

## **Gender differences in personality through early childhood: A multi-informant perspective**

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**Abstract:** The present study explored gender differences and cross-contextual continuity in personality traits and robust personality dimensions of 192 pre-school children. Child personality was assessed separately by mothers, fathers and pre-school teachers employing *The Inventory of Child Individual Differences* (Halverson et al., 2003). The inquiry was conducted in three waves of measurement, when the same children were three-, four-, and five years old. Overall, the gender differences in child personality were small in their size, but consistent over the early childhood. At the domain level, small gender differences in child personality were reflected through parental, but not pre-school teachers' reports. Over the three waves, the girls were ascribed more Extraversion and less Neuroticism than were the boys. At the trait level and across the time span, the girls were rated higher in achievement orientation, compliance, intelligence and organization as compared to the boys, who were, relative to the girls, attributed more antagonism, distractibility, fear/insecurity and shyness. Children of both genders were consistently rated alike with respect to their activity level and strong will. In comparison to the gender effects, more informant effects on the perceived child personality were obtained and they were larger in magnitude, but consistent across times of measurement. Parents attributed their children more achievement orientation, activity, compliance, consideration, intelligence, openness to experience, organization, positive emotion, sociability and strong will than did teachers, who perceived the same children to be more antagonistic, distractible, fearful/insecure, and shy in comparison to the parental reports.

**Key words:** gender differences, personality measurement, early childhood development, multiple-informant approach

## **Osebnostne razlike med spoloma v zgodnjem otroštvu: pristop več ocenjevalcev**

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**Povzetek:** V pričujoči študiji sva preučevali razlike med spoloma in medkontekstno doslednost v osebnostnih potezah in robustnih dimenzijah pri 192 predšolskih otrocih. Otrokovo osebnost so z *Vprašalnikom individualnih razlik med otroki* (Halverson in dr., 2003) neodvisno ocenjevali mame, očeti in vzgojiteljice v vrtcu. Raziskava je potekala v treh časih merjenja, ko so bili isti otroci stari tri, štiri in pet let. Osebnostne razlike med spoloma so bile majhne, a dosledne skozi obdobje zgodnjega otroštva. Na ravni dimenzij so se majhne razlike med spoloma pojavljale na podlagi starševih, ne pa tudi

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vzgojiteljičinih poročil. Ob vseh treh časih merjenja so starši deklice zaznali kot bolj ekstravertne in čustveno stabilne od dečkov. Na ravni osebnostnih potez so bile deklice v primerjavi z dečki med tretjim in petim letom starosti ocenjene kot bolj usmerjene k dosežku, ugodljive, inteligentne in organizirane, dečki pa kot bolj nasprovalni, odkrenljivi, boječi/negotovi in socialno plašni od deklic. Otrokom obeh spolov so odrasli dosledno pripisovali enako raven dejavnosti in močne volje. V primerjavi z učinkom spola so bili učinki ocenjevalca na zaznane izraznosti otrokovih osebnostnih značilnosti številčnejši, pa tudi večji, a dosledni ob različnih časih merjenja. Glede na ocene vzgojiteljic so starši svoje otroke opisovali kot bolj usmerjene k dosežku, dejavne, ugodljive, obzirne, inteligentne, odprte do izkušenj, organizirane, sociabilne, z več močne volje in bolj izraženim pozitivnim čustvovanjem. Vzgojiteljice pa so otrokom pripisale več nasprovalnosti, odkrenljivosti, boječnosti/negotovosti in socialne plašnosti kot starši.

**Ključne besede:** razlike med spoloma, ocenjevanje osebnosti, razvoj v zgodnjem otroštvu, pristop več ocenjevalcev

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The most recent advances in investigating child individual differences provided a firm basis to assert that even young children have personality traits beyond temperamental ones (e.g. Halverson et al., 2003; Lamb, Chuang, Wessels, Broberg & Hwang, 2002; Mervielde, Buyst & De Fruyt, 1995; Mervielde & De Fruyt, 1999, 2002). These child personality traits are markers for the so-called Big Five, the five robust and universal personality dimensions in adults, i.e. extraversion, agreeableness, conscientiousness, neuroticism and openness (McCrae & Costa, 1997). Based on results of a parental language project conducted in several countries (see Kohnstamm, Halverson, Mervielde & Havill, 1998 for a review), new assessment tools capturing child characteristics which are the most salient for parents were developed (Halverson et al., 2003; Mervielde & De Fruyt, 1999, 2002). The *Inventory of Child Individual Differences* (ICID; Halverson et al., 2003) was specifically designed as a cross-age and cross-country instrument. Factor analysis of 108 preliminary items in each of the four continuously participating countries (China, Greece, Holland and the U.S.A.) revealed 15 mid-level personality scales that reproduced very similar component structures across age and country. The scales factored into a recognizable structure resembling to the Big Five. The ICID shows both structural and measurement invariance and therefore, allows comparisons of child characteristics across age, gender, country (Halverson, 2003, 2004; Havill et al., submitted) as well as across the informants reporting on the same children (Zupančič & Kavčič, 2004a, 2004b, 2005; Zupančič, Sočan & Kavčič, under review). Furthermore, the ICID enables to explore how the scale scores change in response to developmental, social, cultural, and historical contexts, to examine the core of continuity and change by the above contexts, to investigate how the early emerging personality differences affect the course and quality of life and to study the issue of how personality and temperament are linked developmentally (Halverson, 2003).

Thus far, empirical reports on the development of personality traits and broadband dimensions over childhood and on the involvement of child personality in developmental outcomes are still rare because child personality represents a relatively new field in exploring individual differences. Temperament-personality links have been studied by Halverson (2004; Halverson et al., 2003), continuity and change in personality traits/dimensions were explored cross-sectionally (Halverson, 2003) and longitudinally (Zupančič & Kavčič, 2005), while few more studies examined concurrent (Halverson et al., 2003; Slobodskaya, 2004; Zupančič & Kavčič, 2004a, 2004b) as well as longitudinal relations (Zupančič & Kavčič, 2004b, in press, under review) between child personality characteristics and behavioural adjustment/problems. In addition to the only ICID study on gender differences which was conducted cross-sectionally with largely age-heterogeneous samples of the target children/adolescents in China, Greece and the U.S.A (Halverson, 2003), we aimed at exploring gender differences in personality with age-homogeneous groups of Slovene pre-school children longitudinally (over a two-year time span) and from a perspective of multiple informants, i.e. the children's mothers, fathers and pre-school teachers.

## **Gender differences in personality**

Using a formerly popular narrative method<sup>1</sup> of review, Maccoby and Jacklin (1974) published a book summarizing the findings on gender differences that had come out of the individual differences perspective. The results of their review suggested very few attributes on which the average scores for the two genders differed consistently. Even when consistent differences were found, the amount of variance accounted for by gender was small, relative to the amount of variation within each gender. The review on personality gender differences (studies that used personality inventories and those that measure behaviours assumed to reflect personality characteristics) found males to be more dominant, aggressive and less anxious than females, while no difference was revealed for self-esteem and locus of control, at least until late adolescence. More recent work has become methodologically sophisticated and used meta-analyses to establish not only the direction of gender differences but also quantitative estimates of their magnitude (e.g. Cohn, 1991; Eagly & Wood, 1991; Feingold, 1994; Hyde, 1986). The conclusions were quite similar to those by Maccoby and Jacklin (1974). In the domains of personality and social behaviour studies continued to find that males are more often agents of aggression than are females (e.g. Eagly, 1987; Maccoby & Jacklin, 1980) who are, in turn, more easily influenced and anxious, but who also report higher levels of life satisfaction and happiness than males, and that males are more likely to offer help to others (forms that may be labelled

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<sup>1</sup> Studies were grouped by domain, the (non)significance of each gender difference was noted by study, conclusions were drawn subjectively from the number and the consistency of significant differences.

chivalrous and heroic) (Eagly, 1987; Eagly & Wood, 1991; Hyde, 1986; Wood, Rhodes & Whelan, 1989). Feingold (1994) conducted four meta-analyses to examine gender differences in personality with one of them also including child measures. Overall, males were found to be more assertive and having a slightly higher self-esteem than females who were, in turn, higher in extraversion, anxiety, trust and tender-mindedness. No noteworthy gender differences were suggested for social anxiety, impulsiveness, activity, reflectiveness, locus of control, and orderliness. In general, personality traits measured by personality scales (as characteristics of individuals) yield smaller or no systematic gender differences as compared to social behaviour (see Eagly & Wood, 1991 for a review). Maccoby (2000) claims that this reflects in part the fact that males and females are much alike, and are (self)perceived by the attributes that all individuals in a given culture have in common. On the other hand, small differences or null findings coming out of comparisons of male and female personality traits may be an artefact of the researchers' reliance on an individual difference perspective, while social behaviour is never a function of an individual alone. Interactive behaviour is not only situation specific, but it depends on the gender category membership of the participants, and the children as young as age three indicate an awareness of gender similarity or difference.

