

## A Faceted Eye on Intellectual Giftedness: Examining the Personality of Gifted Students Using FFM Domains and Facets

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The study examines the personality profile of gifted vs. average-ability students from the perspective of the FFM. The issue was approached by (1) reviewing the literature for well-established personality characteristics of the gifted, (2) establishing correspondences between these traits and FFM domains/facets, and (3) formulating a domain and a facet-level model which were hypothesized to discriminate significantly between gifted and nongifted students. The domain-level model consisted of Openness and Agreeableness. The facet-level model included 14 traits: Anxiety, Impulsiveness, Gregariousness, Assertiveness, Fantasy, Feelings, Aesthetics, Ideas, Compliance, Modesty, Tendermindedness, Order, Achievement, and Deliberation.

The models were tested on three samples ( $N_1=515$  high-school students, 155 gifted;  $N_2=132$  psychology students, 28 gifted;  $N_3=443$  psychology students, 91 gifted). Results indicate that the domain-level model does not discriminate significantly between gifted and nongifted students in each sample, whereas the proposed 14-facet model yields a significant discrimination across all samples. The latter model may be further adjusted by removing facets which proved inconsistent or unsubstantial in distinguishing between the two groups. This yields a 7-facet discriminant function, which is also significant across samples, indicating that gifted students are consistently distinguished by a combination of high Ideas, Fantasy, Aesthetics, and Assertiveness, but low Gregariousness, Modesty, and Tendermindedness. Educational implications and limitations are discussed.

Keywords: *(intellectual) giftedness, personality traits, FFM (Big-Five) domains and facets, NEO-PI-R*

Considerations of intellectual giftedness are pervaded by references to personality attributes which are supposed to be the hallmark of gifted individuals. Indeed, one need only browse through the various checklists designed for the identification of gifted students to see that descriptors of intellectual qualities are regularly supplemented by items referring to the subject's noncognitive functioning (see Perleth, 2010 for a comprehensive review of checklist-items used in gifted identification). Are we right to assume that gifted individuals

differ from the norm not only in terms of their cognitive capacities, but also with respect to their personality dispositions?

The issue has been on the list of research topics practically since the inception of the field; it was empirically addressed as far back as the 1920s, in the first decade of Terman's *Genetic Studies of Genius*. Terman (1926) found that the intellectually gifted outscored the controls on a battery of 7 character tests (e.g., probing into trustworthiness and emotional stability), as well as on teacher and parent ratings of conscientiousness, truthfulness, self-confidence, will power, and leadership.

Subsequent (quantitative) research tends to confirm that there are certain peculiarities in the personality profile of gifted samples when compared to nongifted peers; however, findings of no differences between the two groups have also commonly been observed (see Olszewski-Kubilius, Kulieke, & Krasney, 1988 for an evaluation of research findings on the personality dimensions of gifted individuals as rather inconsistent; see also Heller, 2001 for a report of surprising lack of differences between the gifted and nongifted group on most of the employed noncognitive measures in the Munich Longitudinal Study). In light of these inconsistencies, it is important to raise the question: on which aspects of personality have the gifted actually been found to differ from the norm?

In reviewing the empirical literature for *well-established personality differences* between gifted and nongifted samples we will be focusing mainly on traits and types, to the exclusion of other personality constructs such as self-concept, attitudes, etc. Also, we will be organizing our review around those dispositions that have repeatedly drawn the attention of giftedness researchers and, in some instances at least, been the subject of large-scale comparison studies. These include: Jungian psychological types, social dominance, sensitivity/overexcitability, perfectionism, and emotional stability. A separate section of the Introduction will be devoted to an analysis of the role of FFM traits in distinguishing between gifted and average-ability students; this shall also serve as the immediate input for formulating the purpose of the current study.

## I TRAITS AND TYPES OF THE INTELLECTUALLY GIFTED: A REVIEW OF THE LITERATURE

**Psychological types.** From Hawkins's (1997) comprehensive survey, to Sak's (2004) more recent synthesis of research, to the latest inquiries into psychological types of the gifted by Tracy Cross and his colleagues (Cross, Cassady, & Miller, 2006; Cross, Speirs Neumeister, & Cassady, 2007) – research with the Myers-Briggs Type Indicator (MBTI) has consistently found gifted samples to display a particular pattern of preferences for Extraversion/Introversion (E/I), Sensing/Intuition (S/N), Thinking/Feeling (T/F), and Judging/Perceiving (J/P).

In specific, the gifted have been found to exhibit a distinct orientation towards N and NP personality types. Across studies, 65–75% of participants included in gifted samples (as opposed to roughly 30% of the general population) report an orientation toward N, which reflects a tendency to go beyond the factual

and deal with abstract and hidden meanings in situations, to be imaginative and possibility-minded, and to favor tasks that involve speculation, interpretation and insight. The overrepresentation of P types among the gifted suggests that, in comparison to the general population, they are more likely to adopt a flexible and adaptable lifestyle (rather than a structured one), to keep options open, and delay decision making.

Research with the MBTI has further revealed that the gifted display a stronger affiliation with T than the general population. The higher incidence of T types in gifted samples indicates that, compared to the norm, they are more inclined to take a tough-minded, non-empathetic approach to decision making, i.e., to base their decisions on logic, objectivity, and impersonal facts, rather than on personal concerns and care for the people involved.

Finally, MBTI studies have shown that the gifted split approximately 50/50 on the I/E dimension, but may still be described as more introverted (i.e., reflective and reserved, comfortable being alone, less gregarious and outgoing) than the general population, since the latter has been found to exhibit a distinct preference for E.

In sum, when compared to the normal population, the gifted report greater orientations toward I, N, T, and P, with the most pronounced difference appearing on the S/N dimension. In terms of the 16 MBTI types, the most common combinations to appear within gifted samples are INFP, INTP, ENFP, ENTP, as opposed to ESTP, ESFP, ESTJ, ESFJ in nongifted groups.

**Social dominance.** More than simply introverted, the gifted have been described as fit for both solitude, and for standing their ground when around others; labels attached to them in the case-study literature include: independent, self-directed, willful, and non-conforming (Winner, 1996). Although these personal qualities have not often been the subject of quantitative comparison studies, there is still a solid body of empirical evidence that testifies to differences between gifted and nongifted samples in terms of assertiveness and social dominance. In their seminal research on talented teenagers, Csikszentmihalyi, Rathunde, and Whalen (1993) found that the gifted group scored significantly higher on the Dominance and Exhibition scales of the Jackson Personality Research Form (PRF). The same study has also found gifted teens of both genders to score lower on Abasement, with gifted boys additionally scoring higher on Aggression, and gifted girls outscoring their nongifted counterparts on Defenceence.<sup>1</sup> Taken together, the above findings suggest that gifted individuals are indeed more socially controlling, protective of self, reluctant to accept criticism, noncompliant, and argumentative.

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1 It should be noted here that the Dominance and Exhibition scales of the PRF have consistently been found to load on the same factor, labeled in the literature as „Social Control“, „Extraversion“ or „Outgoing, Social Leadership“, whereas the Abasement, Aggression, and Defenceence scales seem to define the PRF „Aggression“ or „Self-Protective Orientation“ factor (see e.g., Jackson, Ashton, & Tomes, 1996; John, Naumann, & Soto, 2008; Paunonen, Jackson, Trzebinski, & Forsterling, 1992).

