# Toddler's and pre-school child's characteristics as perceived by mothers and pre-school teachers: Do their free descriptions resemble the five-factor model of personality?

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**Abstract:** The present study was designed to examine whether pre-school teachers' free-descriptions of toddlers (1 to 3 years) and pre-school children (3 to 7 years) could be categorised using the Five-Factor Model (FFM) taxonomy. 184 pre-school teachers described randomly-chosen toddlers and pre-school children attending pre-school institutions. The teachers' expressions were coded using the FFM coding scheme comprising five main categories with three subcategories each, and nine additional categories. In addition, frequency distributions of (sub)category use were compared between mothers and pre-school teachers and within caregiver-pairs (mothers and teachers) for the toddlers (N=47) to determine how they might vary according to the role of the person providing the descriptions, and whether the pairs of toddler caregivers agreed when describing the same child. Regardless of the children's ages, a vast majority of the respondents' descriptors were classified within the FFM, which demonstrates the taxonomy useful for describing toddlers and pre-school children in different contexts (family, pre-school). Some differences were found in the proportions of descriptors belonging to specific (sub)categories which were used by different evaluators (mothers, teachers of toddlers), as well as according to the children's ages (as assessed by their teachers), while the level of agreement between mothers and teachers in describing the same toddler was considered low.

**Key words:** Personality, free-descriptions, Five-Factor Model, toddlers, pre-school children

# Osebnostne lastnosti malčka in predšolskega otroka, kot jih opisujejo mame in vzgojiteljice: ali njihovi prosti opisi odražajo petfaktorski model osebnosti?

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**Povzetek**: V pričujoči študiji sva avtorici ugotavljali, ali lahko vzgojiteljičine proste opise malčkove (1 do 3 let) in osebnosti predšolskega otroka (3 do 7 let) uvrstimo v taksonomsko shemo petfaktorskega modela (PFM). Vsaka od 184-ih vzgojiteljic je prosto opisala naključno izbranega otroka iz njene

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skupine v vrtcu. Opise vzgojiteljic sva razvrščali na podlagi PFM taksonomske sheme, ki vključuje pet glavnih kategorij PFM s po tremi podkategorijami in devet dodatnih kategorij. Poleg tega sva primerjali frekvenčne porazdelitve opisov malčkove (N = 47) osebnosti po posameznih podkategorijah PFM, in sicer med mamami in vzgojiteljicami ter znotraj parov mama - vzgojiteljica. S primerjanjem porazdelitev sva ugotavljali, ali se le-ti razlikujeta glede na to, katera oseba ocenjuje malčke, ter ali sta po dve ocenjevalki v različnih vlogah skladni glede svojih opisov istih malčkov. Ne glede na otrokovo starost se je velika večina opisov vzgojiteljic in mam razvrščala po PFM. PFM taksonomija se je tako izkazala kot uporabna pri opisovanju malčkov in predšolskih otrok v različnih kontekstih (družina, vrtec). V deležih opisnikov osebnosti po posameznih (pod)kategorijah so se pojavile nekatere razlike med različnima ocenjevalkama, ki sta opisovali iste malčke (mama in vzgojiteljica), ter med različno starimi skupinami otrok, ki so jih opisovale njihove vzgojiteljice, stopnja skladnosti med maminimi in vzgojiteljičinimi opisi malčkove osebnosti pa je bila nizka.

**Ključne besede:** osebnost, prosti opisi, petfaktorski model, malčki, predšolski otroci

Based on a free-descriptive approach, the Five-Factor personality domains were strongly replicated in descriptions by parents of three- to twelve-year-old children in different countries (for an overview see Kohnstamm, Halverson, Jr., Mervielde & Havill, 1998; Zupančič, 2001b) and in both parents' descriptions of their infants/toddlers (Zupančič, 1999; 2001a). The vast majority of descriptors provided by the children's parents were coded within the five categories of the Five-Factor Model (FFM): Extraversion, Agreeableness, Conscientiousness, Emotional Stability (which »equals« adult Neuroticism) and Openness/Intellect. However, agreement between the spouses in describing the same child was found to be low to moderate (Havill, Allen, Halverson, Jr. & Kohnstamm, 1994; Zupančič, under review), although the descriptor distributions for mothers and fathers describing pre-school children (Havill et al., 1994) and infants/toddlers (Zupančič, under review) were remarkably similar. The levels of consensus in mothers' and fathers' free descriptions of their children were found lower than the agreement scores generally obtained using objective questionnaires (e.g. Halverson, Jr., 2001). Proportional scores of free descriptions as measures of individual differences are assumed to be rather unreliable and skewed, so the low levels of agreement between spouses in assessing their child are not too surprising (Havill et al., 1994).

Compared with parents assessing their children, less research has been done with teachers evaluating pre-school child's personality. Mervielde (1994) reports that more than 60% of the personal constructs listed by teachers of four- to twelve-year-olds can be classified within the FFM. Furthermore, using bipolar adjective scales, Mervielde, Buyst and De Fruyt (1995) confirmed the presence of four factors, Conscientiousness-Intellect, Extraversion, Agreeableness and Emotional Stability, in teacher ratings of four- to six-year-olds, with a complete five-factor structure (where the combined Conscientiousness-Intellect factor is differentiated) emerging when chil-

dren start elementary school. The authors suggest that school curriculum require-
ments contribute to the differentiation of the combined »pre-school« factor into inde-
pendent categories of child behaviour related to Conscientiousness and Openness/
Intellect. However, no research in this field has been undertaken with pre-school
teachers freely describing toddlers' (age 1 to 3 years) characteristics or rating them
using adjective scales or personality questionnaires (except for temperamental meas-
ures, e. g. Kohnstamm, Bates & Rothbart, 1989). Pre-school teachers are consid-
ered to be reliable informants on perceived childhood differences since they continu-
ously interact with and observe groups of same-age children, are less emotionally
involved with the children than are parents, and have an opportunity for observing
children in pre-school settings (Mervielde, 1994). Therefore, the first aim of the present
study was to examine whether the distributions of pre-school teachers' free descriptors
for toddler's personality were similar to those obtained from their mothers, who are
limited to home settings in their observations of toddlers, and are generally more
emotionally involved with the toddlers than are teachers. On the other hand, we were
also interested in the level of agreement between mothers and teachers in describing
the same toddler, in order to compare their consensus to that determined between the
two parents (mother and father) in a recent study by Zupančič (under review). Since
both parents share a similar care-giving role (a parental one) and the same family
context with the toddler, and observe him/her in the same setting, while the parent
and the pre-school teacher do not (or at least not to the extent that the parents do),
we expected within-parent-pair agreement on the toddler's characteristics to be
stronger than the within-parent-teacher one.

