

## **The Big Five: Recent developments in Slovene child personality research**

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**Abstract:** This paper presents an overview of recent personality trait research in children and early adolescents, with a special focus on studies in Slovenia. In the search for the precursors of the adult Big Five, a free-descriptive strategy to assess personality in non-adult samples is emphasized. Findings suggest that parents describe infants and toddlers in terms that are predominantly categorized in the Five-Factor Model taxonomy. Distributions of descriptors show developmental patterns from infancy to early adolescence and small cultural differences. Based on the parental natural language used to describe children across countries, ecologically valid assessment tools were created. The Inventory of Child Individual Differences (ICID; Halverson et al., 2003) was conceptualized as an age and culturally neutral instrument, and is widely used in Slovenia. Cross-sectional studies on ICID ratings of 3 to 14 year-olds provide information on age, sex, and cultural differences in child/adolescent personality trait expression across observers. Several aspects of trait consistency from early to middle childhood, using a longitudinal and multiple-informant approach, are reviewed, as well as the aspects of consistency across contexts and informants. Concurrent and longitudinal predictive values of the ICID trait assessments are shown in relation to several social and academic outcomes. In addition to the variable-centered method, results based on the child-centered approach suggest several internally replicable personality types. Developmental and cross-observer consistency in the structure of personality types, stability of type membership and its predictive validity versus personality traits is described. Prospects for future research on child personality development are suggested, including new methods of assessment and the investigation of links between early personality and important life outcomes.

**Key words:** childhood, early adolescence, personality traits, Big Five Personality model, assessment, Slovenia

## **Velikih Pet: Nova spoznanja slovenskih raziskav o osebnosti otrok**

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**Povzetek:** V prispevku predstavljam pregled novih raziskav o osebnostnih potezah otrok in zgodnjih mladostnikov ter se posebej osredotočam na ugotovitve slovenskih študij. Pri odkrivanju predhodnikov Velikih pet v odraslosti poudarjam strategijo prostih opisov za ocenjevanje osebnosti otrok in mladostnikov. Rezultati raziskav kažejo, da starši celo dojenčke in malčke opisujejo z značilnostmi, ki jih lahko

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večinoma razvrstimo v kategorije Petfaktorske taksonomske sheme. Porazdelitve opisnikov nakazujejo določene razvojne vzorce iz najzgodnejših obdobij v zgodnje mladostništvo in majhne medkulturne razlike. Na podlagi vsakdanjega besednjaka, ki ga starši uporabljajo za opisovanje svojih otrok v različnih deželah, so avtorji oblikovali ekološko veljavne merske pripomočke. Vprašalnik medosebnih razlik med otroki (VMRO; Halverson idr., 2003) je bil zasnovan kot starostno in kulturno nevtralen pripomoček in ga pogosto uporabljamo v Sloveniji. Prikaz prečnih študij, ki temelji na ocenah izraznosti osebnostnih potez otrok/mladostnikov, starih od 3 do 14 let, pri VMRO, daje vpogled v razlike med starostnimi skupinami, spoloma, kulturami in poročevalci. Na podlagi vzdolžnega preučevanja osebnostnih potez otrok predstavljam pregled ugotovitev o različnih vidikih doslednosti ocen iz zgodnjega otroštva v srednje otroštvo, kot tudi doslednosti med poročili različnih ocenjevalcev otrokove osebnosti. V nadaljevanju povzemam rezultate o sočasni in vzdolžni napovedni vrednosti osebnostnih potez, kot jih merimo z VMRO, za socialni razvoj in učno uspešnost otrok/mladostnikov. Poleg spoznanj, pridobljenih z metodo, ki se osredotoča na poteze, posredujem izsledke analiz, ki temeljijo na pristopu, osredotočenem na posameznika. S slednjim smo prepoznali več notranje ponovljivih tipov osebnosti pri otrocih, ki jih opisujem z vidika strukturne stalnosti v času in med poročevalci, doslednosti v pripadnosti otrok posameznim tipom osebnosti in napovedne vrednosti tipov v primerjavi s potezami. Ob koncu povzemam smernice za nadaljnje raziskovanje razvoja osebnosti otrok, vključno z novimi metodami ocenjevanja in preučevanja zvez med zgodnjimi osebnostnimi potezami ter pomembnimi razvojnimi izidi.

**Ključne besede:** otroštvo, zgodnje mladostništvo, osebnostne poteze, model Velikih Pet, ocenjevanje, Slovenija

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Personality traits are typically defined as dimensions of individual differences in enduring tendencies to feel, think and act in a relatively consistent way, both temporally and contextually (Burger, 2008; Funder, 2001; McCrae & Costa, 2003). Over the past decade, a relative consensus has been reached regarding the Five-Factor Model (FFM) to summarize the organization of adult personality traits across countries and language communities (e.g., McCrae & Costa, 1997; McCrae et al., 2005a). The model covers the OCEAN dimensions of human personality: openness, conscientiousness, extraversion, agreeableness and neuroticism. Nevertheless, there have been several criticisms and limitations to the model (e.g., Block, 1995; Eysenck, 1997; Paunonen & Jackson, 2000), with at least one of them concerning its developmental shallowness (Graziano, 1994).

## What about Children?

Except for Digman's reports on the Big Five's replicability regarding teacher ratings of school-age children (e.g., Digman, 1963, 1989, 1990; Digman & Inouye, 1986), empirical studies of the FFM have been predominantly carried out with the assessment of adults. However, from the point of view of developmental psychology, children's personality should be conceptualized with regards to the adult personality structure, and adult personality should be understood in the light of its childhood

antecedents (Shiner, 2006). Until recently, child personality was usually conceived in terms of temperament (e.g., Ahadi & Rothbart, 1994; Buss & Plomin, 1984; Caspi & Silva, 1995; Hagekull, 1994; Thomas & Chess, 1977, 1982), constitutionally based, early-emerging individual differences in emotional, motor and attentional reactivity, and self-regulation (Rothbart & Bates, 1998; Rothbart & Derryberry, 2002). Personality traits representing the social and cognitive elaborations of early temperamental characteristics were assumed to develop later, during middle childhood, as children display an increasingly differentiated, complex range of individual differences (e.g., Caspi, 2000). Several authors have searched for developmental links between child temperament and the adult Big Five (Ahadi & Rothbart, 1994; Graziano, Jensen-Campbell, & Sullivan-Logan, 1998; Rothbart, Ahadi, & Evans, 2000; Martin, Wisenbaker, & Huttunen, 1994). For example, Rothbart and her associates (Ahadi & Rothbart, 1994; Rothbart, Ahadi, Hershey, & Fisher, 2001) conceptually linked surgency to extraversion, negative affect to neuroticism, and effortful control to conscientiousness and agreeableness. Caspi (2000; Caspi & Silva, 1995) demonstrated empirically that early-appearing temperamental differences show links to both personality traits in adolescence and a pervasive influence on life-course development. Temperamental qualities at age 3, based on observations of behaviour, have also been shown to predict later behavioural problems, personality and many important life outcomes (see Shiner, 2006, for an overview).

