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Validation and Psychometric Properties of the HEXACO Personality Inventory Observer Report Form in the Polish Language

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Abstract

The aim of this study was to verify the structure and psychometric properties of the Polish adaptation of the HEXACO-PI-R observer report form based on a heterogeneous target sample (liked, neutral and disliked peers). The vast majority of research has focused on the validity and reliability of the self-report form. The psychometric properties of the observer report version have been verified in only two languages. Previous Polish lexical studies based on a heterogeneous target sample have shown that the structure differs from a typical six-factor structure from self-rating studies. Since this phenomenon was not observed in English, we decided to verify the psychometric properties of the observer report form in Polish. Additionally, the NEO-FFI and Polish Personality Markers for observer report were used. All HEXACO-PI-R scales achieved satisfactory internal consistency and showed high stability. The results indicated that the structure of the Polish adaptation of the HEXACO-PI-R observer report form could be considered as similar to the theoretical construct, except when the target of the description is neutral for the respondent. This suggests the necessity to verify the structure of the HEXACO-PI-R observer report form based on liked and disliked peers in other languages as well.

1. Introduction

The six-factor HEXACO personality model was developed by Ashton and Lee (2001), based on the results of psycholexical studies conducted in various countries. The psycholexical approach is based on the lexical assumption (Goldberg, 1981), according to which all individual differences observed by members of a culture should be reflected in the language they use. The more important for the functioning of the community a feature is, the more words (in the form of synonyms and antonyms) describe it. Although the lexical assumption is not new (Allport & Odbert, 1936), increased interest in the psycholexical approach occurred at the turn of the 1980s and 1990s. This was because of

Goldberg's publications (1981, 1982, 1990, 1992), which contained a description of a five-factor personality structure for the English lexicon (the Big Five).

Initially, most psycholexical studies confirmed the universality of the Big Five (B5)/Five-Factor Model (FFM) for various natural languages (see, e.g., Caprara & Perugini, 1994; De Raad, 1992; Hřebíčková, 1999). However, research conducted in the following years has provided an increasing amount of empirical evidence for a greater number of dimensions (see, e.g., Ashton, Lee, & Goldberg, 2004; Boies et al., 2001; De Raad, 1992; Gorbaniuk et al., 2013; Hahn et al., 1999). The analysis of seven lexical studies led to distinguishing a six-factor structure (Ashton, Lee, Perugini et al., 2004) based on which the HEXACO model was developed: (1) Honesty-Humility, (2) Emotionality, (3) Extraversion, (4) Agreeableness, (5) Conscientiousness, and (6) Openness to Experience.

The major difference between HEXACO and the B5/FFM is the emergence of Honesty-Humility. Extraversion, Conscientiousness, and Openness to Experience correspond very closely to the parallel dimensions of the B5/FFM, but there are conceptual differences between the HEXACO Emotionality and B5/FFM Neuroticism as well as Agreeableness in both models; they are also mutually rotated. HEXACO Agreeableness includes elements related to irritability (patience versus ill-temper), which belong to the Neuroticism (Emotional Stability) factor in the B5/FFM model. On the other hand, the Emotionality factor in HEXACO includes sentimentality (sensitivity versus toughness), which is the part of the Agreeableness factor in the B5/FFM model (Ashton & Lee, 2007).

The first questionnaire measuring the six-factor HEXACO model was developed in two versions: as a self-report (Lee & Ashton, 2004) and as an observer report form (Lee & Ashton, 2006). Both versions included identical facet scales and items but differed in the grammatical form of the items. In the following years, revised versions of the questionnaire were published: (1) 100-

item version HEXACO-PI-R (Lee & Ashton, 2008), (2) 60-item version HEXACO-60 (Ashton & Lee, 2009), and (3) 200-item version (Lee & Ashton, 2018).

The self-report form has been translated into at least 28 languages (Lee & Ashton, 2020), including Polish (Szarota et al., 2007). The observer report forms have been translated into at least 11 languages: traditional Chinese, simplified Chinese, Dutch, French, German, Italian, Korean, Norwegian, Portuguese, Spanish, and Slovak (Lee & Ashton, 2020). However, the psychometric properties of the observer report form have only been reported for the English (Lee & Ashton, 2018) and Dutch (De Vries et al., 2008) versions.

1.1. Self- and Peer-rating Lexical Structures

The results of the Polish psycholexical study on adjectives showed that both the self- and peer-rating data, based on a full range age samples, have a six-factor structure as well. However, there are differences in the composition of the factors. The analysis of self-rating data indicated that the structure was consistent with the HEXACO model (Gorbaniuk et al., 2013; Szarota et al., 2007). For observer-rating data with heterogeneous attitude toward target sample, a six-factor structure included the following components: Agreeableness (e.g., good-natured, kind, honest, helpful), Extraversion (energetic, introverted, talkative, outgoing), Conscientiousness (orderly, conscientious, disciplined), Impulsiveness (nervous, impulsive, impetuous), Resilience (resilient, tough vs. fearful, cowardly), and Intellect (research-focused, creative, inquisitive) (Gorbaniuk et al., 2011, 2014). Agreeableness, Extraversion, Conscientiousness, and Intellect were clearly interpretable as the dimensions of B5, while adjectives from the Agreeableness and Honesty scales formed the common Big Five Agreeableness factor. The Resilience and Impulsiveness factors were identified instead of Emotional Stability. Resilience showed the strongest similarity to the HEXACO Emotionality dimension, whereas Impulsiveness was partially similar to HEXACO Agreeableness. Therefore, the key difference between the HEXACO model and the structure of the Polish personality lexicon is the

lack of Honesty-Humility as an independent dimension in the observer report with a heterogeneous target sample.

Since the analyses of self- and observer-ratings were carried out on the identical Polish lexical material with a similar sample structure (a full range of age groups), the observed discrepancy may be related to differences in perception of the self and other structures, especially if we consider the descriptions of the liked and disliked target persons (Gorbaniuk et al., 2014). Both self- and observer-ratings may either describe different constructs or describe the same construct in different ways. Presumably, however, it is a measure of different constructs, because the knowledge of the described person is different in each case (Möttus et al., 2020). Besides, the results of self-report research show that people may tend to attribute socially desirable traits to themselves. On the other hand, there is a risk of generalizing the observed traits based on an overall assessment (e.g., good vs. bad character) when describing others (Borkenau & Ostendorf, 1989). Therefore, the peer structure may be less diverse and the construct dimensions may be better correlated in this case. Studies on the relationship between Conscientiousness and Emotional Stability provide support for this view. They emphasize a clear boundary between the two constructs when self is explored; however, such a division does not occur in the peer perspective's case (Beer & Watson, 2008).

In English language peer-rating studies focused on people liked by the raters, no substantial discrepancies in the structure of psycholexical self- and observer-rating were noted (Goldberg, 1990, 1992). However, differences between the self- and peer-rating structures of well-liked individuals were observed in Croatian (Mlacic & Ostendorf, 2005) and Hindi (Singh et al., 2013) lexical studies. Due to the potential differences between these structures, it is recommended to analyze them separately during the structural analysis of natural language lexicons (Saucier, 2010).

2. Current Study

The observer's perspective seems interesting for providing information about the perceived qualities of the other person, which may allow for a better understanding of someone's behavior than just a self-description. Therefore, the observer report form can be valuable in scientific research (e.g., to compare self-rating with observer-rating) and in applied psychology (e.g., for the comparison of a family member's perception during systemic therapy). Because of the limited number of studies, the validity and reliability of the HEXACO-PI-R observer report version in other languages or cultures are not well-known. It seems to be particularly worth investigating in Polish, where lexical studies have shown a significant discrepancy between the self- and observer-rating structures. Therefore, we decided to verify the factor structure and psychometric properties of the HEXACO-PI-R observer report form.

The reference points for the HEXACO-PI-R observer report form were questionnaires based on the Five-Factor Model (NEO-FFI; Costa & McCrae, 1992) and the structure of the Polish personality lexicon obtained in the observer-rating study (PPM-OR; Gorbaniuk et al., 2014). As mentioned before, FFM dimensions are not identical to HEXACO dimensions – conceptual differences exist, especially between Emotionality and Agreeableness (Ashton & Lee, 2007). In addition, there is no direct conceptual mapping between PPM-OR adjectives and the HEXACO scales. However, we decided to use these scales to compare the results of the HEXACO-PI-R observer report form with questionnaires measuring relatively similar constructs.

Furthermore, the attitude towards target persons should be controlled due to the possibility of differences in the description of liked and disliked people (Goldberg, 1992; Gorbaniuk et al., 2014; Peabody & Goldberg, 1989). The factor structures of peer rating personality data change depending on whether the target is liked or not. Many descriptors contain an evaluative tone. There is also a tendency to use socially desirable traits for a liked person and vice versa for a disliked one. Such a difference is not present with neutral descriptors and when the perceiver does not have a specific attitude towards the target (Leising et al., 2020).

3. Method

3.1. Participants and Procedure

The respondent's task was to describe a very well-known person (at least two years of acquaintance) who was the same age as the respondent. We controlled for the following variables: (1) gender of the respondent, (2) gender of the person she/he described, and (3) attitude towards the described person, expressed at three levels: "rather negative", "neutral (neither liked nor disliked)", and "rather positive". Differentiation of the level of attitude towards the target was controlled by the questionnaire instruction: the subjects received one of the three versions of the instruction, indicating which person they should describe. Subjects were selected using the convenient and quota sampling method (gender of the subject \times gender of the target \times attitude towards the target). Trained interviewers made individual contact with each respondent from the general population (sample 1 and sample 3). The research was conducted at the respondents' home. The research in the group of students (sample 2) was conducted in dormitories by four interviewers. Respondents had 1-2 days to complete the paper-pencil survey. Participation in the study was voluntary, and the subjects did not receive any reward for completing the questionnaire. All subjects were informed about the purpose of the study and gave informed consent before participating in the study.

We examined three independent samples. In the first of them, the respondents completed the HEXACO-PI-R and the list of Polish Personality Markers for observer report (PPM-OR; Gorbaniuk et al., 2014). The data were collected by 11 interviewers. After rejecting 12 incomplete responses (with more than 10% missing data) before the final analysis, the sample included 666 subjects (including 57.7% women). This sample was used to verify the structure of HEXACO-PI-R and to calculate the correlation between the HEXACO-PI-R and the Polish personality lexicon. The sample size allowed for detecting a population effect size of $r > .15$ with a statistical power of $1 - \beta = .95$ (significance level of $\alpha = .05$). The sample size meets the EFA guidelines for minimum ratios of

participants to items (5:1) and sample size greater than 300 (Gorsuch, 1983). The age of the first sample ranged from 15 to 85 years ($M = 37.8$, $SD = 16.8$). In the group of subjects described by the respondents, 49.4% were women. The respondent's attitude towards the target person was 29.4% negative, 34.4% neutral, and 36.2% positive.

In the second sample, respondents were instructed to describe the chosen person with HEXACO-PI-R and NEO-FFI (Costa & McCrae, 1992). This sample included university students only, and we examined 169 subjects (including 53.3% of women). The data was collected by four interviewers. The age of the respondents ranged from 17 to 32 years ($M = 22.3$, $SD = 2.3$), and 52% of the subjects described by the respondents were women. This sample was used to calculate the correlation between the HEXACO and NEO-FFI observer rating forms. The sample size allowed for detecting a population effect size of $r > .25$, with a statistical power of $1 - \beta = .90$ (significance level of $\alpha = .05$). The attitude of the respondents towards the target person was 32.5% negative, 32% neutral, and 35.5% positive.