Some consistent age differences have been found in parental free descriptions
of their toddlers and pre-school and older children (Havill et al., 1994; Kohnstamm,
Mervielde, Besevegis & Halverson, Jr., 1995; Slotboom, Havill, Pavlopoulos & De
Fruyt, 1998). The overall proportions of descriptions coded within the FFM increased
along with the age of the children assessed, and were mostly attributable to age
increases in the proportions of the Conscientiousness, Emotional Stability and Open-
ness/Intellect descriptors. Several age differences were even revealed between the
parental descriptor distributions for infants and toddlers (Zupančič, 2001a), which
were mostly accounted for by age increases in the proportions of the Agreeableness,
Conscientiousness and Openness/Intellect descriptors. On the contrary, while estab-
lishing the value of the FFM as a model for pre-school and school teachers to con-
struct individual differences among pre-school and school children, Mervielde (1994)
obtained little systematic change across different age groups of children (4 to 12
years) from pre-school and school teachers' free reports on child's personality. Agreea-
bleness appeared to be the most important factor for all age groups of children, while
Intellect/Openness and Conscientiousness attracted the lowest proportion of con-
structs for all age groups, with the exception of eleven- and twelve-year-olds. In
relation to this, the second aim of the present study was to investigate whether

Mervielde's findings (1994) could also apply to pre-school teachers' free descriptions of younger child's (1 to 4 years) personality: (a) do the distributions of pre-school teachers' descriptors of young children reflect the FFM; (b) do the descriptor distributions remain stable across children's pre-school period, i.e. from toddler age to the end of preparatory classes for starting school; and (c) if not, do the age differences in pre-school teachers' free descriptions of child's personality show a similar tendency to those observed in the children's parents, as reported by Kohnstamm et al. (1995), Slotboom et al. (1998) and Zupančič (2001a).

## Method

### Participants

A total of 184 pre-school teachers (all females, with a college degree in child care and education) from different regions of Slovenia were asked to describe a randomly- chosen child from their pre-school group. The total number of boys ($N = 89$) and girls ($N = 95$) described in the sample did not differ significantly ($\chi^2_{(1)} = 0.20, p > 0.05$). The children varied in age from one to seven years: 68 of them were one to three-year-olds (33 boys and 35 girls; $\chi^2_{(1)} = .06, p > 0.05$), 36 were three- to four-year-olds (15 boys and 21 girls; $\chi^2_{(1)} = 1.00, p > 0.05$), and 80 were five- through seven-year-olds (41 boys and 39 girls; $\chi^2_{(1)} = 0.05, p > 0.05$). 47 of the 68 toddlers (22 boys and 25 girls; $\chi^2_{(1)} = 0.19, p > 0.05$) were also described independently by their mothers.

### Instrument

Three questions, based on parental free-descriptive studies of children (e.g. Havill et al., 1994; Kohnstamm et al., 1995; Zupančič, 2001a) were posed to each of the 184 pre-school teachers and 47 mothers in the following order:

a)    »What do you think is characteristic of the (your) child?« When the informants gave descriptions, only neutral prompts were given to them to continue.
b)    »What does each of these words/phrases mean to you?«
c)    »Can you give an example of the (your) child's behaviour for each of these characteristics?«

The descriptions obtained were categorised using The Coding List and Manual (Havill et al., 1994; see also Kohnstamm, Halverson, Jr., Havill & Mervielde, 1997; Kohnstamm, et al. 1995; Kohnstamm et al., 1998; Zupančič, 2001b), consisting of 14 main categories and up to three subcategories per category.

Five main categories were based on the FFM framework, with three

subcategories each: Extraversion (I), including Sociability (IA), Dominance (IB) and Activity (IC); Agreeableness (II), consisting of Amiability (IIA), Manageability (IIB), Honesty (IIC); Conscientiousness (III), comprising Carefulness (IIIA), Dependability (IIIB), Diligence(IIIC); Emotional Stability (IV), incorporating Reactivity (IVA), Self-Confidence (IVB), Anxiety (IVC); and Openness/Intellect (V), including Openness to Experience (VA), Interest (VB), Intelligence (VC). Eight additional categories outside the FFM help broaden the coding system and, therefore, make it more sensitive to socio-cultural differences in adults' descriptions of young children. These additional categories include: Independence (VI), Mature for Age (VII), Health (VIII), Rhythmicity (IX), Gender-Appropriate/Physical Attractiveness (X), School Performance (XI), Contact Comfort (XII) and Family Relations (XIII). This last category, Family Relations, was expanded in the present study to include characteristics of children's interaction with their pre-school teachers as well. The label of the category was therefore changed to Family and Teacher Relationships, and a subcategory, Interaction with the Teacher (XIIIC), was added to the previously-existing subcategories labelled Sibling Relationships (XIIIA) and Interaction with Parents and Family (XIIIB). The last category, Ambiguous (XIV), contained all other, unanticipated characteristics of the target children. All (sub)categories were coded as high end (positive; e.g. »enjoys playing with others« was coded as IA+) or low end (negative; e.g. »prefers to play alone« was coded as IA-). The average inter-rater agreement between two coders across the main 14 categories was 86% (Zupančič & Kavčič, 2001).

