

Personality factors as predictors of foreign language aptitude¹

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Abstract

The study addresses a problem which is inadequately investigated in second language acquisition research, that is, personality predictors of foreign language aptitude. Specifically, it focuses on the Five Factor model which includes Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism (Costa & McCrae, 1992) as traits differentiating gifted and nongifted foreign language learners and predicting results of foreign language aptitude tests. Although contemporary researchers generally agree that affect is an important variable in second language acquisition, most empirical studies demonstrate that personality factors are weakly correlated with cognitive abilities and that their contribution to the ultimate attainment is minor (cf. Robinson & Ellis, 2008). On the other hand, these factors constitute an integral part of cognitive ability development (cf. Dörnyei, 2009); therefore, neglecting them in research on foreign language aptitude would be unjustified. The following study is an attempt to analyze the Five Factors in two groups of learners: gifted and nongifted. In order to answer the question as to which and to what extent personality factors have a predictive effect on foreign language aptitude, the results were subjected to a multiple regression analysis. The findings of the study are presented and discussed in a wider context of research on cognitive abilities.

Keywords: the Five Factors, personality, foreign language aptitude, gifted foreign language learners

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For several decades the issue of personality effects on second language acquisition (SLA) has been high on the agenda of many second language acquisition researchers. Its major focus has been on selected personality characteristics, for example anxiety (cf. Dewaele, Petrides, & Furnham, 2008; Piechurska-Kuciel, 2008) or motivation, which is considered a cognitive rather than affective factor in contemporary motivation theories (Dörnyei, 2001, 2010), whereas other factors have received very little attention or have been completely omitted (cf. Pawlak, 2009, p. 8). In particular, personality traits have been consistently neglected in many research studies as well as literature reviews, also those which focused specifically on individual differences and affect in SLA (cf. Arnold, 1999; Griffiths, 2008). The most popular instrument to measure personality used in SLA studies has been the Myers-Briggs Type Indicator (Myers, McCaulley, Quenk, & Hammer, 1998), which categorizes personality according to four dichotomous scales (cf. Ehrman, 1996, 2008). However, recently, other personality scales adopted from the field of psychology have become increasingly popular. One of the paradigms gaining interest in individual difference research in SLA is Costa and McCrae's (1992) Five Factor model of personality (FFM; also referred to as the Big Five). The Five Factors include: Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism and comprise the most comprehensive empirical model of personality. As Dörnyei (2005) has it: "At present the Big Five is gaining momentum to the extent that it seems almost ubiquitous in the current literature" (pp. 12-13). Costa and McCrae's model as well as their famous Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992) have been applied in a few studies on multilingualism (cf. Dewaele, 2002, 2009; Dewaele & Furnham, 2000) and gifted foreign language learners (cf. Hu & Reiterer, 2009). Nevertheless, there is very little research on the relationship between foreign language aptitude and personality traits, possibly due to the disappointing correlations between success in a foreign language and personality dimensions (cf. Dörnyei, 2005, 2009) and, consequently, their lower status in research on predictors of learning outcomes. As Ellis and Robinson (2008) argue: "Learners' aptitude, attitude and motivation are all systematically related to rate of progress and ultimate attainment, but affective factors are subordinate to more powerful cognitive developmental and maturational factors" (p. 7). On the other hand, some researchers being aware of the potential of personality factors in the development of foreign language aptitude call for research in this neglected field (cf. Bongaerts, Planken, & Schils, 1995; Dörnyei, 2009, 2010; Hu & Reiterer, 2009; Hyltenstam & Abrahamsson, 2003; Moyer, 1999, 2007).

The following study was designed to measure the predictive effect of the Five Factors on foreign language aptitude in two groups of learners: gifted

and nongifted. The first sections of the article present the theoretical background of the FFM, a brief overview of foreign language aptitude models and the theoretical and empirical perspective on the role of personality traits in foreign language aptitude. Then, the study is presented and discussed in the context of research on foreign language aptitude. The analyses applied in the study included descriptive statistics, the Pearson product-moment correlation, *t* test of differences and regression analysis. The article closes with some concluding remarks and suggestions for further research.

The Five Factors

Personality factors are relatively stable styles of thinking, feeling and acting. Personality research has gained much popularity in the past decades thanks to the recognition that personality predicts a large part of behavior and variety of social and academic outcomes (Bouchard & McGue, 2002). Cross-cultural studies of personality have provided cumulative evidence that personality factors are universal and replicable, which means that they can be found in all societies and cultures of the world (McCrae & Costa, 1997). Because no significant differences in traits and trait structures were found in various cultures, a conclusion was drawn that traits are not generated by the specificity of a culture but are general and attributed to biological bases and psychological consequences of the shared human experience of living in society.