The third sample was used to verify test-retest reliability. The data was collected by four interviewers. Ninety respondents from the first sample were asked to describe the same person twice with HEXACO-PI-R. The interval between measurements was two weeks and the task was completed by 68 subjects (including 69.1% women). The age of the respondents was between 16 and 60 years ($M = 31.9$, $SD = 14.4$), and 38.2% of subjects described by the respondents were women. The sample size allowed for detecting a population effect size of $r > .35$, with a statistical power of $1 - \beta = .90$ (one-tail significance level of $\alpha = .05$). The respondent's attitude towards the target person was 41.2% negative, 19.1% neutral, and 39.7% positive.

3.2. Measures

3.2.1. HEXACO-PI-R

HEXACO-PI-R measures the six broad dimensions of the HEXACO personality model. Each dimension contains four facet scales with four items. The questionnaire also includes a four-item Altruism scale. It was added by the authors of HEXACO because of its relevance to the theoretical interpretation of HEXACO dimensions. Altruism should divide its loadings between Honesty-Humility, Emotionality, and Agreeableness (Lee & Ashton, 2018). The psychometric properties of the original 100-item version of the HEXACO-PI-R were verified on three samples: student self-reports, online self-report, and student observer reports (Lee & Ashton, 2018). The authors reported high internal consistency for factor scales and a satisfactory internal consistency for facet scales. Construct validity was also satisfactory as the factor structures replicated the HEXACO model.

The Polish adaptation of the self-report form showed satisfactory reliability in the student sample (Szarota et al., 2007). The five HEXACO scales were highly correlated with the corresponding factors of the Polish lexical structure in the self-rating study. However, the Openness to Experience scale did not show an expected correlation with the Polish Intellect factor. Other psychometric properties of the HEXACO-PI-R have not been reported.

The translation of the observer report form from English into Polish was done independently by two psychologists, and another bilingual psychologist prepared a back-translation. Then, the translation was compared with the translation of the self-report form made by Szarota et al. (2007). In the case of slight discrepancies between the two translations, items were phrased as closely as possible to the version of Szarota et al. Finally, two versions of each item, grammatically adapted to the gender of the described person, were prepared.

3.2.2. NEO-FFI

The questionnaire comprises 60 items that measure the dimensions of the five-factor personality model: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Costa & McCrae, 1992). The authors of the Polish adaptation (Zawadzki et al., 1998) reported

satisfactory reliability and validity of the questionnaire. The internal consistency indices obtained in this study were similar to the original ones (N: .72, E: .76, O: .50, A: .71, C: .77). A distinctly lower result was found only for the Openness scale; however, lower reliability of this scale compared with other scales is a known problem of the English version of NEO-FFI (Zawadzki et al., 1998).

3.2.3. Polish Personality Markers for Observer Report

The list of Polish Personality Markers for observer report (PPM-OR) was created as a result of a psycholexical study of Polish personality adjectives based on observer reports and a full range of age groups (Gorbaniuk et al., 2014). It contains six scales: Agreeableness, Extraversion, Conscientiousness, Impulsiveness, Resilience, and Intellect. Each scale consists of eight adjectives which have achieved the highest factor loading and the lowest correlation with the other scales. All scales also achieved satisfactory internal consistency (from .82 to .94) and stability over time (from .81 to .91) (Gorbaniuk et al., 2014). The respondents marked the degree to which the adjective describes them on a five-point Likert scale.

4. Results

4.1. Reliability, Descriptive Statistics, and Scale Intercorrelations

The values of the internal consistency coefficients for the HEXACO factor scales ranged from .77 for Emotionality to .92 for Honesty-Humility (see Table 1). For facet scales, the coefficients were between .45 (Unconventionality) and .85 (Fairness). The test-retest reliability was also satisfactory: from .73 (Emotionality) to .93 (Honesty-Humility and Extraversion) for factor scales and from .58 (Fearfulness) to .88 (Social Boldness) for facet scales. Descriptive statistics and detailed results of reliability analyses are shown in Table 1.

[Table 1 near here]

Table 2 illustrates the inter-correlations between the HEXACO-PI-R factor scales. Almost all scales were statistically significantly correlated with others: from .10 between Agreeableness and Extroversion to .70 between Altruism and Honesty-Humility. The lowest correlations were found in the case of (1) Extraversion, which did not show a significant correlation with Honesty-Humility, and (2) Emotionality, which correlated with Extraversion (-.11) and Altruism (.22) only.

[Table 2 near here]

Table 3 shows the means and differences between the groups distinguished according to the attitude towards the described person. For the vast majority of scales (from HEXACO and Polish Personality Markers), most means were statistically significantly lower for the negative attitude than for the neutral or positive attitude condition. The opposite direction of the difference was found only for the Social boldness and Impulsiveness (PPM) scales, where means were significantly higher for negative attitudes than for the other conditions. No statistically significant differences were found for the Fearfulness, Anxiety, Social self-esteem, and Unconventionality scales.

[Table 3 near here]

4.2. Correlations with NEO-FFI Scales

High or very high correlations with NEO-FFI were found for five corresponding scales (from .50 to .78); only HEXACO Emotionality showed a modest correlation with NEO-FFI Neuroticism (.45). As expected, very low correlations with non-corresponding scales were observed. Moderate and low correlations were obtained only in seven cases, with the highest coefficients being between HEXACO Extraversion and NEO-FFI Neuroticism (-.38) and between HEXACO Honesty-Humility and NEO-FFI Conscientiousness (.37). Detailed results are presented in Table 4.

[Table 4 near here]

4.3. Correlations with Polish Personality Markers for Observer Reports

Overall, the highest correlations were found with the corresponding dimensions (see Table 2) and ranged from -.49 for Emotionality to .75 for Extraversion. Only Agreeableness was highly correlated with two dimensions: PPM-OR Agreeableness (.63) and PPM-OR Impulsiveness (-.65). It is also worth noting that PPM-OR Impulsiveness showed a very low correlation with HEXACO Emotionality (.10). On the other hand, the Altruism scale showed statistically significant correlations with all dimensions of the Polish Personality Markers for observer report and the highest correlation with Agreeableness (.76).

4.4. Structure at the Facet Level

In the original research by the authors of the questionnaire, principal component analysis (PCA) was used as a method of extracting factors (Lee & Ashton, 2004). Similarly, in studies verifying the structure in other languages, PCA was also calculated (e.g. de Vries et al., 2008; Burtăverde & de Raad, 2019). To enable comparisons and compatibility with those studies, we decided to use PCA with Varimax rotation at the facet level on the raw scores of the first sample. According to the Kaiser criterion (eigenvalue > 1) and the interpretation of the scree plot (eigenvalues: 7.1, 3.02, 2.35, 2.24, 1.44, 1.03, .75, .66, .63, and .57), six components should be included, which explained 68.8% of the total variance. All the facet scales showed the highest loadings in the dimensions, as predicted. Component loadings ranged from .54 (Fairness) to .82 (Patience). The Altruism scale shared variance with Agreeableness (.55) and Honesty-Humility (.51). More results of the principal component analysis are shown in Table 5.

[Table 5 near here]

4.5. Structure at the Item Level

The item level principal component analysis with Varimax rotation was calculated based on the raw data of the first sample. The scree plot elbow was located after the seventh component (18.36, 6.75, 5.23, 4.81, 3.17, 2.78, 2.72, 1.88, 1.59, and 1.46). In turn, a parallel analysis suggested an eight-

component solution. The eight-component structure was rejected because the last component was loaded with only two items (loadings: -.44 and -.32), and the remaining seven components were the same as in the seven-component solution. The five-, six- and seven-component solutions are discussed in more detail below.

4.5.1. Six-Component Solution

A total of 41.1% of the variance was explained by the first six components. The content of components in the item level six-component solution differed from the expected. Forty-two items showed the highest loadings with the first component, including all items related to the Honesty-Humility scale (component loadings from .39 to .71), all the items from the Agreeableness scale (.32 to .74), all the items from the Altruism scale (.50 to .69) and items from other scales: Sentimentality-2¹ (.53), Sentimentality-4 (-.31), Social Boldness-3 (-.45), Liveliness-2 (.55), Prudence-3 (.41), and Unconventionality-3 (-.38). The second component was loaded with 15 items, all of them related to the Openness scale (.37 to .66). The third component contained 15 items, and all of them belonged to the Conscientiousness scale (.45 to .69). The fourth component was loaded with 12 items from the Extraversion scale (.40 to .64). Nine items had the strongest loadings with the fifth component: eight items from the Emotionality scale (.43 to .64) and Social Self-Esteem-4 (-.42). Another five items from the Emotionality scale were loaded with the sixth component (-.34 to -.52). Social Self-Esteem-1 and Anxiety-3 showed a weak relationship (< .30) with all the components. Detailed results are presented in Table A in the supplemental online material.

4.5.2. Five-Component Solution

As the items included in the Emotionality scale were split into two separate components in the six-component solution, the item-level principal component analysis with Varimax rotation was

¹ The number after the scale name is the item number within the facet scale.

performed on the five-component solution. The structure of the first four components was remarkably similar to the results of the six-component solution; only single changes in the composition of the items were found. However, all the items that previously loaded the fifth and sixth components were included in the fifth component. Component loadings changed only slightly in relation to the six-component structure. Detailed results are presented in Table B in the supplemental online material.

4.5.3. Seven-Component Solution

The seven-component solution was also calculated because of the scree test result. As before, Varimax rotation was used. The first component was loaded with 20 items, including all the items from the Agreeableness scale (component loadings from .39 to .68), two items from the Altruism scale (.47 and .53), Unconventionality-3 (-.31), and Prudence-3 (.46). Twenty items loaded the second component, including all items from the Honesty-Humility scale (.43 to .71), Sentimentality-2 (.43), Social Boldness-3 (-.41), Social Self-Esteem-1 (-.33), and Altruism-2 (.38). Fifteen items loaded the third component, and all of them belonged to the Conscientiousness scale (.46 to .71). The fourth component was loaded with 15 items, and all of which were from the Openness scale (.36 to .69). The fifth component was constituted of 13 items; all belonged to the Extraversion dimension (.40 to .70). The sixth component was loaded with 10 items: eight from the Emotionality scale (.40 to .61), Social Self-Esteem-4 (-.40), and Altruism-1 (.40). Finally, the seventh component contained six items from the Emotionality scale (-.38 to -.56). Only the Anxiety-3 item showed a weak connection with all components (-.22 with the seventh component). Detailed results are shown in Table C in the supplemental online material.

4.6. Structure at the Item Level in the Samples Distinguished on the Basis of Attitude Towards the Target Person

The one-way analysis of variance (see section 4.1) revealed statistically significant differences between the groups. To test the robustness of the questionnaire structure, the PCA with Varimax rotation was calculated for each of the three samples, distinguished by the attitude towards the target.

4.6.1. Six-Component Solution in the Negative Attitude Group

The content of components in the item-level six-component solution was similar to expected. Items have been assigned to six components that can be easily identified as HEXACO dimensions.

Twenty-two items showed the highest loadings with the first component, including all items related to the Honesty-Humility scale (component loadings from .43 to .72), the first two items from the Altruism scale (.51 and .44), and the following items from other scales: Sentimentality-2 (.51), Gentleness-3 (.49), Gentleness-2 (.44), and Aesthetic appreciation-4 (.34). The second component was loaded with 19 items, including all items related to the Conscientiousness scale (.41 to .69) and three items from the Inquisitiveness facet scale (.37 to .40). The third component included 17 items and was mainly loaded with Agreeableness items (13 items, loadings from .44 to .66). Additionally, the following items were included: Altruism-3 (.55), Altruism-4 (.51), Liveliness-3 (.51), and Social self-esteem-3 (0.38). The fourth component was loaded with 11 items from the Extraversion scale (.33 to .64), two items from the Unconventionality (.40 both), two items from Creativity (.54 and .38), two items from Fearfulness (-.56 and -.40), and Anxiety-2 (-.30). The fifth component was loaded with and 11 items from the Emotionality scale (.34 to .62) and Social Self-Esteem-4 (-.30). The last component was loaded with ten items: eight from the Openness scale (.43 to .62), Flexibility-2 (-.43), and Social boldness (.42). Social Self-Esteem-1 and Anxiety-2 showed a weak relationship ($< .30$) with all components. Detailed results are presented in Table D in the supplemental online material.