## Procedure

The mothers of 47 toddlers and their pre-school teachers, who were recruited by psychology students, were interviewed individually and separately in a quiet room at the pre-school by the students themselves, as a part of their undergraduate Developmental Psychology Practicum. 47 students, previously trained during a course in developmental psychology, carried out the interviews, first with the mother and then with the teacher of the target toddler; thus each student interviewed one caregiver-pair. The interviewers were instructed to inform the mothers, who were acquaintances of theirs, about the study, and to obtain their permission for the pre-school teacher to describe their toddlers as well. Each teacher was given the same information about the study, plus the mother's oral consent to the teacher's description of their toddlers. The respondents were told: »As part of a study at the Department of Psychology, we are interested in toddlers' characteristics. We would like to know how mothers and pre-school teachers perceive the toddlers whom they care for and educate. I will ask you three questions about your (a given) toddler. There are no right or wrong answers. You may use as many words as necessary to give me a thorough portrait of your (the) toddler. All of your statements are confidential, and will be used for research purposes only.« Following this introduction, the three ques-

tions were asked (see Instruments). When all of the descriptive words had been obtained from the respondent (in answer to the first question), the interviewer returned to each of the stated descriptors, asking the respondent about the meaning of each of the given words (the second question), and finally he/she encouraged the caregiver to provide an example of the toddler's behaviour that reflected the meaning of each of the descriptive words (the third question). The interviewers were told to obtain as many descriptive words from each of the caregivers as possible, and to let the respondents provide as many examples they wanted. Everything the mothers and teachers said was written down, word for word, by the students, and later transcribed for coding in the form of a table, consisting of three columns: Descriptor, Meaning of Descriptor, and Corresponding Example.

All other pre-school teachers participating in the study were asked to write down a description of a randomly-selected child in their pre-school group at the beginning of in-service training for pre-school teachers, as performed by the authors of this study. The random selection of children was determined by the alphabetical order of their last names in the respective pre-school group. As four groups of pre-school teachers participated in this study, each group, having been informed of the purpose of the study, as cited above, was then asked to describe a child in their pre-school group (the first question), whose name was (with regard to alphabetical order) 3rd from the beginning, 5th from the beginning, 3rd from the end or 5th from the end, respectively. Before they started writing down the answers, the teachers were instructed to state the meaning of each of the characteristics they mentioned (the second question) and to provide an example which illustrated each of these meanings (the third question). They were given as much time as they needed to complete their work.

The descriptors (answers to the first question) were coded into (sub)categories per unit, as well as positive (high end) or negative (low end), according to their explanation (answers to the second question). The meaning of the examples (answers to the third question) served as a second check on the descriptor's meaning. In most cases, the descriptors were consistent with their explanations and with the concrete examples. In all other instances, explanations of the words matched the meaning of the example, although they did not correspond to the conventional meaning of the descriptors themselves. For example: the descriptor »he is so creative« would normally be coded as high end Openness to Experience, but the teacher's explanation »always doing something, constantly active« and her example »he could not wait his turn to run, he had to jump the queue« led to the conclusion that her descriptor should be coded as high end Activity.

A unit of analysis was regarded as an adjective, verb, noun or phrase indicative of a child's characteristic. If a phrase could be split into simpler, independent, still meaningful parts, then each part was coded separately (e.g. »likes to play with her companions, always using novel objects« was coded as »likes to play with her com-

panions« - high end Sociability, and »always using novel objects« - high end Openness to Experience). If the meaning would be lost by dividing the phrase, it was coded as one unit. Words repeated in a single interview or synonyms were not included in the frequency analysis more than once. However, two or more somewhat different descriptors could fit into the same (sub)category, and so were regarded as separate descriptors in the frequency analysis. Phrases or words referring to situational causes of a child's behaviour (e.g. »he does not eat when upset«), to his/her physical attributes, to peripheral information about the child (e.g. »I knew him long before he entered pre-school«) or only indirectly to the target child (e.g. »kids are spoiled these days«) were not coded.

## Results

Percentages of the overall descriptors provided by the pre-school teachers and mothers of the same 47 toddlers were calculated for each of the 14 main categories (see Table 1) and for each of the 15 subcategories within the FFM (see Table 2). The differences across the distributions of descriptors belonging to each (sub)category, obtained from the two respondents in different roles and contexts relative to the target toddlers, as well as their agreement in describing the same toddler, are also presented in Tables 1 and 2. Category XI was not included, since none of the mothers or pre-school teachers reported any toddler characteristic which could be coded as School Performance.

Over 85 % of mothers' and pre-school teachers' descriptors of toddlers' characteristics were coded in the first five categories of the coding scheme. The largest categories were Extraversion (I) and Agreeableness (II), while Conscientiousness (III) appeared to be the smallest. A considerably lower proportion of descriptors was classified in categories outside the FFM. With regard to these remaining categories, Independence (IV) and Contact Comfort (XII) were most often represented in mothers' descriptors, while Independence (VI) and Ambiguous (XIV) were the most frequently mentioned constructs in pre-school teachers' descriptors of toddlers' characteristics. Both caregivers provided predominantly positive (high end) descriptions of toddlers (see Appendix, Table 4).

Overall percentages at the subcategory level (see Table 2) show that most of the mothers' as well as the pre-school teachers' descriptions of toddlers' characteristics were coded as Manageability (IIA), Sociability (IA) and Activity (IC). The smallest subcategories within the FFM were Dependability (IIIB), Honesty (IIC) and Self-Confidence (IVB).

