To know personality is to measure it

Introducing a Dutch brief form of the Multidimensional Personality Questionnaire

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Chapter 1

General introduction

"The outstanding characteristic of man is his individuality. He is a unique creation of the forces of nature. Separated spatially from all other men he behaves throughout his own particular span of life in his own distinctive fashion. It is upon the cell nor upon the single organ, nor upon the group, nor upon the species that nature has centered her most lavish concern, but rather upon the integral organization of life processes into the amazingly stable and self-contained system of the individual living creature" (Allport, 1937, p. 3).

Some may be surprised that the founder of the trait approach to personality psychology, Gordon Allport, stressed the idiosyncrasy of personality. After all, in trait psychology, personality is deduced from individual differences within groups of people. This apparent contradiction can be understood by the distinction between what Allport called individual and common traits. An individual trait is a unique dynamic disposition within the person while a common trait represents a generalized abstraction of shared aspects of these individual traits. Following this reasoning, individual traits do *exist*, while common traits, strictly speaking, do not. However, common traits have the favorable quality that individuals' standings on them can be quantified and that individuals can therefore be compared to each other. Also, it seems reasonable to assume that common traits resemble many individual traits because all people have been exposed to the same evolutionary demands and biological growth processes. Allport elegantly illustrated the relation between individual and common traits:

"...let us suppose that the investigator wishes a scale for the purpose of comparing individuals in respect to the common (continuum) trait, ascendance-submission, mentioned above. He recognizes that he is concerned only with an aspect of neuropsychic dispositions that differ in each person. (There are endless varieties of leaders, dominators, aggressors, followers, yielders, and timid souls). What he does is to shut his eyes to the uniqueness of each case, and then seek a uniform schedule of test items that will force each individual into the same continuum. He selects plausible items from common cultural situation, determines their diagnostic significance for the dimension he has in mind, standardizes and validates his scale as a whole, and emerges at last with a 'personality test'" (Allport, 1937, p. 3).

Thus, trait psychology deals with common traits, assuming that these traits represent abstractions of individual traits. The present thesis is concerned with the assessment of common traits. More specifically, a Dutch brief form of the Multidimensional Personality

Questionnaire (MPQ-BF-NL) is introduced and a number of validation studies on it are described.

The origin of the Multidimensional Personality Questionnaire

The Multidimensional Personality Questionnaire (MPQ; Tellegen & Waller, 2008) is a so-called broadband personality inventory, which means that the intention is to cover the full domain of normal personality functioning. Auke Tellegen started work on the instrument in the seventies of the last century in the United States. He was interested in personality characteristics potentially responsible for individual differences in hypnotic susceptibility, but over time the instrument developed into an instrument covering much broader areas of personality. He constructed and selected items that had to do with, among other things, dissociative tendencies and sensory experiences. Because he wanted to find out how these indicators were related to contemporary knowledge about personality he examined the associations between these indicators and indicators for the traits Neuroticism and Extraversion. The new items behaved relatively independently from Neuroticism and Extraversion items and formed a separate trait factor, termed Absorption. This trait was not part of personality models at the time (and still is not part of other models than the MPQ). Multiple cycles followed of what Cattell has called an Inductive-Hypothetico-Deductive (IHD; Cattell, 2014) procedure resulting in the current instrument. Established theories about personality together with empirical observations led to hypotheses about the domain of personality; items were selected and constructed; factor analytic procedures were applied, and the outcome of these procedures informed a subsequent round of hypotheses; the questionnaire was adapted, and so on and so forth.

The current MPQ comprises 11 primary traits that coalesce into 3 higher-order constructs. Positive Emotionality (PEM) is composed of Wellbeing (WB), Social Potency (SP), Achievement (AC) and Social Closeness (SC); Negative Emotionality (NEM) consists of Stress Reaction (SR), Aggression (AG) and Alienation (AL); Constraint (CON) is the higher-order construct for Control (CO), Harm Avoidance (HA), and Traditionalism (TR). Absorption (AB) cannot be satisfyingly allocated to any of the three higher-order factors, and consequently has a 'status aparte'. In Table 1.1 descriptions of high scorers for each of the primary trait scales are given.

