Psihološka obzorja / Horizons of Psychology, 12, 1, 7-26 (2003)

Znanstveni empirično-raziskovalni prispevek

The personality structure of toddlers and pre-school children as perceived by their kindergarten teachers[#]

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Abstract: The present study was designd to analyse the personality structure of children aged one to seven, as perceived by their kindergarten teachers. In addition, gender differences were examined to determine whether kindergarten teachers perceived the personality characteristics of toddler and pre-school girls differently than those of boys. 508 randomly-selected Slovenian children were assessed by their kindergarten teachers using adapted Flemish Big-Five Bipolar Rating Scales. Four-factor structures that explained more than two thirds of the variance emerged for teachers' personality ratings of children in each of the three age groups: toddlers, three- to five-year-olds and five- to seven-year-olds. However, five of the twenty five scales, four of them referring to the Conscientiousness dimension, did not appear to be relevant when assessing individual differences in the toddlerhood. Intellect/Openness, as observed for the toddler sample, and the combined Conscientiousness-Intellect/Openness factor, extracted for each of the two older age groups, accounted for the greatest part of the variance. Extroversion was obtained as a second factor in each of the three age groups, while Emotional Stability showed relatively less stability across these groups. Agreeableness was clearly differentiated only in the oldest age group, emerging there for the first time as an independent factor. A few gender differences were found to be significant within the two groups of pre-school children, with girls consistently being rated higher in terms of Conscientiousness-Intellect/Openness.

Key words: personality traits, toddlers, pre-school children, kindergarten teachers, five factor model

Osebnostna struktura malčkov in predšolskih otrok kot jo zaznavajo njihove vzgojiteljice

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Povzetek: V prispevku prikazujemo rezultate študije, v kateri so vzgojiteljice ocenjevale osebnostne značilnosti eno- do sedemletnih otrok. Namen študije je bil ugotoviti, kako vzgojiteljice strukturirajo svoje zaznave osebnostnih značilnosti različno starih otrok, ki obiskujejo njihov oddelek v vrtcu. Poleg tega nas je zanimalo, ali vzgojiteljice zaznavajo osebnostne značilnosti otrok v odvisnosti od njihovega

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[#]*This research was a part of the study »The effects of applying pre-school curriculum on the communication and socio-emotional development of pre-school children« supported by the Slovenian Ministry of Education, Science and Sport, Bureau of Education.*

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spola. Vzgojiteljice so na, za slovenski jezikovni prostor prilagojenih, Flamskih bipolarnih ocenjevalnih lestvicah Velikih-pet ocenile petsto osem naključno izbranih otrok, ki obiskujejo njihove oddelke v vrtcu. Z analizo podatkov smo izločile štirifaktorsko strukturo otrokove osebnosti, ki pojasnjuje več kot dve tretjini variance, in sicer v vsaki izmed treh starostnih skupin otrok: med malčki, tri- do pet let starimi otroci in starejšimi od petih let. V skupini malčkov je bilo potrebno iz analize skupno petindvajsetih izločiti pet ocenjevalnih lestvic, ker se le-te niso izkazale kot ustrezne za ocenjevanje individualnih razlik med njimi. Štiri od izločenih lestvic naj bi po predpostavkah tvorile dimenzijo Vestnosti. S faktorjem Intelekt/Odprtost, kot smo ga interpretirale v skupini malčkov, ter kombiniranim faktorjem Vestnost-Intelekt/Odprtost, kot smo ga poimenovale v obeh starejših skupinah otrok, smo lahko pojasnile največji del variance. V vseh starostnih skupinah se je kot drugi največji pokazal faktor Ekstravertnost, medtem ko se je Čustvena stabilnost izkazala kot razmeroma najmanj stabilen faktor. Sprejemljivost se je bolj jasno diferencirala šele v najstarejši skupini predšolskih otrok, kjer se je prvič pojavila kot neodvisen faktor. V obeh starejših starostnih skupinah smo odkrile nekaj pomembnih razlik med spoloma. Največje in starostno dosledne razlike smo ugotovile za faktor Vestnost-Intelekt/Odprtost. Vzgojiteljice so na tem faktorju deklice ocenjevale višje kot dečke.

Ključne besede: malčki, predšolski otroci, osebnostne lastnosti, vzgojiteljice, petfaktorski model

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Until recently, it seemed that there were two separate fields involved in studying personality – one for children, focusing its attention on temperamental differences, and one for adults, focusing on personality traits and dimensions (Diener, 2000). Research into the basic dimensions of adult personality, carried out in many different countries and language communities, suggested a Five-Factor Model (FFM) for representing the structure of individual differences in adults (e.g. Digman, 1990; John, 1990; McCrae & Costa, 1987, 1997; McCrae & John, 1992; Oser & Reise, 1994). Although the FFM originated from studies on adults (e.g. Goldberg, 1981; Tupes & Cristal, 1961), there is growing evidence that this model is also relevant in describing individual differences in adolescents (e.g. Graziano & Ward, 1992; McCrae, Costa, Ostendorf et al., 2000; Zupančič, Cecić Erpič & Boben, 2001) and in school children (e.g. Digman & Shmeylov, 1996; Little & Wanner, 1998; Pislak, 1999). Mervielde, Buyst and De Fruyt (1995) confirmed these findings and extended them to younger children. They concluded that the emergence of the five-factor structure coincides with the beginning of school education. A comparison between data obtained on Slovenian pre-school children attending preparatory classes before starting school, as assessed by their kindergarten teachers (Cegnar, 2001), and data gathered from self-evaluations by second-grade school children (Pislak, 1999) supports the same conclusion.

