

Does personality vary across ability levels? A study using self and other ratings

René Mõttus *, Jüri Allik, Helle Pullmann

*Department of Psychology, University of Tartu, Estonia
The Estonian Centre of Behavioural and Health Sciences, Tiigi 78, Tartu 50410, Estonia*

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Abstract

To test the hypothesis that personality structure differs across levels of cognitive ability, personality traits of 154 participants of various ages and educational backgrounds were rated by themselves and two well-informed judges using the Estonian Personality Item Pool NEO (EPIP-NEO; Mõttus, Pullmann, & Allik, 2006). When participants were divided into two groups on the basis of their ability test scores, a relatively high cross-observer agreement was observed in the both ability groups. Although in the high-ability group personality traits were slightly less correlated and factor structures were somewhat more similar to the normative American self-report structure of the NEO-PI-R, there was no evidence that personality structure differs substantially across ability groups.

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1. Introduction

The relationship between personality and cognitive ability has been conceived in opposite ways. One approach, represented best by Cattell (1957), maintains that intelligence is so closely intertwined with personality that it must be considered an inseparable part of personality dispositions. Indeed, it seems intuitively reasonable to expect individuals who are more open to experiences to receive more information and those with higher level of conscientiousness to be more consistent in their studies, which, in turn, could result in

* Corresponding author. Fax: +372 7376 152.
E-mail address: Rene.Mottus@ut.ee (R. Mõttus).

higher scores on intelligence tests. However, contrary to expectations, most studies report weak and frequently non-significant correlations between ability and personality constructs (for a review see [Ackerman & Heggestad, 1997](#)). Within the Five-Factor Model of Personality (FFM), Openness to Experience is the only dimension that systematically tends to correlate with cognitive ability, yet these two are considered to form two separate dimensions ([McCrae & Costa, 1985](#); but see also [Chamorro-Premuzic & Furnham, 2004](#)). On the basis of low and non-systematic association, [Eysenck \(1994\)](#) has promoted the conclusion that personality dispositions and intelligence are mutually independent dimensions of individual differences (see also [Zeidner & Matthews, 2000](#)).

Nevertheless, the possible interaction of personality and cognitive ability or other aspects of cognition has gained continuing interest ([Chamorro-Premuzic & Furnham, 2004](#); [Zeidner & Matthews, 2000](#)). It is suggested, for example, that individuals with different levels of ability might use their intellectual resources differently to express their individuality ([Allik, Laidra, Realo, & Pullmann, 2004](#); [Allik & Realo, 1997](#)). One line of research has concentrated on the possible relation of ability to the structure of personality. As a variant of Spearman's Law of Diminishing Returns ([Spearman, 1927](#)), it has been proposed that individuals with higher cognitive ability have more differentiated personalities ([Brand, Egan, & Deary, 1994](#)). According to the hypothesis, people with higher ability have more choices or freedom in development, leading to a more differentiated structure of personality ([Austin, Deary, & Gibson, 1997](#); [Austin, Hofer, Deary, & Eber, 2000](#)). As a result, those who are intellectually more talented might need a greater number of dimensions to describe their personalities. However, the support for the differentiation hypothesis has been modest at best. Contrary to expectations, [Austin and her colleagues \(1997\)](#) did not observe higher intercorrelations between personality traits in the group of lower ability. Nonetheless, in a more recent study [Austin, Deary, Whiteman and their colleagues \(2002\)](#) reported that the correlation between Eysenck's Psychoticism and Neuroticism scales decreased with the higher levels of ability. A similar tendency for decreasing correlations between personality dimensions with increasing age and cognitive ability has been reported in an adolescent sample ([Allik et al., 2004](#)).

There have been several other attempts to demonstrate that self-reported personality structure depends on the cognitive ability of the respondent. For example, [Shure and Rogers \(1963\)](#) found that structure of self-reported personality traits was slightly different at different levels of ability. More recently, [Toomela \(2003\)](#) claimed that the structure of personality is less developed among those who think in "everyday concepts" and score lower on tests of cognitive abilities. Indeed, it was found that a typical five-factor structure of the Revised NEO Personality Inventory (NEO-PI-R; [Costa & McCrae, 1992](#)) was less clear or nearly absent in subgroups of those men who used primarily "everyday concepts" and had lower scores in an intelligence test. Although a reanalysis of Toomela's data ([Allik & McCrae, 2004](#)) demonstrated that even in the groups of extreme "everyday concept" use and lowest cognitive ability the NEO-PI-R structure resembled the "normative" structure ([Costa & McCrae, 1992](#)), there were still some inevitable differences in personality traits across ability groups. From these observations, however, it is not possible to conclude that individuals with modest cognitive ability have underdeveloped and less differentiated personalities. The differences in personality structure across different ability groups might be due to measurement error in the self-reports, instead of real variations in the structure of personality, which can be estimated, among other ways, by the ratings of external observers ([Allik & McCrae, 2004](#)).

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