Feingold (1994) reports on three general models which address proximal causes of gender differences. The *biological model* proposes that the observed gender differences in personality test scores reflect innate temperamental gender differences and emphasises biological basis underlying individual differences in personality. The gender differences in dominance and aggression may be caused by biological gender differences in gonadal hormones (Zuckerman, 1991). Prenatal androgen exposure, for example, promotes "masculine" behaviours. Studies of children with congenital adrenal hyperplasia (a disorder in which a genetic defect causes the adrenal system to produce unusually high levels of androgens from the prenatal period onward) suggest the androgen effects for activity level and preference for "masculine" play and toys (Berenbaum & Snyder, 1995; Hines & Kaufman, 1994). According to the *socio-cultural model*, social and cultural factors directly produce gender differences in personality. There are several examples of this model, e.g. the social role model (Eagly, 1987; Eagly & Wood, 1991) contending that gender differences in social behaviour stem from gender roles which determine behaviours that are appropriate for each gender and these behaviours may shape personality. The expectancy model posits that socio-cultural factors eventuate in gender stereotypes. These cause gender differences in personality because the stereotype holders treat others in ways that result in others conforming to these stereotypes. The stereotype-based expectancies produce self-fulfilling prophecies (e.g. Jussim, 1986). The artefact model explains gender differences on personality scales rather than in underlying personality constructs. Socio-cultural factors, e.g. gender stereotyping, result in genders holding different perspectives about the importance of possessing various personality traits

and these differences differentially bias self(other)-reports of personality characteristics (e.g. Feingold, 1990). The gender differences in personality inventory scores thus, do not reflect solely corresponding gender differences (if any) in personality constructs that the inventory is supposed to measure. Finally, the *biosocial model* proposes that biological and socio-cultural factors are both proximal causes of gender differences in personality. If genders are perceived differently because of the observable behavioural differences that are linked to innate temperamental gender differences, genders may be treated differently. And if social and cultural factors affect personality development, these factors may augment inherent gender differences (Feingold, 1994). Cross-cultural similarities in gender differences are, for example, not unambiguously consistent, nor large enough to support a strong role of biology. However, biological factors affect behaviour to some extent, but their effects are probably reinforced and moderated by the environmental influences as well (e.g. Berk, 1997). As shown in an international study (Hofstede, 1980), gender differences in personality were found to be smaller in countries where gender roles are less differentiated, each gender regarded as a blend of masculine (instrumental) and feminine (expressive) traits and where gender equality is highly valued.

### **Gender differences in child personality**

As child personality was long considered in term of temperamental traits, studies on gender differences in personality traits during childhood are scarce. In his overview on gender differences in temperament, Kohnstamm (1989) concludes that boys on the average show somewhat higher activity levels (referring to motor activity level, not to the mental or social activity) as well as externalizing forms of negative reaction to frustration such as anger, non-compliance and resistance (including crying) than girls. Nevertheless, the gender differences emerge at the beginning of early childhood or in later development (Block, 1976; Buss, 1989; Kohnstamm, 1989). Similar timing of the emergence of gender differences was suggested by studies on child personality, e.g. by analyzing parental free descriptions of their children (De Fruyt, Van Hiel & Buyst, 1998; Zupančič, 1999, 2001) and personality inventories (Havill, Halverson & Deal, 2002; Zupančič, Kavčič & Fekonja, 2003). A study with Slovene pre-school children who were assessed by their teachers employing adjective scales based on the Five-Factor-Model revealed null gender differences in toddlerhood with these differences starting to appear between ages three and five. Consistent gender differences which increased with age (up to age seven) of the target children were revealed for Conscientiousness-Intellect/Openness. Girls were rated to be more conscientious and open than were the boys and the effect size reached a large magnitude by the age of five to seven years, while it was moderate at the age three to five (Zupančič et al., 2003).

Halverson (2003) investigated gender differences in child/adolescent (age two and a half to 14 years) personality traits and robust dimensions cross-sectionally across three countries, China, Greece and the U.S.A. Large samples of parents (mainly mothers) rated their children's characteristics using the ICID. Overall results at the trait level and across the three countries showed that the girls were ascribed more positive affect, consideration, organized behaviour, achievement orientation and compliance than were the boys who, in turn, scored higher for distractibility, activity and antagonism than did the girls. No gender differences were obtained with respect to sociability, negative affect and shyness. Exceptionally, gender differences were country specific. The Chinese girls were, for example, assessed to be more open to experience and strong willed than were the Chinese boys who were also perceived by their parents as more fearful/insecure as opposed to the girls. In contrast, the Greek girls were ascribed more fear/insecurity than were the Greek boys. At the domain level, gender differences in neuroticism and extraversion were established only in China where the girls were assessed higher in both robust personality dimensions. However, the effect sizes were of a small magnitude. Remarkable similarities across the countries were revealed with regard to openness and conscientiousness. The girls consistently scored higher than the boys. The effect sizes were large in China, smaller in Greece and relatively the smallest in the U.S. Except for Greek children/adolescents, gender differences also appeared in agreeableness, with the girls scoring higher than the boys and the effect sizes being modest in the U.S. and moderate in China. However, several age x gender x country interaction effects were identified. While overall, neuroticism declined with age of the target children, it declined only for the Chinese boys. No overall age differences were found in extraversion, but this qualified by differing trends in the three countries. Extraversion declined with age for both boys and girls in China and the U.S., while it increased with age for both the Greek boys and girls. Overall, no age differences were observed in openness. However, this qualified by opposing trends in the three countries. Openness moderately decreased in China and the U. S. (modestly), but it increased in Greece (relatively modestly). These trends were consistent for both genders. Agreeableness in general increased with age for both genders (a small amount in the U.S. and a moderate amount in Greece), but the Chinese boys and girls changed in different directions with boys increasing and girls decreasing in agreeable traits. There were no age trends in conscientiousness for the U.S. boys and girls, neither for the Chinese boys. The girls were ascribed less conscientiousness with age in China, while both genders were attributed more conscientiousness with age in Greece.

The present study addressed the development of gender differences in personality from the age they are first expected to appear (i.e. at the beginning of early childhood) which is also the earliest age when the ICID is applicable. In addition to Halverson's cross-sectional work (2003), an age homogenous group of three-year-olds was followed-up during two one-year time intervals. In line with the biosocial hypothesis, some gender differences, albeit small in their magnitude, were expected

to increase somewhat with the age of the target children. These assumptions were set for several reasons. First, as gender differences are proposed to appear at the beginning of early childhood (age three) large differences in the expression of personality characteristics between boys and girls are unlikely. Second, the Slovene three year old boys and girls were found to be treated alike by their mothers and fathers, at least with regard to parental stimulation of their cognitive development, authoritative parenting, power assertion and ineffective control (Zupančič, Podlesek & Kavčič, 2004). Finally, as the children mature and interact to a greater extent with other children of the same gender over the pre-school and school years, they develop somewhat distinctive interactive behaviour. In comparison to boys, the girls were, in general, reported to make more polite suggestions, behave more cooperatively, express agreement and use conflict mitigating strategies more frequently, show more consideration of others and positive reciprocity. The girls also usually try to sustain social relationships and at the same time work to achieve their own individual goals. Relative to the girls, the boys use more direct demands during their interaction, tend toward rougher, power-assertive behaviour, dominance, they are involved in more negative reciprocity, using threats and physical force strategies while coping with peer conflict, and they are likely to use more confrontational styles of behaviour. However, it appears that the child's growing preference of the same-gender playmates has little to do with his/her standing of measures of personality, e.g. masculinity, femininity and gender schematicity (see Maccoby, 2000 for an overview).