4.6.2. Six-Component Solution in the Neutral Attitude Group

The content of components in the neutral group was similar to that obtained for the total sample (see 4.5.1.). The first component contained 37 items: all items from the Agreeableness scale (loadings from .38 to .71), fifteen Honesty-Humility items (.33 to .64), three items from the Altruism scale (.44 to .66), Social boldness-3 (-.40), Sentimentality-4 (.36), and Prudence-3 (.32). The second component was loaded mainly with the Conscientiousness items (fifteen items with loadings from .39 to .74); however, it also included Fairness-1 (.53) and Unconventionality-3 (-.37). The third component was loaded with the Openness items only (fourteen items, loadings from .30 to .70). Fourteen items showed the highest loadings with the fourth component, including 13 items related to the Extraversion scale (loadings from .43 to .68) and Creativity-3 (.40). Emotionality items mainly loaded the last two components: nine of them loaded the fifth component (.42 to .70), and five of them loaded the sixth component (-.37 to -.65). The fifth component was also loaded with Altruism-1 (.49). Social Self-Esteem-1, Social Self-Esteem-4, and Anxiety-3 showed a weak relationship (< .30) with all components. Detailed results are presented in Table E in the supplemental online material.

4.6.3. *Six-Component Solution in the Positive Attitude Group*

As with the analyses performed in the Negative Attitude group, the structure found here can be interpreted as similar to the original one. The first component contained 28 items, including fifteen items from the Agreeableness scale (loadings from .40 to .75), seven Honesty-Humility items (.32 to .55), all items from the Altruism scale (.44 to .64), Liveliness-2 (.53), and Prudence-3 (.41). The second component was loaded with fifteen items from the Openness scale (.39 to .65) and Diligence-1 (.51). The third component was loaded mainly with the Honesty-Humility items (nine items, loadings from .30 to .66), two items from the Conscientiousness scale: Prudence-2 (.47), Prudence-1 (.39); Social Boldness-3 (-.50) from the Extraversion scale and Unconventionality-3 (-.30) from the Openness scale. The fourth component was loaded with the Conscientiousness items only (twelve items with loadings from .38 to .64). The fifth component was defined by twelve items from the

Extraversion scale (.33 to .74) and Dependence-4 (.32), while the sixth component was loaded with fourteen Emotionality items (.31 to .59), Social self-esteem-4 (-.51), and Social Self-Esteem-1 (-.30). Fearfulness-2, Forgivingness-3 showed a weak relationship ($< .30$) with all components. Detailed results are presented in Table F in the supplemental online material.

5. Discussion

The results show that the Polish version of the HEXACO-PI-R observer report form could be considered as a good operationalization of the HEXACO model when the description concerns a liked or disliked person. Here, the psychometric properties of the Polish version, that is the structure, internal consistency, and inter-correlation of the scales, were satisfactory. However, the structure was partially inconsistent with the theoretical model in the case of describing a neutral target.

5.1. Differences Between Targets in the HEXACO Scales

Means were generally lower than those obtained in the original study on both factor and facet scales (cf. Lee & Ashton, 2018). It should be noted, however, that our sample had a considerably higher proportion of neutral and disliked target persons (63.8%) than a typical observer-rating study. In most cases, the targets are romantic partners, close relatives, or close friends (e.g. Mlačić & Ostendorf, 2005; Zettler et al., 2016). A one-way ANOVA showed that disliked target people are rated as possessing lower levels of various desirable characteristics than liked targets. We found the most considerable differences in the Altruism, Honesty-Humility, and Agreeableness factor scales.

5.2. Reliability and Correlations between HEXACO Scales

The results showed high alpha reliability and high stability of the HEXACO factor scales. This is in line with the results reported in the English version of the questionnaire (cf. Lee & Ashton, 2018). Scores higher than in the original sample were found only on the Altruism scale. The facet scales

showed a considerably broader range and lower values of the reliability indices. Nevertheless, their reliability was generally similar to the English version and was sufficiently satisfactory. The most distinct differences were found for the Anxiety, Sentimentality, and Social Self-esteem facet scales, which had much lower internal consistency in the Polish version. It is also worth noting that all the facet scales related to Honesty-Humility showed higher alpha reliability than in the original version. On the other hand, all the Emotionality facet scales had lower values.

The intercorrelations of the HEXACO-PI-R scales were higher for Conscientiousness, Agreeability, Openness and Honesty-Humility than those reported in the English version (Lee & Ashton, 2018). Notably stronger relations of Conscientiousness with Honesty, Openness with Agreeability, and Agreeability with Honesty were found. However, Emotionality and Extraversion showed similar or lower intercorrelations with more dimensions than in the original sample. Among the six major dimensions, Honesty-Humility and Agreeableness had the strongest relationship. The correlation between these variables was high (.62 in the first sample); however, in the observer reports the relationship between these dimensions is usually stronger than in self-reports (Zettler et al., 2016). In our study, this correlation was stronger than in other observer-rating studies where presumably nearly all target subjects were well-liked.

5.3. The Structure of HEXACO-PI-R Observer Report Form

The facet-level principal component analysis fully reproduced the structure of HEXACO-PI-R. All 24 facet scales showed the highest loadings in those components, which can be interpreted as the HEXACO constructs. Altruism was most strongly associated with Agreeableness and Honesty-Humility. This result is in line with the theoretical expectations and previous results (Lee & Ashton, 2018).

However, principal component analysis at the item level did not reproduce the HEXACO structure. The result suggests the items do not combine into the six components corresponding to the

HEXACO dimensions. The Openness and Conscientiousness scales were reproduced almost entirely, and the Extraversion component contained most of the expected items. However, there were significant differences in the pattern of loadings within other dimensions. All the items of the Agreeableness and Honesty-Humility scales formed one component, which was additionally loaded by all items of Altruism and six items from other scales. The items from the Emotionality scale were divided into two components, each of which contained items from the different Emotionality facet scales. The structure of the data was similar to the results of the Polish psycholexical observer-rating study (Gorbaniuk et al., 2014), where Agreeableness and Honesty-Humility were combined into a single component with Impulsiveness and Resilience instead of Emotionality. However, the obtained structure cannot be considered identical to the structure of the Polish psycholexical observer-rating study. Additional correlation analyses showed both components were significantly correlated with the Resilience scale ($r = -.32$ and $r = -.56$) and had a very weak correlation with the Impulsiveness scale ($r = .08$ and $r = .02$).

The combination of Agreeableness and Honesty-Humility in one factor is characteristic of the five-factor personality model. With the five-component solution, it was easy to identify subsequent B5/FFM constructs and the composition of the items was relatively similar to the expected one. The combination of Agreeableness and Honesty-Humility in one component is convergent with the results of Goldberg's classic research (Goldberg, 1992), where various attitudes towards the targets were also included. In both studies, the inclusion of positive and negative targets resulted in a very large Agreeableness factor in a five-component solution.

In the seven-component solution, all dimensions of the HEXACO model were visible. Based on the loadings, we could identify the first five components as Agreeableness, Honesty, Conscientiousness, Openness, and Extraversion. The patterns of loadings were relatively similar to the expected. As in the six-component solution, the items from the Emotionality scale have been divided into two components. One of them was defined by positively scored items from all four

facets, whereas the other by negatively scored. Therefore, the division had based on the overall elevation of responses rather than on the content of the items. This division did not occur in the facet level analysis, as each facet was roughly balanced for the item's scoring direction.

To investigate the source of poor reproduction of the questionnaire structure at the item level, we provided additional PCA analyses. They showed that the structure significantly varied depending on the level of attitude towards the target person. This observation is consistent with the results of studies that indicate differences in the lexical structure of the observer rating, depending on whether the rated persons were liked by the respondents or not (Gorbaniuk et al., 2014; Mlacic & Ostendorf, 2005; Singh et al., 2013). The six-component structure could be interpreted as representing the HEXACO dimensions in both the negative and positive attitude samples. Although not all items loaded the target components, the resemblance to the theoretical model can be considered satisfactory enough. In contrast, the structure in the sample with the neutral targets was similar to the six-factor structure of the full sample: Honesty-Humility and Agreeableness formed the common component, while Emotionality was divided into two components.

When considering peer ratings, it should be noted that descriptive and evaluative characteristics are closely related (Saucier et al., 2001). The evaluative component is a common element of all lexical factors and is responsible for the inter-correlation between them (Saucier, 1994). Also, our results demonstrate a significant role of the attitude towards the target person in the validity of the HEXACO-PI-R observer report form. Poor reproduction of the questionnaire structure in the neutral attitude sample may result from a relatively greater dominance of the descriptive aspect over the evaluative one. This is in line with the previous studies where the degree of "range restriction" used by the raters in their evaluations influences factor structures (Goldberg, 1992; Peabody & Goldberg, 1989).

Our findings demonstrate the importance of controlling the attitude towards the target person in assessing the psychometric properties of the observer report version of the questionnaire.

Researchers typically assume the subject has access to more information about a liked target, which should increase the reliability of the results. However, it is also necessary to recognize the personality structure of people towards whom subjects have a relatively neutral or negative attitude. Our results show the structure of the questionnaire may be less stable depending on the level of attitude. For this reason, the attitude towards the target person should be controlled when this type of questionnaire is adapted.

In our study, the level of acquaintance and attitude towards the target person was controlled on a general level through the instructions of the questionnaire. It is worth considering in future research a more precise control of the type and intimacy of the relationship with the described persons and the reasons for liking or disliking them. Since recent results show the importance of these variables in person judgments (Leising et al., 2015; Rau et al., 2021; Wessels et al., 2020), the inclusion of precise questions should allow for a more thorough understanding of who the people defined by the respondents as neutral to them are.

To conclude, the structure of the Polish adaptation of the HEXACO-PI-R observer report form is similar to the theoretical structure, unless the target of the description is neutral to the respondent. It is possible that the structure of observer-rating questionnaires may be less stable under different attitude conditions in general. Since the structure of the HEXACO-PI-R observer report form has so far been verified in other languages without controlling the level of attitudes towards the target person, further research on the stability of its structure is needed.

5.4. Intercorrelations with Similar Constructs

The correlations with NEO-FFI were consistent with the theoretical predictions. The highest values of the correlation coefficients for the factor scales were found with corresponding NEO-FFI scales. Considering the rotational differences between the FFM and HEXACO factors/axis, lower correlations between Emotionality and Neuroticism, as well as between both Agreeableness scales,

were expected. HEXACO Agreeableness includes content related to irritability which is a part of the Emotional (Non)Stability/Neuroticism in B5/FFM. On the other hand, the sentimentality component of NEO Agreeableness is included in HEXACO Emotionality. Taken together, these facts explain the smaller correlation between the aforementioned factors. Altruism was most closely correlated with NEO Agreeableness and showed significant correlations with both the NEO Conscientiousness and NEO Openness. Moreover, most of the scales showed a low or very low correlation with non-corresponding scales.

HEXACO-PI-R also showed the expected pattern of correlation with the corresponding scales of Polish Personality Markers for the observer report. However, the correlation coefficients between non-corresponding dimensions were higher than between HEXACO-PI-R and NEO-FFI. Moreover, HEXACO Agreeableness showed the highest correlation with PPM Impulsiveness, while HEXACO Conscientiousness showed a high correlation with the corresponding scale as well as PPM Intellect and PPM Agreeableness.