Mervielde et al. (1995) asked teachers of kindergarten children, aged four to six, to rate a set of twenty-five bipolar adjective scales selected from Goldberg's (1992) markers for the Big Five (Mervielde, 1992). The teachers' ratings were represented by four principal components: a combined Conscientiousness-Intellect/Open-

ness factor, Extroversion, Agreeableness and Emotional Stability, whereas the teachers' ratings of school-age children (six to eight years) revealed a complete five-factor structure, with a pattern of secondary loadings that showed a close link between Intellect and Conscientiousness and between Openness and Extroversion. Similar personality structures were derived from studies on Slovenian children. Kindergarten teachers rated six- to seven-year-olds using an adapted version of the Big-Five Personality Inventory for Children (B5P-C) (Little & Wanner, 1998). Four factors were suggested: combined Agreeableness-Conscientiousness, Extroversion, Emotional Stability and Openness (Cegnar, 2001). The B5P-C adapted from the German/English version was also applied to Slovenian school children, aged eight to fourteen, but in the form of a self-evaluation questionnaire. Confirmatory factor analysis provided evidence of the measurement validity of the hypothesised five-factor structure. As the children's age increased, personality factors also showed a clear pattern of developmental differentiation (Pislak, 1999) that replicated the results reported for Berlin elementary school children by Little and Wanner (1998).

From the personality point of view, development can be considered to be a process of differentiation toward a target structure, the basic dimensions underlying adult individual differences as a structure for personality development. The differentiation process assumes an increasing number of behaviours that reflect each of the major dimensions of adult personality, and shows an increase in the variance explainable by these dimensions with increasing age (Mervielde et al., 1995), as well as a decrease in age-related inter-correlations between the factors extracted (Little & Wanner, 1998). The present study extends research on the structure of individual differences in early childhood as reflected in ratings provided by adults (e.g. Cegnar, 2001; DrAger, 1995; Halverson, Jr., 2001; Mervielde & De Fruyt, 1999) to even younger children, namely toddlers. More precisely, our analysis presents a more or less direct extension of the study by Mervielde et al. (1995) to teacher ratings of child personality with children younger than four as targets, making use of Mervielde's (1992) selective scales as adapted for the Slovenian language community. The same scales were used for all three age levels, thereby fulfilling one prerequisite for the assessment of developmental trends in personality structure.

Many researchers have cast serious doubt upon adults' ability to perceive individual differences in very young children's behaviour that would reflect Conscientiousness, Emotional Stability and even Openness/Intellect (e.g. Havill, Allen, Halverson, Jr. & Kohnstamm, 1994). However, when investigating parental free descriptions of infants' and toddlers' personalities in the Slovenian language community (Zupančič, 2001a) and applying an extended methodology that was used in other free descriptive studies (e.g. Kohnstamm, Halverson, Jr., Mervielde & Havill, 1998), somewhat higher proportions of descriptors pertaining to these categories were obtained, compared to the proportions reported by U.S. parents (Havill et al., 1994). The proportions were even slightly higher than those obtained in a study of parental descriptions of three-

year-olds in the Netherlands, Belgium and Greece (Kohnstamm, Mervielde, Besevegis & Halverson, Jr., 1995; see also Zupančič, 2001b). In addition, kindergarten teachers ascribed more characteristics coded within the Conscientiousness and Openness-Intellect category to toddlers than did the toddlers' mothers (Zupančič & Kavčič, 2002a). Therefore, we hypothesised that kindergarten teachers might also find the bipolar rating scales that comprise the selected Big Five markers to be relevant for their ratings of individual differences among toddlers. If so, we intended to explore (a) what kind of personality structure emerged from teachers' perceptions of this youngest age group; and (b) possible developmental trends that might be inferred from age comparisons with regard to early, evolving personality structure at different pre-school age levels: toddlers, three- to five-year-olds, and five- to-seven-year-olds.

Moreover, (c) we intended to assess gender differences in factor scores for the three age groups of children attending kindergarten. Although there are no separate personality or social behaviour questionnaires or rating scales for boys and girls, almost all manuals provide gender-specific normative data which anticipate the possibility of gender differences for the traits or behaviours measured (De Fruyt, Van Hiel & Buyst, 1998). Indeed, in some cases the means and standard deviations differ significantly, thus requiring gender-specific norms (e.g. LaFreniere, Dumas, Zupančič, Gril & Kavčič, 2001). There is no agreement between researchers as to when gender differences begin to appear. Some argue that temperamental differences between boys and girls first occur in late infancy, with a majority of them unobservable before the age of four (e.g. Buss, 1989). Others report that many gender differences are apparent much earlier (e.g. Eaton & Enns, 1986).