There has been much controversy on how many factors create personality: three (Eysenck & Eysenck, 1964; Tellegen, 1982), five (Costa & McCrae, 1992), eight (Comrey, 1970), or 16 (Cattell, Eber, & Tatsuoka, 1970). The number of higher-order traits and their hierarchical structure is also disputable. Eysenck's traditional three-factor theory, which became a point of reference for many researchers, includes Neuroticism, Psychoticism and Extraversion. The factor of Psychoticism connected with aggressiveness and hostility is the most controversial one. Tellegen's three-factor model replaced Extraversion with Positive Emotionality (the tendency to be positively and actively engaged with one's environment), Neuroticism with Negative Emotionality (the tendency to experience negative emotions) and introduced the factor of Constraint (the ability to inhibit impulses). Nowadays, most psychologists agree that the best representation of human personality is provided by the FFM (Costa & McCrae, 1992). According to this model, there are five basic dimensions of personality: Openness to Experience or Intellect, Conscientiousness or Will to Achieve, Extraversion or Surgency, Agreeableness versus Antagonism and Neuroticism versus Emotional Stability. Each of these five factors represents the common variance among a set of more specific traits. In 1992 Costa and McCrae designed a tool for measuring personality, the NEO-PI-R, which operationalized the FFM by

assessing 30 specific traits (six for each factor). Factor analyses conducted on different groups have consistently generated a five-factor structure of personality irrespective of gender, ethnic group, age or culture.

Behavioral genetic findings (Bouchard & McGue, 2002) provided convincing evidence that the Five Factors are moderately to substantially heritable. In their review of literature, Bouchard and McGue (2002) suggested that genetic influence on personality trait variation ranges from 40 to 55%. Moreover, there is a strong case for the hypothesis that shared family environment exerts basically no influence on personality traits. Estimates of genetic and environmental influences on personality are based on animal studies (Gosling, 2001), and on twin, adoption and family studies (Bouchard, 1997; Bouchard & Loehlin, 2001). Interestingly, no gender differences in heritability of the Five Factors were found in studies on big populations ($N = 30\,000$; Eaves et al., 1999). According to Bouchard and McGue (2002), analyses of twin, adoption and family studies provide strong and consistent evidence for both genetic and environmental contributions to personality; however, the latter are far more difficult to detect and measure. All these studies were consistent in indicating that the environmental sources of influence have effects in personality differences (nonshared) rather than in personality similarities (shared) between children raised in the same family. These nonshared factors, that is, factors which differentiate relatives, are very complex and difficult to identify.

Longitudinal studies over the period of six years confirmed that the Five Factors are relatively stable. What is more, they perform an important role in adaptation to the environment. Openness is a predictor of career choice, Conscientiousness is the best predictor of the quality of professional activity as well as academic achievement, and all of the factors except for Openness are connected with life satisfaction (Strelau, 2000, p. 555). Each of the Five Factors constitutes a continuum with two extremes:

- Openness to Experience denotes an appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity and variety of experience. People characterized by high levels of Openness to Experience are intellectually curious, sensitive to beauty, creative and aware of their feelings. They tend to be unconventional, independent in their judgment and willing to question authority and discover new political, social and aesthetic ideas. People gaining low scores on Openness tend to be more conventional and conservative and have traditional interests. They appreciate traditional values, have pragmatic interests and prefer socially accepted ways of acting. The six specific traits of Openness to Experience include: Fantasy, Aesthetics, Feelings, Actions, Ideas and Values.
- Conscientiousness is a tendency to show self-discipline, act dutifully and aim for achievement. This factor affects our control and regulation of im-

pulses. High scorers exhibit a strong will, are motivated and persistent in their endeavors. They are thorough, dutiful, punctual, thoughtful and reliable at work. They display a preference for planned rather than spontaneous behavior. They can have high academic and professional achievements. A high degree of Conscientiousness can indicate perfectionism and workaholicism. Low scorers are rather sloppy at work and display low achievement motivation as well as hedonistic attitude towards life, lack of clear life goals, laziness, impulsivity and spontaneity in making decisions. The six specific traits of Conscientiousness include: Competence, Self-Discipline, Achievement-Striving, Dutifulness, Order and Deliberation.

- Extraversion is connected with positive emotions, surgency and the tendency to seek out stimulation and the company of others. This trait manifests itself by evident engagement with the external world. People scoring high on this trait are friendly and warmhearted, full of energy, prone to play and search for stimulation. Extraverts enjoy being with people and tend to dominate in social situations. They are active, enthusiastic, vigorous, optimistic and talkative. Introverts are less socially active than extraverts. They treat others with reserve, are less optimistic and tend to stay lonely and withdrawn. Introverts seem quiet, modest and thoughtful. Their lack of social involvement should not be interpreted as shyness or depression; they simply need less stimulation than extraverts. The six specific traits of Extraversion include: Warmth, Gregariousness, Assertiveness, Activity, Excitement-Seeking, and Positive Emotions.
- Agreeableness reflects individual differences in general concern for social harmony. It denotes the tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Agreeable individuals are friendly and helpful and generally assume that other people represent similar virtues. They optimistically believe that people are honest, decent and trustworthy. They appreciate good relationships with other people. They can be described as straightforward, ingenuous, sincere, considerate, generous, altruistic, helpful and willing to compromise their interests with others. People who score low on Agreeableness are egocentric, skeptical about others' motives, competitive rather than cooperative, suspicious, aggressive and hard-faced. They are not interested in others' well-being. The six specific traits of Agreeableness include: Trust, Modesty, Compliance, Altruism, Straightforwardness and Tender-Mindedness.
- Neuroticism (emotional instability) is the tendency to experience negative emotions, for example anger, anxiety or depression. High scorers are susceptible to irrational ideas, less able to control their impulses and manage stress. They react to stress with fear, tension, tend to worry themselves sick