Table 1.1. Descriptions of high scorers for each of the MPQ primary trait scales

Scale	Description of a high score
Wellbeing	Has a happy, cheerful disposition; feels good about self and sees a bright future
Social Potency	Is forceful and decisive; fond of influencing others; fond of leadership roles
Achievement	Works hard; enjoys demanding projects and working long hours
Social Closeness	Is sociable, likes people, and turns to others for comfort
Stress Reaction	Is nervous, vulnerable, sensitive, prone to worry
Aggression	Hurts others for own advantage; will frighten and cause discomfort for others
Alienation	Feels mistreated, victimized, betrayed, and the target of false rumors
Control	Is reflective, cautious, careful, rational, planful
Harm Avoidance	Avoids excitement and danger; prefers safe activities even if they are tedious
Traditionalism	Desires a conservative social environment; endorses high moral standards
Absorption	Is responsive to evocative sights and sounds; readily captured by entrancing stimuli

Five-factor models and their lexical origin

Although the MPQ has been extensively used in research (see Tellegen & Waller, 2008 for a selection of relevant applications), it does not represent the most applied personality model. The most widely accepted personality model today, actually comprising a group of highly related models, is the Five-Factor or 'Big Five' Model. In these models personality is divided into Neuroticism (or reversed, Emotional Stability), Extraversion, Openness (or Intellect), Conscientiousness and Agreeableness (Goldberg, 1990; McCrae & Costa, 1987). Depending on the specific model there are slight (but sometimes highly relevant) variations in the content of the factors. Neuroticism for example, as operationalized by the NEO (McCrae & Costa, 1987) incorporates ego-dystonic impulsivity, while this aspect is not incorporated in this scale in other five-factor instruments (Tellegen, 1993). The five-factor models are the result from the psycholexical approach to personality, initiated by Allport and Odbert (1936). Central to this approach is the lexical hypothesis which states that *"those individual differences that are of most significance in the daily transactions of persons with each other will eventually become encoded into their language"* (Ashton & Lee, 2005, p. 6). Consequently, the dictionary should contain all trait terms that are of relevance to personality. Following this thinking the ultimate goal of personality psychology would be to summarize these trait words into a satisfactory taxonomy. In the forties of the last century attempts were made to meaningfully summarize all the trait words in the English lexicon by rationally dividing them into categories (Allport & Odbert, 1936). Later, factor analytic strategies were employed to find a limited number of dimensions underlying the trait words (Cattell, 1945), eventually resulting in convergence to a model with five factors

(Fiske, 1949; for an excellent history on five-factor models of personality see John & Srivastava, 1999).

Because of the lexical basis of the five-factor models their origin is largely inductive (although the issue of what words to select introduces a deductive component). Herein lies one of the most important conceptual differences between the five-factor models and the model underlying the MPQ. As mentioned above, an Inductive-Hypothetico-Deductive approach was taken in the development of the MPQ, which means that theoretical knowledge is explicitly taken into account. Because of their sole reliance on words used by people in their daily transactions, lexical models have been criticized to be layperson models of person perception (Block, 1995). The instrument construction procedure to undergird the MPQ is intended to transcend folk-psychological person perception by incorporating not only terms from the dictionary, but also adding content that is hypothesized to refer to accumulated knowledge about traits that exist independently from people's perceptions (Tellegen, 1991b, 1993). In fact, the model underlying the MPQ departs from a realist trait perspective, which entails that common traits can be good approximations of individual traits that exist independently of their definition.

The bigger picture – integrating personality models
The shared aim of broadband common trait models is to capture a broad domain of individual differences in personality into a concise set of traits. However, they define different constructs to describe the domain. The question then arises how these models are interrelated. A mapping of the associations between the models inform about their shared structure, and therefore about the nomological net (i.e. the manifestation and interrelation) of the constructs. Also, it provides a framework within which results gathered from various models can be compared and contrasted.