$\chi^2$ tests as a simple check on the rectangularity of frequency distributions of a single variable, revealed that the proportions of mothers' and pre-school teachers' descriptions did not differ significantly for any of the overall (sub)categories (see

*Table 1: Percentages of mothers' and pre-school teachers' overall descriptors per category inside and outside the FFM, differences according to rater and inter-rater agreement.*

| Categories | Mothers' Descriptors | Teachers' Descriptors | $\chi^2$ (df=1) | A1 | A2 | D1 | D2 | % of Agreem. | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| Total *N* of descriptors *(M)* | 291 (6.2) | 299 (6.4) | 0.11 | | | | | | |
| I | 29.21 | 28.43 | 0.00 | 1 | 38 | 4 | 4 | 83.0 | 0.11 |
| II | 28.87 | 23.08 | 1.47 | 2 | 35 | 4 | 6 | 78.7 | 0.16 |
| III | 4.47 | 8.03 | 3.27 | 20 | 5 | 15 | 7 | 53.2 | -0.00 |
| IV | 7.56 | 10.37 | 1.53 | 12 | 9 | 17 | 9 | 44.7 | -0.08 |
| V | 15.46 | 17.39 | 0.51 | 7 | 22 | 9 | 9 | 61.7 | 0.15 |
| Total I-V | 85.6 | 87.3 | | | | | | | |
| VI | 3.78 | 3.68 | 0.00 | 33 | 7 | 4 | 3 | 85.1 | 0.57** |
| VII | 0.34 | 1.34 | - | 43 | 1 | 3 | 0 | 93.6 | 0.38** |
| VIII | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | - | a |
| IX | 1.03 | 0.33 | - | 43 | 0 | 1 | 3 | 91.5 | -0.03 |
| X | 0.34 | 0.33 | - | 45 | 0 | 1 | 1 | 95.7 | 0.02 |
| XII | 4.81 | 2.34 | 2.33 | 31 | 5 | 2 | 9 | 76.6 | 0.35** |
| XIII | 1.72 | 0.67 | - | 42 | 0 | 2 | 3 | 89.4 | -0.05 |
| XIV | 2.06 | 4.01 | 2.00 | 33 | 2 | 9 | 1 | 74.5 | 0.12 |

*Note*: I = Extraversion; II = Agreeableness; III = Conscientiousness; IV = Emotional Stability; V = Openness/Intellect; Total I-V = Number of descriptors within FFM; VI = Independence; VII = Mature for Age; VIII = Health; IX = Rhythmicity; X = Gender Appropriate/Physical Attractiveness; XII = Contact Comfort; XIII = Family and Teacher Relations; XIV = Ambiguous; all the % are computed from the total *N* of descriptors obtained from the respective group of raters; $\chi^2$ computed using the observed frequencies as against the expected frequencies, based on the assumption of equal proportions per category in the two samples of caregivers; - all expected frequencies did not total at least 5; A1 = neither of the two caregivers provided a descriptor for a given category; A2 = both caregivers provided a descriptor for a given category; D1 = the pre-school teacher provided a descriptor for a given category but the mother did not; D2 = the mother provided a descriptor for a given category but the pre-school teacher did not; % of Agreem. = percentage of agreement between the two caregivers = (sum of the observed frequencies indicating agreement (A1 + A2) divided by overall total frequencies (47))x100; **$p$<0.01; a = one variable in a 2-way table is a constant.

Tables 1 and 2) with alpha set at 0.05. However, the teachers ascribed more low end Extraversion (IC-) descriptors as well as more high end Conscientiousness (III+) and, particularly, high end Diligence (IIIC+) descriptors to the toddlers than did the mothers (see Appendix, Table 4).

To check whether caregivers in different roles and contexts used the same (sub)categories consistently in describing the same toddler, Cohen's Kappa was considered to be a relevant measure of their agreement, since percentage agreement fails to take into account the amount of chance agreement that could be anticipated.

*Table 2: Percentages of mothers' and pre-school teachers' overall descriptors per subcategory of the FFM, differences according to rater and inter-rater agreement.*

| (Sub) category | Mothers' Descriptors | Teachers' Descriptors | $\chi^2$ (df=1) | A1 | A2 | D1 | D2 | % of Agreem. | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| IA | 14.78 | 13.04 | 0.20 | 7 | 24 | 7 | 9 | 66.0 | 0.22 |
| IB | 2.75 | 4.35 | 1.19 | 32 | 3 | 8 | 4 | 74.5 | 0.19 |
| IC | 11.68 | 11.04 | 0.01 | 9 | 21 | 10 | 7 | 63.8 | 0.23 |
| IIA | 9.97 | 7.69 | 0.69 | 14 | 9 | 11 | 13 | 48.9 | -0.03 |
| IIB | 18.56 | 15.05 | 0.82 | 3 | 26 | 8 | 10 | 61.7 | -0.01 |
| IIC | 0.34 | 0.33 | - | 45 | 0 | 1 | 1 | 95.7 | a |
| IIIA | 2.06 | 2.34 | 0.08 | 35 | 1 | 6 | 5 | 76.6 | 0.08 |
| IIIB | 0.00 | 0.33 | - | 46 | 0 | 1 | 0 | a | a |
| IIIC | 2.41 | 5.35 | 3.52 | 28 | 3 | 12 | 4 | 66.0 | 0.09 |
| IVA | 4.47 | 5.35 | 0.31 | 23 | 3 | 13 | 8 | 55.3 | -0.08 |
| IVB | 0.69 | 1.00 | - | 42 | 0 | 3 | 2 | 89.4 | -0.05 |
| IVC | 2.41 | 4.01 | 1.32 | 31 | 2 | 9 | 5 | 70.2 | 0.05 |
| VA | 7.90 | 10.37 | 1.19 | 16 | 12 | 11 | 8 | 59.6 | 0.19 |
| VB | 1.72 | 1.34 | - | 38 | 0 | 4 | 5 | 80.9 | -0.10 |
| VC | 5.84 | 5.69 | 0.00 | 24 | 6 | 7 | 10 | 63.8 | 0.16 |

*Note*: IA = Sociability; IB = Dominance; IC = Activity; IIA = Amiability; IIB = Manageability; IIC = Honesty; IIIA = Carefulness; IIIB = Dependability; IIIC = Diligence; IVA = Reactivity; IVB = Self-Confidence; IVC = Anxiety; VA = Openness to Experience; VB = Interest; VC = Intelligence; all the % are computed from the total *N* of decriptors obtained from the respective group of raters; $\chi^2$ computed using the observed frequencies as against the expected frequencies, based on the assumption of equal proportions per subcategory in the two samples of caregivers; - all expected frequencies did not total at least 5; A1 = neither of the two caregivers provided a descriptor for a given subcategory; A2 = both caregivers provided a descriptor for a given subcategory; D1 = the pre-school teacher provided a descriptor for a given subcategory but the mother did not; D2 = the mother provided a descriptor for a given subcategory but the pre-school teacher did not; % of Agreem. = percentage of agreement between the two caregivers = (sum of the observed frequencies indicating agreement (A1 + A2) divided by overall total frequencies (47))x100; [a] = one variable in a 2-way table is a constant.