and interpret ordinary situations as threatening. They often experience hostility and anger, get discouraged and depressed in difficult situations. Their self-esteem is low and they can be embarrassed in social situations. Their negative emotional reactions tend to continue for long periods of time, which means they are often in a bad mood. Low scorers are more emotionally stable, quiet, relaxed, less easily upset and less emotionally reactive. They manage stress more effectively and do not experience frustration and irritation as often as neurotics. The six specific traits of Neuroticism include: Anxiety, Hostility, Depression, Self-Consciousness, Impulsiveness and Vulnerability (Costa & McCrae, 1992; McCrae & Costa, 2003; Nosal, 1999). According to Watson and Clark (1994), the trait Negative Affect is a defining feature of Neuroticism. Individuals who are high in Neuroticism experience an array of such negative states as episodes of anxiety, depression and hostility. Negative affectivity is also associated with introspection and rumination, negativistic cognitive style and a focus on negative aspects of a person and life in general. Consequently, it is characterized by a low self-concept and a high level of stress, accompanied by poor coping potential. In contrast, individuals with a low Neuroticism trait tend to be content, secure and self-assured. Negative Affect correlates positively with Introversion, whereas Positive Affect with Extraversion.

Foreign Language Aptitude

The contemporary concept of foreign language aptitude is based on the definition proposed by Carroll (1981), who termed it as “the individual's initial state of readiness and capacity for learning a foreign language, and probable degree of facility in doing so . . .” (p. 85). In terms of structure, Carroll described foreign language aptitude as consisting of four relatively independent subcomponents: phonetic coding ability, grammatical sensitivity, inductive language learning ability, and associative memory (Carroll, 1981, p. 105). Carroll's theory as well as his famous Modern Language Aptitude Test (MLAT; Carroll & Sapon, 2002) have become the most often referred to paradigm in all subsequent studies on foreign language aptitude (cf. Dörnyei, 2005).

The most influential contemporary models of foreign language aptitude are Skehan's *processing stage model* (2002) and Robinson's *aptitude complex model* (2002), which include psycholinguistic and cognitive-science research findings on human cognitive abilities. Skehan's model refers stages of SLA to foreign language aptitude components, whereas Robinson's model relates cognitive profiles of foreign language learners to different types of instruction demanding different levels of awareness. Both models involve the factor of

working memory, which reconceptualizes the original, that is, Carroll's model. In the light of contemporary research, foreign language aptitude is viewed not as a monolith, but as a conglomerate of a number of cognitive variables (cf. Dörnyei & Skehan, 2003).

The only foreign language aptitude theory that takes into account personality and motivational (conative) characteristics is Snow's (1987) *cognitive-affective-conative triad* of foreign language aptitude, further extended by Corno et al. (2002). In this model, aptitude is not limited to abilities but includes aspects of personality such as achievement motivation, freedom from anxiety, positive self-concept and control of impulses, temperament and moods. This paradigm also involves the Five Factors. Other classic foreign language aptitude theories (cf. Carroll, 1993; Robinson, 2002; Skehan, 2002) include only purely cognitive factors, which, consequently, affected empirical research on foreign language aptitude.

The Five Factors in Foreign Language Aptitude Research

Despite many controversies surrounding the role of noncognitive factors in foreign language learning outcomes, contemporary SLA researchers generally agree that cognitive and affective factors are related in the field of language learning (cf. Dewaele et al., 2008; Dörnyei, 2010; Griffiths, 2008; Hu & Reiterer, 2009; Laever, Ehrman, & Shekhtman, 2005). Success in learning a foreign language is associated with personality variables (cf. Dörnyei, 2005; Ehrman, 2008; Ehrman & Oxford, 1995). Nevertheless, personality factors are on the sidelines of research on foreign language aptitude and despite the declared need for such analysis, the researchers usually resign from it in their studies (cf. Abrahamsson & Hyltenstam, 2008; Bongaerts, van Summeren, Planken, & Schils, 1997; Ioup, Boustagui, El Tigi, & Moselle, 1994; Morgan, Smith, Tsimplici, & Woll, 2007; Moyer, 1999, 2007; Obler, 1989; Sawyer & Ranta, 2001; Schneiderman & Desmarais, 1988; Skehan, 1998; van Boxtel, Bongaerts, & Coppen, 2003). Consequently, instruments designed to measure this construct usually include only cognitive tests.

