Typological and dimensional approach at comparing the Giessen Test (GT) with the NEO-Five-Factor-Inventory (NEO-FFI)

Abstract

Objectives: This article reports comparisons of the Giessen Test (GT) with the NEO-Five-Factor-Inventory (NEO-FFI) based on a dimensional as well as on a typological approach.

Method: Data were collected from 1673 subjects (aged between 18 and 96 years) constituting a representative sample of the German population.

Results: The results indicate only moderate agreement (ranging from .25 to .61) between the subscales of the two personality inventories. The correspondence seems to be somewhat higher, when the typological approach was used instead of the dimensional approach.

Conclusions: The typological approach is less dependent on the underlying questionnaires and provides a useful extension of the dimensional approach.

Keywords: personality assessment, NEO-Five Factor Inventory, Giessen-Test, personality types

Introduction

The Five Factor Model (FFM) represents the dominating model for the description of human personality [1]. It postulates five largely independent and relatively broadly designed personality dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. These personality dimensions have proved to be reliable predictors of human experience and behaviour in a variety of different domains [2]. The applicability of the FFM for clinical diagnostics has been demonstrated in various studies [3]. In addition to the suitability of the FFM for clinical application it has also proved to be a frame of reference in health psychology research, as many health psychology constructs constitute combinations of the five dimensions of the FFM.
In German-speaking countries the NEO-Five Factor Inventory (NEO-FFI) [4] translated by Borkenau and Ostendorf [5] is the most frequently applied questionnaire for measuring the five factors. Although the authors of the FFM emphasize the usefulness of the model within the clinical context (e.g. [6]), in German-speaking countries the questionnaire for measuring the “Big Five” has not yet become widely accepted in applied diagnostics: Rather, the Giessen-Test (GT) by Beckmann, Brähler, and Richter [7] is one of the most frequently used questionnaires for clinical issues as recently shown by Roth and Herzberg [8]. As far as its concept is concerned the GT differs from common personality inventories as it is based on models of psychoanalysis and social psychology. In order to be able to further elaborate the significance of personality traits in the clinical context it was claimed to combine the different procedures for the comprehension of personality in a unified theoretical framework ([3], p. 278): “Without reference to a unified framework of personality, the plethora of constructs and methods of measuring them pose several problems for the progression of health related personality research.” In the following, we therefore pursue the question of what do NEO-FFI and GT have in common despite their different theoretical concepts. Therefore, both instruments were compared with each other on the dimensional as well as on the typological level.

Regarding the NEO-FFI different typologies were presented in the last years (e.g. [9], [10]) which proved to be significant in clinical studies as well (e.g. [11]). Here, the typology suggested by Herzberg and Roth [12], which differentiates among five personality types based upon the NEO-FFI might be considered the most solid classification at the moment (e.g. [13], [14]). The five prototypes can be described as follows: Resilient were characterized by low scores on Neuroticism and high scores on Extraversion, Agreeableness, and Conscientiousness and moderately positive scores on Openness to Experience. Overcontrollers had pronounced scores on Neuroticism, low scores on Extraversion and medium to low scores on Openness to Experience, Agreeableness, and Conscientiousness, respectively. Undercontrollers were characterized by high scores on Neuroticism, moderate scores on Extraversion, and Openness to Experience; and low scores on Agreeableness and Conscientiousness. Confident had medium scores on Neuroticism, Agreeableness, and Conscientiousness and moderate high scores on Extraversion and Openness to Experience. Finally, the Reserved tended to have low scores on Neuroticism, Extraversion, and Openness to Experience, and moderate positive scores on Agreeableness and Conscientiousness.

An essential advantage of the person-centred, typological approach is the fact that it goes into the configuration of personality traits within an individual and thus tries to describe individual characteristics on a personal, holistic level. Hence, it presents an alternative view to purely nomothetic, quantitative, variable-centred, and idiographic, qualitative case-centred approaches. On the one hand, the typological approach overcomes the reductionism of the variable-oriented approach, thus allowing conclusions on a person level and considers the variability concerning the covariation of variables within groups what corresponds with the complex, multidimensional, and interactional characteristics of human experience and behaviour.

Methods

The present investigation is based on a population representative sample (concerning age, education level, and sex) which is described in detail by Körner et al. [15]. In November 1999 a total of 1908 subjects aged between 18 and 96 years participated in this investigation. Participants were guaranteed that answers would be treated confidentially and anonymously. They received no benefits from their participation. The participants were administered the NEO-Five-Factor-Inventory (NEO-FFI) by Borkenau and Ostendorf [5] as well as the Giessen-Test (GT) by Beckmann et al. [7]. The NEO-FFI captures the five traits Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness with 12 items each and a five-category answer format per item. The GT captures the six dimensions Social Resonance, Pliancy, Control, Depressiveness, Reservedness, and Social Potency with a total of 40 bipolar statements (e.g. “I got the impression that I am rather patient...impatient”) whose relevance should be rated on a seven-category scale. For a better comparability of both methods the GT was not presented in the classic six-factor version but a five-factor version (without the scale Social Potency) which shows better psychometric characteristics than the six-factor version and is described in detail by Brähler and Beckmann [16] and Brähler and Brähler [17]. The subsequent analyses only include subjects whose data records were complete in both methods (N=1673; age: 18-96 years, M=47, SD=16; 54% female; 46% male).