Work in which data from different personality instruments are modeled together shows that the different models are nested and are structured hierarchically. (Digman, 1997; Saucier, 2008). In Figure 1.1 the hierarchical model of personality about which reasonable consensus exists in the literature is displayed. Higher up in the hierarchy the traits are more general while lower they are more specific. The traits represented by the five-factor models are situated for the most part intermediate the lower- and higher-order constructs of the MPQ. Associations between higher-order MPQ constructs and five-factor traits show that five-factor Agreeableness and Conscientiousness can be thought to be more specific

instances of MPQ Constraint and that Extraversion and Openness fall under Positive Emotionality. Neuroticism however, seems to be on the same level as Negative Emotionality. The relations between the five-factor traits and the MPQ lower-order constructs are more complex. MPQ Stress Reaction and Alienation are related to Neuroticism, MPQ Control is mostly related to Conscientiousness and MPQ Social Closeness to Extraversion. Harm Avoidance and Traditionalism are not well represented by the five-factor models. As can be inferred from relations shown in the figure, the other MPQ traits can be explained by combinations of five-factor traits (see chapter 2; Markon, Krueger, & Watson, 2005; Tellegen & Waller, 2008). Just as Absorption cannot be satisfyingly allocated to a higher-order MPQ construct, in the hierarchical ordering of personality constructs it also stands relatively apart, and is therefore omitted from the figure.
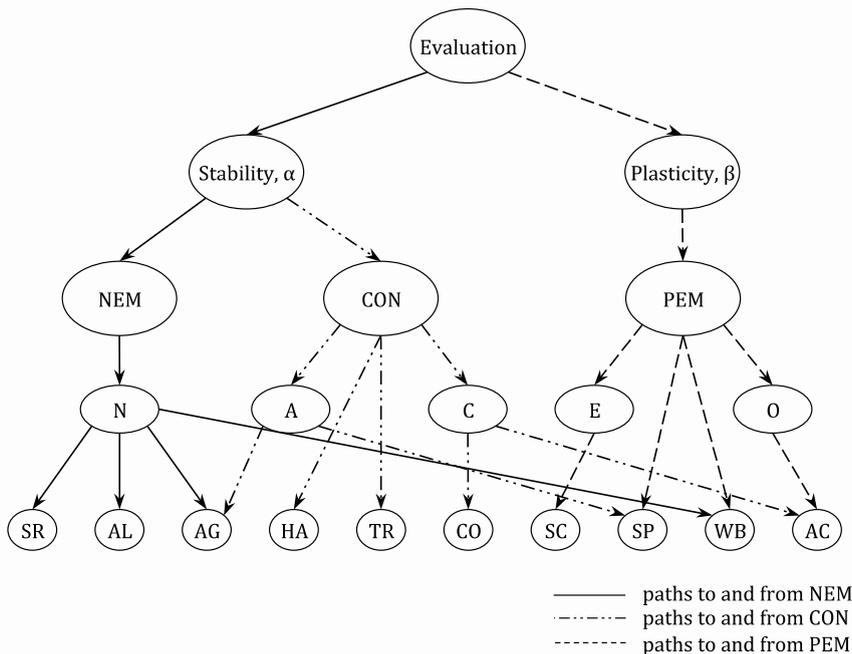

Figure 1.1. The hierarchical structure of personality. PEM = Positive Emotionality; NEM = Negative Emotionality; CON = Constraint; E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness to experience; WB = Wellbeing; SP = Social Potency; AC = Achievement; SC = Social Closeness; SR = Stress Reaction; AG = Aggression; AL = Alienation; CO = Control; HA = Harm Avoidance; TR = Traditionalism.