The consensus obtained between mothers and pre-school teachers was insignificant (with alpha set at 0.05) for all of the five overall main categories and subcategories within the FFM, as well as for most of the categories outside the FFM (see Tables 1 and 2). However, statistically significant agreements between the two caregiver groups were obtained for high end Extraversion (I+), mostly accounted for by their significant agreement in ascribing high end Activity (IC+) to the toddlers; low end Agreeableness (II-), which was especially due to the caregivers' significant agreement on low end Manageability (IIB-) descriptors (see Appendix, Table 4); and Independence (VI), Mature for Age (VII) and Contact Comfort (XII). With respect to these latter three categories outside the FFM, significant consensus between mothers and

teachers was due to their agreement on high end Independence (VI+), high end Mature for Age (VII+) and high end Contact Comfort (XII+) descriptors. In addition,

*Table 3: Differences in the proportions of pre-school teachers' overall descriptors according to children's ages per (sub)category.*

| (Sub)category | 1-2 years (*N*=68) | 3-4 years (*N*=36) | 5-7 years (*N*=80) | $\chi^2$ (*df*=2) |
|---|---|---|---|---|
| Total *N* of descriptors | 435 | 247 | 566 | 2.53 |
| (*M*) | (6.4) | (6.9) | (7.1) | |
| % of descriptors coded in FFM | 84.8 | 88.3 | 89.9 | |
| Sociability (IA) | 15.6 | 21.1 | 19.6 | 5,67 |
| Dominance (IB) | 3.7 | 6.5 | 5.1 | 3,52 |
| Activity (IC) | 10.6 | 6.9 | 6.5 | 3,51 |
| Extraversion (I) | 29.9 | 34.4 | 31.3 | 2,68 |
| Amiability (IIA) | 9.9 | 12.6 | 12.2 | 2,91 |
| Manageability (IIB) | 11.5 | 9.3 | 7.8 | 1,99 |
| Honesty (IIC) | 0.2 | 0.8 | 0.9 | - |
| Agreeableness (II) | 21.6 | 22.7 | 20.8 | 0,52 |
| Carefulness (IIIA) | 1.6 | 3.2 | 4.1 | 6,12[*] |
| Dependability (IIIB) | 0.2 | 0.4 | 0.5 | - |
| Diligence (IIIC) | 4.4 | 3.6 | 7.6 | 8,49[*] |
| Conscientiousness (III) | 6.2 | 7.3 | 12.2 | 13,88[**] |
| Reactivity (IVA) | 4.6 | 3.2 | 2.5 | 2,29 |
| Self-Confidence (IVB) | 0.9 | 1.2 | 1.2 | - |
| Anxiety (IVC) | 2.8 | 0.4 | 0.9 | - |
| Emotional Stability (IV) | 8.3 | 4.9 | 4.6 | 4,35 |
| Openness to Experience (VA) | 10.3 | 7.3 | 10.2 | 1,91 |
| Interest (VB) | 3.0 | 6.5 | 5.3 | 6,01[*] |
| Intelligence (VC) | 5.5 | 5.3 | 5.5 | 0,13 |
| Openness/Intellect (V) | 18.9 | 19.0 | 21.0 | 2,22 |
| Independence (VI) | 5.1 | 4.9 | 3.0 | 2,14 |
| Mature for Age (VII) | 0.9 | 0.0 | 0.2 | - |
| Health (VII)I | 0.0 | 0.4 | 0.5 | - |
| Rhythmicity (IX) | 0.2 | 0.0 | 0.0 | - |
| Gender/Physical Attractiveness (X) | 0.5 | 0.4 | 0.4 | - |
| School Performance (XI) | 0.0 | 0.4 | 0.2 | - |
| Contact Comfort (XII) | 3.0 | 2.0 | 1.4 | 2,16 |
| Sibling Relationships (XIIIA) | 0.0 | 0.0 | 0.2 | - |
| Interaction with Parents and Family (XIIIB) | 0.5 | 0.4 | 0.0 | - |
| Interaction with Teacher (XIIIC) | 0.2 | 0.8 | 0.5 | - |
| Family and Teacher Relations (XIII) | 0.7 | 1.2 | 0.7 | - |
| Ambiguous (XIV) | 4.8 | 2.4 | 3.7 | 1,82 |

*Note*: all the % are computed from the total *N* of descriptors obtained for the respective age group of children; $\chi^2$ computed using the observed frequencies as against the expected frequencies, based on the assumption of equal proportions per (sub)category in all three samples of teachers; - all expected frequencies did not total at least 5; *$p$<0.05; **$p$<0.01

the two caregiver groups also significantly agreed in ascribing low end Ambiguous (XIV-) descriptors to the toddlers (see Table 1 and Appendix, Table A1).

The cross-sectional data obtained (pre-school teachers describing children of various ages) enabled an examination of developmental trends in free descriptions. Percentages of the descriptors mentioned by pre-school teachers for each (sub)category are presented according to the children's ages in Table 3. The $\chi^2$ procedure with $\alpha$ set at 0.05 was used to test age differences in descriptors within each (sub)category.

Between 85 % and 90 % of all pre-school teachers descriptors of children's characteristics were coded within the FFM, with this percentage increasing along the children's age. The largest categories in all three age groups were Extraversion (I) and Agreeableness (II), while Conscientiousness (III) and Emotional Stability (IV) were the smallest. Outside the FFM framework, most of the descriptors were coded as Independence (VI) and Ambiguous (XIV).