Many researchers, however, continued Digman's line of work. The potential usefulness of the FFM to assess individual differences among children and early adolescents has been indicated by results of several studies (e.g., Digman & Shmelyov, 1996; Graziano & Ward, 1992; John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994; Lamb, Chuang, Wessels, Broberg, & Hwang, 2002; Little & Wanner, 1998; Mervielde, Buyst, & De Fruyt, 1995; Van Lieshout & Haselager, 1994). Variations of two approaches were employed: (a) an adult FFM measure was used with adapted item-phrasing and rating instructions to make them more suitable for child assessment (e.g., Little & Wanner, 1998; Mervielde et al., 1995; Zupančič, Fekonja, & Kavčič, 2003); (b) FFM scores were derived from measures (most frequently California Child Q-set; Block & Block, 1980) that are constructed to operationalize another personality model. Scale-scores were rearranged in order to form reliable markers for the FFM (e.g., John et al., 1994; Lamb et al., 2002; Van Lieshout & Haselager, 1994). However, the items used in such instruments may not represent a full range of child individual differences, since they are based on measures to assess adults and/or capture theorist-imposed core constructs on child personality. Consequently, the items may not accurately reflect those characteristics of children at different ages that are perceived salient for parents and teachers in daily life. Such perceptions are important as they might significantly affect adults' behaviour towards children and, as a result, may have an impact on child development (Goodnow & Collins, 1990). Moreover, it is difficult to deduce from the scores of such inventories whether personality structure reflects child features or results from specific instruments. There

is also a danger that assessing child personality using an adult structure may obscure some age-specific features (Knyazev, Zupančič, & Slobodskaya, 2008).

## The Free-Descriptive Approach

Adult personality studies rely heavily on trait adjectives found in dictionaries, as there is no catalogue on child individual differences available. In addition, trait adjectives culled from dictionaries reflect a passive rather than active personality vocabulary. Therefore, the frequency of use of personality descriptions in everyday discourse is not taken into account (Mervielde & De Fruyt, 2002). Based on the assumption that naturally occurring personality descriptors of children, as used by their caregivers, would provide more information about how adults perceive children than an analysis of personality inventories, John (1990) suggested using a free-descriptive approach to create a lexicon of words that describe child personality. According to the lexical hypothesis, parental natural language will encode child individual differences that are significant in daily interactions. The more important the child's personality feature, the more it will be talked about by caregivers. The parental natural language or free-descriptive approach was subsequently adopted for a multi-national collaborative research project (Kohnstamm, Halverson, Mervielde, & Havill, 1998). Parents of children aged from 3 to 12 were asked to describe their child's characteristics in their own words. Data was collected from seven countries (Belgium, China, Germany, Greece, the Netherlands, Poland and the US), as the team intended to increase ecological representativeness of the descriptions in each country. The traits parents come to see in their children may depend on several factors, such as the saliency of those traits in children, parental expectations based on their family history and prevailing belief systems about what traits are important for children in their particular culture (Kohnstamm, Mervielde, Besevegis, & Halverson, 1995).

In order to categorize over 50,000 statements generated from the project (Kohnstamm, Halverson et al., 1998), an elaborate coding system was developed, based on a combination of existing personality taxonomies and temperament models (Havill, Allen, Halverson, & Kohnstamm, 1994). The taxonomy accounts for five main or Big Five categories, with three subcategories each and eight additional categories. Descriptions are coded at the high or low end of a specific subcategory. Extraversion includes sociability, dominance and activity. For example, "*My child likes to be with others*" would be coded at the high end of *sociable* and "*... prefers to play alone*" would be coded at the low end. Agreeableness contains amiability, manageability and honesty. Conscientiousness consists of carefulness, interdependence and diligence. Emotional stability accounts for reactivity, self-confidence and anxiety/fear. Finally, openness/intellect refers to openness to experience, interests and intelligence. The remaining eight categories include independence, maturity for age, health, rhythmicity, gender appropriate or physical attractiveness, school

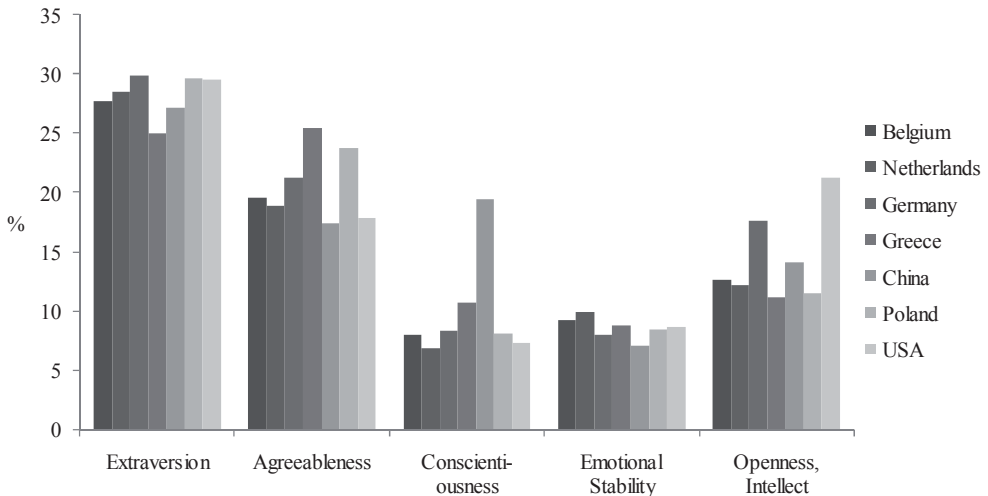


Figure 1. Approximate percentages of overall parental descriptors in five main categories for each of the seven participating countries. Source: Adapted from Kohnstamm, Halverson et al. (1998).

performance or attitudes, contact comfort and family relationships.