Research on gender differences in child personality and social behaviour suggests some consistent and significant differences, but the size of their effect is rather small. Both North American and Slovenian boys were, for example, rated by their kindergarten teachers as being more angry and aggressive than girls, who were assessed as more sociable and cooperative (LaFreniere & Dumas, 1995; LaFreniere et al., 2001; Zupančič, Gril & Kavčič, 2000). De Fruyt et al. (1998) investigated gender differences in parental free descriptions of children's (aged three to twelve) personality. More activity, curiosity and more negative conscientiousness were ascribed to boys than to girls, who were rated higher than boys for the sociability, dominance and independence descriptors. In a similar study with Slovenian parents of infants and toddlers, no significant gender differences were revealed, neither for mothers' nor fathers' descriptions of very young children (Zupančič, 2001a). When exploring gender differences in school-age Slovenian children and adolescents using a self-report inventory based on the Five-Factor theory, girls consistently scored higher with regard to the Agreeableness dimension and all three of its facets than boys, across the age spectrum (Pislak, 1999; Zupančič et al., 2001).

Method

Participants

Forty-one kindergarten teachers, employed at seven different kindergartens in various parts of Slovenia, rated an average of twelve children from their regular class. This involved only those children whose parents had provided written consent for their children to participate in the study as target subjects. The total sample thus comprised 508 children attending seven randomly-selected kindergartens in different regions of Slovenia. The sample was divided into three age levels: toddlers (14-36 months; $M = 27$; $SD = 6.6$); younger pre-school children (37-60 months; $M = 48$; $SD = 6.8$) and older pre-school children (61-88 months; $M = 73$; $SD = 7.0$). The structure of the sample by age level and gender distribution is given in Table 1.

Instruments

The children's personality was rated using *The Flemish Big-Five Bipolar Rating Scales (B5BBS-25)* (Mervielde et al., 1995), an abridged version of the 50 bipolar Big Five markers (Goldberg, 1992) comprising 25 bipolar scales, five for each of the Big-Five factors: *Extroversion*, e.g. "silent – talkative"; *Agreeableness*, e.g. "uncooperative – cooperative"; *Conscientiousness*, e.g. "lazy – industrious"; *Emotional Stability*, e.g. "restless – still"; and *Intellect/Openness*, e.g. "uninterested – eager to learn". Each of the bipolar scales comprised two opposite poles separated by a nine-point scale.

The B5BBS-25 was translated into the Slovene language and further adapted. Approximately half of the 25 rating scales were inverted, so that a higher rating indicated a socially desirable pole for half of the scales and a socially undesirable one for the other half. The translated rating scales were preliminarily tested on several different samples of Slovenian kindergarten teachers in order to find the appropriate Slovene expressions for the English/Flemish adjectives (Zupančič & Kavčič, 2002b). Based on the results of the pilot studies, the rating scale "cold – warm" (referring to Agreeableness) was replaced by "friendly – unfriendly", since the meaning of the original bipolar adjective pair was not associated by kindergarten teachers with Agreea-

Table 1: Age level and gender distribution of the sample.

	14-36 months	37-60 months	61-88 months
N_{total}	126	194	188
N_{boys}	67	113	103
N_{girls}	59	81	85
χ^2 *(df = 1)*	0.51, $p>0.05$	5.28, $p<0.05$	1.72, $p>0.05$

bleness; rather, it carried a connotation of positive and negative emotionality, sometimes (depending on the age of the target children) being grouped together with the scales marking Extroversion, Emotional Stability or even Intellect/Openness. The final version of the B5BBS-25 in Slovene that was used for the purpose of the present study displayed a satisfactory degree of internal consistency in the scales referring to each of the proposed five factors, and was convergent with the Slovene adaptation of B5P-C (Zupančič & Kavčič, 2002b).

Procedure

Written consent forms were collected from parents who agreed to their child's participation in the study. Then kindergarten teachers were asked to rate, using B5BBS-25, the children in their class whose parents had given such consent. The teachers had previously been given short instructions regarding completion of the scales, directing them to rate one child at a time. Since B5BBS-25 was only used to rate the personality characteristics of children aged four and older, some additional instructions were given to teachers of toddlers. They were asked to skip ratings on a particular scale which they found to be irrelevant for describing individual differences in toddlers. A missing-value analysis of the data showed five of the rating scales to be inappropriate in over 10 % of the cases; therefore these were not subjected to further analysis. Four of these scales originally accounted for Conscientiousness ("inaccurate – accurate", "negligent – conscientious", "sloppy – thorough", "lazy – industrious") and one for Agreeableness ("selfish – unselfish"). For children aged three and up, all of the twenty-five scales appeared to be relevant for kindergarten teachers' ratings of individual differences among children.

Results

Consistent with the established practice in research on the Big Five, the structure of kindergarten teacher ratings was derived using a principal component analysis, followed by Varimax rotation of the extracted components. This analysis revealed four components with eigenvalues greater than one for each of the three age groups separately. The Varimax-rotated factor matrices are presented in Tables 2 to 4, as are the reliabilities obtained for the factors within each of the child age groups. Internal consistencies for the four factors were satisfactory across the age levels, ranging from 0.74 to 0.92, with the exception of Emotional Stability in the oldest age group, which showed only moderate reliability.

Kindergarten teacher ratings of toddlers

Four components (eigenvalues: 8.20, 2.48, 2.22, 1.12) accounting for 70.2 % of the total variance on the twenty B5BBS-25 scales (five of the original scales were not

considered in the analysis), derived from ratings by the toddlers' kindergarten teachers and rotated according to the Varimax criterion (see Table 2), indicate four factors.