With regard to most of the (sub)categories within the FFM, no significant age differences were established in the proportions of pre-school teachers' descriptors. However, age differences showed an increase in terms of overall Conscientiousness (III) and high end Conscientiousness (III+), especially accounted for an increase in high end Carefulness (IIIA+) and overall Diligence (IIIC) (see Tables 3 and Appendix, Table A2), while the proportion of low end Manageability (IIB-) descriptors decreased with the children's increasing age. In addition, less high end Sociability (IA+) was ascribed to toddlers than to pre-school children, while descriptions of three- and four-year-olds were more frequently classified as overall Interest (VB) than for other age groups. There were no significant age differences in the proportions of descriptors coded outside the FFM framework.

## Discussion

The present study reveals that distributions of the free descriptors of toddler's characteristics provided by mothers and pre-school teachers appear to be remarkably similar with respect to overall (sub)category use within and outside the FFM. As has already been established in free descriptive studies with mothers and fathers of infants/toddlers (Havill et al., 1994; Zupančič, 1999, 2001a, under review), the FFM taxonomy was also found to be relevant for assessments of pre-school teachers' descriptions of toddler's personality, since 87 % of their descriptions fitted into the FFM categories. On the other hand, few differences were found when free descriptor distributions across evaluators in different care-giving roles (mothers and teachers) were compared. Compared with mothers, pre-school teachers provided more negative descriptors coded as Extraversion, and more positive descriptors coded as Conscientiousness, mostly accounted for by ascribing more high end Diligence descriptors

to the toddlers. These differences between caregivers in different roles and contexts reporting on the same toddlers might reflect differences in toddlers' actual behaviours in different contexts as well as differences in the respondents' expectations, norms and values regarding toddlers (e.g. pre-school teachers represent a more homogenous group with respect to a specific education and they follow a specific curriculum while working with the toddlers).

The level of consensus obtained between the caregivers in different roles/contexts was found to be low to fair (with regard to Robson's criteria, 1993) and, with respect to the majority of (sub)categories, insignificant. Within the FFM (sub)categories, the mothers and pre-school teachers agreed significantly (low consensus) with respect to high end Extraversion, mostly accounted for by their fair amount of agreement in positive Activity descriptors, and low end Agreeableness descriptors (fair agreement), mostly accounted for by their fair amount of agreement in negative Manageability descriptors. Perhaps activity and (un)manageability are more stable across different contexts and/or the caregiver's role demands a specific focus on these two traits in this developmental period. However, in the case of open questions, a low level of agreement or insignificant consensus between the two informants does not necessarily mean that they disagree in describing the same child. When informants respond to open questions, producing natural language descriptors, they simply express what they recall, at a given moment, to be most characteristic of the target child. Therefore, a direct comparison of agreement measures obtained through free descriptions and those established using objective personality inventories may be misleading. Nevertheless, the agreement between a mother and father describing the same infant/toddler was found to be higher (statistically significant Kappa for most of the FFM subcategories; Zupančič, under review) than the agreement between the mothers and pre-school teachers obtained in the present study. These discrepancies might reflect differences in toddlers' behaviours across contexts, as well as differences in the implicit theories of the caregivers in different roles/contexts and, perhaps, even differences in the amount of mutual validation of a toddler's personality between different pairs of caregivers. It is supposed that mutual validation between spouses should be higher, since they share the same family environment (i.e. they share constructs and general ideas about the child and family relationships) and observe their child in a similar setting.

The results of the present study regarding age differences in personality descriptors indicate that the free descriptions of children's personality provided by pre-school teachers tend to come closer to the FFM along with children's increasing age, as was already established for parents' free descriptions (Kohnstamm et al., 1995; Slotboom et al., 1998). Compared to the age differences in parental descriptions of three- to twelve-year-olds (Slotboom, et al., 1998), these differences seem to be less pronounced in pre-school teachers' descriptions. Among the toddlers, as relative to pre-school children, sociability, carefulness (as subcategories of the FFM) and

conscientiousness (as a category at its high end) were the characteristics less frequently reported by teachers, while unmanageability was a more frequently mentioned one, presumably due to toddlers' adaptation to novel social contexts (since they usually enter pre-school during this developmental period), their relatively low level of interest in peers, and difficulties in respecting social regulations and establishing behavioural control, all of which are normative for the toddler developmental period. The clearest age differences were obtained with respect to Conscientiousness and its facet, Carefulness, especially with the oldest age group, who were attending a preparation programme for starting school. Starting more »work-like« activities in pre-school may shift teachers' attention towards the child's attention span, concentration, responsibility, sense of duty, etc. as was also suggested by Mervielde et al. (1995), who used bipolar adjective scales as measures of children's individual and age differences, as described by pre-school and school teachers.

Based on the results of parental free-descriptions, new type of age-specific questionnaires for assessing child's personality have been constructed (e.g. Besevegis & Pavlopoulos, 1999; Mervielde & De Fruyt, 1999) in order to measure individual differences in children's characteristics which are considered important by their parents. These age-specific instruments have been further integrated through the construction of representative items found to be the same across age groups (Halverson, Jr. & Havill, 1997; Mervielde & De Fruyt, 1999). Factor analyses of the data obtained using these measures revealed that the complete five-factor structure of personality emerged between the ages six and nine years and, at the same time, the analyses identified the early antecedents of these five factors (Besevegis & Pavlopoulos, 1999, 2001; Halverson, Jr., 2001; Mervielde & De Fruyt, 1999). Undoubted, such age-independent instruments will be particularly useful in developmental studies of personality development in childhood, e.g. differentiation of broad-band factors, of factors into facets, and of stability as well as change of personality dimensions and facets. The results of a study presented by Halverson, Jr. (2001) showed that the Inventory of Children's Individual Differences (ICID) (Halverson, Jr. & Havill, 1997), an age-independent questionnaire for children aged from three- to twelve, could be used with teachers as evaluators as well. However, neither age-specific nor age-independent instruments have been used with very young children as subjects. The results of the present study, as well as the free-descriptive approach used with children's parents as respondents (e.g. Zupančič, 1999, 2001a), provide some indication that other personality characteristics, besides temperamental traits, could also be obtained in the case of infants and toddlers, no matter what the respondent's relation to a very young child or the context in which the child is generally observed. These findings suggest the possibility of applying newly-developed instruments to younger populations as targets and, consequently, of linking the very early development of personality to its development in early childhood.