**Sensitivity/Overexcitability.** Another personality characteristic readily associated with giftedness is heightened sensitivity (see e.g., Lovecky, 1992; Silverman, 1994). As Mendaglio (1995) has pointed out, the notion of sensitivity has been used in the literature to refer to many different things, encompassing both intrapersonal/interpersonal and cognitive/affective elements (e.g., sensitivity to others, sensitivity to injustice and inconsistencies, aesthetic sensitivity, emotional intensity). Here, we have focused primarily on aspects of sensitivity covered by the concept of overexcitability (OE) and operationalized by either the OEQ, the OEQII, or the ElemenOE.

The notion of OE, stemming from Dabrowski's theory of positive disintegration, refers to an expanded and intensified manner of experiencing the world, which may take on either one or a combination of the following five forms: Intellectual, Imaginational, Emotional, Sensual, and Psychomotor (Piechowski & Colangelo, 1984). Studies exploring differences between gifted and nongifted samples on the OEs altogether lend strong support to the hypothesis that the intellectually gifted would score higher on Intellectual OE, and at least partial support to the general expectation that they should also excel on Emotional and Imaginational OEs (Ackerman, 1997; Bouchard, 2004; Bouchet & Falk, 2001; Miller, Silverman, & Falk, 1994; Piechowski & Colangelo, 1984; Siu, 2010; Tieso, 2007; Wirthwein & Rost, 2011; Yakmaci-Guzel & Akarsu, 2006; see also Mendaglio & Tillier, 2006 and Mendaglio, 2010 for comprehensive reviews of relevant research).<sup>2</sup> Such findings implicate that the gifted are exceedingly passionate about the pursuit of knowledge and truth through questioning, analysis and discovery (Intellectual OE), likely to engage in elaborate daydreams/fantasies and the use of imagery and metaphors (Imaginational OE), and to experience deep-felt, complex emotions and intense affective relations to people, things, and places (Emotional OE).

*Sensitivity beyond the OEs.* Findings of heightened Intellectual OE in gifted samples are corroborated by the results from Csikszentmihalyi et al.'s (1993) study, in which the gifted were found to score higher on the Understanding and Sentience scales of the PRF, indicating a distinct appreciation for the intellectual/aesthetic. Similarly, findings of heightened Imaginational OE concur with the results of Dunn et al. (2004), who observed higher levels of Fantasy-proneness (measured via the ICMIC) in students of high IQ.

**Perfectionism.** One further characteristic frequently mentioned in accounts of giftedness is perfectionism. Whitmore (1980) saw it as the "most overlooked and influential of those traits distinctly associated with individuals of superior intelligence" (p.145); similarly, Adelson (2007) has contended that "[i]n a classroom that has gifted children, instances of perfectionism are exhibited every day and in every context" (p.18).

2 Several of these studies, surprisingly, point to Psychomotor OE as making the strongest difference between the two groups, but with inconsistent results as to whether the gifted are higher (Ackerman, 1997; Tieso, 2007) or lower (Bouchard, 2004) on Psychomotor OE.

While there is certainly some rationale to the expectation that the gifted would be more perfectionist than the norm (see Speirs Neumeister, Williams, & Cross, 2009 for several plausible accounts), the question remains whether this is supported by data beyond clinical observations and qualitative studies. In the mid 1990s, Parker and Adkins (1995) concluded that there was little quantitative evidence to support the assertion of higher perfectionism in the gifted, and Parker and Mills's study (1996) found no differences in perfectionism between the gifted and nongifted group.

Since then, however, there have been several studies identifying higher incidences or higher levels of perfectionism in samples of gifted students (Orange, 1997; Schuler, 1999, 2000). Recently, Chan (2010) has underscored that the simple question of whether there are more perfectionists in the gifted population needs to be addressed with more rigorous research using measures that tap both the positive and negative aspects of perfectionism, and include control groups of nongifted individuals. Following these guidelines, Chan was able to show that gifted students scored significantly higher on High Standards and Order, but lower on Discrepancy (on the Almost Perfect Scale-Revised, APS-R), and thus arrived at the conclusion that perfectionism of a „healthy“ kind was indeed more prevalent among the gifted. Chan's findings are consistent with an earlier study by LoCicero and Ashby (2000), who also found the gifted to be more perfectionist in adaptive ways (i.e., to hold high personal standards), but not in maladaptive ways (i.e., to experience a disturbing discrepancy between their standards and their performance). Thus, at present, it seems that there is significant support for the assertion that the gifted are likely to hold high, “perfectionist” standards for themselves. This conclusion is further sustained by findings of higher scores on the PRF Achievement scale for the gifted group in Csikszentmihalyi et al.'s (1993) study.

***Emotional stability.*** Two aspects of emotional stability/vulnerability that have been conceptualized as traits and investigated as such in samples of gifted individuals are *depression* and *anxiety*. Are the gifted really more prone to feelings of sadness, guilt, and worry, as is often suggested in the literature? Quantitative studies (since Terman's days) seem to indicate just the opposite. In an often cited review, Neihart (1999) concluded that the gifted displayed lower levels of anxiety and levels of depression similar to or lower than their nongifted peers. More recently, Cross et al. (2008) found lower levels of both Anxiety and Depression on the MMPI-A content scales for their sample of gifted adolescents. Resounding with Neihart's conclusions, Martin et al.'s (2010) meta-analysis established significantly lower levels of anxiety in gifted samples and no significant differences with respect to levels of depression. Thus, at least when it comes to anxiety, there seems to be a fair convergence of data indicating lower levels of fearfulness, nervousness, and tension in gifted samples.

## II THE DISTINCTIVE TRAITS OF THE GIFTED FROM THE PERSPECTIVE OF THE FFM

**Extant data on FFM traits in the gifted.** Given the general popularity of the Big-Five theory and the derived family of personality inventories, surprisingly little research has been conducted on the differences between gifted and nongifted individuals in terms of FFM domains and facets (see Table 1 for a full list of these). Notable counterexamples include a very recent study by Zeidner and Shani-Zinovich (2011), as well as earlier efforts by McCrae et al. (2002); also worth mentioning here is the author's own prior research on the personality of intellectually gifted students (Altaras, 2006).

All three studies converge on the finding of higher Openness in gifted samples, and none revealed significant differences with respect to Extraversion or Conscientiousness. The McCrae et al. and Zeidner and Shani-Zinovich studies are further consistent in pointing to significantly lower levels of Neuroticism for the gifted groups; the author's results, on the other hand, correspond with those of Zeidner and Shani-Zinovich in showing the gifted to score lower on Agreeableness. Addressing the issue of differences between high and average-IQ students at the level of FFM facets, the author found the gifted sample in her study to score higher on Ideas, Values, Fantasy, and Assertiveness, and lower on Gregariousness, Altruism, Tendermindedness, Vulnerability, and Depression.