Figure 1 shows the percentages of parental descriptors coded as belonging to a given main category in each of the participating countries. For example, approximately 28% of descriptors belong to extraversion in Belgium and the Netherlands, compared to 30% in Germany, Poland and the US, 25% in Greece, and 27% in China. Across all the samples, the vast majority of child characteristics were coded into the Big Five categories. In general, extraversion was found to be the most salient dimension for parents describing their children, agreeableness and openness/intellect also received relatively large percentages of descriptors, while conscientiousness and emotional stability were revealed the least capacious categories. The differences among the countries were small with respect to overall percentages of descriptions coded for extraversion and emotional stability but varied more by country for the remaining three categories (Kohnstamm, Halverson et al., 1998). Similar results were demonstrated in Slovenia. In addition, a more elaborate methodology was employed, including a multiple-informant approach, and extended to include descriptions of infants and toddlers (Zupančič, 2001, 2004; Zupančič & Kavčič, 2002). Part of the findings is presented in Figure 2. The display concerns two age groups, infants/toddlers and preschoolers, as well as mothers' and fathers' reports. Overall, our results suggest that the FFM taxonomy is useful for coding free descriptions of toddlers, and even infants, as over 80% of descriptors were coded within the five main categories. Several significant age differences were revealed. For example, preschoolers were more frequently described in terms of agreeableness (especially low manageability) and openness/intellect than infants/toddlers, who were more often ascribed extraversion

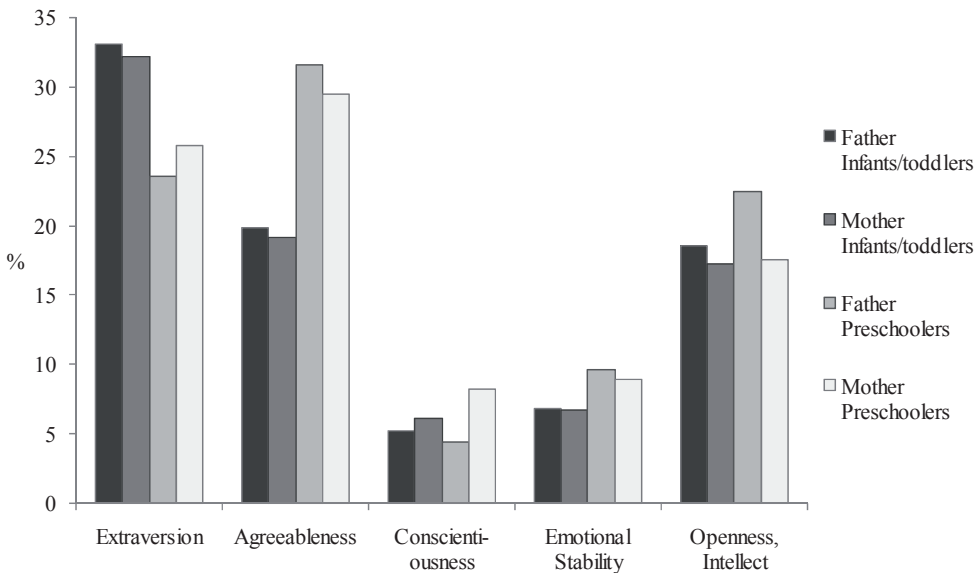


Figure 2. Approximate percentages of overall parental descriptors of Slovene infants/toddlers and preschool children for the five main categories. Source: Adapted from Zupančič (2004).

sion (especially sociability; Zupančič, 2004). There was also a significant agreement between both parents, and between them and the preschool teachers when describing the same child (Zupančič, 2004; Zupančič & Kavčič, 2002). A closer inspection of the mean proportions of Slovene descriptions ascribed to given main categories at ages 3 to 6 years (Zupančič, 2004) showed remarkable similarities to those revealed in the seven countries (Slotboom, Havill, Pavlopoulos, & De Fruyt, 1998), with agreeableness and openness appearing somewhat more salient to Slovene parents in comparison to the parents across other countries.

Overall, cross-sectional and cross-national data demonstrate that the child personality characteristics which reflect active cognitive control (an important feature of conscientiousness) become relatively more salient as the target children's age increases, while those referring to the interpersonal domain (extraversion and agreeableness) become relatively less salient for caregivers from early to middle childhood and early adolescence (Slotboom et al., 1998). There are both slight gender differences and cross-national differences in describing children. A notable exception to this is China, where conscientiousness is seen as extremely important for parents of children aged 3, 6, 9, and 12 years (see Figure 1). In contrast to parents from other countries, the Chinese are concerned with their children's low conscientiousness (Kohnstamm, Zhang, Slotboom, & Elphick, 1998). Overall, however, the similarities of the countries' proportions of child descriptors across (sub)categories are more striking than the differences, when the large cultural and language differences

between the samples have been taken into consideration (Kohnstamm, Halverson et al. 1998). Based on the free-descriptive studies, the FFM-inspired category system is suggested to be a good heuristic for classifying child characteristics. However, no conclusions about the factorial structure underlying adult ratings of child personality traits can be drawn from the obtained results (Kohnstamm et al., 1995).

## **Parental Natural Language Questionnaire Development: The Inventory of Child Individual Differences**

To provide information on the structure of child personality, instruments using wording of typical child descriptions (Kohnstamm, Halverson et al., 1998) were created within countries for separately assessing children at ages 3, 6, 9 and 12. This resulted in an unworkable set of age and country-specific measures as the items did not appear in an identical form across the versions for the different ages and countries. The question was raised as to whether an instrument that capitalized on the overlap and redundancy of items could be produced. The Hierarchical Personality Inventory for Children (HiPIC; Mervielde & De Fruyt, 1999, 2002), a common instrument used to assess individual differences in children aged between 5 and 12 years, was constructed in Belgium, while the team in Georgia (in the US) aimed at the development of a cross-age and cross-country inventory applicable from the ages of 3 to 14. Both the prototypical items for all age samples, and matching of the proportion of items to the distribution of the Big Five phrases in the parental lexicon were considered for a preliminary form of the Inventory of Child Individual Differences (ICID). It was created following exhaustive procedures of translations, back-translations, sorting, selecting, clustering and reviewing items found on all of the Chinese, Greek, Dutch and US age-specific instruments. This version of the ICID was assessed by independent samples of parents (in China, Greece and the US) and underwent factor analytic procedures in each country. Based on the findings and further refinements, the final version of the ICID (Halverson et al., 2003) retained 108 items that were the same across age and country.

Comparative analyses of data in the three countries and across the target children's ages revealed 15 *mid-level personality scales* (Halverson et al., 2003):

- Achievement Orientation (persistent, focused on goal attainment, follows tasks through to completion);
- Activity Level (energy output, constantly on the move);
- Antagonism (confrontational behaviour indicated by being rude, aggressive, directly expressing anger in interpersonal situations);
- Compliance (cooperative behaviour in response to interpersonal authority);
- Considerate (actively concerned about what happens to others, readily helps and nurtures);



- Distractible (shows poor concentration, low on sustained directed attention);
- Fearful/Insecure (easily upset, distressed, quick to panic);
- Intelligent (quick to understand what is said or going on, learning-oriented);
- Negative Affect (negative emotions experienced in interpersonal situations);
- Openness to Experience (tendency to explore, asks a lot of questions);
- Organized (orderly, tidy, concerned about things and actions);
- Positive Emotions (gets along well with others, loving, positive in interpersonal situations);
- Shy (socially reticent, slow to warm up to new people and/or new situations);
- Sociable (preference to be with other people, actively seeks company);
- Strong-Willed (bossy, self-assertive, wants things one's own way).