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# Appendix

*Table A1: Percentages of mothers' and pre-school teachers' descriptors in high endand low end (sub)categories inside and outside the FFM, differences according to rater and inter-rater agreement. (the table continues on the next page)*

| (Sub) category | Mothers' Descriptors | Teachers' Descriptors | $\chi^2$ ($df$=1) | A1 | A2 | D1 | D2 | % of Agreem. | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| IA+ | 14.09 | 11.04 | 0.86 | 9 | 20 | 7 | 11 | 61.7 | 0.20 |
| IA- | 0.69 | 2.01 | - | 40 | 0 | 5 | 2 | 85.1 | -0.07 |
| IB+ | 2.41 | 4.35 | 1.80 | 33 | 3 | 8 | 3 | 76.6 | 0.23 |
| IB- | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| IC+ | 11.68 | 9.36 | 0.58 | 14 | 21 | 5 | 7 | 74.5 | 0.48[**] |
| IC- | 0.00 | 1.67 | - | 42 | 0 | 5 | 0 | 89.4 | [a] |
| I+ | 28.18 | 24.75 | 0.41 | 3 | 36 | 3 | 5 | 83.0 | 0.33[*] |
| I- | 1.03 | 3.68 | 4.57[*] | 39 | 1 | 5 | 2 | 85.1 | 0.15 |
| IIA+ | 7.90 | 6.02 | 0.61 | 22 | 8 | 8 | 9 | 63.8 | 0.21 |
| IIA- | 2.06 | 1.67 | 0.09 | 37 | 1 | 4 | 5 | 80.9 | 0.07 |
| IIB+ | 6.53 | 5.69 | 0.11 | 22 | 6 | 9 | 10 | 59.6 | 0.09 |
| IIB- | 12.03 | 9.36 | 0.78 | 13 | 20 | 5 | 9 | 70.2 | 0.40[**] |
| IIC+ | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| IIC- | 0.00 | 0.33 | - | 46 | 0 | 1 | 0 | 97.9 | [a] |
| II+ | 14.78 | 11.71 | 0.82 | 11 | 15 | 9 | 12 | 55.3 | 0.10 |
| II- | 14.09 | 11.37 | 0.65 | 12 | 22 | 5 | 8 | 72.3 | 0.42[**] |
| IIIA+ | 0.34 | 1.34 | - | 42 | 0 | 4 | 1 | 89.4 | -0.04 |
| IIIA- | 1.72 | 1.00 | - | 39 | 0 | 3 | 5 | 83.0 | -0.09 |
| IIIB+ | 0.00 | 0.33 | - | 46 | 0 | 1 | 0 | 97.9 | [a] |
| IIIB- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |

*... Table A1*

| (Sub) category | Mothers' Descriptors | Teachers' Descriptors | $\chi^2$ (*df*=1) | A1 | A2 | D1 | D2 | % of Agreem. | *Kappa* |
|---|---|---|---|---|---|---|---|---|---|
| IIIC+ | 2.06 | 5.35 | 4.55[*] | 29 | 3 | 12 | 3 | 68.1 | 0.13 |
| IIIC- | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| III+ | 2.41 | 7.02 | 7.00[**] | 26 | 3 | 14 | 4 | 61.7 | 0.05 |
| III- | 2.06 | 1.00 | - | 39 | 1 | 2 | 5 | 85.1 | 0.15 |
| IVA+ | 2.06 | 1.67 | 0.09 | 37 | 0 | 5 | 5 | 78.7 | -0.12 |
| IVA- | 2.41 | 3.68 | 0.89 | 32 | 2 | 9 | 4 | 72.3 | 0.09 |
| IVB+ | 0.34 | 0.33 | - | 45 | 0 | 1 | 1 | 95.7 | -0.02 |
| IVB- | 0.34 | 0.67 | - | 44 | 0 | 2 | 1 | 93.6 | -0.03 |
| IVC+ | 2.41 | 3.34 | 0.53 | 33 | 2 | 7 | 5 | 74.5 | 0.10 |
| IVC- | 0.00 | 0.67 | - | 45 | 0 | 2 | 0 | 95.7 | [a] |
| IV+ | 4.81 | 5.35 | 0.13 | 26 | 3 | 10 | 8 | 61.7 | -0.01 |
| IV- | 2.75 | 5.02 | 2.13 | 30 | 4 | 10 | 3 | 72.3 | 0.23 |
| VA+ | 7.56 | 10.37 | 1.53 | 16 | 11 | 12 | 8 | 57.4 | 0.15 |
| VA- | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| VB+ | 1.72 | 1.34 | 0.11 | 34 | 0 | 4 | 5 | 72.3 | -0.10 |
| VB- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| VC+ | 5.84 | 5.69 | 0.00 | 24 | 6 | 7 | 10 | 63.8 | 0.16 |
| VC- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| V+ | 15.12 | 17.39 | 0.67 | 7 | 21 | 10 | 9 | 59.6 | 0.11 |
| V- | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| VI+ | 3.78 | 3.01 | 0.20 | 34 | 6 | 3 | 4 | 85.1 | 0.54[**] |
| VI- | 0.00 | 0.67 | - | 45 | 0 | 2 | 0 | 95.7 | [a] |
| VII+ | 0.34 | 1.34 | - | 43 | 1 | 3 | 0 | 93.6 | 0.38[**] |
| VII- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| VIII+ | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| VIII- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| IX+ | 1.03 | 0.33 | - | 43 | 0 | 1 | 3 | 91.5 | -0.03 |
| IX- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| X+ | 0.34 | 0.33 | - | 45 | 0 | 1 | 1 | 95.7 | -0.02 |
| X- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| XII+ | 4.81 | 2.34 | 2.33 | 31 | 5 | 2 | 9 | 76.6 | 0.35[**] |
| XII- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| XIIIA+ | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| XIIIA- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| XIIIB+ | 1.03 | 0.67 | - | 42 | 0 | 2 | 3 | 89.4 | -0.05 |
| XIIIB- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| XIIIC+ | 0.34 | 0.00 | - | 46 | 0 | 0 | 1 | 97.9 | [a] |
| XIIIC- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| XIII+ | 1.72 | 0.67 | - | 42 | 0 | 2 | 3 | 89.4 | -0.05 |
| XIII- | 0.00 | 0.00 | - | 47 | 0 | 0 | 0 | 100.0 | [a] |
| XIV+ | 1.37 | 3.01 | 1.92 | 37 | 1 | 7 | 2 | 80.9 | 0.10 |
| XIV- | 0.69 | 1.00 | - | 43 | 1 | 2 | 1 | 93.6 | 0.37[**] |
| Total + | 79.04 | 77.26 | | | | | | | |
| Total- | 20.96 | 22.74 | | | | | | | |

*Note*: See Note for Tables 1 and 2.