**Extrapolations from other findings.** The paucity of direct evidence on the differences between gifted and nongifted individuals in terms of FFM personality traits may be largely compensated by an analysis of conceptual and empirical overlaps between these traits and the ones that have been conclusively established as differentiating the gifted from their peers (i.e., those reviewed in the previous section of the Introduction). Quite encouraging, the literature on personality taxonomies has been rather fruitful in relating the PRF and MBTI constructs with those of the FFM, and certain correspondences and correlations have already been determined (see e.g., Costa & McCrae, 1988; Costa, McCrae, & Dye, 1991; Furnham, 1996; Furnham, Moutafi, & Crump, 2003; Jackson, Ashton, & Tomes, 1996; John, Naumann, & Soto, 2008; John & Srivastava, 1999; McCrae & Costa, 1989; McCrae, Kurtz, Yamagata, & Terracciano, 2011; Parker & Stumpf, 1998; Paunonen, Jackson, Trzebinski, & Forsterling, 1992). Guided by data provided in these sources, and extending our analysis to include other traits pinpointed as loci of significant differences between gifted and nongifted groups (i.e., heightened sensitivity/OEs, perfectionism, and emotional stability), we were able to infer the „gifted FFM profile“ as follows:

First, the gifted persons' distinct preference for Intuition on the MBTI should translate to higher *Openness*, particularly openness to *Ideas* and *Fantasy*; the greater incidence of Perceiving types should read as lower mean levels of *Conscientiousness* – in specific, lower *Order* and *Deliberation* – but could also be related to higher FFM *Impulsiveness*; the greater affiliation with Thinking



should imply lower *Agreeableness*, specifically lower *Tendermindedness*; and the greater preference for MBTI Introversion should be reflected as lower FFM *Extraversion*, particularly as lower *Gregariousness*. At the same time, the combination of higher Dominance and Exhibition (i.e., higher „Social control“), observed in the gifted via the PRF, should mean higher *Extraversion* in FFM terms, in particular higher *Assertiveness*; the combination of lower PRF Abasement and higher Aggression/Defence (i.e., higher „Self-Protective Orientation“) should be mirrored as lower *Agreeableness*, particularly as lower *Modesty* and *Compliance*. With respect to the theme of heightened sensitivity, Intellectual, Imaginational, and Emotional OEs should implicate higher Openness to *Ideas*, *Fantasy*, and *Feelings*, respectively; higher scores on the Understanding and Sentience scales (i.e., the „Intellectual/Aesthetic“ factor) of the PRF should resound as higher FFM Openness to *Ideas* and *Aesthetics*, whereas higher Fantasy-proneness should emerge as higher Openness to *Fantasy*. Arriving at the subject of perfectionism, the gifted groups' higher scores on the High Standards scale of the APS-R and on the Achievement scale of the PRF should come up as *higher Conscientiousness*, in particular as higher *Achievement Striving*. Finally, lower levels of Anxiety observed in the gifted through different instruments, including the MMPI, should also appear as lower *Anxiety* on the NEO-PI-R.

The above listed correspondences are summarized in Table 1.

### III THE CURRENT STUDY

Based on the above analysis, we have formulated a domain-level and a facet-level model composed of FFM traits that were expected to discriminate significantly between intellectually gifted and nongifted students. The purpose of the present study was to empirically test the efficiency and generalizability of the model, particularly in samples preselected with respect to overall level of intellectual ability (i.e., grammar school and university students).

The domain-level model included two of the Big-Five personality traits: Openness and Agreeableness; in particular, our hypothesis was that intellectually gifted students would be efficiently differentiated from their nonidentified peers by a combination of higher O and lower A. Neuroticism, Extraversion and Conscientiousness were excluded from the model, since available data suggest a more complex pattern of relationships between intellectual giftedness and each of the three domains. In specific, it seems that particular N, E, and C-facets may be *higher* (e.g. Assertiveness), whereas other traits from the same domain are *lower* in gifted samples (e.g. Gregariousness).

In terms of facet-level traits, we hypothesized that the gifted group would be distinguished by a composite of high Impulsiveness, Assertiveness, Fantasy, Feelings, Aesthetics, Ideas, and Achievement, and low Anxiety, Gregariousness, Compliance, Modesty, Tendermindedness, Order, and Deliberation (see previous section and Table 1 for clarification).

Table 1. *Correspondences of FFM traits with previously established distinctive characteristics of the gifted*

FFM domains and facets	Well-established characteristics of gifted individuals
<b>NEUROTICISM</b>	summary: lower Anxiety (MMPI-A) vs. preference for P (MBTI)
Anxiety	lower Anxiety (MMPI-A)
Hostility	
Depression	
Self-Consciousness	
Impulsiveness	preference for P (MBTI)
Vulnerability to stress	
<b>EXTRAVERSION</b>	summary: preference for I* (MBTI) vs. higher Social Control (PRF)
Warmth	
Gregariousness	preference for I* (MBTI)
Assertiveness	higher Dominance & Exhibition (PRF)
Activity	
Excitement Seeking	
Positive Emotion	
<b>OPENNESS</b>	summary: preference for N (MBTI), Overexcitability, higher Intellectual/Aesthetic factor (PRF)
Fantasy	preference for N (MBTI), higher Imaginational OE & Fantasy-proneness (ICMIC)
Aesthetics	higher Sentience (PRF)
Feelings	higher Emotional OE
Actions	
Ideas	preference for N (MBTI), higher Intellectual OE & Understanding (PRF)
Values	
<b>AGREEABLENESS</b>	summary: preference for T* (MBTI), higher Self-protective Orientation* (PRF)
Trust	
Straightforwardness	
Altruism	
Compliance	lower Abasement + higher Aggression/Defendence* (PRF)
Modesty	lower Abasement + higher Exhibition*(PRF)
Tendermindedness	preference for T* (MBTI)
<b>CONSCIENTIOUSNESS</b>	summary: preference for P* (MBTI) vs. higher Perfectionism (APS-R) & Academic Orientation (PRF)
Competence	
Order	preference for P* (MBTI)
Dutifulness	
Achievement Striving	High Standards (APS-R), Achievement (PRF)
Self-Discipline	
Deliberation	preference for P* (MBTI)

Note. \*Characteristic corresponds to lower scores on the respective NEO-PI-R domain/facet.



## Method

### *I Participants and Procedure*

*Description of samples.* To test the above hypotheses, data from 3 different samples were employed. Data from the first sample were collected by the author herself. Datasheets for the second and third sample were supplied by fellow researchers, who had compiled these as part of their own (past or ongoing) research and kindly put them at the disposal of the author for the purposes of the present study.

*Sample 1.* Participants in the first sample were recruited from an initial pool of  $N_{1initial} = 1230$  high-school graduates, whose age ranged from 17 to 19. Participants were recruited from 7 educational facilities, all of which fit the profile of an advanced type (i.e., „grammar school“) urban-area high-school. After administration of the selected measures in two separate sessions, the number of participants for whom all relevant data (i.e., intelligence test scores, NEO-PI-R scores, data on gender) were available was  $N_{1final} = 515$ . Of these, 155 had been designated as „gifted“ (69 male, 86 female), and 360 fell in the „nongifted“ group (146 male, 214 female).<sup>3</sup>

*Sample 2.* Participants in the second sample were university students enrolled in studies of psychology at the state’s leading psychology department. The number of participants in this sample was initially  $N_{2initial} = 181$ , and their age ranged from 19 to 26 (with >90% of participants falling within the 20–21 range). Eligible for inclusion in the final sample (based on availability of relevant data) were  $N_{2final} = 160$  participants, 32 of whom had been identified as „gifted“ (13 male, 19 female), and 128 of whom were „nongifted“ (21 male, 107 female).