5.5. Conclusions

The Polish adaptation of the HEXACO-PI-R observer report form showed overall satisfactory reliability. Validity was confirmed at the factor scale level. However, the analysis of the structure did not show full compliance with the theoretical construct. The results of principal component analysis at the item level showed that items were grouped into seven instead of six dimensions. When the attitude towards the target person was controlled, partial structure inconsistency with the theoretical model was observed in the neutral group only. For the samples with a positive or negative attitude towards the subject of the description, the structure was similar to the expected one.

Previous studies on the psychometric properties of the HEXACO-PI-R questionnaire focused mostly on self-reports, without evaluating observer reports. This state of affairs may, of course, be caused by less interest in this version, but the reason may also be the assumption of the psychometric

equivalence between both forms. The results of two previous studies provided arguments supporting this assumption (Lee & Ashton, 2018; De Vries et al., 2008). Finally, our results show that the structure of the questionnaire may not be equally stable in samples with different levels of attitudes towards the target person.

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TABLES

Table 1.

Descriptive statistics and reliability of HEXACO-PI-R observer report form.

HEXACO scales	<i>M</i>	<i>SD</i>	<i>As</i>	<i>K</i>	α	<i>r_s</i>
Honesty-Humility	2.98	0.83	-0.20	-0.50	.92	.93
Sincerity	2.96	0.96	-0.19	-0.54	.76	.79
Fairness	3.28	1.09	-0.25	-0.82	.85	.83
Greed-avoidance	2.73	1.00	0.06	-0.75	.82	.87
Modesty	2.96	0.96	-0.21	-0.74	.81	.82
Emotionality	3.07	0.53	0.07	0.26	.77	.73
Fearfulness	3.07	0.77	0.03	-0.20	.61	.58
Anxiety	3.13	0.72	0.08	-0.01	.49	.60
Dependence	3.08	0.76	-0.02	-0.07	.63	.80
Sentimentality	2.97	0.70	0.25	0.14	.49	.66
Extraversion	3.39	0.57	-0.38	0.27	.82	.93
Social self-esteem	3.58	0.63	-0.46	0.62	.48	.68
Social boldness	3.11	0.86	-0.10	-0.42	.71	.88
Sociability	3.58	0.79	-0.53	0.31	.71	.75
Liveliness	3.31	0.84	-0.22	-0.56	.73	.86
Agreeableness	2.73	0.74	0.01	-0.52	.90	.89
Forgivingness	2.64	0.84	0.17	-0.42	.72	.73
Gentleness	2.82	0.96	-0.04	-0.79	.83	.81
Flexibility	2.63	0.81	0.10	-0.41	.66	.81
Patience	2.82	0.90	-0.01	-0.58	.77	.80
Conscientiousness	3.30	0.72	-0.39	-0.25	.89	.91
Organization	3.47	0.91	-0.38	-0.44	.75	.80
Diligence	3.49	0.89	-0.52	-0.27	.77	.79
Perfectionism	3.16	0.86	-0.15	-0.30	.75	.81
Prudence	3.06	0.85	-0.28	-0.49	.70	.77
Openness to Experience	2.94	0.68	0.04	-0.43	.85	.84
Aesthetic appreciation	2.84	0.96	0.14	-0.73	.72	.82
Inquisitiveness	2.95	0.95	-0.02	-0.71	.75	.79
Creativity	3.04	0.90	0.18	-0.53	.68	.73
Unconventionality	2.94	0.69	0.12	0.04	.45	.81
Altruism	3.05	0.93	-0.20	-0.50	.79	.82

Note. The analyzes were performed on the first sample ($n = 666$), with the exception of r_s , which was performed on the third sample ($n = 68$). M = mean; SD = standard deviation; As = asymmetry, K = kurtosis; α = internal consistency; r_s = test-retest stability;

Table 2.
Correlations among HEXACO-PI-R factor scales and Polish Personality Markers for observer report.

Scales	1	2	3	4	5	6	7	8	9	10	11	12
HEXACO	1. Honesty-Humility											
	2. Emotionality	.05										
	3. Extraversion	-.03	-.11*									
	4. Agreeableness	.62**	.02	.10*								
	5. Conscientiousness	.50**	.03	.11*	.36**							
	6. Openness to Experience	.33**	.01	.27**	.21**	.45**						
	7. Altruism	.70**	.22**	.22**	.68**	.48**	.38**					
PPM	8. Agreeableness	.66**	.21**	.28**	.63**	.47**	.35**	.76**				
	9. Resilience	.19**	-.49**	.38**	.08	.30**	.24**	.12*	.19**			
	10. Impulsiveness	-.37**	.10*	-.04	-.65**	-.33**	-.16*	-.36**	-.30**	-.08*		
	11. Extraversion	.08*	-.05	.75**	.10*	.12*	.22**	.25**	.37**	.44**	.06	
	12. Conscientiousness	.22**	.11*	.09*	.16**	.54**	.21**	.27**	.34**	.17**	-.07	.12**
	13. Intellect	.33**	-.04	.27**	.15**	.51**	.65**	.35**	.43**	.41**	-.07	.30**

Note. The analyzes were performed on the first sample ($n = 666$).

* $p < .05$; ** $p < .001$.

Table 3.

Analysis of the differences in HEXACO and Polish Personality Markers mean scores between the groups distinguished on the attitude towards the described person.

Scale/subscale	Attitude towards the target person						1-ANOVA	
	Negative		Neutral		Positive		<i>F</i> (2,663)	η^2
	<i>M</i> / <i>CI</i> 95%	<i>SD</i>	<i>M</i> / <i>CI</i> 95%	<i>SD</i>	<i>M</i> / <i>CI</i> 95%	<i>SD</i>		
Honesty-Humility	2.46 ^a	0.78	3.02 ^b	0.78	3.37 ^c	0.68	80.49**	0.195
	[2.35 - 2.57]		[2.92 - 3.12]		[3.28 - 3.46]			
Sincerity	2.39 ^a	0.93	3.02 ^b	0.86	3.36 ^c	0.85	66.86**	0.168
	[2.26 - 2.52]		[2.91 - 3.13]		(3.25 - 3.47)			
Fairness	2.84 ^a	1.06	3.28 ^b	1.08	3.65 ^c	0.98	32.51**	0.089
	[2.69 - 2.99]		[3.14 - 3.42]		(3.52 - 3.77)			
Greed-avoidance	2.29 ^a	0.94	2.68 ^b	0.98	3.13 ^c	0.90	43.34**	0.116
	[2.16 - 2.42]		[2.56 - 2.81]		(3.02 - 3.25)			
Modesty	2.33 ^a	0.88	3.09 ^b	0.90	3.35 ^c	0.83	77.34**	0.189
	[2.21 - 2.46]		[2.97 - 3.20]		(3.24 - 3.45)			
Emotionality	2.95 ^a	0.51	3.15 ^b	0.54	3.08 ^b	0.51	7.47*	0.022
	[2.88 - 3.03]		[3.08 - 3.22]		[3.01 - 3.14]			
Fearfulness	3.14	0.77	3.10	0.78	2.99	0.74	2.30	0.007
	[3.03 - 3.25]		[3.00 - 3.21]		(2.90 - 3.09)			
Anxiety	3.04	0.66	3.20	0.73	3.15	0.76	2.45	0.007
	[2.95 - 3.14]		[3.10 - 3.29]		(3.05 - 3.24)			
Dependence	3.00 ^a	0.83	3.19 ^b	0.73	3.07 ^{a, b}	0.72	3.32*	0.010
	[2.88 - 3.12]		[3.09 - 3.28]		(2.98 - 3.16)			
Sentimentality	2.63 ^a	0.63	3.11 ^b	0.69	3.11 ^b	0.68	35.13**	0.096
	[2.55 - 2.72]		[3.02 - 3.20]		(3.02 - 3.19)			
Extraversion	3.32 ^a	0.60	3.36 ^b	0.58	3.48 ^{a, b}	0.53	4.26*	0.013
	[3.24 - 3.41]		[3.29 - 3.44]		[3.41 - 3.54]			
Social self-esteem	3.58	0.69	3.52	0.60	3.63	0.61	1.86	0.006
	[3.48 - 3.67]		[3.44 - 3.59]		(3.55 - 3.71)			
Social boldness	3.30 ^a	0.92	3.05 ^b	0.85	3.02 ^b	0.81	6.78*	0.020
	[3.17 - 3.43]		[2.94 - 3.16]		(2.92 - 3.12)			
Sociability	3.43 ^a	0.84	3.60 ^{a, b}	0.80	3.66 ^b	0.73	4.77*	0.014
	[3.32 - 3.55]		1[3.51 - 3.72]		(3.57 - 3.75)			
Liveliness	2.98 ^a	0.84	3.28 ^b	0.83	3.59 ^c	0.75	31.36**	0.086
	[2.87 - 3.10]		[3.17 - 3.39]		(3.50 - 3.69)			
Agreeableness	2.28 ^a	0.68	2.85 ^b	0.69	2.97 ^b	0.67	61.83**	0.157
	[2.18 - 2.37]		[2.76 - 2.94]		[2.88 - 3.05]			
Forgivingness	2.23 ^a	0.82	2.72 ^b	0.79	2.89 ^b	0.79	37.70**	0.102
	[2.12 - 2.35]		[2.62 - 2.83]		(2.79 - 2.99)			
Gentleness	2.24 ^a	0.85	2.95 ^b	0.90	3.17 ^c	0.89	64.13**	0.162
	[2.11 - 2.36]		[2.84 - 3.07]		(3.05 - 3.28)			
Flexibility	2.24 ^a	0.79	2.78 ^b	0.75	2.80 ^b	0.77	34.78**	0.095
	[2.13 - 2.36]		[2.68 - 2.88]		(2.70 - 2.9)			
Patience	2.40 ^a	0.85	2.97 ^b	0.87	3.01 ^b	0.86	33.03**	0.091
	[2.28 - 2.52]		[2.85 - 3.08]		(2.90 - 3.12)			

Scale/subscale	Attitude towards the target person						1-ANOVA	
	Negative		Neutral		Positive		<i>F</i> (2,663)	η^2
	<i>M</i> / <i>CI</i> 95%	<i>SD</i>	<i>M</i> / <i>CI</i> 95%	<i>SD</i>	<i>M</i> / <i>CI</i> 95%	<i>SD</i>		
Conscientiousness	2.98 ^a	0.70	3.37 ^b	0.68	3.48 ^b	0.69	31.49**	0.087
	[2.88 - 3.08]		[3.28 - 3.46]		[3.40 - 3.57]			
Organization	3.20 ^a	0.85	3.57 ^b	0.88	3.60 ^b	0.95	13.26**	0.038
	[3.08 - 3.31]		[3.46 - 3.69]		(3.48 - 3.72)			
Diligence	3.11 ^a	0.91	3.56 ^b	0.84	3.74 ^b	0.81	3.85**	0.011
	[2.98 - 3.24]		[3.45 - 3.67]		(3.64 - 3.84)			
Perfectionism	2.87 ^a	0.87	3.22 ^b	0.80	3.33 ^b	0.86	16.71**	0.048
	[2.75 - 2.99]		[3.12 - 3.32]		(3.22 - 3.44)			
Prudence	2.73 ^a	0.84	3.13 ^b	0.85	3.27 ^b	0.77	24.66**	0.069
	[2.61 - 2.85]		[3.02 - 3.24]		(3.17 - 3.37)			
Openness to Experience	2.72 ^a	0.65	2.98 ^b	0.69	3.08 ^b	0.66	16.50**	0.047
	[2.63 - 2.81]		[2.89 - 3.07]		[3.00 - 3.17]			
Aesthetic appreciation	2.54 ^a	0.92	2.93 ^b	0.99	3.00 ^b	0.93	14.71**	0.042
	[2.41 - 2.67]		[2.81 - 3.06]		(2.89 - 3.12)			
Inquisitiveness	2.79 ^a	0.93	2.97 ^{a, b}	0.95	3.05 ^b	0.95	4.15*	0.012
	[2.66 - 2.92]		[2.85 - 3.1]		(2.93 - 3.17)			
Creativity	2.67 ^a	0.81	3.06 ^b	0.90	3.31 ^c	0.89	29.37**	0.081
	[2.56 - 2.79]		[2.95 - 3.18]		(3.20 - 3.43)			
Unconventionality	2.88	0.73	2.95	0.67	2.97	0.68	.91	0.003
	[2.78 - 2.98]		[2.86 - 3.03]		(2.88 - 3.06)			
Altruism	2.38 ^a	0.80	3.25 ^b	0.84	3.40 ^b	0.82	95.29**	0.223
	[2.26 - 2.49]		[3.14 - 3.36]		[3.30 - 3.51]			

a, b, c - Pairwise comparisons of column means indicates which pairs of columns (for a given row) are significantly different. Significant differences are indicated using different subscript letters and are calculated at the .05 significance level.