The first factor, which accounts for a major part of the variance (41.0 %), consists of primary loadings of the five Intellect/Openness scales, combines with the only scale analysed that originally referred to Conscientiousness ("careless – careful") and one of the Agreeableness scales ("uncooperative – cooperative"). We have retained the same label because of its highest loadings with the original Intellect/ Openness scales. Two of the scales also have notable secondary loadings for the second and fourth factor, i.e. "unimaginative – imaginative" (0.40) and "careless – careful" (0.49). The second factor, explaining 12.4 % of the variance, has been interpreted as Extroversion since it contains primary loadings with the five expected Extroversion scales and shows no significant secondary loadings for other factors (below 0.40). However, a scale originally accounting for Emotional Stability ("tense – relaxed") also loads primarily on Extroversion, and only has a substantial secondary loading (0.42) on the third, Emotional Stability factor, which accounts for an additional 11.1 % of the total variance. This third factor is primarily marked by the remaining

Table 2: Varimax-rotated principal components for kindergarten teacher ratings of toddlers (N = 126).

	Intellect/ Openness	Extroversion	Emotional Stability	Amiability
Cronbach's alpha	.91	.87	.74	.86
I/O: unintelligent – intelligent	**.80**	.21	.13	.22
I/O: not sensible – sensible	**.72**	.37	.20	.02
I/O: unimaginative – imaginative	**.62**	.40	.25	.11
I/O: uncreative – creative	**.78**	.29	.35	.02
I/O: uninterested – eager to learn	**.87**	.15	-.07	.09
C: careless – careful	**.65**	-.11	-.02	.49
A: uncooperative – cooperative	**.59**	.22	.32	.16
E: timid – self-confident	.15	**.76**	.27	-.04
E: silent – talkative	.31	**.74**	-.15	-.04
E: submissive – assertive	.33	**.63**	-.12	.13
E: inhibited – spontaneous	.16	**.73**	.32	.24
E: introvert – extrovert	.30	**.76**	.17	.18
ES: tense – relaxed	.07	**.70**	.42	.23
A: inflexible – flexible	.30	.40	**.50**	.22
ES: nervous – calm	.21	.19	**.77**	.17
ES: restless – still	-.30	.41	**.59**	-.40
ES: unsteady – steady	.17	.12	**.67**	.24
ES: angry – peaceful	.23	-.40	**.68**	.39
A: friendly – unfriendly	.21	.31	.31	**.77**
A: unkind – kind	.15	.23	.35	**.83**

Note. E…B5BBS-25 Extroversion; A… B5BBS-25 Agreeableness; C…B5BBS-25 Conscientiousness; ES…B5BBS-25 Emotional Stability; I/O…B5BBS-25 Intellect/Openness; primary loadings are given in boldface.

four Emotional Stability scales, together with one Agreeableness scale ("inflexible – flexible"). Sizable secondary loadings of two of the Emotional Stability scales ("restless – still", 0.41; "angry – peaceful", -0.40) and the "inflexible – flexible" scale (0.40) on the Extroversion factor can also be observed. The remaining two of the four Agreeableness scales included in the analysis ("unfriendly – friendly", "unkind – kind") load on the last factor, accounting for 5.6 % of the total variance. According to the Big-Five taxonomy developed for categorizing adults' free descriptions of children, the meaning of these two scales is regarded as fitting a specific subcategory of Agreeableness, namely Amiability. Therefore, it has been suggested that the fourth factor represent Amiability. In addition, two other scales, primarily loading on Intellect/Openness ("careless – careful") and Emotional Stability ("restless – still"), show considerable secondary loadings for the Amiability factor (0.49 and –0.40, respectively).

Kindergarten teacher ratings of children aged three to five

Four components that explain 67.1 % of the total variance on the 25 B5BBS-25 scales (eigenvalues: 9.10, 4.17, 2.37, 1.14), derived from ratings of three- to five-year-olds as provided by their kindergarten teachers and followed by the Varimax rotation (see Table 3), indicate that the data may be represented using four factors.

The largest factor combines Conscientiousness-Intellect/Openness, including all of the originally anticipated Conscientiousness and Intellect/Openness scales, and accounts for 36.4 % of the total variance. The pattern of substantial secondary loadings shows a link between one of the scales marking Conscientiousness and the third factor (0.49), as well as between two scales referring to Intellect/Openness and the fourth ("not sensible – sensible", 0.45) and second ("unimaginative – imaginative", 0.45) factors. The second factor has been interpreted as Extroversion, explaining an additional 16.7 % of the variance. It is primarily loaded by the five Extroversion scales (showing no significant secondary loadings on other factors, as in the previous age group), together with two scales marking Emotional Stability ("restless – still", "tense – relaxed") and one of the Agreeableness scales ("uncooperative – cooperative"). The latter scale also loads significantly on the Conscientiousness-Intellect/Openness factor (0.48), while the "tense – relaxed" scale secondarily loads (0.51) on the third factor, suggesting the same pattern as observed with toddlers. The third factor (9.5 %) combines the Emotional Stability and Amiability scales; it consists of the remaining three Emotional Stability scales ("nervous – quiet", "angry – peaceful", "unsteady – steady") and the two scales originally accounting for Agreeableness ("unkind – kind", "unfriendly – friendly"), which produced the Amiability factor for toddlers. The fourth factor, accounting for an additional 4.5 % of the total variance, includes the remaining two scales marking Agreeableness ("inflexible – flexible", "selfish – unselfish") and has been labelled Social Adaptability, with respect to its signification. Examination of the pattern of secondary loadings suggests a link between these scales and Emotional Stability-Amiability (0.46 and 0.41, respectively)

Table 3: Varimax-rotated principal components for kindergarten teacher ratings of children aged 3 to 5 (N = 194).