### **Child personality from the perspective of different informants**

Judgements on child (or adult) personality characteristics depend on many factors, e.g. judgmental ability of the judge, the nature of a trait being judged, the information that the judgement is based on, the properties of the person who is judged, the nature of the relationship between the judge and the target individual (Funder & West, 1993). Parents and pre-school teachers, for example, each responding to different information available in a home versus pre-school environment, may render different judgements about personality traits of boys and girls because their judgements depend upon different information gathered in different contexts. Each of these everyday settings comprises a particular constellation of micro-contexts to be appraised by the children. The pre-school setting is assumed to make higher demands on attention, interest, and child behavioural control than the home context, and social interactions in the pre-school take place in a group setting involving (usually) same aged peers and pre-school teachers. A parental versus a pre-school teacher role also brings a different set of social expectations as well as responsibilities that impinge on children's environments, and their appraisals of these environments. Thus, the informants' perceptions of child behaviour are not independent of the social roles they occupy (Goldsmith, Aksan, Essex, Smider & Vandell, 2001). Parental and teacher rat-

ings of child externalizing and internalizing behaviour (Achenbach, McConaughy & Howell, 1987; Hinshaw, Han, Erhardt & Huber, 1992) as well as of child personality traits investigated in terms of cross-contextual stability<sup>2</sup> (Zupančič & Kavčič, 2004a, 2004b, 2005; Zupančič et al., under review) were, for example, found low to moderately convergent. However, there was moderate to high convergence between maternal and paternal assessments of these child behaviours and personality traits. The authors argued that the relative divergence between teacher and parent ratings of the same children was both a function of differences in context and of different observer perspectives. Multiple informants participating in the present study allowed us to explore cross-informant and cross-context continuity in adult perception of child personality. Following the above argument we would expect child personality scale-scores (and maybe even gender differences in these scores) derived from mother and father ratings to be more similar as compared to those obtained from parent and teacher reports.

It has been proposed that women enter into deeper levels of reciprocity with their children and communicate with the children more frequently and efficiently, especially during their first years of life, than do men. Furthermore, the relationship mothers develop with children seems to depend very little on whether they are interacting with a son or a daughter. The relationship builds on maternal response to the characteristics and needs of infancy, toddlerhood and early childhood that are found in both genders to similar degrees, while fathers, having a less intimate relationship with their children, treat boys and girls in a somewhat more gendered way (Gleason, 1987; Maccoby & Jacklin, 1983; Siegal, 1987). Nevertheless, these findings were reported within the North American socio-cultural context where the fathers were revealed to engage in more gender-typed behaviours with their children (they especially encouraged gender-typed behaviour with the sons) than did the mothers (for an overview see Ruble, 1988). But, Maccoby (2000) also argues that there are many aspects of the relationships between parents and children which do not depend on the gender of either the parent or the child and she suggests that the children's eventual identification with the same sex-parent is more a consequence than a cause of children's acquisition of gender specific interaction. With respect to widely considered aspects of parental socialization, the Slovene mothers and fathers of three-year-olds were, for example, not identified to use differential treatment in response to their three year old boys and girls (Zupančič et al., 2004). Even though the spouses interact with their pre-school children in a similar context (family environment, equal treatment of boys and girls) and supposing that the mothers might have formed a somewhat more intense and reciprocal parent-child relationship than the fathers, we would expect maternal assessments to differ from paternal reports on the same children at least to some extent.

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<sup>2</sup> Stability describes consistency in the relative positions of children in a group with respect to the expression of a trait across contexts. Continuity describes consistency in the absolute level of a trait in a group across contexts.



## Method

### Participants

A follow-up sample of 192 children (98 boys and 94 girls), their mothers, fathers and pre-school teachers participated in the study. In the first wave, the children were three years old ( $M = 37,8$  months;  $SD = 2,6$  months), and they all attended one of the 17 different state funded pre-schools in different regions of the country for at least 2 months. The same individuals participated in the second and the third wave of the study, one- and two years later. In each of the proceeding waves they were reassessed by their mothers, fathers and teachers. One teacher assessed from 1 to 14 children. However, 21 % of the children were rated by a different pre-school teacher in the second wave than in the first wave and 35 % of the children changed the teacher between the second and the third wave. Overall, 56 % of the children were assessed by the same teacher through the three waves of measurement.

### Instrument

Mothers, fathers and pre-school teachers of the target children completed the Slovene version (Zupančič & Kavčič, 2004a) of *The Inventory of Child Individual Differences* (ICID; Halverson et al., 2003), an age- and culturally decentred measure of child personality. One-hundred and eight personality characteristics (items) are rated along a 7-point scale (1 = *present much less than in an average child or not at all*; 7 = *present much more than in an average child*). These items form 15 scales representing mid-level personality traits: achievement orientation, activity level, antagonism, compliance, consideration, distractibility, fear/insecurity, intelligence, negative affect, openness to experience, organization, positive emotions, shyness, sociability, and strong will (Halverson et al., 2003). With samples of three, four- and five year old Slovene children who were assessed by parents, these traits combine into four relatively independent, internally consistent broad-band personality dimensions, presumably the precursors of the adult Big Five: Extraversion (a combined extraversion and openness factor, i.e. *my child is sociable; ...eager to learn*), Conscientiousness (i.e. *my child is organized; ...has good concentration*), Neuroticism (i.e. *my child is easily upset; ...fearful*) and Disagreeableness (i.e. *my child is stubborn; ...uncooperative*) (Zupančič & Kavčič, 2004a, 2005; Zupančič, et al., under review). All of these child personality dimensions were revealed internally consistent ( $\alpha$  coefficients ranged from 0.79 to 0.91 and from 0.79 to 0.92 for maternal and paternal reports, respectively), stable over a one- ( $r$  ranging from 0.58 to 0.73 and from 0.52 to 0.71 for mother and father ratings, respectively) and two-year time period (from 0.57 to 0.69 and from 0.53 to 0.66 with regard to mother and father reports, respectively) (Zupančič & Kavčič, 2005; Zupančič et al., under review), congruent across

mothers and fathers and over the children's pre-school years (all of the Procrustes based congruence coefficients were higher than 0.98; Zupančič & Kavčič, 2004b, 2005; Zupančič, et al., under review). When the same children were assessed by pre-school teachers, three reliable ( $\alpha$  ranging from 0.79 to 0.92), temporally stable ( $r$  from 0.53 to 0.63) and temporally congruent (all coefficients were higher than 0.98) child personality dimensions were obtained. Extraversion and Neuroticism - reversed (i.e. Emotional Stability) were combined into a single dimension, and so were Conscientiousness and Openness, whereas Disagreeableness reflected a strikingly similar structure to that derived from parental ratings (Zupančič & Kavčič, 2004a, 2005; Zupančič et al., under review).

Estimates of interrater agreement on the ICID domain and mid-level scales were obtained in two independent longitudinal studies with Slovene pre-school and young school age children (Kavčič, 2004; Zupančič & Kavčič, 2004a, 2005). Overall, a comparison of the maternal and paternal correlational pattern indicates a strong agreement between the spouses at the mid-level and domain-level of analysis and over time/age of the target children ( $r$  from 0.62 to 0.79 at the domain level). On the other hand, the agreement on child mid-level traits (note that the component structure as derived from parental and teacher assessments was somewhat different) between teacher-mother and teacher-father pairs was in general moderate, with the teacher-mother agreement indicated to be slightly higher than that of the teacher-father. Nevertheless, all of the respective correlations were significant at least at the 5 % chance level when the target children were three-, four- and five years old (Zupančič & Kavčič, 2005).

