), Kontaktfähig (Contactual), Impulsive (Impulsive), Lebenslustig (Cheerful) versus Kontaktscheu (Withdrawn), Menschenscheu (Reclusive), Scheu (Timid), Verschlossen (Closed), Ungesellig (Unsociable), Unspontan (Unspontaneous), Maulfaul (Uncommunicative), Schüchtern (Shy), Zurückhaltend (Reserved), Mundfaul (Reticent), Kontaktfeindlich (Severely Withdrawn), Schweigsam (Silent)
Conscientiousness	Emsig (Hard-working), Arbeitsam (Industrious), Fleißig (Diligent), Pflichtbewusst (Conscientious), Strebsam (Assiduous), Zielsicher (Goal-oriented), Zielstrebig (Determined), Zielbewusst (Purposeful), Tüchtig (Efficient), Pflichteifrig (Zealous), Charakterfest (Steadfastness), Konsequent (Consistent), Verlässlich (Reliable), Selbstdiszipliniert (Self-disciplined), Ordentlich (Orderly), Unermüdlich (Indefatigable), Pflichttreu (Dutiful) versus Arbeitsscheu (Work-shy), Flatterhaft (Fickle), Unbeständig (Inconsistent), Wankelmütig (Indecisive), Verspielt (Playful), Leichtfertig (Frivolous)
Intelligence	Klug (Bright), Geistvoll (Brilliant), Talentvoll (Talented), Intelligent (Intelligent), Talentiert (Talented), Kenntnisreich (Knowledgeable), Geistreich (Ingenious), Hochintelligent (Very intelligent), Begabt (Gifted), Hochbegabt (Highly gifted), Befähigt (Able), Denkfähig (Intellectual), Gescheit (Clever) versus Denkschwach (Unintellectual), Unbegabt (Untalented), Talentlos (Untalented), Untalentiert (Untalented), Unkundig (Ignorant), Unintelligent (Unintelligent), Unfähig (Incompetent)
Creativity	Künstlerisch (Artistic), Poetisch (Poetic), Musikalisch (Musical), Musisch (Artistic), Kreativ (Creative), Phantasievoll (Imaginative) versus Unkreativ (Uncreative), Ideenarm (Unimaginative)
Emotionality	Sensibel (Sensitive), Empfindsam (Sentimental), Empfindlich (Oversensitive), Verletzbar (Vulnerable), Emotional (Emotional), Launenhaft (Capricious), Launisch (Moody), Selbstzweiflerisch (Self-doubting), Anerkennungsbedürftig (Need for recognition) versus Gelassen (Poised), Unempfindlich (Insensitive), Aalglatt (Slippery as an eel), Gefühlsstabil (Emotionally stable), Gefestigt (Steadfast)
Agreeableness	Sanftmütig (Gentle), Gütig (Kind), Fügsam (Obedient), Sanft (Gentle/soft), Musisch (Artistic), Geduldig (Patient) versus Starrköpfig (Pig-headed), Starrsinnig (Obstinate), Dickköpfig (Bullheaded), Halsstarrig (Stubborn), Querköpfig (Obstructive), Aufbrausend (Short-tempered), Unbeherrscht (Not self-controlled), Jähzornig (Violent-tempered), Hitzköpfig (Hot-headed)

Continues

Appendix (Continued)

Factor	Adjectives
Honesty-Humility (broad)	Menschlich (Human), Grundehrlich (Dead honest), Gutherzig (Good-hearted), Hilfsbereit (Helpful), Ehrlich (Honest), Aufrichtig (Sincere), Rücksichtsvoll (Considerate), Warmherzig (Warm-hearted), Altruistisch (Altruistic), Großherzig (Magnanimous) *versus* Habsüchtig (Covetous), Wichtigtuerisch (Pompous), Angeberisch (Show-off), Aufschneiderisch (Bragging), Habgierig (Avaricious), Großtuerisch (Ostentatious), Raffgierig (Grabby), Gewinnsüchtig (Greedy for profits), Prahlerisch (Boastful), Ruhmsüchtig (Fame-addicted/Lust for glory)
Honesty-Humility (narrow)	Ehrlich (Honest), Aufrichtig (Sincere), Menschlich (Human), Wahrheitsliebend (Truth-loving), Grundehrlich (Dead honest) *versus* Angeberisch (Show-off), Wichtigtuerisch (Pompous), Großtuerisch (Ostentatious), Prahlerisch (Boastful), Schöntuerisch (Flattering), Aufschneiderisch (Bragging), Besitzgierig (Possessive), Habsüchtig (Covetous), Ruhmsüchtig (Fame-addicted/Lust for glory), Habgierig (Avaricious)
Five-factor solution Agreeableness	Warmherzig (Warm-hearted), Menschlich (Human), Rücksichtsvoll (Considerate), Gutmütig (Good-natured), Gutherzig (Good-hearted), Großherzig (Magnanimous), Gütig (Kind), Gutwillig (Willing), Hilfsbereit (Helpful), Weitherzig (Broad-minded/Tolerant), Friedliebend (Peace-loving), Warm (Warm) *versus* Rücksichtslos (Ruthless), Habsüchtig (Covetous), Herrschsüchtig (Bossy), Tyrannisch (Tyranical), Hinterlistig (Cunning), Herrschbegierig (Power-hungry), Eisenherzig (Iron-hearted), Wichtigtuerisch (Pompous)
Five-factor solution Emotional Stability	Verletzbar (Vulnerable), Empfindlich (Oversensitive), Launenhaft (Capricious), Empfindsam (Sentimental), Launisch (Moody), Emotional (Emotional), Eigensinnig (Obstinate), Selbstzweiflerisch (Self-Doubting), Sensibel (Sensitive), Aufbrausend (Easily upset), Eigenwillig (Self-willed), Anerkennungsbedürftig (Need for recognition), Starrköpfig (Pig-headed), Unbeherrscht (Not self-controlled), Dickköpfig (Bull-headed) *versus* Gelassen (Poised), Unempfindlich (Insensitive), Aalglatt (Slippery as an eel), Gefühlsstabil (Emotionally stable), Gefestigt (Steadfast)

Note: Factor names are based on interpretations suggested in the present article. Adjectives of each pole of each factor are listed in descending order of size of factor loadings as reported by Ostendorf (1990) and by Ostendorf et al. (2004). See text for further details.