	Conscientious.-Intellect/Openness	Extroversion	Emotional Stability/ Amiability	Social Adaptability
Cronbach's alpha	.92	.88	.82	.68
C: inaccurate – accurate	**.74**	-.07	.25	.08
C: negligent – conscientious	**.80**	-.08	.22	.16
C: sloppy – thorough	**.83**	.04	.35	.00
C: careless – careful	**.71**	-.15	.30	.10
C: lazy – industrious	**.61**	-.11	.49	-.06
I/O: unintelligent – intelligent	**.74**	.30	-.04	.37
I/O: not sensible – sensible	**.62**	.26	-.01	.45
I/O: unimaginative – imaginative	**.54**	.45	-.04	.11
I/O: uncreative – creative	**.72**	.22	.24	-.05
I/O: uninterested – eager to learn	**.80**	.33	.13	.20
E: timid – self-confident	.12	**.84**	.04	-.20
E: silent – talkative	.02	**.82**	.02	.19
E: submissive – assertive	.26	**.69**	-.33	-.24
E: inhibited – spontaneous	.01	**.80**	.28	.08
E: introvert – extrovert	.02	**.87**	.19	.20
ES: restless – still	-.33	**.47**	.08	-.37
ES: tense – relaxed	.12	**.71**	.51	.07
A: uncooperative – cooperative	.48	**.50**	.26	.26
A: friendly – unfriendly	.24	.35	**.64**	.30
A: unkind – kind	.16	.12	**.68**	.16
ES: nervous – calm	.25	.26	**.73**	.04
ES: unsteady – steady	.20	.15	**.74**	.00
ES: angry – peaceful	.24	-.20	**.67**	.27
A: selfish – unselfish	.24	-.04	.41	**.64**
A: inflexible – flexible	.18	.15	.46	**.64**

Note. E…B5BBS-25 Extroversion; A… B5BBS-25 Agreeableness; C…B5BBS-25 Conscientiousness; ES…B5BBS-25 Emotional Stability; I/O…B5BBS-25 Intellect/Openness; primary loadings are given in boldface.

as obtained for the younger age group, and between Social Adaptability and the scale "not sensible – sensible" (0.45), which loads primarily on the Conscientiousness-Intellect/Openness factor.

Kindergarten teacher ratings of children aged five to seven

As shown in Table 4, principal component analysis of kindergarten teacher ratings of five- to seven-year-old children on the 25 B5BBS-25 scales (again followed by Varimax rotation) produced a four-component structure (eigenvalues: 8.79, 4.51, 2.31, 1.12) which explains 66.9 % of the total variance, and once again indicates four factors.

Nearly the same grouping of scales into the first factor (explaining 35.2 % of the variance) as was obtained for younger pre-school children emerges in the older age group as well, and thus again represents combined Conscientiousness-Intellect/Openness. Besides all five scales selected to denote Conscientiousness (showing no significant secondary loadings on other factors) and primary loadings with the four

Table 4: Varimax-rotated principal components for kindergarten teacher ratings of children aged 5 to 7 (N = 188).

	Conscientious-Intellect/Openness	Extroversion	Agreeableness	Emotional Stability
Cronbach's alpha	.92	.90	.77	.59
C: inaccurate – accurate	**.68**	.02	.10	.10
C: negligent – conscientious	**.86**	-.08	.16	.01
C: sloppy – thorough	**.83**	-.05	.21	.02
C: careless – careful	**.81**	-.09	.29	.01
C: lazy – industrious	**.70**	.03	.28	-.05
I/O: unintelligent – intelligent	**.69**	.26	.04	.18
I/O: not sensible – sensible	**.72**	.37	.00	.18
I/O: uncreative – creative	**.53**	.51	.03	-.02
I/O: uninterested – eager to learn	**.73**	.41	.17	.15
A: uncooperative – cooperative	**.63**	.39	.20	.23
E: timid – self-confident	.10	**.82**	-.12	.24
E: silent – talkative	.08	**.88**	.07	-.15
E: submissive – assertive	.11	**.67**	-.44	-.05
E: inhibited – spontaneous	-.04	**.80**	.17	.23
E: introvert – extrovert	.10	**.81**	.25	.10
ES: tense – relaxed	.10	**.77**	.23	.30
I/O: unimaginative – imaginative	.39	**.63**	.16	-.13
A: friendly – unfriendly	.18	.37	**.69**	-.11
A: unkind – kind	.33	.32	**.62**	.30
A: selfish – unselfish	.17	-.05	**.69**	.18
A: inflexible – flexible	.20	.11	**.67**	.11
Es: angry – peaceful	.29	-.44	**.64**	.30
Es: nervous – quiet	.27	.15	.39	**.71**
Es: restless – still	-.35	.48	-.11	**.54**
Es: unsteady – steady	.32	.04	.34	**.67**

Note. E…B5BBS-25 Extroversion; A… B5BBS-25 Agreeableness; C…B5BBS-25 Conscientiousness; Es…B5BBS-25 Emotional Stability; I/O…B5BBS-25 Intellect/Openness; primary loadings are given in boldface.