The measures of temperament and behavioural problems were included to assess the convergent and discriminant validity of the ICID mid-level scales and dimensions. Temperamental impulsivity (from the *Temperament Assessment Battery for Children-Revised*; Martin & Bridger, 1999) and the converse of effortful control (indexed by the scales from the *Children's Behavioral Questionnaire*; Rothbart, Ahadi, Hershey & Fisher, 2001) showed the strongest relations to antagonism, distractibility, negative affect and strong will, while temperamental inhibition (Martin & Bridger, 1999) and positive affect (Rothbart et al., 2001) were consistently linked to Extraversion as indexed by the mid-level marker scales (Halverson et al., 2003). Conduct problems (captured by the *Behavior Problems Checklist*; Quay, 1987) were negatively associated with the marker scales of Conscientiousness and Agreeableness, and personality problems (Quay, 1987) were linked with shyness and low level scores of scales marking Extraversion (Halverson et al., 2003). Zupančič and Kavčič investigated the mid-level trait (2004a) and domain relationships (2004b, in press) with the *Social Competence and Behavior Evaluation Scale* (LaFreniere, Dumas, Zupančič, Gril & Kavčič, 2001) in a longitudinal study, demonstrating that Neuroticism concurrently and longitudinally predicts pre-school children's internalizing behaviour, while Disagreeableness is predictive of externalizing behaviour. Furthermore, parent rated Extraversion at age 3 predicted children's social competence

in pre-school and teacher rated child Conscientiousness/Openness was consistently (both contemporaneously and longitudinally) linked to socially competent behaviour, whereas Extraversion/Emotional Stability and Disagreeableness (reversed) were significant concurrent predictors of social competence as observed in pre-school at different times of measurements (and ages of the target children). The findings of Kavčič (2004) also indicate that the broad-band child personality dimensions are associated with sibling relationships and are predictive of parenting behaviour.

### Procedure

Parents (mothers and fathers) and pre-school teachers participated on a voluntary basis in the ongoing longitudinal project *The effects of pre-school education on child development and school achievement*, granted by the Slovenian Ministry of Science, Education and Sports. This paper presents a part of the results obtained in the first three waves of this project. In the first wave (in 2002), 18 pre-schools were randomly selected from a listing provided by the Slovenian Bureau of Education Development. 17 pre-schools from different regions of the country (urban and rural) agreed to participate. The parents who agreed to participate in the study provided a written consent. The pre-school teachers mediated contacts with the parents whose children attended the correspondent pre-school and were, in the first wave of the study, three years old. The teachers also collected the signed parental consent forms and distributed them to the researchers.

Mothers, fathers and pre-school teachers separately filled-in the ICID. The research assistants gave the participating teachers short oral instructions on how to fill-in the inventories for each child. The teachers were also asked to distribute envelopes containing parental questionnaires (a mother and father version of the ICID) to the parents of the target children attending their pre-school group. The sets of parental instruments included short written instructions on administration of the assessment tools. The three adult informants were asked to complete the questionnaires within two weeks and to return them in sealed envelopes which were collected in pre-schools. The same procedure was conducted in the proceeding two years.

### Results

The contribution of child gender and informant perspective to the perceived expression of child personality traits and broad-band dimensions was investigated by a two-way ANOVA for repeated measures because the same children were assessed by three different informants, i.e. their mothers, fathers and pre-school teachers. This procedure allows for an evaluation of the main effects of child gender and informant as well as of eventual interaction effects between the two. The analyses were conducted over the three waves of the measurement, when the target children were

three-, four-, and five years old. The magnitude of the main and interaction effects were estimated by an eta squared, indicating the proportion of the overall variance on a given dependent variable (personality characteristics) that can be explained by the independent variable (child gender, informant and gender x informant interaction). Following Cohen's (1988) recommendations,  $\eta^2$  below 0.059 represents a small effect size,  $\eta^2$  from 0.059 to 0.137 is a medium effect size and that of 0.138 or larger describes a large effect size.

In each of the three waves of measurement, dependent variables included mid-level trait- and dimensional scale-scores on children's personality as obtained from maternal, paternal and pre-school teachers' reports. Across the informants and over the three waves, 15 mid-level trait scores were taken into analyses. According to the results of principal component analyses (Zupančič & Kavčič, 2004a, 2005; Zupančič et al., under review), the mother and father derived dimensional scores captured four child personality domains, Extraversion, Conscientiousness, Neuroticism and Disagreeableness, while the teacher derived scores formed three broad-band child personality domains, Conscientiousness/Openness, Extraversion/Emotional Stability and Disagreeableness. At the domain level, the bi-variate statistics was therefore performed only for mother and father derived child personality scores, whereas a one-way ANOVA was employed to estimate the gender differences in child personality as revealed from pre-school teacher assessments.

Summary results of the bivariate analyses at the trait level are presented in Tables 1 through 3, whereas the descriptive statistics (means and standard deviations by gender, informant and time of measurement at the trait and at the domain level) are given in the Appendix (Tables A1 through A3).

Overall, gender differences were found significant in 9 out of 15 personality traits of three-year-olds (see Table 1). However, all of these differences were of a small magnitude. At best, 5 % of the variance was explained by the child's gender (i.e. distractibility, with boys scoring higher than girls). Furthermore, the girls were attributed somewhat more achievement orientation, compliance, intelligence, openness to experience and organization as compared to the boys who were ascribed more antagonism, fear/insecurity, and shyness. Except for one (negative affect) of the 15 traits the informant effects were significant, yielding small to large effect sizes, and there were no significant gender x informant interactions. The parents (mothers and fathers) as compared to the pre-school teachers perceived their children to be much more achievement oriented, active, compliant, considerate, intelligent, open to experience, expressive of positive emotion, sociable, and as moderately more organized and strong willed. In comparison to the parental ratings the teachers assessed the same children to be somewhat more antagonistic, distractible, relatively more fearful/insecure and much more shy.

At the domain level, significant and small effects of the child's gender on Extraversion, Conscientiousness and Neuroticism were obtained from parental reports. The girls were rated higher for Extraversion ( $df = 1,190$ ,  $MSE = 2.51$ ,  $F = 4.07$ ,  $p <$

Table 1: Effects of child's gender and informant on three-year-olds' mid-level personality traits.

|                         | Gender |         |          | Informant |           |          | Gender × Informant |      |          |
|-------------------------|--------|---------|----------|-----------|-----------|----------|--------------------|------|----------|
|                         | MSE    | F       | $\eta^2$ | MSE       | F         | $\eta^2$ | MSE                | F    | $\eta^2$ |
| Achievement Orientation | 3.77   | 4.39*   | .02      | 19.04     | 48.65***  | .20      | 0.51               | 1.29 | .01      |
| Activity Level          | 0.07   | 0.06    | .00      | 56.29     | 99.58***  | .34      | 0.95               | 1.68 | .01      |
| Antagonism              | 6.83   | 6.91**  | .04      | 2.89      | 4.61*     | .02      | 0.23               | 0.37 | .00      |
| Compliance              | 2.97   | 4.38*   | .02      | 12.21     | 34.99***  | .16      | 0.01               | 0.04 | .00      |
| Consideration           | 1.52   | 1.74    | .01      | 40.09     | 90.80***  | .32      | 0.26               | 0.59 | .00      |
| Distractibility         | 9.13   | 10.32** | .05      | 4.87      | 10.50***  | .05      | 0.67               | 1.45 | .01      |
| Fear/ Insecurity        | 6.73   | 8.07**  | .04      | 6.91      | 17.75***  | .09      | 0.33               | 0.85 | .00      |
| Intelligence            | 7.04   | 5.31**  | .03      | 43.48     | 97.36***  | .34      | 0.25               | 0.56 | .00      |
| Negative Affect         | 4.33   | 6.73    | .02      | 1.96      | 2.74      | .01      | 0.59               | 0.83 | .00      |
| Openness to Experience  | 7.10   | 5.64*   | .03      | 49.85     | 106.89*** | .36      | 0.43               | 0.92 | .01      |
| Organization            | 4.26   | 4.99*   | .03      | 7.19      | 21.45***  | .10      | 0.40               | 1.21 | .01      |
| Positive Emotions       | 2.65   | 2.98    | .02      | 43.18     | 96.30***  | .34      | 0.59               | 1.31 | .01      |
| Shyness                 | 9.17   | 7.35**  | .04      | 25.34     | 41.43***  | .18      | 1.01               | 1.65 | .01      |
| Sociability             | 2.58   | 1.77    | .01      | 50.61     | 95.18***  | .33      | 0.39               | 0.74 | .00      |
| Strong Will             | 0.02   | 0.02    | .00      | 13.68     | 24.78***  | .12      | 0.06               | 0.12 | .00      |