Table 4.
Correlations between HEXACO-PI-R and NEO-FFI for observer report.

Scales	1	2	3	4	5	6	7	8	9	10	11
HEXACO	1. Honesty-Humility										
	2. Emotionality	.15*									
	3. Extraversion	-.15*	.02								
	4. Agreeableness	.46**	-.21*	-.11							
	5. Conscientiousness	.38**	-.02	.07	.13						
	6. Openness to Experience	.30**	.15	.14	.15*	.31**					
	7. Altruism	.45**	.19*	.02	.39**	.27**	.26**				
NEO-FFI	8. Neuroticism	.02	.45**	-.38**	-.11	-.10	.03	-.02			
	9. Extraversion	-.06	.11	.71**	-.01	.02	.21*	.13	-.27*		
	10. Openness to Experience	.25*	.14	.07	.23*	.21*	.51*	.27**	-.01	.08	
	11. Agreeableness	.46**	.16*	.19*	.50**	.11	.16*	.41**	-.13	.24*	.18*
	12. Conscientiousness	.37**	.02	.11	.17*	.78**	.27**	.40**	-.14	.04	.22*

Note. The analyzes were performed on the second sample ($n = 169$).

* $p < .05$; ** $p < .001$.

Table 5.

Loadings of HEXACO-PI-R observer report form facet scales on six Varimax-rotated components.

Facet scales	Honesty- Humility	Emotionality	Extraversion	Agreeableness	Conscientiousness	Openness to Experience
Honesty-Humility						
Sincerity	.74	-.13	-.04	.23	.19	.17
Greed-avoidance	.72	-.00	-.14	.32	.17	.13
Modesty	.72	.13	-.02	.49	.15	.00
Fairness	.54	.08	.03	.34	.41	.06
Emotionality						
Dependence	-.10	.74	.25	.06	-.07	.03
Sentimentality	.25	.71	.12	.14	.03	.10
Anxiety	.10	.70	-.30	-.19	.15	-.01
Fearfulness	-.30	.66	-.33	.06	.01	-.16
Extraversion						
Social boldness	-.01	.27	.78	.09	-.09	.12
Liveliness	.25	-.02	.76	.26	.08	.12
Sociability	-.20	-.15	.63	-.35	-.01	.32
Social self-esteem	-.26	-.25	.61	.13	.17	-.12
Agreeableness						
Patience	.08	-.16	-.03	.82	.25	.07
Flexibility	.20	.05	.03	.80	.00	-.04
Gentleness	.33	.12	.10	.79	.11	.05
Forgivingness	.26	.01	.19	.70	.10	.10
Conscientiousness						
Organization	.10	.06	-.00	.11	.82	-.01
Perfectionism	.18	.15	.03	.02	.78	.27
Prudence	.11	-.14	-.11	.35	.74	.14
Diligence	.31	-.04	.28	.03	.69	.33
Openness to Experience						
Unconventionality	.05	-.04	.11	-.13	-.08	.81
Aesthetic appreciation	.07	.22	-.01	.19	.23	.75
Inquisitiveness	.03	-.14	.00	.12	.28	.70
Creativity	.29	.05	.25	.08	.19	.69
Altruism	.51	.26	.23	.55	.26	.18

Note. The analyzes were performed on the first sample ($n = 666$). Loadings greater than .30 are shown in bold.

SUPPLEMENTAL ONLINE MATERIALS

TABLE A

Table A.
Loadings of HEXACO-PI-R observer report form items on six Varimax-rotated components.

Items	Components					
	1. H & A	2. O	3. C	4. X	5. E1	6. E2
A_Gent3	.74	.00	.06	.10	.12	.15
H_Mode4	.71	.15	.06	-.18	.03	-.01
A_Gent2	.70	.12	.06	.13	.13	.08
Altr3	.69	.16	.17	.04	.04	-.07
A_Gent4	.68	-.07	.05	.10	.11	.06
H_Mode3	.68	.14	.09	-.05	-.00	-.11
A_Gent1	.66	-.09	.10	.17	-.01	-.15
Altr4	.65	.13	.19	.26	.14	-.09
H_Mode2	.65	.16	.11	.01	.14	.19
A_Flex3	.64	.09	.20	.01	-.05	-.15
A_Forg1	.63	.04	.08	.18	.03	.10
H_Mode1	.63	-.00	.03	-.06	.24	.15
A_Pati3	.62	-.02	.23	.11	-.17	.14
A_Forg2	.62	.07	.09	.17	.13	.08
A_Pati2	.61	-.11	.02	.10	-.09	.14
H_Gree3	.59	.30	.12	-.26	-.03	-.06
H_Gree2	.58	.23	.05	-.29	-.00	.00
H_Sinc3	.57	.29	.16	-.16	-.12	.02
A_Flex4	.56	.02	-.04	.00	-.05	-.11
A_Forg4	.55	.08	.12	.13	-.18	-.03
X_Live2	.55	.06	.14	.50	-.00	.14
H_Fair4	.54	.24	.33	-.07	.06	.09
H_Fair2	.53	.16	.28	-.08	.08	.04
E_Sent2	.53	.21	.05	.13	.38	.13
H_Gree4	.51	.31	.05	-.28	-.03	-.03
H_Gree1	.51	.28	.08	-.13	.08	.11
A_Pati4	.51	.02	.16	.02	-.26	-.11
Altr2	.51	.28	.17	.22	.23	.17
Altr1	.50	.26	.14	.16	.35	.13
H_Sinc4	.49	.21	.10	-.11	-.05	.28
A_Flex2	.49	-.26	-.07	.06	.16	.14
A_Pati1	.48	-.06	.38	-.08	-.10	-.22
H_Fair3	.48	.15	.23	-.07	.10	.16
H_Fair1	.46	.18	.30	-.08	.09	.01
X_Socb3	-.45	.12	-.08	.34	-.04	.11
A_Flex1	.45	-.14	.01	.19	-.16	-.37
H_Sinc2	.44	.22	.08	-.17	.04	.30
C_Prud3	.41	-.03	.35	.02	-.07	.16
H_Sinc1	.39	.27	.03	-.16	-.15	.07
O_Unco3	-.38	.07	-.26	.04	.02	.24
A_Forg3	.32	.04	-.06	.12	-.16	-.24
E_Sent4	-.31	.03	-.25	.00	.29	-.30
O_Unco4	.01	.66	.06	.06	.02	-.00
O_Crea2	.11	.60	.02	.14	.15	-.05
O_Aesa3	.10	.59	.18	.06	.16	.03
O_Crea4	.22	.57	.18	.08	.03	.03
O_Inqu4	.06	.57	.17	-.04	-.03	.03
O_Aesa2	.11	.57	.12	.07	.10	-.07
O_Unco1	.04	.55	.09	.05	-.05	-.10
O_Aesa1	.10	.52	.21	.06	.11	-.11
O_Inqu1	.04	.49	.19	.04	-.01	.34
O_Crea1	.18	.44	.18	.17	-.18	.08
O_Unco2	.04	.44	-.11	.16	-.16	.15
O_Crea3	.14	.44	.02	.25	-.01	.26
O_Inqu3	.06	.42	.22	-.02	-.17	.21
O_Aesa4	.22	.40	-.00	-.05	.27	.14
O_Inqu2	.09	.37	.15	.01	.04	.34
C_Orga4	.16	.07	.69	.01	-.04	.02
C_Prud4	.12	.11	.63	-.17	-.04	-.16
C_Orga2	.13	.16	.63	-.03	.20	.18
C_Prud2	.30	.22	.63	-.10	-.17	-.04
C_Perf3	.22	.21	.61	.07	.20	.30
C_Orga3	.08	-.06	.59	-.04	-.02	-.11
C_Perf4	.02	.21	.57	.13	.12	.17
C_Perf2	.07	.27	.55	-.03	.08	-.02
C_Orga1	.18	-.05	.55	.00	.19	.03

Items	Components					
	1. H & A	2. O	3. C	4. X	5. E1	6. E2
C_Dili3	.17	.27	.51	.07	-.18	.06
C_Prud1	.22	.18	.51	-.12	-.17	-.09
C_Dili4	.29	.35	.51	.07	-.03	.08
C_Dili2	.10	.29	.49	.23	.08	.34
C_Perf1	.11	.21	.49	-.03	.35	.26
C_Dili1	.13	.41	.45	.27	.03	.32
X_Soci2	.03	.04	-.09	.64	.13	.12
X_Soci4	.05	.09	-.08	.62	.15	.08
X_Live4	.27	.23	.03	.62	-.14	-.07
X_Soci1	.02	.11	-.04	.59	-.02	-.11
X_Soci3	.20	.09	-.08	.52	.15	.02
X_Live1	-.03	.19	-.09	.52	-.04	.28
X_Socb2	-.26	.25	.05	.50	-.10	.21
X_Live3	.37	.09	.08	.45	-.33	-.14
X_Sses2	-.15	-.12	.04	.45	-.02	.00
X_Socb1	-.19	.36	.03	.43	-.25	-.15
X_Socb4	-.26	.32	-.02	.43	-.36	-.03
X_Sses3	.24	.05	.14	.40	-.28	-.17
X_Sses1	-.14	-.11	.10	.27	-.15	.10
E_Anxi1	-.03	.06	.10	-.05	.64	-.09
E_Fear3	-.05	-.10	.02	.01	.56	-.17
E_Sent1	.23	.07	.03	.18	.55	.03
E_Depe1	.08	.08	.03	.33	.54	-.15
E_Sent3	.22	.07	.12	.14	.50	.05
E_Depe3	.11	.06	.01	.42	.48	-.15
E_Anxi4	-.05	-.11	-.01	-.07	.46	.02
E_Fear1	-.03	-.06	.10	-.13	.43	-.17
X_Sses4	-.06	-.11	.17	.21	-.42	.02
E_Anxi3	-.06	.14	.02	-.20	.26	-.15
E_Depe2	-.12	-.02	-.19	-.06	.29	-.52
E_Fear4	-.17	-.13	-.18	-.08	.31	-.51
E_Fear2	.01	-.15	.10	-.23	.24	-.46
E_Depe4	-.02	.15	-.03	.34	.25	-.41
E_Anxi2	-.03	.13	.08	-.19	.30	-.34

Note. The first letter in the name of the item refers to the factor scale. The next four letters refer to the facet scale. The digit at the end refers to the item number within the facet scale. Altr = Altruism. The letter next to the component number indicates the corresponding HEXACO dimensions. Items that load the correct component above .30 are marked in bold.