An innovative foreign language aptitude test under development by Doughty et al. (2010), the High-Level Language Aptitude Battery (Hi-Lab), designed with a view to predicting high-level attainment in post-critical SLA, included three tolerance-of-ambiguity measures. Eventually, after factor and reliability analyses, the authors decided to eliminate all three measures from the battery until a reliable behavioral measure is developed. What is more, the researchers declared that they decided to limit their tool to purely cognitive factors (p. 28). This decision accords with the often voiced opinion that the

role of personality factors in foreign language aptitude is far from straightforward (cf. Corno et al., 2002; Dörnyei, 2005).

A few studies devoted some attention to personality factors in foreign language aptitude. Bongaerts et al. (1995), Bongaerts et al. (1997), Bongaerts, Mennen, and van der Silk (2000), and Moyer (1999, 2007), in reports of their studies on highly motivated and advanced foreign language learners, suggested that some specific personality factors might, in connection with exceptional aptitude, affect exceptional success. The researchers emphasized the need for research on not only cognitive, but also affective factors in exceptional foreign language learners, which are capable of compensating for the late start (cf. Hu & Reiterer, 2009; Hyltenstam & Abrahamsson, 2003).

Personality traits have been measured in studies on multilingual foreign language learners. A study that fits in with this line of research was conducted by Ramirez-Esparza, Gosling, Benet-Martínez, Potter, and Pennebaker (2006) on 79 Spanish-English bilinguals. The researchers found that the bilinguals displayed slightly different personality profiles while speaking different languages. They were more extraverted, agreeable and conscientious in English than in Spanish, whereas their Neuroticism and Openness remained unchanged. Ożańska-Ponikwia's study (as cited in Dewaele, 2011) on 137 Polish-English bilinguals revealed that Agreeableness, Conscientiousness and Openness are positively correlated with "feeling different" in an L2.

Dewaele and Furnham (2000) found that Extraversion correlates positively with oral fluency measures in an L2, especially in stressful situations. Moreover, extraverts, due to their risk-taking ability, are more willing to use colloquial and emotion words than introverts. Dewaele (2002) discovered that Extraversion and Neuroticism predicted levels of foreign language anxiety in English L3 production, explaining 20% of the total variance. High levels of Extraversion and low levels of Neuroticism were linked to lower levels of anxiety in English. The same author (2009) presented evidence that psychological studies have consistently shown extraverts' superiority over introverts at short-term and working memory. Finally, Dewaele found negative, but statistically insignificant, correlations between Extraversion and foreign language course marks (2009). Young (as cited in Dewaele, 2009) discovered that Open-Mindedness (a concept similar to Openness to Experience) is a good predictor of foreign language learning outcomes.

Openness to Experience is the factor the most strongly related to intellectual functioning. Its correlation with verbal intelligence was estimated by McCrae (as cited in Nosal, 1999, p. 256) at .30. Openness is a relatively stable factor that is believed to have a strong genetic component; the influence of genetic factors on Openness is estimated at .61 (Nosal, 1999). It also correlates with creativity and

divergent thinking, which are factors characterizing gifted individuals (McCrae, 1987). Summing up, this factor is the strongest potential predictor of success in foreign language learning (cf. Dörnyei, 2005). The question whether it can also be a predictor of foreign language aptitude is yet to be answered.

An ongoing study on phonetically talented L2 learners conducted by Hu and Reiterer (2009) has provided interesting insights into the correlation between phonetic abilities and personality factors. The researchers found no correlation between pronunciation talent and Extraversion, Openness to Experience or Neuroticism, whilst a moderate positive correlation was found for Conscientiousness and Agreeableness. They attributed this observation to the separateness of phonetic aptitude, which does not require social capability, from other aptitudes affecting oral language (Hu & Reiterer, 2009).

Finally, Biedroń (2010) investigated differences in personality factors between two groups of learners: 44 gifted L2 learners (highly proficient multilinguals) and 37 nongifted L2 learners (year-one English philology students). Only one of the Five Factors, namely Openness to Experience, was found to be significantly higher in the gifted L2 learners than in the nongifted L2 learners. The other factors did not reveal statistically significant differences between the samples. The same author (Biedroń, 2012) reported on a study conducted on gifted L2 learners ($n = 44$) in which personality factors were correlated with cognitive factors (foreign language aptitude tests results). The results showed that personality and cognitive factors were not correlated, which means that in this sample of learners there was no relationship between these factors. To sum up, there is no direct evidence that Openness is a predictor of success in learning a foreign language or foreign language aptitude tests but the results of empirical studies suggest such a correlation.