*Sample 3.* Participants in the third sample were recruited from an initial pool of  $N_{3initial} = 568$  psychology students, attending the same university as participants in the second sample.<sup>4</sup> The age of participants in this sample ranged from 18 to 30 (with >90% of participants falling in the 19–22 age range). The final number of participants included in this sample was  $N_{3final} = 443$ , of whom 91 were from the „gifted“ (25 male, 66 female), and 352 from the „nongifted“ group (55 male, 297 female).

*Assignment of participants to groups.* Within each sample, participants were administered a set of intelligence tests and thereafter classified into two groups, labeled „gifted“ and „nongifted“ (or „average-ability“). The assignment of participants to either the intellectually gifted or average-ability group was based on their z-score on the employed measure of intelligence (Sample 2) or on the extracted g-factor, in the case that multiple measures were employed (Samples 1 and 3). The employed measures of intelligence differed across samples, and the z-score for each participant was obtained within his/her respective group of  $N_{1initial} = 1230$ ,  $N_{2initial} = 181$ , and  $N_{3initial} = 443$ . The same cut-off percentile of >80 applied for assignment to the gifted group in all three samples; thus, those scoring in the upper 20% within each initial sample were designated as „intellectually gifted“, whereas the remaining 80% fell in the „nongifted“ group.

It is common practice in giftedness research to identify as gifted the top 1–20% in a particular cohort/peer group (see e.g., Gagné, 2005; Renzulli, 1986); still, concerns may be

3 It should be noted that a certain number of these participants had already been included in our prior research on the personality of gifted students (author); however, since the sample had almost doubled in size from the previous study (where N was 291), it seemed sensible to employ the data from the extended sample as input for the current study

4 However, participants from the two samples were tested at different points in time (participants from Sample 2 had already left the university at the time when data for Sample 3 were collected).

raised as to whether those identified as gifted based on their rank within a *particular student pool* would also be deemed gifted according to more general population norms. Although this question could not be answered thoroughly, since Serbian norms have never been published for two of the applied intelligence tests (KOG 9 and CFIT, see *Measures* for details), available data do support the validity of our operationalization of giftedness. In particular, looking at participants' scores on the remaining two intelligence tests employed in this study (Verbal Series and KOG 3, see *Measures* for details), we have found that the gifted high-schoolers from Sample 1 obtain a mean IQ of 117 on KOG 3 and a mean IQ of 127 on the Verbal Series, whereas their nongifted peers score 108 on both tests; within Sample 3, the gifted group obtained an average IQ of 120 on the three tests comprising KOG 3, while their nongifted counterparts scored an average of 113 IQ points.<sup>5</sup> In other words, the "gifted" groups from both Samples 1 and 3 do indeed score high above the population norm, thus justifying the label given to them.

*Obtaining gender-neutral NEO-PI-R scores.* In a separate session, following the administration of intelligence tests and the assignment of participants to groups, participants in each sample were also administered the NEO-PI-R. The number of participants who completed the inventory was generally smaller than the number of participants tested for intellectual ability. Thus, not all participants who had been designated as intellectually gifted were eligible for the current study, and the ratio of gifted/nongifted participants in the final samples is not 20/80.

Since preliminary analyses had indicated significant gender differences on the NEO-PI-R, all further analyses were based on standardized NEO-PI-R scores obtained separately for the male and female subsamples.

*Testing the discriminant models.* Once we had assigned participants to groups and controlled for gender-differences on the NEO-PI-R, we were able to test the proposed domain-level and facet-level models by entering the selected set of variables in a discriminant analysis, separately for each sample. Statistical analyses also included comparisons of means for the gifted and average-ability samples via a set of ANOVAs. Heeding Thompson's (2001) poignant argumentation, we sought to avoid using any stepwise methods in our data analyses.

## II Measures

*NEO Personality Inventory-Revised.* The NEO-PI-R is an untimed questionnaire designed by P. T. Costa and R. R. McCrae to operationalize the FFM. It contains 240 items answered on a 5-point Likert scale, and yields scores on 30 primary traits (facets) and the Big-Five personality domains (i.e., Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness). The Serbian translation of the instrument (Đuričić-Jočić, Džamonja-Ignjatović, & Knežević, 2004), which we used in this study, has hitherto been evidenced to show high levels of reliability and validity.

*Measures of intelligence.* Several standardized tests of intelligence were used in the study: (1) Verbal Series (administered to Sample 1); (2) KOG3 (administered to Sample 1); (3)

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5 It should be expected that available KOG 3 norms slightly underestimate the ability level of high-school students (i.e., participants from Sample 1), because the test was standardized on a sample whose age ranged from 18 to 22, whereas the mean and modal age of participants from Sample 1 is below 18. In line with this, when scored against KOG 3 norms for *15-year-olds*, the gifted high-schoolers obtain an average IQ of 121, and their nongifted peers score a mean IQ of 111. It would therefore be fair to conclude that the gifted high-schoolers' average IQ lies between 117 and 121, while their nongifted counterparts' mean IQ is somewhere in the 108-111 range.

KOG9 (administered to Sample 3); and Cattell's Culture Fair Intelligence Test (administered to Sample 2). All of the employed measures have been extensively used for research and other purposes, and have demonstrated very good psychometric properties.

*Verbal series.* The Verbal Series (Stevanović, 1988) is a group-administered test of verbal intelligence, designed for use with older adolescents and adults. It consists of 5 subtests assessing meaningful memory, classification skills, proverb comprehension, analogical reasoning, and comprehension of scrambled sentences.

*KOG3.* The KOG3 battery (Wolf, Momirović, & Džamonja, 1992) is a composite measure of intellectual ability, comprising tests of perceptual speed, verbal comprehension (synonyms-antonyms), and spatial visualization.

*KOG9.* The KOG9 is an extension of the KOG3 battery. In addition to the three tests listed above, it comprises further tests of perceptual (Form Matching and Embedded Figures), verbal (Verbal Analogies and Synonyms), and spatial abilities (Three-dimensional Space), as well as a test of quantitative/inductive reasoning (Domino).

*Cattell's Culture-Fair Intelligence Test.* The CFIT is a nonverbal intelligence test composed of four subtests: Series, Classifications, Matrices, and Conditions. All tasks require participants to perceive relationships between shapes and figures, i.e. to engage in figural reasoning. The test is usually regarded as a marker of fluid intelligence (Gf), which, again, is closely aligned with g.

## Results

### *I Comparison of means: results of ANOVAs*

Before testing the hypothesized models via discriminant analyses, a series of ANOVAs were conducted to establish the size, direction, and significance of differences between the gifted and nongifted groups in each of the five domains and 30 facets of the FFM. In each instance, a homogeneity of variance test was also performed and Levene's Statistic turned out to be nonsignificant.

In Sample 1, significant differences between the two groups were found with respect to Neuroticism ( $F_{(1,513)}=4.523$ ,  $p=.034$ ) and Openness ( $F_{(1,513)}=20.903$ ,  $p=.000$ ), with the gifted scoring lower on the former, and higher on the latter trait. At the level of facets, the gifted were shown to be higher on Assertiveness ( $F_{(1,513)}=6.489$ ,  $p=.011$ ), Fantasy ( $F_{(1,513)}=11.298$ ,  $p=.001$ ), Feelings ( $F_{(1,513)}=5.137$ ,  $p=.024$ ), Ideas ( $F_{(1,513)}=33.723$ ,  $p=.000$ ), and Values ( $F_{(1,513)}=18.294$ ,  $p=.000$ ), and lower on Depression ( $F_{(1,513)}=4.601$ ,  $p=.032$ ), Vulnerability ( $F_{(1,513)}=4.889$ ,  $p=.027$ ), Gregariousness ( $F_{(1,513)}=13.036$ ,  $p=.000$ ), Altruism ( $F_{(1,513)}=4.541$ ,  $p=.034$ ), Tendermindedness ( $F_{(1,513)}=7.535$ ,  $p=.006$ ), and Order ( $F_{(1,513)}=5.322$ ,  $p=.021$ ).