TABLE B

Table B.
Loadings of HEXACO-PI-R observer report form items on five Varimax-rotated components.

Items	Components				
	1. H & A	2. O	3. C	4. X	5. E
A_Gent3	.74	.08	.07	.10	.07
H_Mode4	.70	.16	.06	-.19	.03
A_Gent2	.69	.17	.07	.12	.10
Altr3	.69	.15	.17	.02	.04
A_Gent4	.68	-.02	.06	.10	.08
H_Mode3	.67	.12	.09	-.07	.02
A_Gent1	.67	-.12	.10	.15	.01
Altr4	.66	.12	.19	.25	.14
H_Mode2	.64	.24	.12	.01	.08
A_Flex3	.64	.06	.20	-.00	-.03
A_Forg1	.63	.08	.09	.17	-.01
H_Mode1	.62	.07	.04	-.06	.19
A_Pati3	.62	.03	.23	.10	-.22
A_Forg2	.61	.12	.10	.17	.09
A_Pati2	.61	-.05	.03	.09	-.13
H_Gree3	.57	.28	.11	-.27	-.01
H_Gree2	.57	.24	.05	-.30	-.00
A_Flex4	.56	-.01	-.04	-.01	-.04
H_Sinc3	.56	.29	.16	-.18	-.13
A_Forg4	.55	.07	.11	.11	-.19
X_Live2	.55	.11	.15	.49	-.06
H_Fair4	.53	.27	.34	-.07	.03
E_Sent2	.53	.28	.07	.14	.33
H_Fair2	.52	.19	.28	-.08	.06
A_Pati4	.51	-.02	.15	-.01	-.24
Altr2	.50	.35	.18	.22	.17
H_Gree1	.50	.32	.08	-.13	.05
Altr1	.50	.33	.15	.17	.30
H_Gree4	.50	.30	.04	-.29	-.02
A_Flex2	.49	-.18	-.05	.06	.12
A_Pati1	.48	-.12	.37	-.10	-.06
H_Sinc4	.48	.29	.11	-.12	-.11
H_Fair3	.47	.21	.24	-.07	.06
A_Flex1	.46	-.24	-.00	.17	-.09
H_Fair1	.46	.19	.30	-.09	.08
X_Socb3	-.45	.13	-.08	.35	-.07
H_Sinc2	.43	.31	.09	-.16	-.03
C_Prud3	.41	.03	.36	.02	-.12
O_Unco3	-.38	.12	-.26	.05	-.02
H_Sinc1	.38	.28	.03	-.18	-.17
A_Forg3	.32	-.03	-.07	.10	-.11
O_Unco4	-.00	.63	.05	.06	.02
O_Aesa3	.09	.59	.17	.06	.14
O_Crea2	.10	.57	.01	.14	.15
O_Inqu1	.02	.57	.19	.05	-.09
O_Crea4	.21	.56	.17	.08	.02
O_Inqu4	.04	.55	.16	-.04	-.04
O_Aesa2	.10	.53	.11	.06	.10
O_Crea3	.12	.50	.02	.25	-.08
O_Unco1	.03	.50	.08	.04	-.03
C_Dili1	.11	.50	.46	.27	-.06
O_Aesa1	.09	.48	.20	.06	.13
O_Inqu2	.08	.46	.16	.02	-.04
O_Inqu3	.04	.46	.21	-.03	-.21
O_Unco2	.03	.45	-.12	.16	-.20
O_Aesa4	.21	.45	-.00	-.04	.23
O_Crea1	.17	.44	.18	.16	-.20
C_Orga4	.16	.08	.69	-.00	-.05
C_Orga2	.12	.23	.64	-.02	.14
C_Prud4	.11	.06	.62	-.18	-.00
C_Perf3	.21	.31	.62	.08	.11
C_Prud2	.29	.20	.62	-.12	-.17
C_Orga3	.08	-.09	.59	-.04	-.00
C_Perf4	.01	.26	.57	.13	.07
C_Orga1	.17	-.02	.55	.00	.17
C_Perf2	.06	.26	.54	-.03	.08
C_Dili3	.16	.27	.51	.05	-.20
C_Dili4	.28	.37	.50	.06	-.06
C_Prud1	.21	.15	.50	-.14	-.15

Items	Components				
	1. H & A	2. O	3. C	4. X	5. E
C_Perf1	.10	.31	.50	-.01	.27
C_Dili2	.08	.39	.50	.24	-.01
X_Soci2	.04	.08	-.08	.65	.08
X_Soci4	.06	.12	-.07	.63	.10
X_Live4	.27	.19	.03	.60	-.15
X_Soci1	.03	.07	-.04	.58	-.01
X_Soci3	.21	.10	-.07	.53	.12
X_Live1	-.03	.25	-.08	.52	-.12
X_Socb2	-.27	.29	.05	.50	-.16
X_Sses2	-.14	-.12	.04	.45	-.04
X_Live3	.37	.04	.07	.43	-.31
X_Socb1	-.20	.27	.01	.42	-.22
X_Socb4	-.27	.26	-.03	.41	-.36
X_Sses3	.25	-.02	.13	.38	-.25
E_Depe4	-.00	.03	-.04	.34	.32
X_Sses1	-.14	-.09	.10	.26	-.18
E_Anxi1	-.02	.08	.11	-.02	.64
E_Fear3	-.04	-.11	.02	.03	.59
E_Depe1	.09	.07	.04	.35	.54
E_Sent1	.24	.12	.04	.19	.51
E_Depe3	.13	.04	.01	.43	.49
E_Sent3	.22	.13	.13	.16	.47
E_Fear1	-.02	-.07	.10	-.12	.46
E_Anxi4	-.04	-.07	.01	-.04	.45
X_Sses4	-.06	-.13	.16	.19	-.43
E_Fear4	-.16	-.26	-.19	-.07	.43
E_Depe2	-.11	-.16	-.20	-.06	.41
E_Anxi2	-.02	.04	.07	-.19	.37
E_Sent4	-.30	-.05	-.26	.01	.35
E_Fear2	.02	-.26	.09	-.23	.35
E_Anxi3	-.06	.11	.02	-.19	.30

Note. The first letter in the name of the item refers to the factor scale. The next four letters refer to the facet scale. The digit at the end refers to the item number within the facet scale. Altr = Altruism. The letter next to the component number indicates the corresponding HEXACO dimensions. Items that load the correct component above .30 are marked in bold.

TABLE C

Table C.

Loadings of HEXACO-PI-R observer report form items on seven Varimax-rotated components.

Items	Components						
	1. A	2. H	3. C	4. O	5. X	6. E1	7. E2
A_Pati2	.68	.12	-.02	.04	-.02	.02	.24
A_Pati3	.67	.16	.19	.10	.01	-.07	.24
A_Gent4	.66	.24	.03	.03	.02	.21	.13
A_Gent3	.66	.33	.04	.08	.04	.22	.20
A_Gent1	.65	.25	.09	-.06	.12	.06	-.08
A_Pati4	.62	.09	.12	.14	-.07	-.20	-.01
A_Pati1	.61	.06	.34	.07	-.19	-.06	-.13
A_Flex1	.58	.04	-.00	-.09	.12	-.12	-.27
A_Flex3	.57	.33	.19	.11	.00	-.00	-.09
A_Forg1	.56	.28	.07	.08	.14	.12	.15
A_Gent2	.56	.38	.05	.14	.12	.21	.11
A_Flex4	.54	.24	-.05	.07	-.03	-.01	-.05
A_Forg2	.54	.28	.08	.12	.13	.20	.12
Altr3	.53	.44	.18	.14	.06	.08	-.04
A_Forg4	.52	.26	.11	.10	.12	-.12	.04
Altr4	.47	.42	.21	.05	.31	.19	-.07
C_Prud3	.46	.08	.32	.08	-.07	.00	.23
A_Flex2	.46	.16	-.09	-.19	-.02	.24	.19
A_Forg3	.39	.06	-.07	.08	.09	-.13	-.18
O_Unco3	-.31	-.24	-.27	.11	.02	.02	.20
H_Gree2	.18	.71	.09	.06	-.11	-.02	-.04
H_Gree3	.21	.69	.15	.13	-.09	-.04	-.09
H_Mode4	.36	.69	.09	.02	-.05	.05	-.03
H_Sinc3	.22	.65	.20	.13	.01	-.12	.00
H_Gree4	.17	.63	.08	.17	-.12	-.05	-.06
H_Mode3	.37	.62	.12	-.01	.08	.01	-.12
H_Mode2	.32	.60	.14	.06	.12	.19	.17
H_Sinc2	.10	.56	.11	.10	-.03	.06	.26
H_Gree1	.20	.55	.10	.17	-.01	.10	.08
H_Sinc1	.08	.54	.07	.12	.00	-.16	.04
H_Sinc4	.19	.53	.12	.12	.00	-.01	.27
H_Fair4	.26	.52	.36	.14	.03	.09	.07
H_Mode1	.36	.50	.04	-.06	-.00	.29	.14
H_Fair3	.20	.49	.25	.06	.02	.13	.14
H_Fair2	.29	.47	.30	.08	-.00	.10	.03
E_Sent2	.28	.43	.07	.16	.18	.42	.09
H_Fair1	.24	.43	.32	.10	-.00	.10	-.00
X_Socb3	-.26	-.41	-.09	.17	.28	-.04	.11
Altr2	.30	.38	.19	.24	.26	.28	.15
X_Sses1	.08	-.33	.07	-.00	.16	-.11	.16
C_Orga4	.06	.18	.71	.00	.05	-.04	.02
C_Prud4	.08	.11	.64	.09	-.15	-.06	-.15
C_Prud2	.21	.26	.63	.19	-.06	-.17	-.01
C_Orga2	.09	.07	.62	.20	-.06	.22	.18
C_Perf3	.06	.22	.62	.19	.09	.23	.27
C_Orga3	.07	.05	.60	-.09	-.03	-.03	-.10
C_Perf2	-.04	.15	.56	.21	.02	.06	-.05
C_Perf4	.02	-.02	.56	.24	.10	.15	.16
C_Orga1	.15	.07	.54	-.03	-.03	.21	.03
C_Dili4	.06	.38	.54	.23	.18	-.02	.06
C_Dili3	.06	.22	.53	.19	.14	-.18	.06
C_Dili2	-.03	.14	.50	.25	.27	.12	.31
C_Prud1	.23	.11	.50	.22	-.13	-.17	-.05
C_Perf1	.00	.12	.48	.24	-.04	.37	.22
C_Dili1	.00	.16	.46	.37	.32	.07	.29
O_Unco4	-.02	.07	.05	.69	.08	.00	-.04
O_Aesa3	.09	.06	.16	.66	.04	.16	.00
O_Crea2	.09	.08	.01	.64	.14	.14	-.08
O_Inqu4	.06	.05	.15	.63	-.04	-.04	.02
O_Aesa1	.15	.01	.19	.60	.02	.10	-.13
O_Aesa2	.07	.10	.11	.59	.08	.08	-.10
O_Inqu1	.03	.02	.16	.58	.02	.02	.33
O_Crea4	.05	.29	.19	.51	.16	.02	-.01
O_Unco1	-.05	.16	.11	.50	.13	-.08	-.14
O_Inqu3	.07	.04	.20	.49	-.04	-.15	.22
O_Inqu2	.09	.02	.12	.48	-.04	.08	.34
O_Aesa4	.14	.16	-.02	.47	-.08	.29	.10
O_Unco2	-.01	.10	-.11	.42	.21	-.15	.14
O_Crea3	-.02	.21	.03	.37	.33	.02	.23