Intellect/Openness scales, it also contains a scale referring to Agreeableness ("uncooperative – cooperative"), but lacks one of the scales denoting Intellect/Openness ("unimaginative – imaginative"), which primarily loads on the second factor. Nevertheless, this scale shows a secondary loading on Conscientiousness-Intellect/Openness (0.39). Conversely, two of the scales accounting for Conscientiousness-Intellect/Openness ("uncreative – creative", "uninterested – eager to learn") load secondarily (0.51 and 0.41, respectively) on the second factor, i.e. Extroversion. This accounts for 18.0 % of the total variance, and is composed of the five Extroversion scales, combined with one scale marking Emotional Stability ("tense – relaxed") and another denoting Intellect/Openness ("unimaginative – imaginative"). Of the original five scales that were assumed to denote Extroversion, none shows significant secondary loadings on other factors, except for "submissive – assertive" (-0.44 on the third factor). Agreeableness has been produced as the third factor, explaining 9.2 % of the total variance. It emerges here for the first time as an independent factor,

consisting of primary loadings on four Agreeableness scales (showing no substantial secondary loadings) combined with a scale referring to Emotional Stability ("angry – peaceful"), which secondarily loads on Extroversion (-0.44). The remaining variance (4.5 %) is accounted for by the last factor, which includes three of the scales marking Emotional Stability ("nervous – quiet", "restless – still", "unsteady – steady"), one of which ("restless – still") secondarily loads on Extroversion (0.48).

Gender differences as reflected in teacher ratings

Gender differences in kindergarten teachers' ratings of boys and girls were examined for each of the three age levels separately, using t-tests for independent samples, while the effect size was obtained by means of Cohen's *d*, measuring by how many standard deviations the two means were separated (see Tables 5 to 7).

Table 5: Gender differences in kindergarten teachers' ratings of toddlers.

Factor	M_{boys} (SD_{boys})	M_{girls} (SD_{girls})	*t* (*df*=124)	*d*
Intellect/Openness	6.63 (1.52)	6.98 (1.36)	-1.35	-0.24
Extroversion	6.37 (1.69)	6.38 (1.65)	-0.04	-0.01
Emotional Stability	5.82 (1.48)	6.07 (1.41)	-0.96	-0.17
Amiability	7.38 (1.28)	7.53 (1.17)	-0.66	-0.12

Note. *…sig.<0.05; **…sig.<0.01; *d*…effect size – when evaluating its magnitude ignore the negative sign; a *d* of 0.20 represents a small effect size, a *d* of 0.50 constitutes a medium effect size, and a *d* of 0.80 would represent a large effect size.

Table 6: Gender differences in kindergarten teachers' ratings of children aged three to five.

Factor	M_{boys} (SD_{boys})	M_{girls} (SD_{girls})	*t* (*df*=192)	*d*
Conscientiousness-Intellect/Openness	6.59 (1.39)	7.37 (1.05)	-4.45**	-0.62
Extroversion	6.37 (1.46)	6.42 (1.76)	-0.19	-0.03
Social Adaptability	6.69 (1.47)	7.29 (1.17)	-3.02**	-0.44
Emotional Stability- Amiability	5.67 (2.00)	6.26 (1.89)	-2.08*	-0.30

Note. *…sig.<0.05; **…sig.<0.01; *d*…effect size – when evaluating its magnitude ignore the negative sign; a *d* of 0.20 represents a small effect size, a *d* of 0.50 constitutes a medium effect size, and a *d* of 0.80 would represent a large effect size.

Table 7: Gender differences in kindergarten teachers' ratings of children aged five to seven.

Factor	M_{boys} (SD_{boys})	M_{girls} (SD_{girls})	t (df=186)	d
Conscientiousness-Intellect/Openness	6.29 (1.45)	7.34 (1.10)	-5.66**	-0.81
Extroversion	6.32 (1.69)	6.37 (1.80)	-0.22	-0.03
Agreeableness	6.64 (1.41)	6.87 (1.21)	-1.21	-0.17
Emotional Stability	5.92 (1.48)	6.09 (1.49)	-0.79	-0.11

Note. *…sig.<0.05; **…sig.<0.01; *d*…effect size – when evaluating its magnitude ignore the negative sign; a *d* of 0.20 represents a small effect size, a *d* of 0.50 constitutes a medium effect size, and a *d* of 0.80 would represent a large effect size.

Kindergarten teachers' mean ratings of girls tended to be somewhat higher than their mean ratings of boys for all the factors obtained in each of the three age groups. However, none of the differences in teacher ratings of boys and girls appeared significant at the toddler level. On the younger and older pre-school levels, girls were rated significantly higher than boys for the combined Conscientiousness-Intellect/Openness factor. Significant gender differences also appeared with respect to two other factors on the younger pre-school age level, where girls received higher ratings for the Social Adaptability and Emotional Stability-Amiability factors than did boys. Following Cohen's criterion (1988), examination of effect sizes showed that a child's gender had an effect ranging between medium and large on teacher ratings of younger pre-school children's Conscientiousness-Intellect/Openness, and a large effect on their ratings of the same factor in older pre-school children, while the gender effects on ratings of younger pre-school children's Social Adaptability and Emotional Stability-Amiability could be regarded as small to medium in size.