In Sample 2, the gifted group was found to score higher on Openness ( $F_{(1,158)}=4.770$ ,  $p=.030$ ) and lower on Agreeableness ( $F_{(1,158)}=6.485$ ,  $p=.012$ ). Differences at the facet-level were found for Impulsiveness ( $F_{(1,158)}=7.017$ ,  $p=.009$ ), Fantasy ( $F_{(1,158)}=5.990$ ,  $p=.015$ ), Ideas ( $F_{(1,158)}=4.424$ ,  $p=.034$ ), and Modesty ( $F_{(1,158)}=10.279$ ,  $p=.002$ ), with gifted students scoring lower on the last, and higher on the former three traits.

In Sample 3, significant differences emerged only at the level of facets, but not at the level of domains. In particular, gifted students outscored their nongifted counterparts on Impulsiveness ( $F_{(1,441)}=6.889$ ,  $p=.009$ ), Fantasy ( $F_{(1,441)}=4.453$ ,  $p=.035$ ), Ideas ( $F_{(1,441)}=7.273$ ,  $p=.007$ ), and Straightforwardness ( $F_{(1,441)}=4.049$ ,  $p=.045$ ). A near-significant difference was observed for Modesty, with the gifted scoring lower on this trait ( $F_{(1,441)}=3.785$ ,  $p=.052$ ).

For an overview of descriptive statistics (including effect sizes) see Table 4 in Appendix.

## ***II Results of discriminant analyses***

*Testing the domain-level model.* The proposed domain-level model, comprising a combination of higher Openness and lower Agreeableness, resulted in a significant discrimination between gifted and nongifted students in Sample 1 (Eigenvalue= .044, Canonical correlation= .206, Wilks' Lambda= .958, Chi-square= 22.135,  $p= .000$ ) and Sample 2 (Eigenvalue= .074, Canonical correlation= .262, Wilks' Lambda= .931, Chi-square= 11.165,  $p= .004$ ), but not in Sample 3 (Eigenvalue= .006, Canonical correlation= .079, Wilks' Lambda= .994, Chi-square= 2.767,  $p= .251$ ).<sup>6</sup> Additional analyses have shown that, while it was possible to add the remaining three domain-traits to the model and still obtain significant discriminant functions in Samples 1 and 2, there was *no combination* of the Big Five that yielded a significant discriminant function in Sample 3.

*Testing the facet-level model.* When the proposed set of 14 facet-level traits were entered as independents in a discriminant analysis, the result in each sample was a significant discriminant function. For the function obtained in Sample 1, relevant parameters are as follows: Eigenvalue= .177, Canonical correlation= .388, Wilks' Lambda= .850, Chi-square= 82.427,  $p= .000$ . For the discriminant function in Sample 2: Eigenvalue= .219, Canonical correlation= .424, Wilks' Lambda= .820, Chi-square= 29.884,  $p= .008$ . Finally, for the discriminant function in Sample 3: Eigenvalue= .089, Canonical correlation= .286, Wilks' Lambda= .918, Chi-square= 37.048, and  $p= .001$ . Weights and structure coefficients are presented in Table 2.1, and data on group centroids are provided in Table 2.2.

According to the results of a posteriori classifications, the proposed facet-level model would yield 73%, 83.1%, and 81.3% of correct classifications in Samples 1, 2, and 3, respectively. More specifically, the percent of gifted students identified as such by the model is 29.7% in Sample 1, 25% in Sample 2, and 13.2% in Sample 3, whereas the percent of correctly identified nongifted students in the three samples is 91.7%, 97.7%, and 98.9%, respectively. (The proposed facet-level model yields more correctly classified cases under the assumption of equal prior probabilities for groups; however, this assumption does not hold in predicting membership to the gifted group in the real world.)

<sup>6</sup> In each instance, Box's M was not significant.

Table 2.1. *Weights and loadings for the proposed facet-level discriminant functions*

	Standardized canonical discriminant function coefficients			Structure matrices					
	Sample1	Sample2	Sample3	Sample1	Sample2	Sample3			
Anxiety	.108	.123	-.691	Ideas	-.610	Modesty	.545	Ideas	.430
Impulse.	.216	-.462	.820	Gregar.	.379	Impulse.	-.450	Impulse.	.419
Gregar.	.474	.175	-.316	Fantasy	-.353	Fantasy	-.416	Fantasy	.337
Assert.	-.243	.214	-.313	Tender.	.288	Ideas	-.358	Modesty	-.310
Fantasy	-.167	-.253	.230	Assert.	-.267	Tender.	.305	Gregar.	-.251
Aesthetic	.504	.194	-.407	Order	.242	Feelings	-.245	Anxiety	-.220
Feelings	-.289	-.145	.061	Feelings	-.238	Achieve.	.202	Deliber.	-.217
Ideas	-.655	-.567	.606	Anxiety	.130	Gregar.	.191	Feelings	.175
Compl.	-.235	-.256	.135	Deliber.	.125	Deliber.	.166	Compl.	-.124
Modesty	-.204	.611	-.277	Impulse.	.116	Compl.	.150	Aesthet.	-.115
Tender.	.416	.277	-.067	Achieve.	-.105	Order	.074	Tender.	-.100
Order	.277	-.175	.233	Modesty	.078	Assert.	-.059	Order	-.028
Achieve.	-.262	.400	-.155	Compl.	.068	Aesthet.	-.040	Achieve.	-.024
Deliber.	.315	-.055	.189	Aesthet.	-.065	Anxiety	-.022	Assert.	.007

Table 2.2. *Proposed facet-level discriminant functions evaluated at group means*

	Sample 1	Sample 2	Sample 3
gifted	-.640	-.930	.586
nongifted	.275	.232	-.151

It should be noted here that the remaining 16 facets (those not included in the model) yield a significant discriminant function in Sample 1, but not in Samples 2 and 3, whereas the full set of 30 FFM facets is efficient in discriminating the gifted and nongifted groups in Samples 1 and 3, but not in Sample 2.

*Adjusting (reducing) the facet-level model.* As is evident from the results in Table 2.1, not all variables included in the proposed facet-level model were fully consistent in discriminating between gifted and nongifted students, and not all variables contributed substantially to the discriminant function. We therefore sought to adjust the model accordingly and conducted further analyses to test the adapted model's efficiency.

In the first step, we focused on clearing the model from any „inconsistent“ discriminating variables. By analyzing the structure matrices of the obtained functions (with respect to data on group centroids), we identified three variables which changed the direction of their correlation with the discriminant functions across the three samples. In particular, we noticed that the „gifted profile“ was defined by higher Impulsiveness, higher Anxiety, and lower Achievement in Samples 2 and 3, but lower Impulsiveness, lower Anxiety, and higher Achievement in Sample 1. The three facets were thus removed from the model.