Note: Gender  $df = 1$ ; Informant  $df = 190$ ; Gender × Informant  $df = 2, 380$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

0.05,  $\eta^2 = 0.02$ ) and Conscientiousness ( $df = 1,190$ ,  $MSE = 2.11$ ,  $F = 3.85$ ,  $p = 0.05$ ,  $\eta^2 = 0.02$ ), but lower for Neuroticism ( $df = 1,190$ ,  $MSE = 6.89$ ,  $F = 9.54$ ,  $p < 0.01$ ,  $\eta^2 = 0.05$ ). The fathers also assessed their children to be somewhat more extraverted than did the mothers ( $df = 1,190$ ,  $MSE = 0.61$ ,  $F = 6.51$ ,  $p = 0.01$ ,  $\eta^2 = 0.03$ ). A significant and small gender x informant interaction effect appeared for child Neuroticism ( $df = 2,380$ ,  $MSE = 0.62$ ,  $F = 4.57$ ,  $p < 0.05$ ,  $\eta^2 = 0.02$ ). The mothers rated the boys to be more emotionally instable than did the fathers and the latter assessed the girls higher in the same dimension than did the mothers. No significant effect of child gender was revealed from pre-school teacher reports on three-year-olds' personality at the domain level (see also Table A1).

When the target children were four years old gender differences in 6 personality traits reached the level of significance (see Table 2), but they were all of a small magnitude. Gender explained up to 4 % of the variance (with regard to intelligence and organization). All of the differences between boys and girls that were obtained in

Table 2: Effects of child's gender and informant on four-year-olds mid-level personality traits.

|                         | Gender |        |          | Informant |           |          | Gender × Informant |       |          |
|-------------------------|--------|--------|----------|-----------|-----------|----------|--------------------|-------|----------|
|                         | MSE    | F      | $\eta^2$ | MSE       | F         | $\eta^2$ | MSE                | F     | $\eta^2$ |
| Achievement Orientation | 1.96   | 2.01   | .01      | 23.83     | 63.38***  | .25      | 1.12               | 2.98  | .02      |
| Activity Level          | 1.98   | 1.66   | .01      | 46.02     | 94.11***  | .33      | 0.98               | 2.00  | .01      |
| Antagonism              | 6.70   | 5.81*  | .03      | 6.42      | 10.44***  | .05      | 0.03               | 0.05  | .00      |
| Compliance              | 3.42   | 4.93*  | .03      | 10.13     | 26.76***  | .12      | 0.19               | 0.49  | .00      |
| Consideration           | 1.72   | 2.01   | .01      | 38.92     | 75.41***  | .28      | 0.19               | 0.36  | .00      |
| Distractibility         | 4.37   | 4.30*  | .02      | 7.90      | 14.98***  | .07      | 1.62               | 3.07  | .02      |
| Fear/ Insecurity        | 4.15   | 4.28*  | .02      | 3.67      | 8.22***   | .04      | 0.26               | 0.58  | .00      |
| Intelligence            | 9.39   | 8.21** | .04      | 36.69     | 101.82*** | .35      | 0.55               | 1.53  | .01      |
| Negative Affect         | 4.31   | 3.00   | .02      | 4.54      | 5.62**    | .03      | 0.23               | 0.28  | .00      |
| Openness to Experience  | 3.04   | 2.82   | .02      | 44.85     | 103.27*** | .35      | 0.54               | 1.24  | .01      |
| Organization            | 6.69   | 7.34** | .04      | 4.43      | 13.05***  | .07      | 1.66               | 4.90* | .03      |
| Positive Emotions       | 2.23   | 2.35   | .01      | 36.68     | 71.43***  | .27      | 0.68               | 1.32  | .01      |
| Shyness                 | 3.25   | 2.27   | .01      | 21.03     | 35.39***  | .16      | 0.84               | 1.41  | .01      |
| Sociability             | 2.58   | 2.13   | .01      | 45.69     | 87.59***  | .32      | 0.87               | 1.68  | .01      |
| Strong Will             | 0.70   | 0.72   | .00      | 16.72     | 28.96***  | .13      | 0.01               | 0.02  | .00      |

Note: Gender  $df = 1$ ; Informant  $df = 190$ ; Gender × Informant  $df = 2, 380$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

the first wave of measurement also appeared in the same direction one year later. Nevertheless, the gender differences in achievement orientation, openness to experience and shyness became even smaller and did not reach significance in the second wave of the study. On the other hand, all of the four-year-olds' mid-level personality scale-scores were dependent on the informant providing the ratings. Like in the first wave, the magnitude of these effects ranged from small to large and they all appeared in the same direction. In addition, the parents attributed their four-year-olds somewhat more negative affect than did the pre-school teachers. A significant and small gender x informant interaction effect also occurred with regard to adult assessments of four-year-olds' organization. While the mothers and teachers perceived girls to be somewhat more organized than boys, the fathers rated their sons and daughters as more alike. However, out of the 15 possible interaction effects this only significant result might have also come out by chance.

At the border of statistical significance, the four year old girls were described

Table 3: Effects of child's gender and informant on five-year-olds mid-level personality traits.

|                         | Gender |          |          | Informant |          |          | Gender x Informant |        |          |
|-------------------------|--------|----------|----------|-----------|----------|----------|--------------------|--------|----------|
|                         | MSE    | F        | $\eta^2$ | MSE       | F        | $\eta^2$ | MSE                | F      | $\eta^2$ |
| Achievement Orientation | 8.26   | 7.21**   | .04      | 19.90     | 32.01*** | .14      | 0.07               | 0.11   | .00      |
| Activity Level          | 0.72   | 0.53     | .00      | 30.18     | 55.96*** | .23      | 1.91               | 3.54*  | .02      |
| Antagonism              | 14.19  | 10.66*** | .05      | 10.12     | 12.64*** | .06      | 1.24               | 1.54   | .01      |
| Compliance              | 8.74   | 10.06**  | .05      | 11.53     | 26.33*** | .12      | 0.48               | 1.09   | .01      |
| Consideration           | 7.03   | 7.13**   | .04      | 46.90     | 72.09*** | .28      | 0.73               | 1.12   | .01      |
| Distractibility         | 11.03  | 8.02**   | .04      | 3.98      | 5.72**   | .03      | 0.32               | 0.46   | .00      |
| Fear/ Insecurity        | 5.09   | 5.02*    | .03      | 1.50      | 3.39*    | .02      | 0.67               | 1.52   | .01      |
| Intelligence            | 8.25   | 6.46*    | .03      | 30.88     | 52.79*** | .22      | 0.81               | 1.38   | .01      |
| Negative Affect         | 8.85   | 6.08*    | .03      | 0.32      | 0.37     | .00      | 0.17               | 0.19   | .00      |
| Openness to Experience  | 5.65   | 4.58*    | .02      | 37.68     | 70.76*** | .27      | 0.77               | 1.44   | .01      |
| Organization            | 12.48  | 11.59**  | .06      | 6.10      | 11.04*** | .06      | 0.95               | 1.71   | .01      |
| Positive Emotions       | 7.12   | 6.93**   | .04      | 34.39     | 66.94*** | .26      | 3.12               | 6.06** | .03      |
| Shyness                 | 6.49   | 4.56*    | .02      | 9.25      | 14.96*** | .07      | 1.69               | 2.73   | .01      |
| Sociability             | 7.63   | 6.69**   | .03      | 24.69     | 55.88*** | .23      | 0.75               | 1.70   | .01      |
| Strong Will             | 0.00   | 0.00     | .00      | 3.08      | 5.63**   | .03      | 0.82               | 1.50   | .01      |

Note: Gender  $df = 1$ ; Informant  $df = 190$ ; Gender  $\times$  Informant  $df = 2, 380$ . \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

as more extraverted by their parents in comparison to the boys of the same age ( $df = 1, 190$ ,  $MSE = 2.18$ ,  $F = 3.67$ ,  $p = 0.057$ ,  $\eta^2 = 0.02$ ). Similarly to the results from the first wave, the boys were also assessed to be somewhat more emotionally instable than were the girls ( $df = 1, 190$ ,  $MSE = 4.10$ ,  $F = 5.38$ ,  $p < 0.01$ ,  $\eta^2 = 0.03$ ). No informant or gender  $\times$  informant interaction effect on four year old child's personality dimensions was revealed with respect to parental ratings. In addition, the teachers rated the girls somewhat higher for Conscientiousness/Openness than the boys ( $df = 1, 190$ ,  $MSE = 1.86$ ,  $F = 4.14$ ,  $p < 0.05$ ,  $\eta^2 = 0.02$ ) (see also table A2).