Discussion

The target subjects in the present study were children rated by their kindergarten teachers. Therefore, the factor structures of children's personality that were produced reflect the way in which teachers structure the characteristics they perceive in children. In general, the Big Five can be considered as basic categories for ordering the perception of personality. They start to guide children's person-perception (of self and others) even before children reach adolescence (e.g. Mervielde & De Fruyt, 2000), and begin guiding adults' perception of children once the latter begin their

mandatory education (Mervielde et al., 1995). The present study provided additional evidence for such assumptions, and extended previous findings about teachers' perception of pre-school children to younger samples, namely toddlers.

Personality structure of toddlers and pre-school children

The study illustrates that the structure of teachers' perceptions of child personality seems to become differentiated with the increasing age of the children. In contrast with research on school-age children (e.g. Digman & Shmeylov, 1996; Mervielde et al., 1995), Conscientiousness and Intellect/Openness were not perceived by kindergarten teachers as independent factors in pre-school children; this replicated the results obtained in the study by Mervielde and his colleagues (1995) using pre-school children as targets, only in a different language community. A distinction between Conscientiousness and Intellect/Openness may not function for children at the pre-school age level, while, for school teachers, differentiating between children whose good grades are due to effort and those who are intellectually gifted might be important in predicting their school performance (Mervielde & De Fruyt, 2000). Moreover, the present study demonstrated that Conscientiousness markers are not perceived to be relevant by kindergarten teachers when rating individual differences in toddlers. The behavioural repertoire of toddlers may not yet include those behaviours that are necessary for teachers to make comparisons between them. Yet kindergarten teachers were able to distinguish between intellectually talented/open, extroverted, emotionally stable and amiable toddlers.

Four factors emerged in each of the three pre-school age groups studied, a result consistent with the findings on personality structure in early childhood previously established using B5BBS-25 (Mervielde et al., 1995), as well as personality questionnaires for pre-school children rated by the children's parents and pre-school teachers (e.g. Cegnar, 2001; Halverson Jr., 2001; Mervielde & De Fruyt, 1999). The strongest factor (in terms of the variance explained) across the three age groups appeared to be characteristics referring to Intellect/Openness (toddlers), which were, in the case of the two older age groups, combined with characteristics marking Conscientiousness (note that four of the Conscientiousness scales were omitted from the principal component analysis for the sample of toddlers). The reverse order of importance of these factors, as compared to adults', adolescents' and school age childrens' self-reporting Big-Five structure (e.g. Little & Wanner, 1998; Pislak, 1999; Zupančič et al., 2001), might be explained by the fact that the children's characteristics were being rated by their teachers, who were pursuing specific educational goals (the National Curriculum) and who therefore probably paid more attention to certain characteristics related to the educational context (intelligence, openness to experience, effort). Similar results were obtained, and a similar explanation suggested, by Mervielde and his colleagues (1995) in their study in which teachers rated pre-school and school

children, while Intellect was not found to be the strongest factor in the personality structure of pre-school children as described by Greek parents using a personality questionnaire (Besevegis & Pavlopolous, 1999). In addition, Slovenian kindergarten teachers also ascribed more high-end Conscientiousness descriptions to toddlers than did their parents (Zupančič and Kavčič, 2002a).

The results of the present study suggest Extroversion as the second factor across the three age levels studied, thus demonstrating it to be an important as well as stable dimension in structuring kindergarten teachers' perceptions of pre-school children, including toddlers. All of the original five anticipated Extroversion scales combined with the scale "tense – relaxed", originally referring to Emotional Stability, but which loaded primarily on Extroversion across the three age levels. One possible explanation for the consistent convergence of the "tense – relaxed" scale towards Extroversion may lie in the meaning of this bipolar adjective in the Slovene language, which is similar to "inhibited – spontaneous", the latter regarded as representing extroverted behaviour. Upon detailed examination, Extroversion appears in slightly different configurations depending on the age of the children assessed, i.e. for younger pre-school children the scales "uncooperative – cooperative" (originally marking Agreeableness) and "restless – still" (originally referring to Emotional Stability) converge towards Extroversion, although with relatively low primary loadings, while for older pre-school children the scale "unimaginative – imaginative" (originally Intellect/Openness) combines with Extroversion, again with the lowest primary loadings of all the scales making up this factor.

Emotional Stability demonstrated less stability across the age levels. It emerged as the third factor in the case of toddlers, showing some close links with Extroversion as indicated by secondary loadings of the scales primarily grouped with Emotional Stability. Instead of further differentiation at the next age level (three to five years), it merged with the two scales combined with Amiability (the fourth, i.e. smallest factor at the toddler level) to form the Emotional Stability-Amiability factor. At the oldest age level, this factor was differentiated into Emotional Stability (fourth factor) and Agreeableness (third factor), which then combined with other scales that originally referred to Agreeableness. However, the internal consistency of Emotional Stability factor was relatively low. As the results suggest, the latter's developmental pathway starts with Amiability and moves through Emotional Stability-Amiability and Social Adaptability towards an independent construct used by the kindergarten teachers to organise their perceptions of individual differences among children. Compared to the analysis of Dutch kindergarten teachers' ratings of children on B5BBS-25, which showed Agreeableness and Emotional Stability as distinct factors in four- to six-year-olds (Mervielde et al., 1995), the present results for younger pre-school children were not too surprising, since the children rated by teachers in the Slovenian sample were, on the average, one year younger.