In the next step, upon performing a discriminant analysis with the remaining 11 facets,<sup>7</sup> we analyzed the discriminating variables' weights and loadings across the three samples, looking to remove those of them which overall seemed to contribute little to the discriminant functions. At this point, four variables were found to have weights which did not exceed .300 in any of the three samples and which were below .150 in at least one sample. These were: Feelings, Compliance, Order, and Deliberation. Given that neither of them had a prominent place in the structure matrices either, it seemed justified to exclude them from the model.

By doing this, we arrived at a more parsimonious, 7-facet discriminant model, that still proved to discriminate significantly between gifted and nongifted students in all three samples. Statistics for the „reduced“ discriminant functions are as follows: in Sample 1, Eigenvalue= .136, Canonical correlation= .346, Wilks' Lambda= .881 Chi-square= 64.797, p= .000; in Sample 2, Eigenvalue= .166, Canonical correlation= .378, Wilks' Lambda= .857, Chi-square= 23.779, p= .001; and in Sample 3, Eigenvalue= .050, Canonical correlation= .218, Wilks' Lambda= .953, Chi-square= 21.291, p= .003. Weights and loadings of the discriminant variables are given in Table 3.1, complemented by data on group centroids in Table 3.2.

Table 3.1. *Weights and loadings for the reduced facet-level discriminant function*

	Standardized canonical discriminant function coefficients			Structure matrices					
	Sample1	Sample2	Sample3	Sample1	Sample2	Sample3	Sample1	Sample2	Sample3
	Gregar.	-.403	.171	.275	Ideas	.696	Modesty	.625	Ideas
Assert.	.279	.352	.360	Gregar	-.433	Fantasy	-.477	Fantasy	-.450
Fantasy	.325	-.553	-.414	Fantasy	.403	Ideas	-.410	Modesty	.415
Aesthetic.	-.447	.234	.504	Tender.	-.329	Gregar.	.350	Gregar.	.336
Ideas	.773	-.547	-.776	Assert.	.305	Tender	.219	Aesthet.	.154
Modesty	.201	.644	.467	Modesty	-.089	Assert.	-.068	Tender	.134
Tender.	-.371	.304	.052	Aesthet.	.074	Aesthet.	-.046	Assert.	-.009

Table 3.2. *Reduced facet-level discriminant functions evaluated at group means*

	Sample 1 function	Sample 2 function	Sample 3 function
gifted	.560	-.811	-.438
nongifted	-.241	.203	.113

## DISCUSSION

In the current study we have turned an eye on the personality of the intellectually gifted, particularly as described by domain and facet-level constructs of the FFM. The study's design and the nature of obtained data allow us to address the following two sets of questions: (1) Do the gifted display

7 This analysis again yielded significant discriminant functions in all three samples.



a particular profile in terms of FFM traits – a profile that is consequent with prior research and generalizable across samples? To what extent are our initial research hypotheses confirmed? Does the level of description within the FFM (i.e., domains vs. facets) make a difference? (2) What implications do our results bear for gifted identification and education? In particular, does the discriminatory power of the NEO-PI-R encourage its use in gifted identification; does the gifted personality profile entail any suggestions as to how to spur personal growth and self-actualization in gifted students?

We shall build our discussion around these issues and close it by spelling out the limitations of the current study.

### *I Profiling the gifted in terms of FFM traits*

*Domain-traits.* Contrary to our expectations, the proposed domain-level model, presupposing a difference between gifted and nongifted students on a composite of Openness and Agreeableness, did not yield a significant discriminant function across all samples. In fact, it turned out that there was no possibility of efficient discrimination between gifted and nongifted university students from Sample 3 via (any combination of) the Big Five, and thus no possibility of arriving at a domain-level discriminant model that would be generalizable across the three samples.

However, we did obtain results that are consistent with our expectations on the remaining two samples: here, as in the study by Zeidner and Shani-Zinovich (2011) and the author's previous research (author), the gifted group was indeed distinguished by a combination of higher **Openness** and lower **Agreeableness**. Given that differences between gifted and nongifted students on the respective two traits have hitherto been stable in direction (if not always significant) across all studies and samples, one might speculate that the „higher O, lower A“ model would prove efficient in differentiating the gifted and nongifted groups within any sample that is more heterogenous with respect to level of intelligence and educational background; however, in samples preselected with respect to intellectual ability, the Big Five seem to be too crude to yield a considerable and invariable discriminating effect.

This inadequacy of the Big Five becomes all the more obvious if one considers the role of **Extraversion** and **Conscientiousness** in compiling the personality profile of the intellectually gifted: at first hand, a safe conclusion from extant data, both from this and from prior studies, seems to be that the two traits play no role whatsoever in differentiating between gifted and nongifted students. The truth is, however, that both domains contribute somewhat when “allotting” a few selected subordinate facets to the discriminant model, rather than “participating” in the model as a whole. We will get to an account of the relevant facets shortly.

The picture is also rather complex for **Neuroticism**: as if mirroring the content of the construct, the role of this trait in differentiating gifted students seems to be particularly unstable. The results obtained with the high-school



sample in the current study concur with those of Zeidner and Shani-Zinovich (2011) and McCrae et al. (2002) in pointing to lower mean levels of N for gifted samples. However, this pattern is not replicated on the two university samples in the present study. Here, the observed differences between gifted and nongifted participants in N are not significant, but their direction on both samples is such as to indicate slightly higher overall levels of N for the gifted group.

*Facet-traits.* One thing that is evident from our results is that a selected set of FFM facets outperforms the big five domains (or, for that matter, the full collection of 30 facet-traits) in discriminating between gifted and nongifted students. First, according to the results of ANOVAs, there appear to be at least some facet-level traits in which the gifted and average-ability groups from all three samples differ significantly (note that this is not the case with any of the Big Five!). In specific, this is true for two Openness facets, namely **Ideas** and **Fantasy**. Second, unlike the proposed domain-level model, the discriminant function composed of facet-level traits proved to be efficient on all three samples.

Further observations to be made from the results of discriminant analysis with facet-traits entered as independents can be summarized as follows:

The obtained results are for the most part consistent with our initial expectations. More specifically, we were right to presume that gifted students would be characterized by a combination of **higher Assertiveness**, higher Openness to **Ideas**, **Fantasy**, **Aesthetics**, and **Feelings**, but **lower Gregariousness**, **Compliance**, **Modesty**, **Tendermindedness**, **Order**, and **Deliberation**.

However, it would not do justice to the present data to claim that our research hypothesis was fully supported. In particular, three facets included in the model did not consistently act as predicted: a careful inspection of the structure matrices in Table 2.1 reveals that **Anxiety**, **Impulsiveness**, and **Achievement Striving** tended to switch the direction of their correlation with the discriminant function across the three samples. In the two university samples, the gifted groups were distinguished by higher Impulsiveness, higher Anxiety, and lower Achievement, whereas gifted students in the high-school sample were marked by lower Impulsiveness, lower Anxiety, and higher Achievement. In neither case did we obtain the expected combination of higher Impulsiveness, lower Anxiety, and higher Achievement.

Another point of divergence of data from the hypothesized model is in the fact that not all facets turned out to make a substantial contribution to the discriminant functions across the three samples. In particular, **Feelings**, **Compliance**, **Order**, and **Deliberation** – though generally conforming to our initial expectations – seem to add little to the discriminatory power of the proposed function.