Items	Components						
	1. A	2. H	3. C	4. O	5. X	6. E1	7. E2
O_Crea1	.05	.25	.20	.36	.26	-.17	.07
X_Live4	.20	.16	.07	.10	.70	-.10	-.05
X_Soci1	.03	-.04	-.01	.02	.63	.00	-.10
X_Live1	-.14	.07	-.05	.07	.61	-.00	.25
X_Soci2	.10	-.15	-.09	.04	.60	.19	.14
X_Soci4	.10	-.11	-.07	.09	.59	.20	.09
X_Socb2	-.24	-.15	.07	.19	.54	-.08	.19
X_Socb1	-.17	-.06	.06	.25	.52	-.28	-.16
X_Soci3	.20	.01	-.07	.07	.51	.21	.03
X_Live3	.36	.16	.10	.02	.50	-.28	-.07
X_Live2	.49	.22	.14	.05	.49	.09	.19
X_Socb4	-.16	-.18	-.01	.27	.46	-.37	-.01
X_Sses3	.28	.06	.15	-.01	.43	-.24	-.11
X_Sses2	-.00	-.26	.04	-.10	.40	.01	.03
E_Anxi1	-.11	.03	.10	.07	-.07	.61	-.17
E_Sent1	.14	.12	.03	.08	.15	.57	-.01
E_Fear3	.01	-.15	.00	-.03	-.08	.55	-.21
E_Depe1	.02	.03	.05	.04	.33	.54	-.20
E_Sent3	.15	.09	.11	.11	.10	.53	.01
E_Depe3	.12	-.03	.01	.05	.38	.50	-.18
E_Anxi4	-.16	.06	.01	-.15	-.05	.45	-.05
E_Fear1	-.00	-.07	.08	.00	-.19	.40	-.21
X_Sses4	.06	-.14	.17	-.11	.19	-.40	.09
Altr1	.29	.38	.15	.23	.19	.40	.10
E_Depe2	-.08	-.07	-.18	-.05	-.06	.22	-.56
E_Fear4	-.13	-.10	-.16	-.16	-.07	.24	-.55
E_Fear2	.16	-.15	.08	-.05	-.33	.20	-.45
E_Depe4	.05	-.09	-.01	.11	.33	.22	-.43
E_Anxi2	-.10	.10	.09	.08	-.15	.23	-.40
E_Sent4	-.34	-.07	-.22	-.06	.06	.21	-.38
E_Anxi3	-.18	.14	.04	.08	-.13	.20	-.22

Note. The first letter in the name of the item refers to the factor scale. The next four letters refer to the facet scale. The digit at the end refers to the item number within the facet scale. Altr = Altruism. The letter next to the component number indicates the corresponding HEXACO dimensions. Items that load the correct component above .30 are marked in bold.

TABLE D

Table D.

Loadings of HEXACO-PI-R observer report form items on six Varimax-rotated components in the negative attitude group.

Items	Components					
	1. H	2. C	3. A	4. X	5. E	6. O
H_gree2	.72	-.03	.11	-.17	-.19	.07
H_sinc4	.72	.21	.08	.12	-.00	.07
H_mode4	.71	-.04	.29	-.17	-.09	.00
H_gree1	.65	.16	.02	-.05	.00	.05
H_gree3	.64	-.05	.24	-.22	-.19	.17
H_gree4	.62	.06	.20	-.07	-.04	.08
H_sinc2	.61	.15	-.02	.01	-.10	.07
H_mode2	.61	.15	.12	.05	.03	-.22
H_model1	.61	-.01	.15	-.01	.11	-.28
H_sinc3	.60	-.04	.22	-.13	-.18	.13
H_mode3	.55	-.02	.41	-.09	-.11	.03
H_fair4	.54	.34	.16	-.10	.04	.11
Alt1	.51	.24	.19	.19	.26	.07
E_sent2	.51	.13	.18	.10	.27	-.03
A_gent3	.49	.22	.48	.10	.18	-.21
H_fair3	.49	.26	.11	-.16	.05	.02
H_fair1	.48	.29	.20	-.04	.05	.14
H_sinc1	.46	-.12	-.01	.12	-.27	.19
A_gent2	.44	.07	.42	.18	.25	-.16
Alt2	.44	.30	.28	.24	.16	.12
H_fair2	.43	.21	.28	-.14	.04	.15
O_aesa4	.34	.24	-.22	-.03	.22	.16
X_sses1	-.25	.06	.03	.24	.00	.05
C_perf3	.18	.69	-.00	.09	.04	.06
C_perf1	.18	.68	-.00	.00	.19	.03
C_orga2	.10	.68	.09	.01	.10	.01
C_dili2	.01	.67	-.09	.39	-.05	-.07
C_perf4	.03	.65	.06	.05	.15	.01
C_dili1	.00	.60	.00	.44	-.08	.20
C_perf2	.05	.57	.02	-.05	.04	.16
C_orga4	-.00	.55	.24	-.11	-.14	.04
C_prud2	.19	.55	.26	-.24	-.25	.22
C_prud1	.01	.54	.14	-.10	-.13	.13
C_prud4	.06	.54	.23	-.31	.01	.18
C_orga1	.08	.46	.10	-.24	.10	-.13
C_dili4	.24	.45	.19	.05	-.20	.24
C_dili3	.08	.44	.20	-.03	-.32	.12
C_prud3	.18	.44	.38	-.01	.05	-.11
C_orga3	-.03	.41	.15	-.38	-.19	-.10
O_inqu2	.17	.40	-.19	.27	-.00	.18
O_inqu1	.08	.38	-.16	.26	.06	.31
O_inqu3	.16	.37	-.02	.09	-.20	.30
A_flex3	.20	.12	.66	-.16	-.08	-.01
A_flex1	-.06	-.07	.66	-.11	.05	-.08
A_gent1	.21	.10	.59	.01	.07	-.21
A_pati3	.27	.27	.56	.04	-.19	-.05
A_forg4	.22	.12	.56	.06	-.07	.01
Alt3	.36	.10	.55	.01	.04	.05
A_pati1	.05	.33	.54	-.31	-.04	-.12
A_pati4	.06	.09	.53	-.09	-.08	.11
X_live3	-.07	-.02	.51	.39	-.22	.19
Alt4	.27	.16	.51	.10	.29	.04
A_pati2	.30	.17	.51	-.02	-.01	-.14
A_gent4	.38	.17	.51	.09	.21	-.28
A_forg2	.28	.08	.47	.04	.14	-.07
A_forg1	.34	.11	.47	.14	.07	-.10
A_forg3	.03	-.08	.44	-.03	.05	.22
A_flex4	.25	-.05	.44	-.14	.01	-.07
X_sses3	-.15	-.07	.38	.13	-.12	.35
X_live1	.04	-.07	-.12	.64	-.04	.07
X_socb2	-.14	.08	-.10	.59	.01	.22
X_soc2	-.18	-.06	.10	.59	.27	.08
X_live4	-.05	-.01	.35	.59	.08	.24
E_fear2	-.06	-.10	.22	-.56	.25	.04
O_crea3	.15	.13	-.20	.54	-.07	.06
X_soc4	-.12	-.05	.21	.53	.27	.07
X_live2	.22	.18	.48	.50	.06	-.06
X_soc1	-.13	-.18	.20	.46	.22	.18
X_socb4	-.35	.01	-.04	.46	-.15	.34

Items	Components					
	1. H	2. C	3. A	4. X	5. E	6. O
E_fear1	.07	-.05	.06	-.40	.33	.10
O_unco2	.06	-.01	-.13	.40	-.22	.25
O_unco3	.02	-.03	-.34	.40	-.08	-.02
X_soci3	-.11	-.08	.27	.38	.26	.19
O_crea1	.05	.18	.06	.38	-.17	.23
X_socb3	-.32	-.06	-.23	.36	.08	.26
X_sses2	-.29	-.03	.07	.33	.05	-.08
E_anxi3	.11	.09	-.08	-.31	-.02	-.02
E_anxi2	-.03	.04	.07	-.30	.16	.08
E_depe3	-.05	-.00	.18	.13	.62	.12
E_depe1	-.12	-.02	.11	.13	.60	-.01
E_fear3	-.01	.01	.04	-.18	.58	-.07
E_anxi1	.01	.27	-.19	-.13	.54	-.06
E_sent3	.10	.18	.04	.11	.52	-.08
E_depe4	-.19	-.19	.17	.09	.47	.36
E_depe2	-.24	-.29	-.08	-.34	.47	-.01
E_fear4	-.22	-.24	-.06	-.34	.43	-.10
E_sent1	.24	-.01	.03	.00	.40	.11
E_sent4	-.15	-.29	-.16	-.17	.36	.20
E_anxi4	.06	-.05	-.19	-.19	.34	-.08
X_sses4	-.24	-.03	.18	.05	-.30	.29
O_unco4	.09	.18	-.14	.11	.05	.62
O_inqu4	.27	.28	-.09	.00	.06	.58
O_unco1	.08	-.02	-.00	.10	-.14	.57
O_aesa2	.09	.25	.02	.14	.10	.56
O_aesa1	.10	.37	.05	-.01	.11	.48
O_aesa3	.18	.37	-.12	.15	.29	.47
O_crea4	.19	.25	.06	.28	.01	.45
A_flex2	.31	.05	.31	.04	.14	-.43
O_crea2	.05	.19	.04	.27	.23	.43
X_socb1	-.31	-.10	-.03	.34	-.11	.42

Note. The first letter in the name of the item refers to the factor scale. The next four letters refer to the facet scale. The digit at the end refers to the item number within the facet scale. Altr = Altruism. The letter next to the component number indicates the corresponding HEXACO dimensions. Items that load the correct component above .30 are marked in bold.

TABLE E

Table E.

Loadings of HEXACO-PI-R observer report form items on six Varimax-rotated components in neutral attitude group.