Method

The aim of the study presented in this article was to examine the level of the Five Factors in two groups of learners: gifted and nongifted, and to test whether personality traits are predictors of foreign language aptitude as measured by two foreign language aptitude tests. Two hypotheses proposed for the purpose of this study are the following:

- H1. There will be significant differences between the gifted and the nongifted learners in the Five Factors. The gifted L2 learners will score higher on Openness and Conscientiousness than the nongifted learners.
- H2. Personality factors will explain some variance in foreign language aptitude. Openness and Conscientiousness will have a positive effect on

foreign language aptitude, whereas Neuroticism will have a negative effect on foreign language aptitude.

As has already been stated, the relationship between foreign language aptitude and personality traits is poorly investigated; therefore, great caution must be exercised when interpreting the results.

Participants

There were two groups of participants: gifted ($n = 44$) and nongifted ($n = 46$). The first group included 44 (31 female and 13 male) accomplished multilinguals (termed as gifted L2 learners). Participants from this group were identified as gifted based on proficiency scores, the number of languages they had learned, language learning history, recommendation of their teachers, the MLAT (Carroll and Sapon, 2002) score and the Language Ability Test (Pol. *Test Zdolności Językowych* [TZJ]; Wojtowicz, 2006) score. They were appointed by their teachers or encouraged by coworkers or class-mates to participate; some responded to an invitation to participate in the study sent via e-mail.

All of the participants were native speakers of Polish. They were mainly philology students from Polish universities, but there were also teachers in foreign language departments at university, school teachers of English and a few other professionals; six were doctoral students. In line with the previous research results (cf. Abrahamsson & Hyltenstam, 2008; Bongaerts, 1999; DeKeyser, 2000), most of the participants of the study were students of languages or professional linguists, which, according to DeKeyser (2000, p. 507), implies high verbal aptitude. Their age varied from 20 to 35 years; the mean was 24.5. All the participants were experienced language learners. The level of proficiency of the sample in at least one foreign language was advanced (C1/C2). All the participants were highly advanced in English. Fourteen (32%) were highly advanced in one foreign language, 19 (43%) in two languages, eight (18%) in three, two (4%) in four, and one (2%) in five languages. If they spoke more than two foreign languages, their level of proficiency in the additional languages was usually elementary/intermediate (A2/B1+). The number of languages they were learning varied from one to 11 (four and a half average) and included European and non-European languages. All the achievements were formally confirmed by official documents: certificates acknowledged in Poland and diplomas from universities in the case of advanced levels of a language. If an elementary/intermediate level was declared, end-of-course grades were accepted as a proof of the level of advancement. Only participants whose general MLAT score placed them within at least the 95th percentile and who scored at least 80% in the TZJ were accepted for the research.

The nongifted sample consisted of 46 year-one English philology students. There were 39 females and seven males in the sample. Their age varied from 20 to 23 years; the mean was 22. They were monolingual Polish learners of English as a foreign language. At the time the study was conducted, they had been learning English for seven-ten years. Most of them had private lessons in addition to their regular course at school. Ninety percent of them did not practice English in a natural setting. Their proficiency level was generally assessed as intermediate (B1/B2). However, individual learners varied with respect to the levels of proficiency at particular skills from intermediate to advanced. Their speaking and listening abilities were higher than their reading and writing skills, while grammar was the weakest point of the majority of the learners. Their mastery of English was sufficient to complete only Parts 1 (Number learning), 2 (Phonetic script) and 5 (Paired associates) of the MLAT, which do not require advanced English. The information about their level was based on end-of-semester grades.

Instruments

The following instruments were used in this study:

1. The Modern Language Aptitude Test (Carroll & Sapon, 2002): The MLAT is a language aptitude test that is useful for predicting success in learning a foreign language (Skehan, 1998). It measures aptitude traits by five scores (Carroll & Sapon, 2002, p.7):
 - a. Number learning, which measures verbal memory;
 - b. Phonetic script, which measures the ability to associate sounds with symbols;
 - c. Spelling clues, which partly measures the examinee's native vocabulary knowledge and partly the ability to associate sounds with symbols;
 - d. Words in sentences, which measures grammar sensitivity;
 - e. Paired associates, which measures rote memory.Split-half reliabilities for the MLAT were .92-97, depending on the grade or age. For college students, the validity coefficients (correlations with course marks) provided in the MLAT Manual (Carroll & Sapon, 2002) were .18-69.
2. The Language Ability Test (Pol. *Test Zdolności Językowych*) by Wojtowicz (2006): The TZJ was constructed to diagnose foreign language learning abilities. It includes three scales: Discourse, Vocabulary and Grammar. The Discourse scale includes gap filling with a phrase or word and a choice of the best summary of a text, which are all in the Polish language. The Vocabulary scale comprises recognizing prefixes and suffixes, finding synonyms and antonyms and guessing the meaning of phrases in

a foreign language. The Grammar scale includes translation of an artificial language, analysis and modifying reproduction of a conjugation in a foreign language and constructing an analogical grammatical form in the Polish language. The test reliability was .90; the validity coefficient (correlation with foreign language school grades) was .49.