*Table A2: Differences in the proportions of pre-school teachers' descriptors in high end and low end (sub)categories inside and outside the FFM, according to children's ages. (the table continues on the next page)*

| (Sub) category | 1-2 years (*N*=68) | 3-4 years (*N*=36) | 5-7 years (*N*=80) | $\chi^2$ (*df*=2) |
|---|---|---|---|---|
| IA+ | 13.6 | 18.2 | 18.2 | 6,38* |
| IA- | 2.1 | 2.8 | 1.4 | - |
| IB+ | 3.7 | 6.1 | 4.8 | 2,68 |
| IB- | 0.0 | 0.4 | 0.4 | - |
| IC+ | 9.0 | 6.5 | 5.8 | 2,10 |
| IC- | 1.6 | 0.4 | 0.7 | - |
| I+ | 26.2 | 30.8 | 28.8 | 3,36 |
| I- | 3.7 | 3.6 | 2.5 | 0,94 |
| IIA+ | 8.3 | 11.7 | 10.4 | 3,51 |
| IIA- | 1.6 | 0.8 | 1.8 | - |
| IIB+ | 4.4 | 3.6 | 4.6 | 0,55 |
| IIB- | 7.1 | 5.7 | 3.2 | 6,01* |
| IIC+ | 0.0 | 0.8 | 0.7 | - |
| IIC- | 0.2 | 0.0 | 0.2 | - |
| II+ | 12.6 | 16.2 | 15.7 | 3,94 |
| II- | 9.0 | 6.5 | 5.1 | 3,60 |
| IIIA+ | 0.9 | 2.8 | 3.2 | 6,83* |
| IIIA- | 0.7 | 0.4 | 0.9 | - |
| IIIB+ | 0.2 | 0.4 | 0.5 | - |
| IIIB- | 0.0 | 0.0 | 0.0 | - |
| IIIC+ | 4.4 | 3.2 | 6.2 | 4,47 |
| IIIC- | 0.0 | 0.4 | 1.4 | - |
| III+ | 5.5 | 6.5 | 9.9 | 9,00* |
| III- | 0.7 | 0.8 | 2.3 | - |
| IVA+ | 1.6 | 0.8 | 0.5 | - |
| IVA- | 3.0 | 2.4 | 1.9 | 0,65 |
| IVB+ | 0.5 | 0.8 | 0.7 | - |
| IVB- | 0.5 | 0.4 | 0.5 | - |
| IVC+ | 2.3 | 0.4 | 0.7 | - |
| IVC- | 0.5 | 0.0 | 0.2 | - |
| IV+ | 4.4 | 2.0 | 1.9 | 4,51 |
| IV- | 3.9 | 2.8 | 2.7 | 0,74 |
| VA+ | 10.1 | 7.3 | 10.2 | 1,93 |
| VA- | 0.2 | 0.0 | 0.0 | - |
| VB+ | 3.0 | 6.1 | 5.3 | 5,40 |
| VB- | 0.0 | 0.4 | 0.0 | - |
| VC+ | 5.5 | 4.5 | 5.5 | 0,47 |
| VC- | 0.0 | 0.8 | 0.0 | - |
| V+ | 18.6 | 17.8 | 21.0 | 2,80 |
| V- | 0.2 | 1.2 | 0.0 | - |
| VI+ | 4.6 | 4.5 | 2.8 | 1,71 |
| VI- | 0.5 | 0.4 | 0.2 | - |
| VII+ | 0.9 | 0.0 | 0.2 | - |
| VII- | 0.0 | 0.0 | 0.0 | - |
| VIII+ | 0.0 | 0.0 | 0.4 | - |
| VIII- | 0.0 | 0.4 | 0.2 | - |

*... Table A2*

| (Sub) category | 1-2 years (*N*=68) | 3-4 years (*N*=36) | 5-7 years (*N*=80) | $\chi^2$ (*df*=2) |
|---|---|---|---|---|
| IX+ | 0.2 | 0.0 | 0.0 | - |
| IX- | 0.0 | 0.0 | 0.0 | - |
| X+ | 0.5 | 0.4 | 0.4 | - |
| X- | 0.0 | 0.0 | 0.0 | - |
| XI+ | 0.0 | 0.4 | 0.0 | - |
| XI- | 0.0 | 0.0 | 0.2 | - |
| XII+ | 3.0 | 2.0 | 1.4 | 2,16 |
| XII- | 0.0 | 0.0 | 0.0 | - |
| XIIIA+ | 0.0 | 0.0 | 0.2 | - |
| XIIIA- | 0.0 | 0.0 | 0.0 | - |
| XIIIB+ | 0.5 | 0.4 | 0.0 | - |
| XIIIB- | 0.0 | 0.0 | 0.0 | - |
| XIIIC+ | 0.2 | 0.8 | 0.5 | - |
| XIIIC- | 0.0 | 0.0 | 0.0 | - |
| XIII+ | 0.7 | 1.2 | 0.7 | - |
| XIII- | 0.0 | 0.0 | 0.0 | - |
| XIV+ | 3.9 | 1.2 | 2.8 | 3,36 |
| XIV- | 0.9 | 1.2 | 0.9 | - |
| Total+ | 81.1 | 83.0 | 86.0 | 5,20 |
| Total- | 18.9 | 17.0 | 14.0 | 1,75 |

*Note*: See Note for Tables 1 and 2.