Except for activity and strong will, all of the remaining personality scale-scores were revealed significantly different between boys and girls at age five (see Table 3) with one of them reaching a moderate level of magnitude. Gender explained 6 % of the variance in the organization scale-scores while all of the other significant effects were smaller. Consistently to the direction of gender effects in the two previous years (the first and the second wave of measurement), the boys were ascribed more

antagonism, distractibility and fear/insecurity than were the girls who obtained somewhat higher scores for compliance and intelligence than did the boys. At age five, the girls also scored higher than boys in achievement orientation, consideration, openness to experience, positive emotion and sociability, but were attributed less shyness and negative affect than were the boys. Activity level and strong will were the traits in which the boys and girls consistently scored alike over the two years. Consistently to the results at ages three and four, the five-year-olds' personality scale-scores were in general more dependent on the informant than on the children's gender. The direction of the informant effects on the child personality trait-scores remained the same over the three waves of the study and so did the effect sizes range from small to large. Two significant gender x informant effects were found in the third wave of measurement. They were small in size and inconsistent with the only previously obtained significant interaction effect (at age four). The teachers perceived five year old boys to be somewhat more active than girls of the same age, while the parents (mothers and fathers alike) rated the girls slightly higher than the boys. The parents also ascribed the five year old girls somewhat more positive emotions in comparison to the five year old boys while the teachers made no distinction between the genders with regard to this trait.

Similarly to the results at age three, no gender differences at the domain level of five-year-olds' personality turned out to be significant when teacher reports were considered. However, these differences were reflected through parental reports. Even though all of the gender differences were small in their size, they slightly increased in comparison to the previous two years. The five year old daughters were perceived to be more extraverted ( $df = 1,190$ ,  $MSE = 6.40$ ,  $F = 9.35$ ,  $p < 0.01$ ,  $\eta^2 = 0.05$ ), conscientious ( $df = 1,190$ ,  $MSE = 5.28$ ,  $F = 6.11$ ,  $p < 0.05$ ,  $\eta^2 = 0.03$ ) and emotionally stable ( $df = 1,190$ ,  $MSE = 7.14$ ,  $F = 7.60$ ,  $p < 0.01$ ,  $\eta^2 = 0.04$ ) than were the five year old sons, who were in turn reported to be more disagreeable ( $df = 1,190$ ,  $MSE = 5.25$ ,  $F = 7.70$ ,  $p < 0.01$ ,  $\eta^2 = 0.04$ ). In addition, the fathers assessed their children to be somewhat more extraverted than did the mothers ( $df = 2,380$ ,  $MSE = 0.42$ ,  $F = 4.39$ ,  $p < 0.05$ ,  $\eta^2 = 0.02$ ) (see also Table A3).

## Discussion

In the current study, three-, four-, and five-year-olds' expression of robust personality dimensions and mid-level personality traits as observed by adults in two different contexts (family, pre-school) were demonstrated to depend on the context and/or the role perspective of the informant providing the respective data on children. Moreover, small and temporally consistent gender differences were suggested with regard to child personality traits and broad-band dimensions. In addition to previous studies on gender differences in personality (e.g. Feingold, 1994; Halverson, 2003; Maccoby & Jacklin, 1974; Zupančič et al., 2003), this one extends the findings to younger and



age homogeneous groups of target participants who were followed-up over a two-year time span and were rated independently by three different adult informants. It is also important to note that child traits/dimensions were recorded through a specially designed assessment tool (Halverson et al., 2003) to capture child personality characteristics that are the most salient for the adults interacting with children in everyday contexts. Accounting for such characteristics is crucial because the adults respond especially to what they perceive as salient in children and these reactions might, subsequently, shape the child's development.

### **Gender differences**

Our results support the main findings of narrative (Berk, 1997; Kohnstamm, 1989; Maccoby & Jacklin, 1974) and meta-analytic reviews (Hyde, 1986; Feingold, 1994) on gender differences in personality with regard to several general points. First, these differences were of a small magnitude. Second, they were reflected through adult judgements on children at the beginning of early childhood and they increased somewhat at the age five. Third, boys were, in comparison to girls, rated higher for traits reflecting negative reactivity. Over the three waves of the study, the boys were consistently ascribed slightly more confrontational behaviour indicated by being aggressive, rude, discourteous and directly expressing anger in interpersonal situations (the Antagonism scale-scores), less cooperative in response to interpersonal authority (the Compliance scale-scores), and they tended to be perceived as more apprehensive, distressed, easily upset and quick to panic (the Fearful/Insecure scale-score). When the target participants were five years old, the boys were also rated relatively higher for negative emotions experienced in interpersonal situations, such as moodiness and irritability (the Negative Affect scale-score) than were the girls who were, in turn, attributed more cheerfulness, happiness, and were assessed to get along with others better (the Positive Emotions scale-scores). Finally, no gender differences over early childhood were suggested for the Strong Will scale-scores, indicating bossy, self-assertive characteristics of children who want to do things their own way, like to take charge and may become manipulative to get what they intend to. This is consonant with Feingold's (1994) meta-analytic results which showed that gender differences were also moderated by age. No differences were obtained in children, but adolescent and adult males scored somewhat higher for assertiveness than did female participants. On the other hand, the only consistent and small gender difference in child temperament, i.e. in activity level (Kohnstamm, 1989), was not supported by the results of the present study. Over the pre-school years, boys and girls were scored alike by different informants, i.e. they were attributed similar levels of energy output indicated by vigorous locomotion and being constantly on the move.

The results of the present study were further paralleled to the only report on gender differences that used the same child personality inventory (the ICID), but was performed in different societies (China, Greece and the U.S.) with parents re-

porting on children/adolescents aged up to 14 years. Out of eight overall significant gender differences of a small size that were obtained at the trait level (Halverson, 2003), seven were also revealed in the Slovene adult ratings of pre-school children. Comparison of the direction and magnitude of these differences appeared consistent for positive emotions, consideration, compliance, organization, achievement orientation, distractibility and antagonism, but slightly divergent for activity, shyness, sociability and negative affect. It seems that girls are, across different socio-cultural environments, perceived by the adults as slightly more expressive of positive emotions, considerate, compliant, organized and achievement oriented in comparison to boys, who are consistently observed to be somewhat more distractible and antagonistic. As opposed to Halverson's (2003) results, the Slovene pre-school boys were not rated higher for activity level than were the girls, while the direction of the remaining gender differences in the Slovene sample were country and/or age specific. Over the two-year time span, the pre-school boys were attributed slightly higher levels of fear/insecurity and lower levels of openness to experience than were the girls as it was also the case in China, while the reverse was shown for the Greek children with regard to fear/insecurity (Halverson, 2003). Specifically, the Slovene pre-school girls were consistently (over time) assessed to be somewhat less shy (socially reticent, slow to warm up to new people or situations, withdrawn) as opposed to the boys. In addition, small differences in sociability (actively seeking company, making friends easily, being popular with people, outgoing) and negative affect were found only with the Slovene five-year-olds.