3. The Revised NEO-Five Factor Inventory (Costa & McCrae, 1992): the Polish adaptation of NEO-PI-R by Zawadzki, Strelau, Szczepaniak, and Śliwińska (1998) is a psychological personality inventory; a 60-question measure of the FFM. There are twelve statements per factor answered on a 5-point scale. The subject can score from 0 to 4 points for each answer and for some questions the scoring order is reversed. The raw results range from 0 to 48 points per scale. The raw results are converted into Stens. Results from 1 to 3 are considered low, from 4 to 7 average and from 8 to 10 high. The Cronbach alpha for the reliability of internal consistency for Conscientiousness was .82, for Neuroticism .80, for Extraversion .77, for Openness to Experience .68 and for Agreeableness .68. The validity coefficients (correlation with a description by two persons and a self-description) were between .40 and .60.

Results

In order to find out if personality factors have an effect on foreign language aptitude, the following factors were investigated: Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism (the FFM). Table 1 shows descriptive data for personality factors in the gifted L2 sample and Table 2 shows descriptive data for the nongifted sample.

Table 1 Descriptive statistics for the gifted L2 learners: personality factors ($n = 44$)

Variable	<i>M</i>	Minimum	Maximum	<i>SD</i>
Neuroticism	4.568	1.000	10.000	2.245
Extraversion	5.227	1.000	10.000	2.165
Openness	6.159	2.000	9.000	1.627
Agreeableness	4.954	1.000	10.000	2.271
Conscientiousness	5.818	1.000	10.000	2.489

Table 2 Descriptive statistics for the nongifted L2 learners: personality factors ($n = 46$)

Variable	<i>M</i>	Minimum	Maximum	<i>SD</i>
Neuroticism	4.457	1.000	10.000	2.258
Extraversion	5.804	1.000	10.000	2.207
Openness	5.565	1.000	9.000	2.287
Agreeableness	5.500	1.000	9.000	2.041
Conscientiousness	5.326	1.000	10.000	2.386

Both groups of learners fell within the average range of scores. Openness and Conscientiousness were the factors on which the gifted participants scored the highest, whereas the nongifted sample scored the highest on Extraversion. Nevertheless, on the basis of the results we cannot say that either of the samples scored very high or very low on personality factors.

Differences Between the Gifted and the Nongifted L2 Learners

In order to test whether there were statistically significant differences between the two samples, the results of the NEO-PI-R of the gifted L2 learners were compared with the results of the nongifted L2 learners. The results of a series of *t* tests are presented in Table 3.

Table 3 *T* tests of differences between the gifted L2 learners and the nongifted L2 learners

Variable	<i>M</i>		<i>t</i>	<i>df</i>	<i>p</i>	<i>N</i>		<i>SD</i>	
	Gifted	Nongifted				Gifted	Nongifted	Gifted	Nongifted
Neuroticism	4.568	4.457	0.24	88	0.815	44	46	2.245	2.258
Extraversion	5.227	5.804	-1.25	88	0.214	44	46	2.166	2.207
Openness	6.159	5.565	1.41	88	0.161	44	46	1.627	2.287
Agreeableness	4.955	5.500	-1.20	88	0.234	44	46	2.272	2.041
Conscientiousness	5.818	5.326	0.96	88	0.341	44	46	2.490	2.386

No statistically significant differences in personality factors between the gifted and nongifted L2 learners were recognized; therefore, it was evident that these factors did not differentiate the subjects. However, some tendencies were observed, for example, a higher level of Openness to Experience and Conscientiousness and lower level of Extraversion and Agreeableness in the gifted L2 learners than in the nongifted L2 learners.

Correlation Between the Five Factors and Foreign Language Aptitude

The parametric correlation (the Pearson product-moment correlation coefficient) analysis was applied to measure the correlation between two foreign language aptitude tests (the MLAT and the TZJ) and personality factors in both samples. The correlation analysis revealed that foreign language aptitude factors did not correlate with personality factors in the gifted group (cf. Biedroń, 2012), but there was a number of significant correlations between foreign language aptitude and personality factors in the group of the nongifted L2 learners. For example, MLAT 1 (Number learning) and MLAT 5 (Paired associates) correlated negatively with Neuroticism, ($r = -.32$) and ($r = -.34$), respectively; MLAT 2

(Phonetic script) correlated negatively with Extraversion ($r = -.29$), whereas MLAT 5 (Paired associates) correlated positively with Conscientiousness ($r = .39$). The TZJ and its subtests, Grammar and Vocabulary, correlated positively with Openness to Experience: Vocabulary ($r = .50$), Grammar ($r = .32$), the TZJ ($r = .45$). Grammar correlated negatively with Neuroticism ($r = -.35$).