## Psychometric Properties of the ICID Scales

In addition to the versions in the three languages (English, Greek, and Chinese), the ICID was translated (according to the back-translation procedure and use of wordings appearing in natural language of origin) and thoroughly examined in Slovenia and Russia (Kavčič & Zupančič, 2006; Knyazev & Slobodskaya, 2005; Slobodskaya, 2007; Zupančič & Kavčič, 2004, 2007). Sound psychometric properties were obtained across countries, informants, and the ages of the target children (e.g., Halverson et al., 2003; Knyazev et al., 2008; Zupančič, Gril, & Kavčič, 2006; Zupančič, Sočan, & Kavčič, 2007): (a) internal reliability for parent (China, Greece, Russia, Slovenia, the US) and adolescent self-report (Greece, Russia, Slovenia, the US); (b) inter-rater agreement between spouses (Slovenia and the US), parents and teachers (Slovenia), and parent and adolescent self-reports (Greece, Slovenia, the US); (c) short-term stability (the US); (d) convergent and discriminant validity (Greece, Russia, Slovenia, the US).

## The Structure of Child/Adolescent Mid-Level Traits

Latent dimensions were derived from parent report scale scores using exploratory factor analysis (EFA) and factor congruence analyses in five countries: China ( $N = 1060$ ), Greece ( $N = 506$ ), Russia ( $N = 1636$ ), Slovenia ( $N = 1872$ ) and the US ( $N = 1035$ ). The organization of child traits was similar across the countries. Four consistent factors were identified: extraversion, agreeableness, conscientiousness, and neuroticism, with all factor congruence coefficients exceeding .90 when the factor structures in each country were compared to the US target structure. There was also a less stable fifth factor, labelled as openness, intellect or even activity (Halverson et al., 2003; Havill et al., 2003; Knyazev et al., 2008). In addition, Russian and Slovene



(target) parent structures were remarkably congruent, as were the parent (target) and adolescent self-report structures in both countries ( $N = 555$  and  $N = 420$  in Russia and Slovenia, respectively) (Knyazev et al., 2008).

To replicate the structure, confirmatory factor analysis (CFA) was performed on the second half of the samples with the models specified on the EFA results (Halverson et al., 2003; Knyazev et al., 2008). Regarding the original US parent sample (Halverson et al., 2003), the following model with the Compliant scale removed provided the best fit: (a) extraversion was characterized by sociable, positive emotions, active, considerate and open to experience; (b) conscientiousness by organized, achievement oriented, and (un)distractible; (c) neuroticism by fearful/insecure, negative affect, and shy; (d) agreeableness by low strong will and low antagonism; and (e) intellect described bright, learning-oriented children. However, in Slovenia and Russia (Knyazev et al., 2008), with the Compliant and Considerate scales omitted, the following model showed a good fit across age groups from toddlers to adolescents, and across informants: conscientiousness, neuroticism and agreeableness were characterized by the same scales as in the US, while the Slovene and Russian children/adolescents high on extraversion were perceived as sociable, outgoing, active, energetic and positive, and those high on openness were reported as smart, eager to learn, inquisitive, and imaginative. Thus, the Slovene/Russian openness factor in comparison to the intellect factor in Halverson et al.'s study (2003) included both openness to experience and intelligence.

Based on this and other evidence (e.g., Barbaranelli, Caprara, Rabasca, & Pastorelli, 2003; Lamb et al., 2002; Little & Wanner, 1998; Mervielde & De Fruyt, 2002; see also Shiner, 2006), it appears that across age, countries and methods of assessment (ratings by adults, self-reports of older children and adolescents): (a) child/adolescent individual differences are perceived in terms of personality characteristics resembling the adult Big Five marker traits; (b) these traits can be reliably measured as early as at the age of 2 to 3 years (through ratings by others as young children can not provide valid self-reports); (c) the child/adolescent traits are hierarchically organized into several reliable broad-domains, presumably the precursors of the Big Five.

## **Mean Differences in the Perceived Trait Expression: Culture, Age, and Gender**

Finding a common set of traits and a robust pre-adult personality structure across ages, countries and informants allows investigators to examine mean differences in trait expression among different groups of children/adolescents. As has been established with adults (e.g., McCrae & Costa, 1997; McCrae et al., 2005a), the structure of child/early adolescent personality based on parental natural language (the ICID ratings) is similar across countries, age-groups, genders, and methods of assessment (Knyazev et al., 2008). Yet, the characteristic trait expression in terms

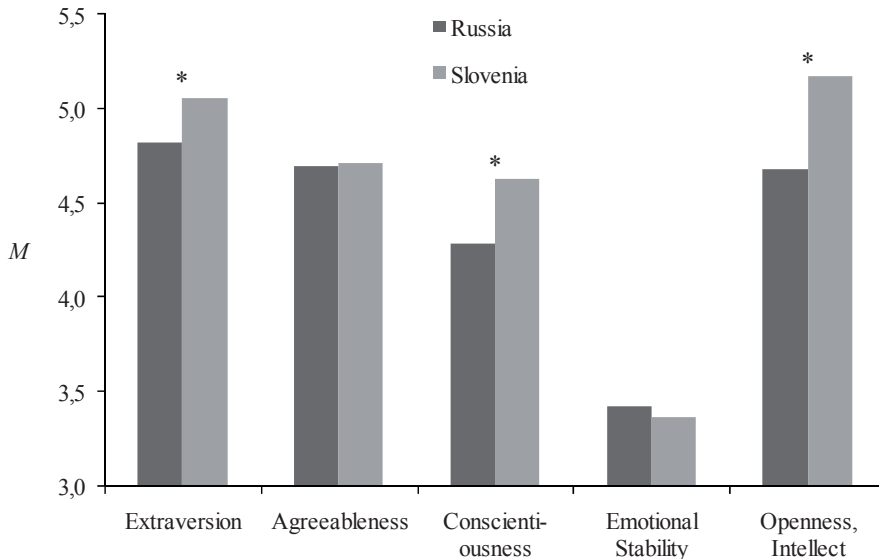


Figure 3. Means for overall parental ICID-S reports on Russian and Slovene children. Source: Adapted from paper “Development and validation of the Inventory of Child Individual Differences – short version in two Slavic countries” presented at the 13th European Conference on Personality, Tartu, Estonia, 2008 by Slobodskaya & Zupančič. (\* $p < .01$ ).

of means and variances may be subject to culture, cohort, gender and age-linked differences in response to local conditions and developmental ecologies.