The higher-order constructs of the MPQ can also be considered to be more specific derivations of less specific constructs. Negative Emotionality and Constraint coalesce into a trait that has been labeled Alpha or Stability, while Positive Emotionality has clear

connections to a trait known as Beta or Plasticity (DeYoung, 2006; Digman, 1997). In turn, these traits are subsumed by the most general construct of them all, which can be labeled Evaluation. At the most basic level individual differences in personality seem to be concerned with differentiating between more and less desirable characteristics of people (Saucier, 2008). The above shows that the model underlying the MPQ and the five-factor operationalizations of personality can be mapped onto each other and onto even more parsimonious descriptions of personality to provide a clear picture of the full domain of individual differences in personality. The hierarchical structure of personality as presented in Figure 1.1 does not only inform about the nomological net of the full domain of personality, it also nicely illustrates that the MPQ provides coverage of two levels of the hierarchy, and represents on the lower level more aspects of the higher-level constructs than the five-factor models do.

Models of personality pathology

Both lexical models and the MPQ are concerned with individual differences in behavior, cognition and emotion in general. Although pathology is part of the full domain of personality, and is therefore also covered by these models, (e.g. anxiety is central to MPQ Stress Reaction and impulsivity to MPQ Control), personality pathology is not principally attended to. Models designed specifically for the description of personality pathology generally have their basis in the tradition of medicine. The most widely used model, at least in the U.S. and in the Netherlands, is described in the Diagnostic and Statistical Manual of Mental Disorders, for which the 5th edition is the most recent version (DSM-5; American Psychiatric Association, 2013). In accordance with the medical model in which either one does or does not suffer from an illness (Robins & Guze, 1970), the DSM provides a taxonomy of categorical syndromes of personality pathology. Because of the categorical nature of the taxonomy it is not possible to be affected to a certain degree by, for example, Borderline Personality Disorder (BPD). Someone either meets the criteria for diagnosis or does not (although severity of the disorder differs for people suffering from BPD).

Alongside categorical taxonomies, dimensional models of personality pathology have been proffered. Most topical is the alternative model described in section III of DSM-5, which is a five-factor model highly related to the group of five-factor models described above (Skodol, 2012), and which can be assessed with the Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012). In the PID-5, the scales are labeled in a way so to represent the pathological side of the constructs (i.e. Negative Affectivity instead

of Neuroticism; Detachment instead of Extraversion; Psychoticism instead of Openness, Disinhibition instead of Conscientiousness and Antagonism instead of Agreeableness). Notably Psychoticism diverges substantially in content from Openness to incorporate odd behavior and thinking. The intention of this proposed dimensional model is to solve some fundamental problems with categorical nosology in clinical assessment (i.e. homogeneity, heterogeneity, domain representation, arbitrary cut-offs), but also to offer an empirically validated alternative to the rationally constructed current taxonomy (Widiger & Trull, 2007).

Research on covariation of symptoms and syndromes in psychopathology converges with the hierarchical structure of personality as described above. (Clark, 2005; Markon et al., 2005). This shows that, although the traditions of personality and personality pathology developed separately, their domains are highly related, if not the same.

The clinical utility of the MPQ

The MPQ has been shown to have particular utility for research in clinical contexts. For example, the MPQ can distinguish between internalizing and externalizing conditions (Krueger, McGue, & Iacono, 2001), with NEM being associated with a broad range of psychiatric conditions, while especially low CON scores are present in externalizing behaviors and disorders. Furthermore, it has been found that low PEM is specifically related to a subset of disorders, including major depressive disorder and social anxiety (Sellbom, Ben-Porath, & Bagby, 2008a). Moreover, the MPQ model has also been profitably used to understand within-syndrome heterogeneity. For example, Miller used the higher-order dimensions to derive subtypes of Post Traumatic Stress Disorder (PTSD), where high NEM predicted PTSD in general, and where low PEM and low CON differentiated between internalizing and externalizing forms of the syndrome respectively (Miller, 2003). Further, McGue and others showed that although high NEM in combination with low CON is indicative of alcohol abuse (McGue, Slutske, Taylor, & Iacono, 1997) the lower the score of a person on CON, the more likely it is that the person also abuses other drugs (McGue, Slutske, & Iacono, 1999). Lastly, in general, the MPQ primary trait scales were slightly superior to other widely used scales in terms of explained variance in psychopathology (Grucza & Goldberg, 2007).