Items	Components					
	1. H & A	2. C	3. O	4. X	5. E1	6. E2
A_gent3	.71	-.03	.05	.08	.13	.15
A_gent2	.66	-.01	.23	.05	.14	.08
Alt4	.66	.18	.07	.28	.13	-.15
A_pati3	.65	.15	-.08	.11	-.12	.24
A_gent4	.65	-.05	.02	-.01	.08	.04
A_forg1	.64	.09	.04	.17	.07	.12
A_pati2	.64	-.07	-.11	-.01	-.01	.22
H_mode3	.64	.12	.09	.06	-.00	-.08
Alt3	.64	.21	.16	-.01	.02	-.19
A_flex3	.62	.09	.13	.06	-.06	.08
H_mode4	.61	.06	.23	-.14	.03	.01
A_forg2	.61	.08	.15	.07	.17	.21
A_gent1	.60	-.05	-.10	.12	-.12	-.14
H_mode2	.60	.12	.22	.11	.11	.11
A_pati4	.58	.21	.04	-.03	-.20	.08
H_mode1	.58	.13	.14	-.12	.20	.11
A_forg4	.57	.09	.00	.06	-.11	.03
A_flex4	.56	-.05	-.03	-.06	-.02	.07
H_fair2	.50	.38	.13	-.13	.21	.03
H_gree2	.50	.14	.26	-.25	-.00	.01
H_sinc3	.50	.30	.28	-.02	-.10	.05
H_fair3	.49	.35	.11	.05	.26	.13
H_fair4	.49	.44	.23	-.04	.16	.00
H_gree3	.48	.20	.35	-.18	.01	-.06
H_gree1	.46	.21	.27	-.07	.10	-.03
Alt2	.44	.21	.25	.25	.36	.11
A_forg3	.43	-.08	-.03	.06	-.13	-.21
A_flex2	.41	-.24	-.17	-.03	.17	.11
A_flex1	.41	-.07	-.12	.07	-.27	-.29
H_gree4	.41	.14	.40	-.27	-.06	-.01
X_socb3	-.40	.02	.09	.39	-.09	.10
H_sinc4	.39	.12	.12	-.01	-.04	.28
A_pati1	.38	.37	-.13	-.13	-.20	-.19
E_sent4	-.36	-.25	.05	.01	.15	-.32
H_sinc1	.34	.21	.13	-.10	-.07	-.01
H_sinc2	.33	.09	.20	-.14	.10	.30
C_prud3	.32	.31	-.12	.01	-.17	.27
C_orga4	.02	.74	.02	.02	-.02	.03
C_orga2	.01	.66	.19	-.08	.16	.16
C_prud4	.11	.63	.02	-.14	-.14	-.11
C_perf3	.13	.62	.06	.15	.29	.25
C_prud2	.28	.61	.16	.01	-.20	-.04
C_perf2	.01	.61	.18	-.00	.03	-.04
C_dili4	.14	.59	.26	.22	.06	.08
C_prud1	.18	.56	.15	-.09	-.30	-.11
C_orga3	-.01	.55	.01	-.05	-.03	-.09
C_dili3	.13	.54	.23	.22	-.07	.13
C_perf4	-.03	.53	.07	.15	.15	.16
H_fair1	.42	.53	.19	-.09	.12	-.04
C_orga1	.21	.50	.04	.01	.22	.03
C_perf1	.03	.48	.21	-.04	.41	.21
C_dili2	.09	.42	.25	.36	.15	.17
C_dili1	.06	.39	.36	.35	.13	.29
O_unco3	-.36	-.37	.04	-.04	.09	.10
O_unco4	.03	.06	.70	.07	.09	-.01
O_aesa2	.05	.07	.66	.05	.13	-.02
O_aesa3	.05	.12	.65	.08	.14	-.04
O_crea2	.05	.01	.63	.10	.12	-.04
O_inqu1	.07	.15	.58	.03	.01	.34
O_inqu4	.10	.16	.57	.02	-.10	.01
O_aesa1	.05	.17	.57	-.01	.02	-.18
O_unco1	.08	.24	.55	.11	-.05	-.14
O_crea4	.15	.11	.55	.10	-.02	-.01
O_inqu3	.12	.19	.48	.05	-.22	.18
O_aesa4	.27	-.09	.47	-.05	.17	.14
O_crea1	.12	.21	.40	.31	-.14	-.02
O_inqu2	.18	.04	.38	.01	.02	.37
O_unco2	-.00	-.01	.30	.29	-.04	.10
X_live4	.27	.06	.13	.68	-.07	-.12

Items	Components					
	1. H & A	2. C	3. O	4. X	5. E1	6. E2
X_soci1	-.01	.02	.01	.62	.09	-.06
X_soci4	-.01	-.13	.11	.62	.25	.11
X_soci2	.06	-.11	-.00	.62	.27	.14
X_socb2	-.31	.05	.20	.62	.03	.15
X_live1	-.05	-.10	.10	.58	.10	.23
X_soci3	.15	-.12	.03	.54	.22	.04
X_live2	.47	.10	-.02	.53	.12	.14
X_live3	.37	.10	-.04	.50	-.24	-.08
X_socb1	-.18	.11	.26	.50	-.16	-.09
X_sses2	-.10	.04	-.09	.49	-.06	-.07
X_sses3	.28	.10	-.09	.44	-.31	.01
X_socb4	-.18	.05	.31	.43	-.39	-.07
O_crea3	.09	.06	.35	.40	.02	.03
X_sses1	-.07	.15	-.18	.26	-.09	.09
E_sent1	.14	-.05	.04	.15	.70	.01
E_anxi1	-.05	.05	.11	-.07	.64	-.36
E_depe1	.01	.07	.11	.25	.61	-.17
E_fear3	-.07	.04	-.11	-.09	.53	-.12
E_sent3	.12	.16	.05	.01	.53	.05
E_depe3	.08	.03	.02	.36	.51	-.19
Altr1	.35	.10	.28	.15	.49	.01
E_anxi4	-.05	-.08	-.15	.04	.49	.01
E_sent2	.41	-.07	.26	.18	.45	.04
E_fear1	-.05	.02	.02	-.16	.42	-.25
X_sses4	.04	.21	-.25	.23	-.28	.12
E_anxi3	-.14	-.04	.18	-.08	.26	-.23
E_fear4	-.18	-.06	-.07	-.10	.13	-.65
E_depe2	-.02	-.09	.11	-.07	.13	-.51
E_anxi2	-.11	.07	.19	-.18	.27	-.42
E_depe4	.02	.02	-.01	.33	.33	-.40
E_fear2	.03	.15	-.13	-.30	.24	-.37

Note. The first letter in the name of the item refers to the factor scale. The next four letters refer to the facet scale. The digit at the end refers to the item number within the facet scale. Altr = Altruism. The letter next to the component number indicates the corresponding HEXACO dimensions. Items that load the correct component above .30 are marked in bold.

TABLE F

Table F.

Loadings of HEXACO-PI-R observer report form items on six Varimax-rotated components in the positive attitude group.

Items	Components					
	1. A	2. O	3. H	4. C	5. X	6. E
A_gent3	.75	.05	.01	.01	-.09	-.01
A_gent4	.72	.02	.06	.00	.02	.01
A_gent2	.66	.14	.17	.07	.07	.05
Alt3	.64	.15	.32	.10	.01	.01
A_forg2	.63	.19	.01	.05	.16	.09
A_pati2	.63	.07	-.11	-.10	.00	-.31
A_pati3	.62	.18	.05	.12	-.03	-.30
A_gent1	.62	-.07	.27	-.05	.17	.11
A_forg1	.59	.16	-.02	-.03	.04	-.03
H_mode1	.55	-.17	.09	.15	.06	.24
A_flex2	.55	-.24	-.02	.08	.01	.04
X_live2	.53	.03	-.05	.16	.49	-.08
A_pati4	.50	.11	.23	-.15	-.04	-.34
A_flex3	.48	.15	.48	.02	-.02	.09
H_mode2	.48	.07	.32	.22	.15	.12
Alt1	.45	.22	.09	.23	.19	.27
A_pati1	.44	.16	.30	-.02	-.11	-.08
Alt2	.44	.32	.02	.17	.21	.15
Alt4	.44	.05	.31	.12	.36	.20
A_flex4	.43	.11	.23	-.28	.06	-.04
H_fair4	.42	.12	.35	.30	.12	-.08
C_prud3	.41	.16	.11	.24	-.10	-.17
A_forg4	.41	.25	.13	-.12	.11	-.27
A_flex1	.40	-.08	.19	-.24	.32	-.00
H_fair1	.39	-.01	.21	.14	.01	.07
H_gree1	.38	.16	.25	.06	.05	.04
H_fair2	.38	.10	.33	.23	.10	-.05
H_fair3	.32	.08	.24	.21	.03	-.08
O_unco4	-.01	.65	.04	-.04	.08	-.03
O_crea2	.15	.59	.15	-.03	.12	.23
O_inqu1	.05	.58	-.13	.22	-.12	-.25
O_aesa3	.14	.57	.04	.12	-.06	.02
O_crea4	.07	.56	.27	.17	.11	.14
O_unco2	-.00	.56	.12	-.26	.12	-.14
O_aesa1	.24	.56	-.05	.10	.13	.14
O_inqu4	.08	.55	.01	.17	.02	-.09
O_crea3	.10	.55	.05	.04	.15	-.04
O_unco1	-.06	.53	.10	-.04	.06	.11
C_dili1	.05	.51	.15	.46	.14	-.05
O_inqu3	.04	.51	-.03	.20	-.06	-.22
O_inqu2	.21	.50	-.18	.27	-.18	-.07
O_aesa2	.13	.43	.11	.04	.04	.11
O_crea1	.04	.39	.32	.20	.17	-.13
O_aesa4	.20	.39	-.09	.15	-.00	.29
H_sinc3	.10	.14	.66	.11	.05	-.09
H_gree3	.32	.03	.59	.16	-.05	.01
H_gree2	.27	-.05	.58	.08	-.02	.15
H_mode3	.37	-.04	.56	-.03	.08	.17
H_mode4	.45	-.14	.55	.10	.02	.08
H_gree4	.26	.09	.54	-.02	-.08	.02
H_sinc1	.05	.12	.52	-.00	-.05	-.14
X_socb3	-.10	.26	-.50	-.07	.14	-.07
C_prud2	.03	.24	.47	.46	.03	-.16
H_sinc4	.10	.07	.39	.12	-.03	-.20
C_prud1	.11	.19	.39	.20	-.14	-.09
H_sinc2	.26	.15	.30	.17	-.03	-.08
O_unco3	-.27	.16	-.30	-.05	.00	-.07
C_perf3	.16	.36	.15	.64	-.04	.03
C_orga2	.16	.20	.09	.63	-.09	.08
C_orga1	.19	-.04	-.00	.60	.02	.02
C_orga4	.05	.06	.35	.59	.12	-.08
C_orga3	.08	-.11	.16	.58	.21	-.06
C_dili2	.03	.40	.18	.54	.15	.01
C_perf4	-.05	.42	.06	.52	.15	-.02
C_perf1	.11	.33	.04	.48	-.11	.20
C_prud4	-.08	.13	.39	.44	-.06	.02
C_dili4	.10	.34	.41	.41	.13	-.03
C_perf2	-.08	.29	.36	.39	.08	.15
C_dili3	.04	.30	.35	.38	.19	-.20

Items	Components					
	1. A	2. O	3. H	4. C	5. X	6. E
A_for3	.24	.11	.06	-.29	.14	-.13
X_live4	.09	.03	.09	-.01	.74	-.09
X_soc1	-.00	.03	-.07	-.01	.61	.01
X_socb1	-.24	.26	.09	-.10	.58	-.13
X_socb4	-.14	.32	-.05	-.08	.57	-.27
X_live1	.01	.11	-.17	.17	.55	-.11
X_live3	.25	-.04	.22	-.06	.55	-.17
X_sses3	.13	-.02	.13	.06	.52	-.05
X_soc4	.23	.08	-.31	.05	.48	.08
X_soc2	.24	.03	-.34	.05	.46	.04
X_socb2	-.13	.25	-.16	.17	.41	-.22
X_soc3	.29	.03	-.24	.04	.37	.14
X_sses2	.08	-.07	-.29	.12	.33	.03
E_depe4	-.02	.10	.13	-.12	.32	.29
E_fear3	.03	-.03	-.23	.02	-.09	.59
E_anx1	.04	.03	-.01	.14	-.18	.54
E_depe1	.09	.04	-.07	.09	.29	.54
X_sses4	-.07	-.16	-.08	.18	.25	-.51
E_depe2	-.14	-.11	.12	-.39	.01	.50
E_fear4	-.11	-.24	-.02	-.31	.03	.49
E_anx2	-.15	.10	.20	-.11	-.20	.48
E_depe3	.17	.06	-.15	.02	.39	.47
E_sent4	-.29	-.15	-.10	-.16	.07	.47
E_sent3	.24	.13	-.09	.15	.06	.46
E_sent1	.27	-.01	-.13	.29	.11	.44
E_anx4	-.17	-.12	-.06	.15	-.23	.44
E_sent2	.39	.13	.03	.26	.09	.39
E_anx3	-.15	.12	.13	-.01	-.15	.37
E_fear1	.02	-.09	-.16	.28	-.26	.31
X_sses1	-.04	-.06	-.29	.11	.10	-.30
E_fear2	.01	-.15	.04	-.03	-.24	.29

Note. The first letter in the name of the item refers to the factor scale. The next four letters refer to the facet scale. The digit at the end refers to the item number within the facet scale. Altr = Altruism. The letter next to the component number indicates the corresponding HEXACO dimensions. Items that load the correct component above .30 are marked in bold.