For example, there is well-known research by McCrae and his collaborators (McCrae & Costa, 2003; McCrae et al., 2005b) on *cross-cultural differences* in self and other-reported adult trait expression within the framework of the FFM. Cross-cultural differences were also shown with regards to the usually studied temperament traits in children (e.g., Gartstein, Knyazev, & Slobodskaya, 2005; Kohnstamm, 1989). In addition to this, we compared the Slovene and Russian adolescent ICID self-reports and caregiver-reports for four age groups of children (Knyazev et al., 2008): toddlers (aged 2 to 3 years); preschoolers (early childhood); school-age children (middle/late childhood); and early adolescents (aged 12 to 15). Across all the age groups and methods of assessment (parent and adolescent self-report), the Slovenes scored consistently higher on extraversion, conscientiousness, and openness than the Russians. The same was found using the ICID-short form created last year (Slobodskaya & Zupančič, in press). Figure 3 presents overall differences between the two countries in child/adolescent personality trait expression according to parental reports.

Taken together, the results of our comparative studies in Slovenia and Russia (Knyazev et al., 2008; Slobodskaya & Zupančič, in press) lend some support to possible explanations of cultural differences proposed by Hofstede and McCrae (2004). Firstly, among populations, the distribution of genetic personality predispositions

differs systematically. In line with this explanation, the differences are present even between Slovene and Russian toddlers. However, these differences could also reflect cultural factors influencing parental perceptions (see the third explanation). Secondly, children acquire common personality expression during the process of development in a given culture. Accordingly, our results suggest that the differences tend to increase with the age of the target children. Thirdly, culture affects informants' responses to personality inventories. Parents differ to a greater extent (mean  $d = 0.29$ ) in the way they describe their children, than adolescents describing themselves (mean  $d = 0.18$ ), which may partly reflect cultural influences on parental ratings. In addition to the main effects, there are a few small culture by age interaction effects on the perceived mid-level trait expression. For example, positive emotionality increased across age groups in Slovene children but decreased in Russian. A better economical situation and higher subjective well-being in Slovenia compared to Russia (e.g., Inglehart & Klingemann, 2000) may contribute to the generally higher evaluation of socially desirable personality traits, such as extraversion, conscientiousness and openness, including several of the corresponding marker traits (Knyazev et al., 2008). This may also lead to an accumulation of positive scores with age.

Employing the ICID, *gender differences* in mean levels of the perceived child personality expression were explored across age, informants and countries (Halverson, 2003; Slobodskaya & Zupančič, in press; Zupančič, Gril, & Kavčič, 2006; Zupančič & Kavčič, 2005, 2007; Zupančič, Slobodskaya, & Knyazev, 2008). In general: (a) the significant gender differences (obtained in China, Greece, Russia, Slovenia, and the US) tend to be relatively small, especially in Slovenia and Russia (with mean  $d$ s across traits for parental reports 0.14 and 0.16, respectively); (b) the differences are already present in toddlerhood but they do not increase with age as would be expected from the biosocial hypothesis. The latter contends that biological and social factors both contribute to gender differences in personality: If boys and girls are perceived differently because of the observable behavioural differences that are linked to biological gender differences, boys and girls may be treated differently; thus, the social factors may augment inherent gender differences over time (Feingold, 1994). However, the magnitude of gender effect in our study (Zupančič et al., 2008) was somewhat higher in parental reports regarding adolescents as compared to ratings of children; (c) the direction of gender differences is quite robust across age and country. At the domain level (the Big Five), parents rate their daughters higher in conscientiousness and agreeableness than their sons. With regard to the mid-level traits, girls are consistently ascribed higher scores for compliance and consideration than boys; (d) the gender differences based on adolescent data sources are smaller (mean  $d$ s 0.14 and 0.10 in Slovenia and Russia, respectively) in comparison to parental ratings of the same age group (mean  $d$ s 0.21 in both countries), which suggests that some gender-bias in parental reports is present. Mean level scores based on adolescent self-reports also reveal robust gender differences. Girls tend to rate themselves higher in consideration and positive emotionality, whereas boys rate themselves higher in activity and antagonism.

Beside the differences between boys and girls that may actually exist, these findings may also reflect the raters' implicit theories and expectations of boys and girls and the effect of the reference group implicitly used for comparison. For example, it is not clear whether the informants compare the target's trait expression to their observations of individuals of the same sex or both sexes.

The implicit theories regarding child development, which are shared by informants and the reference group effect, may also affect *age differences* revealed in the perceived child personality traits. For example, the reference group used for comparison in parental ratings of their children may deflate the age effect as the raters may implicitly compare the target child to children of the same age. As with findings on mean level differences over adulthood (McCrae & Costa, 2006; McCrae et al., 2004), small age effects on the observed personality trait expression (maternal reports) were suggested when children in four developmental periods were concerned ( $N = 1043$ ): toddlerhood, early childhood, middle/late childhood, and early adolescence (Zupančič, Gril, & Kavčič, 2006). Agreeableness systematically increases with age, mostly due to declines in strong will and antagonism. Openness and activity peak in early childhood and then drop, while compliance shows a continual increase into early adolescence. The increase in agreeableness and compliance scores suggests that maternal perception mirrors children's gradually developing skills to behave in a socially appropriate way (e.g. growing cognitive and self-regulative capacities, strategies to cope effectively with social demands, acquisition of social rules) due to a combined effect of maturation and socialization. The developmental trend in activity may reflect a changing phenotype from high levels of motor activity in early childhood to predominantly symbolic activity in later childhood and early adolescence. On the other hand, rapid cognitive development during the preschool years (particularly for an increase in its overt expression) and spending more time with parents relative to older children may affect maternal ratings of child curiosity, imagination and eagerness to acquire new information (openness). Similar curvilinear trends were observed longitudinally (Lamb et al., 2002) and cross-sectionally (Slobodskaya, 2005).

## **Findings of the Slovene Longitudinal Study in Early and Middle Childhood**

Developmentally, it is crucial to explore different types of temporal and cross-contextual consistency of personality in order to explain how individuals change or remain the same in response to changing developmental ecologies. With regards to the individual differences perspective, it is also important to know if child characteristics measured by newly constructed inventories are consistent over time and across contexts, therefore qualifying as personality traits. In order to provide this information, we investigated several aspects of child personality consistency in a

longitudinal study using the ICID (Zupančič & Kavčič, 2007; Zupančič et al., 2007). Data were collected from mothers, fathers and teachers of children at the ages of 3, 4, 5 and 6 years ( $N = 192$  children with complete data for the duration and across observers). Consistency both over time and across informants was addressed in three different ways.