At the domain level, the present results on gender differences obtained from parental data sources only were compared to Halverson's findings (2003) because his data on children/adolescents were parent-based. It is also important to note that the age composition of the samples under comparison was different and so were the component structures of mid-level personality scales in a widely age-heterogeneous sample (Halverson et al., 2003) and samples of pre-school children (Zupančič & Kavčič, 2004a, 2004b, 2005; Zupančič et al., under review). These structures, for example, appear somewhat less differentiated for younger children (no separate Intellect component was recovered). Over the early childhood, the Slovene girls were perceived by their parents as somewhat more extraverted (marginally at age four) and emotionally stable (Neuroticism reversed) than were the boys. Small gender differences in these domains were obtained only in China (Halverson, 2003), but the direction of difference for Neuroticism was reversed (the Chinese boys were ascribed more emotional stability than were the girls). The similarities in gender differences across countries were unambiguous for Conscientiousness and Intellect<sup>3</sup>. However, they were identified to be of a small size with the U.S. and the Slovene follow-up sample of the present inquiry. Overall, the girls scored higher than boys for both

<sup>3</sup> The Intelligence scale-scores (e.g. quick to learn and understand what is said or going on) of our sample were used for comparisons with Halverson's (2003; Halverson et al., 2003) Intellect factor.

Conscientiousness and Intellect (Halverson, 2003), a result fairly consonant to our longitudinal data with the Slovene pre-schoolers (the gender differences in Conscientiousness did not reach the level of significance at age four). In addition, a small gender effect on Disagreeableness was revealed, but only at age five, with boys scoring higher than girls. A similar result was reported for Greek, but not for the Chinese and the U.S. children/adolescents (Halverson, 2003).

Furthermore, the results of the present analyses showed that pre-school teacher ratings of child personality at the domain level yield null gender differences for teacher-based broad-band dimensions over the three waves of measurement. There was, however, one exception that produced a gender effect of a negligible magnitude (2%) on teacher estimates of child Conscientiousness/Openness, but only in four-year-olds. Within the context described it is reasonable to propose that this significant effect might have occurred by chance. In general, the overall results at the domain level suggest that gender differences in child personality were, to a small extent, reflected only through parental judgements on their children. Several explanations that are neither exclusive nor exhaustive seem plausible at this point. A pre-school setting with teachers following the curricula on pre-school education may elicit behavioural patterns in children that are more similar between boys and girls as compared to those displayed in children's home contexts. The teachers may, due to their education in the field, hold less gender-stereotyped views on child characteristics than the parents, and thus, may produce less gender-biased ratings. For the same reason, the teachers may at least tend to avoid judgements that could reflect gender-typing, even though they may actually observe differential expressions of characteristics in children that are commonly associated with traditionally male and female traits. On the other hand, the parents and teachers may consider different reference points when assessing children's characteristics. The teachers might have, for example, had in mind the pre-school girls as a reference group when rating a girl and boys when evaluating a boy, whereas the parents may have relied to the children's characteristics in general when reporting on their child's traits.

In line with current interpretations of gender differences in personality (e.g. Berk, 1997; De Fruyt et al., 1998; Feingold, 1994; Maccoby, 2000) the present results are suggested to reflect the effects of both biology and social-cultural factors, although they do not allow any direct inferences. Biological sex differences in hormonal-chemical activity and/or in physiological characteristics (e.g. Zuckerman, 1991) may predispose boys and girls to differentially express the characteristics that are considered salient by the child's significant others (mothers, fathers, teachers). The adults tend to respond to these differential characteristics that are reflected through child behaviour and thus, reinforce or ignore them. In addition, the adults may introduce differential learning and treatment to boys and girls and serve children as role models (e.g. Eagly, 1987; Eagly & Wood, 1991). The children also have opportunities to observe gender-consistent behaviour in a broader social context (e.g. within peer groups, interacting with other adults or older children/adolescents). Family, institu-

tional (pre-school, school), peer as well as media socialization may encourage preferences, interests, activity and behavioural styles traditionally associated with children's own gender. The observed gender differences may therefore exceed corresponding biologically based gender differences in behaviour and, at a more general level, the differences in personality traits. In addition, it is necessary to keep in mind that the gender differences obtained in the present analyses were minor, in general even smaller than those revealed from a similar study in other countries (Halverson, 2003). This may be due to a restricted age range of the target children in our research (the gender differences are assumed to increase with age) and/or to relatively low gender-based discriminative treatment of children that has been found in the Slovene parents (Zupančič, 1999; Zupančič et al., 2004). However, a caution is needed when interpreting null findings or small gender differences. They may actually exist or be present to a greater extent than reflected through corresponding results derived from self-/other-reports on personality scales. If, for example, gender differences in personality are actually observed through child behaviours and the adult informants refer to the characteristics of the same-gender children when assessing a given child, than the gender differences in child personality judgements can be underestimated.

### **The effect of informant on child personality ratings**

Relative to the effect of gender on child developing personality characteristics (traits and broad-band dimensions), the observed expression of these characteristics was more dependent on the informant providing the data. When the children were assessed in a similar context (home, family setting) and from a similar role perspective (that of a parent), the child personality judgements derived from different informants (mothers and fathers) were more similar than those provided in different contexts (family and pre-school) and from different role perspectives (e.g. that of a mother and of a pre-school teacher). The parents (mothers and fathers) as compared to the pre-school teachers perceived their children to be much more achievement oriented, active, compliant, considerate, intelligent, open to experience, expressive of positive emotion, sociable, and as moderately more organized and strong willed. In contrast to the parental ratings, the teachers assessed the same children to be somewhat more antagonistic, distractible, relatively more fearful/insecure and much more shy. The direction of these differences in child personality trait ratings obtained from the informants in different roles/contextes was remarkably congruent over time and the magnitude of these differences was relatively consistent across the three waves of measurement. The cross-contextual/cross-informant continuity of child personality judgements tended to increase (reflected through a decrease in effect sizes, especially at age five) with the age of the target children, indicating that child traits may gradually become more consistently expressed in different contexts. The results also suggest that the cross-contextual/cross-informant continuity in the observed absolute level of the expression of a trait is also dependent on a kind of a trait considered.

Some traits seem to be more continuous across contexts/informants (mainly less desirable ones, such as negative affect, antagonism, distractibility) than others. However, the cross-contextual/cross-informant discontinuity of highly desirable child traits (e.g. intelligence, compliance, consideration) might have also been due to the positive parental bias.

Several factors may account for the differences in the observed expression of given child traits (dimensions) across contexts/informants. Making judgements on personality characteristics of their children, parents, for example, rely on information they obtain about the child in a family context. The children do, to some extent, behave differently across different contexts (see also Harris, 1998) as do the informants in different roles judge the child from somewhat different perspectives and use different reference points in their evaluations of child individual differences. In contrast to parents, the pre-school teacher observes children acting in a group of their age mates, he/she makes evaluations on children's characteristics from an educational role perspective and, due to extensive experience with many children, his/her child personality judgements are most probably based on a wider range of information on child inter-individual differences (Zupančič & Kavčič, under review). Finally, but not the least important, the parental judgements are probably positively biased due to a more intensive attachment relationship with their child. This can be inferred from the fact that the parents as opposed to the pre-school teachers consistently (over time) rated their children higher for most of the desirable traits (e.g. compliance, consideration, intelligence, openness to experience, positive emotions) and lower for those considered less desirable (e.g. antagonism, fear/insecurity, shyness).

A congruent component structure derived from mother and father assessments of child personality (Zupančič & Kavčič, 2005; Zupančič et al., under review) also allowed for a comparison between maternal and paternal ratings of their children at the domain level. Consistently to the results at the trait level and according to the contextual/informant role hypothesis, both parents reported on similar levels of the expression of child robust personality dimensions over time. Two significant informant effects were revealed, but were not consistent over time neither were their effect sizes appreciable (3 % and 2 % of the variance explained by the informant at child's age three and five, respectively). Exceptionally, significant gender  $\times$  informant interaction effects were also obtained, but they were temporally inconsistent and of a negligible magnitude.

## **Conclusions**

The empirical evidence of our study suggests that gender differences in pre-school children's personality traits and broad-band dimensions as reflected through the reports of different informants are minor. In other words, when we only have information about gender of a given pre-school child we practically know nothing about his/

her personality. A slight trend towards an increase of gender differences in personality over early childhood has been detected, but additional follow-up measurements are needed to support these eventual tendencies. The results of the present inquiry also show that the adult mean ratings of pre-school children's personality characteristics, asserted to represent the precursors of the adult Big Five, depend on the context and/or on the role of the informant providing data on children. The parents in general tend to give more favourable ratings on their children than do the pre-school teachers, but it does not necessarily imply that parental judgements on child personality are positively biased or inaccurate since the children may actually behave differently in different contexts. The data gathered from each of the informants may have a special concurrent and predictive validity with regard to the child's developing personality and various kinds of behaviour within a specific setting as demonstrated by some recent studies (Goldsmith et al., 2001; Zupančič & Kavčič, 2004b, under review).