By removing the set of „inconsistent“ and „low-weight“ discriminating variables, we were able to arrive at a more parsimonious, yet generally efficient discriminant model, that seems to capture the core of FFM-related personality differences between gifted students and their nongifted peers. This reduced

model, featuring seven facets from three different domains – **Assertiveness, Gregariousness, Fantasy, Aesthetics, Ideas, Modesty, and Tendermindedness** – still lets us in on the complexity of the gifted adolescents’ personality profile: it points to a capacity to be deeply absorbed in ideas, fantasies, and aesthetic appreciations, along with a tendency to be highly absorbed with oneself; it suggests the coexistence of dispositions toward social ascendance and toward withdrawal from social interactions.

Finally, although it was possible to formulate a discriminant model that is applicable to all three samples of students, one should also pay notice to certain obvious differences between the high-school (Sample 1) and the university samples (Samples 2 and 3). Most prominent in this respect is the relative contribution of **Impulsiveness** and **Modesty** to the discriminant functions: the two facets seem to be highly “engaged“ in differentiating between gifted and nongifted students within the two university samples, but bear lesser (Modesty) or no particular (Impulsiveness) importance in discriminating between gifted and nongifted high-school graduates. This result implicates that intellectually gifted students at the university level are marked by a particularly heightened sense of self-esteem accompanied by a somewhat diminished capacity/need for self-constraint. It may be that a history of high achievements and positive outcomes of social comparisons even within the most highly selected groups has rendered these students feeling unshakably superior and acting on this feeling with self-indulgence.

Another conspicuous difference between the high-school and the university samples is already revealed by the results of ANOVAs. It is obvious from these results that the number of facets on which significant group differences (between gifted/nongifted students) appear is far greater in the high-school sample. In fact, the profile of gifted high-school students that might be inferred from the results of ANOVAs seems to be highly contingent with the one proposed as part of our research hypothesis: the intellectually gifted high-school graduates do indeed score significantly **higher** on **Assertiveness, Fantasy, Feelings, and Ideas**, but **lower** on **Gregariousness, Tendermindedness, and Order**. Looking beyond facets encompassed by the model, we shall find that the gifted high-school sample is **higher** on openness to **Values**, and **lower** on **Depression, Vulnerability, and Altruism**. Although not included in our research hypothesis, these last differences are nevertheless consistent with our introductory review of the distinctive personality characteristics of gifted individuals.

## *II Implications of findings for gifted identification and education*

*Using the NEO-PI-R as a selection tool in gifted identification.* To address the issue of the practical usefulness of the NEO-PI-R in identifying students as either gifted or nongifted, we shall turn to the results of the a posteriori classifications (performed as part of the discriminant analysis). According to these results, roughly 30% of gifted high-school students would have been correctly identified as such on the basis of the proposed FFM-facet model; the

percentage of correctly classified gifted students is slightly lower (25%) for the smaller university sample, and drops to only 13% for the larger university sample. Looking at subsamples of nongifted students, on the other hand, the percentage of correctly classified cases maintains rather high (>90%) on all three samples. In other words, with giftedness conceptualized simply as high (intellectual) ability, assessed through standard tests of intelligence, our proposed facet-level model would render little false positives, but a significant percent of false negatives. Thus, although the model results in a statistically significant discriminant function across three samples, its discriminatory power is not as high as to encourage the use of the NEO-PI-R as a selection tool. The instrument could however be useful in establishing the extent to which a particular gifted student's profile fits or diverges from the „typical“, for the purpose of adjusting educational interventions accordingly.

*Educational implications.* Two types of recommendations for educators may be spelled out on the basis of current research findings. The first follows from a concern with how to adjust the curriculum and classroom activities to better accommodate for the particular style and preferences of gifted students: What are and what do the gifted like, so that we can deliver a suitable education? Our recommendations following from here resound with those that have already been uttered in the gifted education literature: based on their personality profile, gifted students are likely to enjoy classes which encourage abstract thinking, imagination, and interpretation, to thrive on complex and open-ended tasks, to prefer working on individual assignments, and to seek flexible learning conditions (cf. Hawkins, 1997; Hertzog, 1998; Middleton, Littlefield, & Lehrer, 1992; Rogers, 2007).

The second type of recommendation is rather more delicate and follows from a concern with how to promote accommodation and personal growth in gifted students; it rests on an attempt to read from the data what is currently missing from the education and in the lives of these students. Our attention here is directed particularly at the combination of higher Assertiveness, lower Modesty, lower Order (Sample 1), or alternatively, higher Impulsiveness (Samples 2 and 3) that seems to be characteristic of the gifted subsamples in our study. Together with a surprising lack of increased Achievement Striving, this collection of traits to us suggests that intellectually gifted students (in the Serbian context) are lacking adequate challenge and structure. They seem to have developed a rather high level of self-contentment and it is our speculation that their self-actualization may at some point be compromised by this sense of complacency. The kind of structure that we think should be provided in the education of these students, to promote their personal growth, does *not* refer to imposing unjustified restrictions in terms of time, place, and content of learning and other cognitive activities, but rather to communicating clear and high quality standards and providing continuous, competent feedback, including, at times, well-intended but outspoken criticism.

### **III Limitations**

Complementing the above discussion, several limitations of the current study and its findings need to be addressed.

First, it should be made clear that our findings are based on quantitative comparisons of large groups of participants. Thus, they should be interpreted as speaking only about how the „*typical*“ gifted student differs in personality from his/her peers, and not about the personality profile of a particular gifted individual. Those working with gifted students should not be surprised to recognize a „fit to the model“, but they should certainly not expect each and every gifted *individual* to display the composite of traits that have here been established as distinguishing the gifted (as a) *group*.

Second, the samples included in the current study were relatively homogenous with respect to age, with a vast majority of participants falling in the 18–22 age range. Thus, when referring to the results of the study, one should bear in mind that they pertain only to the personality of gifted *adolescents*, and do not necessarily generalize to gifted children or adults. Moreover, age might also be an important consideration when interpreting some of the findings. For instance, the high self-esteem and self-contentment found in the gifted group may be understood as a product of the way in which these students tend to deal with the challenges of the adolescent crisis: it is conceivable that, at this stage, gifted students tend to build their identity around their high (superior) abilities and that this results in an overemphasis on self-respect.

Third, the current study has dealt with samples in which the range of two important variables – intellectual ability and level of education – is somewhat restricted in comparison to the general population. Thus, our findings should be taken as referring to the personality of gifted adolescents *as compared to peers of generally higher intellectual and educational status*. It is possible that further differences would have emerged, had we compared our gifted samples to a more heterogeneous group of nongifted age-mates.

Finally, but perhaps most importantly, our study has not been designed so as to address the nature of the relationship between intellectual giftedness and a particular set of FFM personality traits. Is this relationship mediated by differences between the gifted and nongifted group with respect to some family variables (e.g., being raised as the single child in the family, having highly educated parents, being subject to a permissive parenting style)? Can some of it perhaps be explained by heredity? Or is it high intellectual ability itself that brings about a certain personality profile? These intriguing questions remain to be addressed by further research.