Firstly, *the structural consistency* of adult-perceived child personality was explored by means of principal component analysis (followed by Varimax rotation), congruence analysis, permutation procedures and structural equation modelling to determine how the mid-level child personality scores combine into broad-band components over age and across observer ratings. Over the three-year time period, the adult-perceived child personality was construed in a similar way by each of the informant groups. There were minor differences over time and across parents. Compared to the parents, the (pre)school teachers perceived children's personality in a less differentiated way, which was consistent over time (Zupančič et al., 2007). For example, the teachers perceived extraverted children to be emotionally stable (low neuroticism) as well and did not differentiate between conscientious and open children. This finding is consistent with the results of previous studies employing different instruments (Mervielde et al., 1995; Zupančič et al., 2003). In other words, the teachers more clearly differentiate between conscientious and open (curious, intellectually oriented, bright) children after the latter start obligatory schooling.

Secondly, *the rank-order stability* of trait ratings was examined (i.e. the degree to which the relative ordering of individuals on a given trait is maintained over time and across informants; Roberts & DelVecchio, 2000; Robins, Fraley, Roberts, & Trzesniewski, 2001). Our findings (Zupančič & Kavčič, 2007; Zupančič et al., 2007) revealed that: (a) the stability coefficients across the three informant groups over time (between one- and two-year time intervals) are moderate to high; (b) temporal and cross-informant stability (concurrent agreement on relative child trait standings between different raters) slightly increases with age of the target children; (c) temporal stability is inversely related to the time interval between consecutive measurements. It is stronger for the same rater than for the cross-ratings, suggesting that same-rater bias may slightly inflate the estimates; (d) some traits are more stable over time and across observers (e.g. intelligence, openness to experience) than others (e.g. positive emotions, negative affect). This may be due to different degrees of: (a) trait observability; (b) change in adults' expectations and standards for trait assessment in response to child development; (c) change in adults' behaviour towards maturing children, which may elicit change in children's patterns of responding; consequently, the latter may affect the adult-perceived child trait expression. Furthermore, concurrent cross-informant stability in the observed child personality traits is consistently stronger between the spouses than between parents and teachers. Parents' and teachers' assessments of children depend on different information gathered in different settings. The ratings also depend on the different roles the observers occupy, which results in them having different perspectives regarding the children. Moreover, the spouses discuss their child with each other more than they do with the teacher.

Thirdly, *the mean-level (normative) continuity* of the trait-scores (i.e. the temporal and/or contextual consistency of a group's average trait level; Roberts & DelVecchio, 2000; Robins et al., 2001) was investigated in our longitudinal study (Zupančič & Kavčič, 2007; Zupančič et al., 2007). Across observers, there was a continual and robust increase in mean levels of extraversion and conscientiousness (and several corresponding marker traits, including compliance) from age 3 to the first grade of elementary school (age 6), while agreeableness increased at the transition to middle childhood. All of the changes between one-year time intervals were small and can be considered to result from maturational processes and environmental influences shared by the sample of children (see also Robins et al., 2001). Maturation promotes the development of many competencies (e.g. coping skills, and capacities to plan, resist temptation and organize activities) and the environment provides age-specific pressure for change (Zupančič et al., 2007). The estimations of change may be somewhat deflated as the informants may have compared the target children to their own-age peers. The findings in general concur with the cross-sectional results on age differences between early and middle childhood (e.g., Halverson, 2003; Slobodskaya, 2005; Zupančič, Gril, & Kavčič, 2006). In addition, parents consistently rate their children higher on desirable traits and lower on less desirable ones than teachers (Zupančič & Kavčič, 2005, 2007; Zupančič et al., 2007). This suggests that parental reports may be positively biased due to the own-child enhancement effect.

## Personality Predicting Child and Adolescent Outcomes

Another important developmental question is whether the perceived children's trait expression predicts their concurrent and later behaviour. The following examples are based on the Slovene studies, employing the ICID and controlling for the same-rater bias.

*Child personality* (ages 3, 4, 5, and 6 years; *Ns* from 193 to 317) as observed at home or in educational settings contemporaneously and longitudinally (over 1, 2 and 3 years) predicts social competence, internalizing behaviour, and externalizing behaviour in educational contexts (e.g., Zupančič & Kavčič, 2007). In summary: (a) concurrent predictions over early childhood and in the first grade of elementary school are stronger (with teachers' ratings explaining up to 40% of variance in social behaviour) than longitudinal ones (up to 25% of variance predicted by teacher ratings of child personality); (b) teachers' reports on child personality are more predictive of his/her social behaviour as observed by assistant teachers (either contemporaneously or longitudinally) than parental assessments of the child (about 10% of the variance in child social adjustment scores is predicted longitudinally and slightly less than 20% concurrently), as in the former case assessments of both personality and adjustment are based on observations of children in the same context and from similar role perspectives; (c) the robust personality traits (parent or teacher-rated)



show a strong incremental validity over and beyond a set of family variables (parental education, authoritative parenting, power assertion, ineffective control, and stimulation of cognitive development) and preschool attendance; (d) adult reports on the robust child personality traits differentially predict social adjustment in (pre)school. Teacher-rated conscientiousness and openness are consistently related to social competence (over the preschool years and in the first grade, concurrently and longitudinally), low extraversion and neuroticism are linked to internalizing behaviour, and low agreeableness is associated with externalizing behaviour. Child personality as perceived at home also differentially predicts his/her social behaviour in educational contexts. Parent-rated low agreeableness consistently predicts externalizing behaviour, whereas neuroticism is linked to internalizing. Extraversion during the preschool years and conscientiousness after entry to school were found to be predictive of social competence.

Similar findings were suggested with regard to children's maladjustment (defined at cut-off scores of the Social Competence and Behavior Evaluation Scale; LaFreniere, Dumas, Zupančič, Gril, & Kavčič, 2001) in a preschool group or in a school class (e.g., Zupančič & Kavčič, 2007). Figure 4 shows typical personality profiles of children exhibiting problems in social competence, internalizing and externalizing. The profiles A and B respectively describe preschoolers and first-graders in terms of the magnitude of trait effect (parent and teacher-rated) on the three types of problem behaviour. Children exhibiting problems in social competence are very low in conscientiousness-openness, quite low in extraversion and relatively high in neuroticism. At age 6, they also appear fairly low in agreeableness. Internalizers tend to be very low in extraversion, high in neuroticism and relatively low in terms of conscientiousness-openness. Finally, externalizers are observed as being consistently low in agreeableness. Along with other reports linking ICID ratings with child social adjustment (Halverson et al., 2003; Slobodskaya, 2007), our results appear remarkably similar to the relations between each of the Big Five traits and adaptation cited in a recent review by Shiner (2006). The early child individual differences foreshadow many positive and negative developmental outcomes.