The Five Factors as Predictors of Foreign Language Aptitude

In order to answer the question as to what extent personality factors have a predictive effect on the MLAT and the TZJ scores, the results obtained in the correlation matrix were subjected to a multiple regression analysis. Both groups' scores, that is those of the gifted and nongifted participants, were included in the analysis. The independent variables were personality factors from the FFM introduced in a cluster, whereas the dependent variables were the MLAT scales and the TZJ scales. The group of the gifted L2 learners was small and carefully selected; therefore, the results of the foreign language aptitude tests were not normally distributed. Consequently, great caution must be exercised when interpreting the results. Effects of personality factors on the MLAT and the TZJ are presented in Tables 4-10.

Table 4 Effect of the Five Factors on MLAT 1 (Number learning)

MLAT 1	BETA	<i>t</i> (84)	<i>p</i>
Neuroticism	-0.217	-1.90	.061
Extraversion	-0.083	-0.70	.483
Openness	0.231	2.21	.030*
Agreeableness	-0.101	-0.93	.353
Conscientiousness	0.067	0.61	.542

$R^2 = .108$, adjusted $R^2 = .055$, $F(5.84) = 2.036$

* $p < .05$

Table 5 Effect of the Five Factors on MLAT 2 (Phonetic script)

MLAT 2	BETA	<i>t</i> (84)	<i>P</i>
Neuroticism	-0.185	-1.670	.098
Extraversion	-0.361	-3.158	.002*
Openness	0.198	1.945	.055
Agreeableness	-0.056	-0.535	.594
Conscientiousness	0.138	1.303	.196

$R^2 = .156$, adjusted $R^2 = .106$, $F(5.84) = 3.119$

* $p < .05$

Table 6 Effect of the Five Factors on MLAT 5 (Paired associates)

MLAT 5	BETA	t(84)	p
Neuroticism	-0.229	-2.06	.043*
Extraversion	-0.162	-1.41	.163
Openness	0.166	1.62	.109
Agreeableness	-0.004	-0.04	.972
Conscientiousness	0.275	2.58	.012*

$R^2 = .150$, adjusted $R^2 = .099$, $F(5.84) = 2.966$

* $p < .05$

Table 7 Effect of the Five Factors on TZJ (Discourse)

Discourse	BETA	t(84)	p
Neuroticism	-0.102	-0.89	.375
Extraversion	-0.245	-2.07	.042*
Openness	0.192	1.83	.072
Agreeableness	0.129	1.19	.237
Conscientiousness	-0.078	-0.71	.479

$R^2 = .096$, adjusted $R^2 = .042$, $F(5.84) = 1.786$

* $p < .05$

Table 8 Effect of the Five Factors on TZJ (Vocabulary)

Vocabulary	BETA	t(84)	p
Neuroticism	-0.043	-0.40	.691
Extraversion	-0.205	-1.83	.071
Openness	0.387	3.88	.000*
Agreeableness	-0.023	-0.22	.826
Conscientiousness	0.069	0.66	.511

$R^2 = .186$, adjusted $R^2 = .137$, $F(5.84) = 3.841$

* $p < .05$

Table 9 Effect of the Five Factors on TZJ (Grammar)

Grammar	BETA	t(84)	p
Neuroticism	-0.215	-1.93	.057
Extraversion	-0.191	-1.66	.100
Openness	0.287	2.82	.006*
Agreeableness	-0.011	-0.11	.917
Conscientiousness	0.173	1.63	.108

$R^2 = .153$, adjusted $R^2 = .102$, $F(5.84) = 3.036$

* $p < .05$

Table 10 Effect of the Five Factors on TZJ (general)

General TZJ	BETA	t(84)	p
Neuroticism	-0.142	-1.29	.200
Extraversion	-0.241	-2.13	.036*
Openness	0.363	3.60	.001*

Agreeableness	0.013	0.12	.904
Conscientiousness	0.095	0.91	.368

$R^2 = .175$, adjusted $R^2 = .126$, $F(5.84) = 3.567$

* $p < .05$

Two personality factors had the strongest effect on foreign language aptitude: Openness to Experience and Extraversion. Openness had a positive effect on foreign language aptitude, whereas Extraversion affected foreign language aptitude negatively. Openness had a positive effect on MLAT 1 (Number learning), Vocabulary, Grammar and the TZJ. Its effect on MLAT 2 (Phonetic script) was close to significant. Extraversion had a consistently negative effect on foreign language aptitude. It affected MLAT 2 (Phonetic script), Discourse and the TZJ and its effect on Vocabulary was close to significant. Other factors that turned out to be significant predictors of the aptitude scores were Neuroticism and Conscientiousness. Neuroticism negatively affected MLAT 5 (Paired associates) and its effect on MLAT 1 (Number learning), MLAT 2 (Phonetic script) and Grammar were close to significant. Conscientiousness had a positive effect on MLAT 5 (Paired associates).