## **CONCLUSIONS**

The present study has sought to investigate the personality profile of gifted vs. nongifted students, turning an eye specifically on differences in terms of FFM domains and facets. Even though participants in the study were preselected with respect to intellectual ability and level of education, and even

though they had been identified as gifted/nongifted via different measures of intelligence, the results show that gifted students across three different samples are significantly and consistently discriminated from their nongifted peers by a function comprising high Ideas, Fantasy, Aesthetics and Assertiveness, and low Gregariousness, Modesty, and Tendermindedness. Thus, even when compared to age-mates of generally higher levels of intelligence, gifted students are still distinguished by a particular personality profile – one which entails a tendency to be absorbed in one’s world of ideas, fantasies, and aesthetic appreciations, and to be absorbed with oneself; a tendency to withdraw from social interactions, but also to dominate them and promote oneself socially. This kind of profile might represent a challenge for (gifted) educators, who should encourage development beyond self-absorption or self-contentment, by requiring creative *and* hard work, and setting clear standards of excellence.

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## Appendix

Table 4. Descriptive statistics and results of ANOVAs

	Sample 1				Sample 2				Sample 3			
	M (SD)		F	Eta Squared	M (SD)		F	Eta Squared	M (SD)		F	Eta Squared
	gifted N=155	average N=360			gifted N=32	average N=128			gifted N=91	average N=352		
NEUROTICISM	-.108 (.940)	.086 (.951)	4.523*	.009	.107 (.778)	.012 (1.083)		.001	-.006 (1.031)	-.041 (1.052)		.000
Anxiety	-.042 (.898)	.066 (.908)		.003	.091 (.916)	.063 (1.100)		.000	-.203 (1.058)	-.030 (1.073)		.004
Hostility	-.049 (1.022)	.129 (.996)		.007	.122 (.800)	.100 (.989)		.000	-.159 (1.075)	-.160 (1.001)		.000
Depression	-.147 (.979)	.053 (.968)	4.601*	.009	-.117 (.767)	.062 (1.031)		.005	.018 (1.052)	.070 (1.020)		.000
Self-Consciousness	-.041 (1.033)	.056 (1.029)		.002	.045 (.870)	-.089 (1.086)		.003	.111 (.973)	-.066 (.976)		.005
Impulsiveness	-.042 (.999)	.058 (.920)		.002	.398 (.957)	-.121 (.999)	7.017**	.043	.253 (1.070)	-.073 (1.054)	6.889**	.015
Vulnerability to stress	-.171 (.879)	.035 (1.007)	4.889*	.009	.016 (.691)	.021 (1.148)		.000	-.038 (.983)	.050 (1.008)		.001
EXTRAVERSION	.008 (1.049)	.080 (1.007)		.001	-.042 (1.043)	-.070 (1.035)		.000	-.157 (.955)	-.103 (.976)		.000
Warmth	.032 (1.090)	.070 (1.048)		.000	-.045 (.919)	.009 (.930)		.001	-.207 (1.012)	-.096 (.941)		.002
Gregariousness	-.276 (1.091)	.092 (1.048)	13.036**	.025	-.184 (1.077)	.027 (.916)		.008	-.172 (.983)	.012 (.991)		.006
Assertiveness	.112 (1.041)	-.139 (1.018)	6.489*	.012	.091 (1.175)	.019 (1.008)		.001	.109 (1.016)	.104 (.960)		.000
Activity	.000 (1.000)	-.029 (1.027)		.000	-.053 (1.018)	.004 (1.038)		.000	-.064 (.919)	-.056 (.991)		.000

Excitement Seeking	.071 (1.050)	.186 (1.011)	.003	.024 (1.040)	-.161 (.940)	.006	-.125 (1.019)	-.213 (.936)	.001
Positive Emotion	.118 (1.077)	.134 (.908)	.000	-.006 (.879)	-.165 (1.026)	.004	-.184 (1.101)	-.164 (.987)	.000
OPENNESS	.320 (1.061)	-.140 (1.042)	.039	.371 (.817)	.002 (.864)	4.770*	.252 (.837)	.088 (.885)	.006
Fantasy	.362 (1.043)	.038 (.986)	.022	.392 (.832)	-.045 (.919)	5.990*	.224 (.881)	-.011 (.964)	.010
Aesthetics	-.052 (1.113)	-.115 (1.022)	.001	.222 (.762)	.183 (.862)	.000	.084 (.899)	.159 (.879)	.001
Feelings	.244 (1.038)	.019 (1.034)	.010	.111 (.877)	-.167 (1.002)	.013	.090 (.966)	-.032 (.934)	.003
Actions	.023 (1.098)	-.134 (.947)	.005	.300 (.990)	.185 (1.001)	.002	.131 (.955)	.161 (.973)	.000
Ideas	.481 (.957)	-.096 (1.066)	.062	.316 (.827)	-.064 (.935)	4.424*	.361 (.849)	.086 (.872)	.016
Values	.378 (1.030)	-.023 (.953)	.034	.285 (.786)	.150 (.985)	.003	.263 (.925)	.222 (1.007)	.000
AGREEABLENESS	.007 (1.161)	.121 (.922)	.003	-.633 (.980)	-.144 (.971)	.039	-.077 (.927)	-.033 (1.017)	.000
Trust	-.059 (1.118)	-.065 (.973)	.000	-.275 (.910)	-.043 (.847)	.012	.105 (1.099)	.091 (1.005)	.000
Straightforwardness	.149 (1.038)	.092 (.981)	.001	-.486 (1.116)	-.145 (.948)	.019	.136 (.991)	-.099 (.994)	.009
Altruism	-.061 (1.045)	.136 (.926)	.009	-.474 (.902)	-.210 (.920)	.013	-.274 (.813)	-.208 (.914)	.001
Compliance	.006 (1.061)	.070 (1.021)	.001	-.249 (1.005)	-.071 (1.023)	.005	-.044 (.963)	.044 (.969)	.001
Modesty	-.056 (1.096)	.018 (1.023)	.001	-.498 (.867)	.085 (.933)	10.279**	-.149 (1.037)	.072 (.948)	.009
Tendermindedness	-.109 (1.136)	.155 (.942)	.014	-.733 (.846)	-.407 (.937)	.020	-.294 (.986)	-.221 (.974)	.001

	Sample 1			Sample 2			Sample 3			
	M (SD)			M (SD)			M (SD)			
	gifted N=155	average N=360	F	gifted N=32	average N=128	F	gifted N=91	average N=352	F	Eta Squared
CONSCIENTIOUSNESS	.098 (1.055)	.091 (1.063)		-.418 (.824)	-.291 (.917)		-.071 (.926)	-.062 (.931)		.000
Competence	.263 (.974)	.160 (1.002)		-.231 (.791)	-.406 (.941)		-.083 (.993)	-.207 (.951)		.003
Order	-.184 (1.053)	.049 (1.046)	5.322*	-.182 (1.005)	-.098 (.976)		.029 (.929)	.049 (.939)		.000
Dutifulness	.179 (1.053)	.059 (1.066)		-.380 (.859)	-.188 (.875)		-.109 (.924)	-.066 (.973)		.000
Achievement Striving	.070 (1.038)	-.031 (1.063)		-.592 (.810)	-.373 (.964)		-.213 (.908)	-.198 (.892)		.000
Self-Discipline	.129 (1.062)	.037 (1.081)		-.335 (.755)	-.265 (.933)		.061 (.909)	-.019 (.914)		.001
Deliberation	-.066 (1.068)	.051 (.999)		-.325 (.807)	-.150 (.931)		-.147 (1.035)	.014 (.999)		.004

Note. Only statistically significant F values are indicated: \*\*  $p < .01$ , \*  $p < .05$ , (\*)  $p =$  just above significance level