Furthermore, parent-rated child personality was found to be predictive of his/her family relationships both concurrently and longitudinally (Kavčič & Zupančič, 2006; Kavčič, Zupančič, & Havill, under review). For example, in sibling dyads ( $N$ s from 66 to 100) sets of parental cross-ratings (maternal or paternal) of both children's robust traits (extraversion, agreeableness, neuroticism, and conscientiousness) were moderately linked to father- or mother-perceived sibling warmth, and conflict. Older siblings' agreeableness was consistently a significant single predictor of either of the two sibling relationship characteristics. In addition, the least conflict was reported for dyads with both children high in agreeableness, while warmth was the most frequently observed between siblings both high in conscientiousness. Child personality also contributed to differential parenting contemporaneously and over time (Kavčič & Zupančič, 2006). The parents reported to be more controlling towards the child who



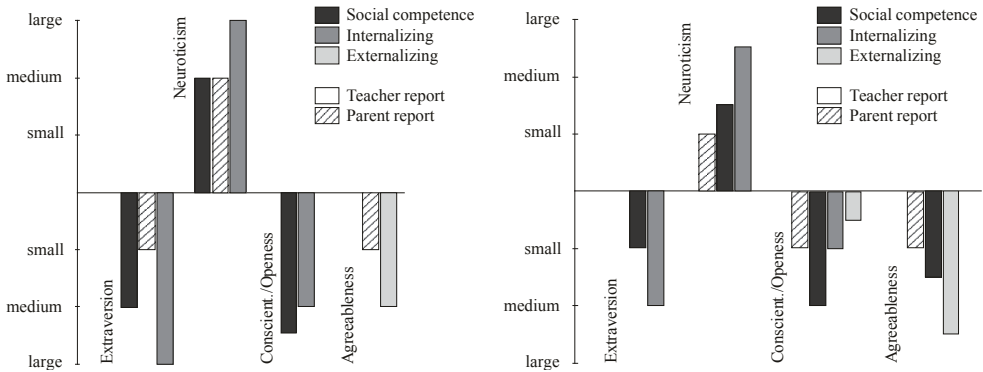


Figure 4. Personality profiles of children exhibiting problem behavior over (A) early childhood and (B) after the school entry. Source: Adapted from Zupančič & Kavčič (2007).

was perceived to be less agreeable of the pair. The larger the difference in agreeableness between the siblings, the more differential control was reported by the parents. Our results may be interpreted within the framework of evocative person-environment transactions: The perceived child trait expression evokes specific responses from the perceivers. Child-to-parent effects have often been underestimated by developmentalists and there is rapidly accumulating evidence that early child individual differences play an important role in transactions between children and their social environments (see Caspi, 2000; Caspi & Silva, 1995; Shiner, 2006).

Further support to the predictive value of child personality comes from our studies of early academic achievement. Over the preschool years and at the beginning of schooling, the assessments of child robust traits ( $N$ s from 193 to 317) provided by parents or assistant teachers explain considerable portions of variance in first-graders' academic achievement (Slovene, Mathematics, and Environmental Education), as rated by teachers at the end of the school year. For instance, child personality accounted for 17% of variance according to longitudinal predictions, with 13% of the incremental contribution over and above the selected family variables (parental education, authoritative parenting, power assertion, ineffective control and stimulation of cognitive development) and preschool attendance. Preschool teacher (or assistant school teacher) ratings of child conscientiousness and openness were consistently significant predictors of the first-graders' academic achievement scores. Children who were perceived as more emotionally stable at home (low neuroticism) also performed better academically than their less stable own-age peers (e.g., Zupančič & Kavčič, 2007). In the third grade ( $N = 362$ ), parent-rated children's openness uniquely contributed to their achievement scores, even when child language competence, child intelligence, parental education and parental involvement in the child's schooling were considered in the equation (Marjanovič Umek, Sočan, & Bajc, 2006a).

The ICID personality ratings were also found to predict early *adolescents'*

social interactions and academic performance. Neuroticism, agreeableness, low openness and low extraversion (parent and self-ratings,  $Ns$  565 and 828 respectively) were concurrently linked to adolescents' overall interpersonal problems, problems in situations of public speaking and communication with the opposite sex. Relative to parental assessments of their adolescent's personality, which explained modest portions of variance in interpersonal problems, adolescent personality self-reports predicted up to 26% of variance (Inglés et al., 2008). Furthermore, early adolescent personality shows relations to internalizing and externalizing behaviour (and problems) in much the same way as it does in childhood (Slobodskaya, 2005, 2007). Personality is also predictive of academic outcomes, such as motivation, self-efficacy (Puklek Levpušček & Zupančič, in press) and achievement (Marjanovič Umek, Sočan, & Bajc, 2006b; Puklek Levpušček & Zupančič, in press).

For example, eighth-graders' personality self-reports ( $N = 420$ ) concurrently predict their mastery goal orientation, where conscientiousness appears to be a significant single predictor, and academic self-efficacy in a course (Slovene and Mathematics), which is mostly due to conscientiousness and openness. Motivational constructs and personality both moderately contribute to academic achievement at the end of the current school year and one year later at the end of elementary schooling (final grades in the two respective courses: GPA and scores on National Tests) (Puklek Levpušček & Zupančič, in press).

Moreover, the ICID self-ratings have a substantial incremental value for predicting early adolescents' academic achievement over and beyond intelligence and motivation. In one of our recent analyses, three blocks of variables (the Big Five, general non-verbal intelligence and motivation in Mathematics) were entered as predictors of the final Mathematics grade one year later. The Big Five explained 20% of the variance in ninth-graders' Mathematics achievement, with motivation (mastery goal orientation and self-efficacy) and intelligence further improving this prediction by 13% and 11% respectively. When the blocks were rotated (e.g. with the Big Five entered in the final step), personality contributed an additional significant 10% to the prediction. Openness, low extraversion and low neuroticism were consistently significant predictors (Puklek Levpušček & Zupančič, in press). Another analysis that accounted for parental ICID ratings of ninth-graders' personality along with students' language competence, non-verbal intelligence, parental education and parental reports on their academic involvement in adolescent's schooling, revealed significant unique contributions of openness and conscientiousness to academic achievement (school grades and scores on National Tests; Marjanovič Umek et al., 2006b). These findings add to the existing knowledge in the field as it was not previously clear whether, or to what extent, openness predicts school success due to its association with intelligence (see Shiner, 2006). Further, the Slovene research on child/adolescent FFM personality traits predicting interpersonal and academic outcomes is important because it provides new information to the scholarly community about: (a) early personality traits and their incremental validity over other

relevant predictors of important concurrent and later outcomes; (b) links between child/adolescent personality and specific outcomes which have somehow escaped the attention of most of the researchers, such as the relations between personality traits and sibling relationship, academic motivation, public speaking, and communication with the opposite sex.