Aims and overview of the present thesis

In short, the MPQ has (at least) three conceptual appealing characteristics. First, the model underlying the MPQ incorporates theoretical knowledge as well as empirical observations in its operationalization of personality. Second, the MPQ comprises two levels of the personality hierarchy. Third, the MPQ has proven its utility in clinical settings. Consequently it seems like a meaningful endeavor to develop a form of the instrument suitable for Dutch speakers. In addition to developing a Dutch adaptation of the MPQ, the other aim of the present thesis is to contribute to our knowledge about personality more generally.

Chapter 2 of the present thesis commences with the development of a Dutch brief form of the MPQ (MPQ-BF-NL). Replicating the analytical strategy used for development for the U.S. brief form of the MPQ, items that showed to be good indicators of the intended constructs in a Dutch representative sample were selected. Because items that functioned specifically well for Dutch respondents were selected, the selection of items is not identical to the U.S. brief form of the MPQ (MPQ-BF; Patrick, Curtin, & Tellegen, 2002). Also some basic data on the psychometric properties of the resulting instrument are presented as well as convergent and divergent patterns in the relations with related instruments. In order to be able to generalize findings from studies from the United States to the Dutch context it should be established that the Dutch adaptation measures the same constructs as the original U.S. forms do. Therefore, in chapter 2 we also report converging associations in a U.S. sample between the scales assessed with the Dutch selection of the items and the full length instrument.

However, with the establishment of converging associations between different forms of an instrument within the *same* sample (i.e. the MPQ-BF-NL and the MPQ in a U.S. sample), one cannot conclude that an instrument measures the same constructs in the same way in *different* samples (i.e. the MPQ-BF-NL in U.S. versus Dutch samples). Establishing this equivalence is important for being able to meaningfully compare groups to each other. Therefore, in chapter 3 we go a step further in the examination of equivalence by inquiring measurement invariance of the MPQ-BF-NL across representative U.S. and Dutch samples. We show that the MPQ-BF-NL is not fully measurement invariant across U.S. and Dutch samples. Furthermore we show that mean level trait comparisons are affected by the lack of measurement invariance and that correcting for the absence of measurement invariance sheds a more meaningful light on cross-cultural differences.

Consecutively, chapters 4 and 5 concern the validity and utility of the MPQ-BF-NL in clinical contexts. Chapter 4 describes a study into measurement invariance across (Dutch) general and clinical samples. As for the comparison between U.S. and Dutch samples, this investigation is important for comparing mean trait levels of groups. Moreover, this investigation is also informative about the common structure of personality and psychopathology. We show that the MPQ-BF-NL in its multidimensional totality is measurement invariant across a general and a clinical sample, which adds support to the notion that personality is not qualitatively different in clinical groups compared to the general population. This finding is in conflict with a categorical nosology as presented in the DSM, and is in favor of dimensional models as the one presented in Section III of the DSM-5.

Chapter 5 further shows how the MPQ-BF-NL can add to our understanding and assessment of personality pathology. In Section III of the DSM-5 the traditional categorical DSM diagnoses are approximated by specific combinations of trait levels as assessed by the PID-5. However, these profiles were defined rationally. We empirically distinguish between trait profiles in the MPQ-BF-NL and show how these profiles are embedded in the general population to add to their validity.

Finally, in chapter 6 the MPQ-BF-NL trait scales are related to brain structure using Magnetic Resonance Imaging (MRI). The examination of associations of personality traits with basic biological indices seems particularly interesting from the viewpoint of the MPQ because of its trait realistic basis. We show that neither lower-order or higher-order MPQ-BF-NL trait scores are robustly related to brain structure. This suggests that a direct link between personality and neuroanatomy does not exist. This is not to say that personality does not (partly) have a biological basis, but that it is likely that it is the result of complex interactions between basic brain processes and experience.