Discussion

Hypothesis 1 was partly confirmed. Although the gifted L2 learners scored the highest on Openness and Conscientiousness, these variables placed them in the average rank. A high score on Openness means that the subjects can be creative, imaginative, curious, flexible, novelty seeking, untraditional and interested in art, whereas a high score on Conscientiousness indicates that they can be systematic, efficient, organized, responsible, reliable, persevering and self-disciplined. All these characteristics were likely to exist in the gifted L2 learners, but their level was moderately high. What is more, no statistically significant differences in personality factors between the gifted and the nongifted L2 learners were observed, although both Openness and Conscientiousness were lower in the nongifted sample. The previous study by the present author (cf. Biedroń, 2010), on a partly different sample of nongifted learners, produced a statistically significant difference in Openness to Experience between the groups. Therefore, it was suggested that this factor can modify foreign language aptitude. This hypothesis was confirmed by the regression analysis in which Openness turned out to explain a small, but statistically significant part of variance in foreign language aptitude. Summing up, no strong evidence was found that linguistically gifted people are more conscientious than less gifted individuals, which suggests that motivation, effort and good organization of work cannot compete with natural giftedness. A variable

much more promising for further investigation is Openness to Experience, connected with intellectual curiosity and flexibility, which are likely to foster strategy development and autonomous behavior.

Hypothesis 2 was corroborated. Owing to the inclusion of the nongifted learners' scores on personality tests in the regression analyses, the number of observations increased and some interesting tendencies were observed. Openness to Experience turned out to be quite a good predictor of foreign language aptitude explaining from 5.5% of variance in MLAT 1 (Number learning) to 12.6% of variance in the TZJ. The other personality factor which positively affected foreign language aptitude was Conscientiousness (effect on MLAT 5 [Paired associates]). Extraversion and Neuroticism negatively affected foreign language aptitude. The subtests including the memory component (MLAT 1 and 5) and Grammar were negatively affected by Neuroticism. The negative effect of Extraversion on foreign language aptitude accords with the line of research which interprets it as a factor rather negatively correlated with the learning outcomes (cf. Dewaele, 2009; Dörnyei, 2005).

An interesting tendency occurred in the correlation analyses. It turned out that in the case of the gifted L2 learners there were no correlations between cognitive and personality factors, whilst a number of such correlations was observed in the case of the nongifted learners. A plausible interpretation is that, unlike foreign language aptitude in the gifted L2 learners, foreign language aptitude in the nongifted L2 learners is affected more by noncognitive factors. It seems that the level of performance on a test task in this sample is mediated by some personality characteristics. The subtests including the memory component (MLAT 1 and 5) and Grammar were negatively affected by Neuroticism, which is connected with Negative Affectivity. Anxiety involved in Neuroticism produces negative learning outcomes (cf. Corno et al., 2002; Dewaele, 2002). On the other hand, it seems that Openness to Experience and Conscientiousness have a positive effect on the 'mainstream' learners' performance.

Conclusion

The purpose of the study presented in this article was to examine the level of the Five Factors in two groups of learners, gifted and nongifted, and to find out whether personality factors are predictors of foreign language aptitude. The analysis generally confirmed the weak role of personality traits in predicting foreign language aptitude. The coefficients in multiple regressions were low, which indicates that the independent variables introduced in the equations are not very good predictors of foreign language aptitude tests scores. Among the Five Factors of personality proposed by McCrae and Costa

(1992), Openness to Experience, due to its relationship to intellectual functioning and high dependence on genetic factors, seems to be the most powerful modifying personality variable that affects foreign language aptitude. On the other hand, Conscientiousness, related to impulse inhibition, self-discipline and motivation (cf. Corno et al., 2002; Dörnyei, 2005), is intuitively ascribed to successful language learners. Nonetheless, the evidence that it influences foreign language aptitude is insufficient. As has already been stated, the relationship between foreign language aptitude and personality factors is poorly investigated; therefore, their impact on the development of foreign language aptitude is still tentative.

What makes the matter even more complex, personality factors measured in this study are nonlanguage specific, which might have affected the results. Finally, it is possible that certain factors appear with greater intensity in particular groups of individuals, for example, university students or language professionals. In this case, they would depend on other variables, independent of foreign language aptitude. In order to analyze these complicated relationships further research on larger samples of participants from various backgrounds and with normal distribution of foreign language aptitude is needed.

Although the relationship between personality factors and foreign language aptitude is weakly investigated, it emerges that they are significantly implicated in SLA. Even if personality factors do not directly influence the outcomes of learning a foreign language, "they certainly shape the way people respond to their learning environment" (Dörnyei, 2005, p. 30), which means that they can interact with other individual variables, such as, for example, learning styles and strategies or cognitive abilities. Such amalgams of cognitive and affective factors are likely to affect learner behavior in both natural and instructional settings. Last but not least, the relationship between the learner's and the teacher's personality characteristics can have an effect on the process of learning, in particular, the learner's motivation.

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