Results

Table 1 shows the comparison of both methods on the dimensional level. As becomes apparent by the intercorrelation of the NEO-FFI-scales with the five scales of the GT, both instruments correspond with each other only moderately. Indeed, there are no clear correlations of the GT-scales with the dimensions of the FFM, the convergent correlations of both methods range from -.25 for Openness – Reservedness to .61 for Conscientiousness – Control. The medium convergent correlation over all five scales amounts to .48. However, it shows that the dimension Neuroticism on the NEO-FFI is reflected in high Depressiveness and a lack of Social Resonance on the GT. Extraversion on the NEO-FFI is mainly marked by low Reservedness on the GT, Conscientiousness primarily corresponds with the GT scale Control. On the other hand, the GT scales show only weak correlations with the dimensions “Agreeableness” and “Openness”; hence these dimensions of the FFM scarcely appear on the GT scales.
The findings substantially confirm previous studies about relations between NEO-FFI and GT [15], [18]. In order to realize a comparison on the typological level, five personality profiles were formed by cluster analysis of the GT scales, according to the two-level procedure suggested by Blashfield and Aldenderfer [19]. Here, an initial partition according to the method by Ward [20] was set up followed by a relocation according to the k-Means-method by MacQueen [21] (see also [10], [11], [13]). Figure 1 shows the mean (z-standardized) GT profiles of the resulting five prototypes. These were set in cross-tabular relation to the five personality types that were determined by Herzberg and Roth [12] by means of the NEO-FFI. As shown in Table 2, significant associations of both distributions are found ($\text{chi}^2_{(16)}=1067$, $p<.001$, contingency coefficient = .62). The $\kappa$-coefficient chosen as dimension of congruency according to Cohen amounts to $\kappa=.33$ ($p<.001$). This may indicate a moderate correspondence only as well, but there is noticeable overlap between both typologies.

**Discussion and conclusions**

In summary, our results allow two different conclusions: (1) there are only moderate correlations between the GT and the NEO-FFI with no clear equivalence of the respective scales on both instruments. (2) Clearer associations

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### Table 1: Product-moment correlations between the GT scales and the scales of the NEO-FFI ($N=1673$)

|               | Neuroticism | Extraversion | Openness | Agreeableness | Conscientiousness |
|---------------|-------------|--------------|----------|---------------|-------------------|
| Social Resonance | - .52***    | .57***       | .18***   | .34***        | .52***            |
| Pliancy       | .18***      | -.34***      | -.21***  | .30***        | -.05              |
| Control       | -.31***     | .13***       | .09***   | .32***        | .61***            |
| Depressiveness | .58***      | -.33***      | .08***   | -.02          | -.21***           |
| Reservedness  | .33***      | -.54***      | -.25***  | -.28***       | -.25***           |

*** $p<.001$ (two-tailed)

### Table 2: Frequency distribution in the GT-prototypes by different Big-Five types

| NEO-FFI Types¹  | n (f %) | type 1 | n (f %) | type 2 | n (f %) | type 3 | n (f %) | type 4 | n (f %) | type 5 | n (f %) |
|-----------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Resilient       | 264 (15.78) | 156 (59.09) | 5 (1.89) | 16 (6.06) | 41 (15.53) | 46 (17.42) |
| Overcontrolled  | 209 (12.49) | 1 (0.48) | 105 (50.24) | 53 (25.36) | 42 (20.10) | 8 (3.83) |
| Undercontrolled | 403 (24.09) | 18 (4.47) | 35 (8.66) | 277 (68.73) | 36 (8.93) | 37 (9.18) |
| Confident       | 372 (22.24) | 128 (34.41) | 11 (3.96) | 80 (21.51) | 112 (30.11) | 41 (11.02) |
| Reserved        | 425 (25.40) | 46 (10.82) | 38 (8.94) | 98 (23.06) | 105 (24.71) | 138 (32.47) |
| Total           | 1673 (100.00) | 349 (20.86) | 194 (11.60) | 524 (31.32) | 336 (20.08) | 270 (16.14) |

Note: ¹ see [12] for details

![Figure 1: Personality prototypes based on the GT-scales (characterized by their z-score pattern)](image-url)
are found in the typological analysis, i.e., on the person-oriented level, than on the variable-oriented level of the particular scales. This result could be an indication of the fact that personality types whose traits are considered as patterns with certain configurations (see in detail [22]) might be more independent of the instruments used for their assessment than dimensionally determined traits. They could thereby cover a larger scope. The typological description considers the correlations of the particular dimensions of the respective instruments. Therefore, the resulting multi-dimensional characterization is more comprehensive and less dependent on the selection of the assessment instruments. Thus, e.g., the high Depressiveness in combination with marked Reservedness, high Pliancy, and low Social Resonance – as found in type 2 – is a constellation of traits whose clinical relevance and need for treatment are obvious. The validity of the typological approach whose usefulness for clinical application and research has already been demonstrated in first studies [11] should be investigated in future studies. Here, the typological research should not be confined to isolated prototypes, as has happened in medical history (e.g. type-A behaviour, see [23]) and is happening again (e.g. type-D personality, see [24]) but it should work on the basis of an established model of personality – as being represented by the FFM.

However, it should be noted that the results are limited by the fact that the NEO-FFI-types as well as the GT-types are only based on self-report data. Thus, for the time being, the proposed five-cluster solution is only valid for measuring the personality by self-reports. Another limitation of the typological approach that should not be ignored is the possibility that the types resulted in our study are not culture invariant. While cross-cultural research on personality traits has revealed that Big-Five inventories provide reliable and valid measures of personality in a wide variety of cultures, the appropriateness of the cluster assignment still needs to be established empirically.

Notes
Conflicts of interest
None declared.

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