Gender differences

No gender differences were established in kindergarten teachers' ratings of toddlers' characteristics, as reflected in the four constructs organizing their perception of toddlers' personality. This finding is consistent with previous Slovenian studies on gender differences in the personality characteristics of very young children (e.g. Zupančič, 1999, 2001a). Using a free descriptive approach, for example, no significant gender differences were revealed in Slovenian infants and toddlers (aged 2 to 34 months) as described by their relatively well-educated mothers and fathers (Zupančič, 2001a). As the Slovenian kindergarten teachers participating in the present study all had a higher level of education (high school and an additional two years of education at the college level), generalization of the results is limited. Future studies should thus also include samples of parents with lower levels of education.

Furthermore, the results of the present study suggest that consistent gender differences seem to appear in early childhood, at least with regard to kindergarten teachers' perceptions of child behaviour that reflect a personality construct denoted as Conscientiousness-Intellect/Openness. Similar results were reported in recent studies using parental free descriptions (De Fruyt et al., 1998) and personality questionnaires (Havill, Halverson, & Deal, 2002). Moreover, in our study the effect of gender on this largest personality factor increased along with the children's age: from a small and insignificant effect at the toddler stage (note that, for toddlers, this factor referred only to Intellect/Openness) to medium effect size in younger pre-school children and large effect in older ones. Keeping in mind the cross-sectional design of the study, this finding suggests that gender differences in perceived Conscientiousness-Intellect/Openness emerge at the beginning of early childhood, and tend to increase thereafter. Such a developmental pattern of gender differences seems to be in accord with the socialization perspectives of Buss (1989) and Block (1976), who argued that gender differences appear later in infancy, mainly in early childhood, while some of them do not even emerge until adolescence, since socialization takes time. However, developmental changes in temperament and personality give support to both genetic and environmental effects (for an overview, see Kohnstamm, 1989). It has likewise been suggested that endogenous dispositions develop over time, since the functioning of genes is, after all, not fixed at birth (McCrae et al., 2000), thus suggesting that gender differences and their development reflect the effects of both "biology and culture".

Some additional gender differences had greater significance for younger preschoolers (three- to five-year-olds) than older ones (aged five to seven). Younger pre-school girls were rated higher by their kindergarten teachers than boys for Emotional Stability-Amiability and Social Adaptability, supporting the gender differences evidenced in teachers' ratings of kindergarten children's affective expression and social behaviour (LaFreniere et al., 2001; Zupančič et al., 2000). In addition to the

points discussed above, these consistent gender differences as perceived by kindergarten teachers, relating specifically to children aged three to five, might reflect some actual differences in the behaviour of boys and girls, possibly due to a period of intensive development in understanding gender constancy. As gender-related concepts become increasingly more important in children's development from the third year of life on (the development of functional elements of gender constancy, such as identity and stability), children are motivated to make sense of their gender roles and to begin generalising the gender rules they are learning. At around five or six years of age, they come to fully understand gender consistency, regarding gender as constant in spite of superficial transformations (e.g. hairstyle, clothing, play with "opposite sex" toys) (Ruble, 1988). A cognitive-developmental perspective (Kohlberg, 1966) would hypothesise that, once children develop a firm level of gender constancy, they become motivated to seek information on gender-appropriate behaviour and to act accordingly. However, most studies have failed to support this prediction (for an overview, see Ruble, 1988). One possible explanation is that once children understand their gender will not change regardless of their gender-role preferences, neutral or opposite-sex activities may appear less threatening to them, and so their behaviour becomes less gender-typed (e.g. Ruble, 1988).

Conclusions

This study demonstrates that four factors resembling the Big Five make up the dimensions that structure teachers' perceptions of the personality of pre-school children, including toddlers, and suggests how these dimensions might develop with the increasing age of children attending kindergarten. The emerging four-factor structure, with the largest factor combining two of the original ones (Conscientiousness and Intellect/Openness) may also be the result of a careful selection of rating scales. However, many authors have showed that a majority of the personal constructs provided by pre-school and grade-school teachers may be classified within the FFM taxonomy (Mervielde, 1994), even including kindergarten teachers' free descriptions of toddlers (Zupančič & Kavčič, 2002a), not to mention a large amount of the data collected in studies of parental free descriptions of infants, toddlers, pre-school and school-age children (e.g. Havill et al., 1994; Kohnstamm et al., 1995; De Fruyt et al., 1998; Zupančič, 2001a,b). McCrae et al. (2000) state that, if investigators looked for these factors, they might even find them in neonates, just as they have been found in non-human animals. At the same time, this does not imply that these constructs also serve as good predictors of adult personality and social adjustment.

On the other hand, recent research has demonstrated that childhood personality traits can predict important life outcomes in adulthood (e.g. Baker & Victor, 2002; Caspi, Begg, Dickson et al., 1997) and, to an even greater degree, such important

short-term outcomes as school adjustment, school achievement and behavioural problems (e.g. Reed-Victor, Pelco & De Kruif, 2002; Mervielde et al., 1995). Nevertheless, these studies regard early and middle childhood temperamental or personality measures, based on the five-factor approach, as predictor variables. Our research extended these measures to an earlier developmental period and indicated one possible pathway for kindergarten teacher's perceptions of children's evolving personalities; however, this needs to be replicated with longitudinal data, as well as tested for its concurrent and predictive validity. Even modest associations between the earliest measures of child personality and significant later outcomes would enable a step towards intervening very early in children's lives, thus possibly protecting them from serious problems in their later development.

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Prispelo/Received: 19. 08. 2002
Sprejeto/Accepted: 20. 01. 2003