## Child Personality Types

Personality is a dynamic organization within an individual of those psychophysical systems that determine his/her unique adjustment to an environment (Allport, 1937). The definition of personality, along with a wide range of many others (see e.g., Burger, 2008), emphasizes the configuration of traits within a person. However, empirical research has predominantly treated personality traits from a variable-centered perspective, missing the individual constellation of different traits. This was to some extent due to a lack of consensus about which basic traits represent individual differences. During the past decade, a renewed interest in a person-centered approach to personality, aiming at identification of replicable personality types, was noticed. Personality types refer to people with similar intra-individual organization of their experience and behaviour. At least three different temperament/personality types were consistently found in studies, ranging from behavioural ratings of children to inventory ratings of adults (Asendorpf, 2002). In terms of the Big Five: (a) the resilient type shows relatively high scores on extraversion, conscientiousness, agreeableness and openness, but low scores on neuroticism; (b) the undercontrollers usually exhibit low agreeableness and low conscientiousness, while (c) the overcontrollers are low on extraversion but high on neuroticism (e.g., Asendorpf, Borkenau, Ostendorf, & Van Aken, 2001; De Fruyt, Mervielde, & Van Leeuwen, 2002; Robins, John, Caspi, Moffit, & Stouthamer-Loeber, 1996).

In the first person-centered ICID study with children ( $N = 314$ ), three different internally replicable personality types were found in 3-year-olds who were rated separately by their mothers and fathers (Zupančič, Podlesek, & Kavčič, 2006). The following were typical personality profiles of 3-year-olds, as derived by means of a recently proposed two-step clustering procedure (Asendorpf et al., 2001): (a) the average type scored within the range of mean  $z$ -values  $\pm 0.5$ , relatively low on extraversion and conscientiousness but relatively high on neuroticism (resembling the overcontrolled type); (b) resilients scored very high on extraversion, conscientiousness, and agreeableness but low on neuroticism; (c) finally, the willful type resembled the undercontrollers, scoring relatively high on extraversion, somewhat low on neuroticism, low on agreeableness, and slightly above the mean on conscientiousness. These personality descriptions do not fully overlap with previously documented profiles. The ICID types obtained at age 3 were structurally consistent across maternal and paternal reports (Zupančič, Podlesek, & Kavčič, 2006) and over a one-year time period (Zupančič & Kavčič, 2007), while the child type membership

was moderately stable across data sources (Zupančič, Podlesek, & Kavčič, 2006) and over one year (Zupančič & Kavčič, 2007).

In a cross-sectional study based on maternal reports of children aged 4 to 14 years ( $N = 1341$ ), four ICID types (average, resilient, willful and reserved) were demonstrated to be internally replicable across four age groups: early, middle, and late childhood (ages 4 to 6, 6.1 to 8.5 and 8.6 to 11.5 respectively) and early adolescence (Zupančič & Gril, 2006). Based on comparisons between the capacity (proportion of children assigned to a given type) of each type obtained longitudinally from age 3 to 4 (Zupančič & Kavčič, 2007) and cross-sectionally (Zupančič & Gril, 2006), it seems that some children classified in the most capacious average profile at age 3 may develop profiles closer to the overcontrolled type (low extraversion, low conscientiousness, low openness, and high neuroticism).

The three personality types at age 3 concurrently predict children's social adjustment in preschool: The average 3-year-olds score the lowest in social competence and highest on internalizing behaviour, while the willful children tend to exhibit externalizing behaviour the most frequently. Head-to-head comparisons of types versus traits showed that traits alone are more predictive of children's social adjustment than type membership. The types do not improve the trait prediction but it holds the other way around. However, the predictive utility of types is notably improved in children who are consistently classified across data sources (Zupančič, Podlesek, & Kavčič, 2006). In addition to this and to the conceptual advantages of child personality types over traits (e.g., Asendorpf et al., 2001; Robins et al., 1996), the types may have particular advantages in predicting criteria longitudinally, particularly configural measures as opposed to continuous ones (Asendorpf, 2003).

## **Future Prospects in Child Personality Research**

The research carried out with the ICID across countries provided compelling evidence that it can be used as a valuable assessment tool in different fields of psychological practice (e.g. education, sports, counselling, and clinical work with children and early adolescents). The Slovene version of the instrument is currently being normed for these purposes. In addition, other new measures of the Big Five in childhood were also created during the past few years. These include: (a) ICID-Short Form for parental report (US version by Deal, Halverson, Martin, Victor, & Baker, 2007, Russian and Slovene versions by Slobodskaya & Zupančič, in press) and adolescent self-report (Slobodskaya & Zupančič, in press). The short form is user-friendly because it is much less time consuming than the long version but retains the psychometric properties of the original full-item version and sensitivity to culture, gender and age differences; (b) the aforementioned HiPIC (Mervielde & De Fruyt, 2002), a parental natural language based questionnaire in other and self-report formats which are quite similar to the ICID; (c) the Big Five Questionnaire – Children version (BFQ-C; Barbaranelli et al., 2003) developed in Italy, applicable

for children aged 8 to 15 in other and self-report forms. Five factors and good psychometric properties were obtained using the translated BFQ-C in other European countries (Muris, Meesters, & Diederer, 2005; Oritz, Tello, & del Barrio Gandara, 2005); (d) the Berkeley Puppet Interview (BPI; Measelle, John, Ablow, Cowan, & Cowan, 2005), a child self-view method for children aged 5 to 8 years. We are currently in the process of developing implicit child measures of the Big Five and we are continuing to explore the personality of children with cognitive disability in order to describe syndrome specific FFM profiles using the ICID and the free-descriptive approach (Colnerič & Zupančič, 2005). Both methods are being employed to examine the effects of a “strengths based” portfolio (Rugg, 2008) procedure on parents’ perception of children.

Investigation of mid-level traits may reveal which facets of the domain-level constructs (e.g. the Big Five) are linked with developmental outcomes and whether there is any substantial increment in the amount of variance predicted by more specific traits when compared to the robust domains. Likewise, the question whether child personality type indicators provide more utility in explaining certain outcomes than trait based information remains open to future research. The understanding of child personality development would also benefit from the extension of cross-cultural studies. Finding a robust, replicable structure of child personality would allow researchers to explore the processes of several aspects of trait consistency within and between countries using longitudinal data (Havill et al., 2003; Knyazev et al., 2008).

Several forms of person-environment transactions, through which early child personality consistency is maintained and elaborated over time, were proposed (Caspi, 2000; Caspi & Silva, 1995; Roberts & DelVecchio, 2000) and require further empirical inquiry: evocative (trait expression evokes certain responses in the environment); reactive (different children exposed to the same environment experience it, interpret it and respond to it differently); proactive (children select experiences that best fit their own personality propensities); and manipulative (children attempt to create the environment to suit their personality). Current areas of research, as summarized by Shiner (2006), also involve the study of genetic, intra-individual and environmental factors promoting personality continuity/change and contributing to relations between personality and later developmental outcomes. More studies investigating the relations between personality and adaptation are needed to enrich our understanding of the factors that mediate and/or moderate the links between childhood personality and important life outcomes.

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