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## APPENDIX

Table A1: Means and standard deviations of maternal, paternal and pre-school teachers' reports on child personality traits and dimensions: Three-year-olds.

|                               | Mothers |        | Fathers |        | Pre-school Teachers |        |
|-------------------------------|---------|--------|---------|--------|---------------------|--------|
|                               | Boys    | Girls  | Boys    | Girls  | Boys                | Girls  |
| <b>Personality Traits</b>     |         |        |         |        |                     |        |
| Achievement                   | 4.67    | 4.80   | 4.69    | 4.77   | 4.10                | 4.37   |
| Orientation                   | (0.70)  | (0.64) | (0.68)  | (0.64) | (0.77)              | (0.82) |
| Activity                      | 5.04    | 5.05   | 5.15    | 5.23   | 4.37                | 4.21   |
| Level                         | (0.84)  | (0.84) | (0.81)  | (0.74) | (0.92)              | (0.96) |
| Antagonism                    | 3.19    | 2.92   | 3.19    | 3.03   | 3.38                | 3.16   |
|                               | (0.82)  | (0.66) | (0.70)  | (0.73) | (0.96)              | (0.94) |
| Compliance                    | 4.37    | 4.52   | 4.48    | 4.61   | 4.02                | 4.18   |
|                               | (0.60)  | (0.58) | (0.61)  | (0.56) | (0.77)              | (0.75) |
| Consideration                 | 4.93    | 5.07   | 5.00    | 5.03   | 4.24                | 4.38   |
|                               | (0.70)  | (0.68) | (0.72)  | (0.64) | (0.82)              | (0.76) |
| Distractibility               | 3.67    | 3.38   | 3.61    | 3.48   | 3.94                | 3.61   |
|                               | (0.64)  | (0.70) | (0.68)  | (0.68) | (0.74)              | (0.91) |
| Fear/ Insecurity              | 3.68    | 3.38   | 3.62    | 3.44   | 3.91                | 3.74   |
|                               | (0.64)  | (0.69) | (0.61)  | (0.67) | (0.73)              | (0.82) |
| Intelligence                  | 4.83    | 5.09   | 4.94    | 5.18   | 4.25                | 4.40   |
|                               | (0.69)  | (0.75) | (0.72)  | (0.76) | (0.90)              | (0.98) |
| Negative Affect               | 3.87    | 3.64   | 3.74    | 3.68   | 3.69                | 3.46   |
|                               | (0.87)  | (0.78) | (0.80)  | (0.82) | (0.92)              | (1.08) |
| Openness to Experience        | 4.96    | 5.26   | 5.01    | 5.24   | 4.30                | 4.44   |
|                               | (0.74)  | (0.78) | (0.69)  | (0.78) | (0.84)              | (0.96) |
| Organization                  | 4.45    | 4.59   | 4.44    | 4.55   | 4.08                | 4.34   |
|                               | (0.66)  | (0.62) | (0.62)  | (0.68) | (0.69)              | (0.80) |
| Positive Emotions             | 4.93    | 5.18   | 5.07    | 5.16   | 4.31                | 4.38   |
|                               | (0.74)  | (0.73) | (0.71)  | (0.69) | (0.75)              | (0.79) |
| Shyness                       | 3.38    | 2.99   | 3.27    | 3.07   | 3.80                | 3.64   |
|                               | (0.73)  | (0.86) | (0.74)  | (0.83) | (0.96)              | (0.96) |
| Sociability                   | 4.67    | 4.87   | 4.81    | 4.96   | 4.05                | 4.10   |
|                               | (0.78)  | (0.85) | (0.71)  | (0.83) | (0.97)              | (0.99) |
| Strong Will                   | 4.27    | 4.30   | 4.37    | 4.34   | 3.91                | 3.94   |
|                               | (0.75)  | (0.77) | (0.75)  | (0.71) | (0.92)              | (1.00) |
| <b>Personality Dimensions</b> |         |        |         |        |                     |        |
| E                             | 4.82    | 5.01   | 4.92    | 5.06   |                     |        |
|                               | (0.58)  | (0.62) | (0.58)  | (0.60) |                     |        |
| C                             | 4.49    | 4.67   | 4.51    | 4.62   |                     |        |
|                               | (0.57)  | (0.55) | (0.58)  | (0.57) |                     |        |
| DisA                          | 3.78    | 3.62   | 3.76    | 3.68   | 3.66                | 3.52   |
|                               | (0.69)  | (0.62) | (0.62)  | (0.66) | (0.82)              | (0.89) |
| N                             | 3.53    | 3.18   | 3.44    | 3.25   |                     |        |
|                               | (0.63)  | (0.70) | (0.61)  | (0.68) |                     |        |
| C/O                           |         |        |         |        | 4.17                | 4.36   |
|                               |         |        |         |        | (0.67)              | (0.73) |
| E/-N                          |         |        |         |        | 4.18                | 4.23   |
|                               |         |        |         |        | (0.77)              | (0.81) |

Note: Standard deviations presented in parenthesis. E = Extraversion; C = Conscientiousness; DisA = Disagreeableness; N = Neuroticism; C/O = Conscientiousness/Openness; E/-N = Extraversion/Emotional Stability.

Table A2: Means and standard deviations of maternal, paternal and pre-school teachers' reports on child personality traits and dimensions: Four-year-olds.

|                               | Mothers        |                | Fathers        |                | Pre-school Teachers |                |
|-------------------------------|----------------|----------------|----------------|----------------|---------------------|----------------|
|                               | Boys           | Girls          | Boys           | Girls          | Boys                | Girls          |
| <b>Personality Traits</b>     |                |                |                |                |                     |                |
| Achievement                   | 4.71<br>(0.66) | 4.81<br>(0.71) | 4.80<br>(0.65) | 4.78<br>(0.73) | 4.09<br>(0.85)      | 4.35<br>(0.77) |
| Activity Level                | 5.16<br>(0.78) | 5.13<br>(0.77) | 5.16<br>(0.80) | 5.10<br>(0.76) | 4.49<br>(0.95)      | 4.22<br>(0.85) |
| Antagonism                    | 3.12<br>(0.78) | 2.88<br>(0.78) | 3.23<br>(0.77) | 3.03<br>(0.74) | 3.43<br>(1.00)      | 3.22<br>(0.92) |
| Compliance                    | 4.43<br>(0.52) | 4.62<br>(0.58) | 4.59<br>(0.60) | 4.68<br>(0.70) | 4.16<br>(0.79)      | 4.33<br>(0.69) |
| Consideration                 | 5.02<br>(0.63) | 5.14<br>(0.76) | 5.03<br>(0.72) | 5.08<br>(0.81) | 4.28<br>(0.82)      | 4.44<br>(0.77) |
| Distractibility               | 3.56<br>(0.71) | 3.38<br>(0.73) | 3.46<br>(0.77) | 3.46<br>(0.75) | 3.95<br>(0.85)      | 3.61<br>(0.91) |
| Fear/ Insecurity              | 3.65<br>(0.70) | 3.41<br>(0.71) | 3.61<br>(0.65) | 3.45<br>(0.74) | 3.80<br>(0.82)      | 3.69<br>(0.88) |
| Intelligence                  | 4.90<br>(0.70) | 5.26<br>(0.74) | 4.97<br>(0.70) | 5.21<br>(0.75) | 4.33<br>(0.80)      | 4.50<br>(0.83) |
| Negative Affect               | 3.85<br>(0.86) | 3.61<br>(0.91) | 3.74<br>(0.85) | 3.62<br>(0.90) | 3.54<br>(1.13)      | 3.39<br>(1.08) |
| Openness to Experience        | 5.06<br>(0.75) | 5.27<br>(0.72) | 5.05<br>(0.66) | 5.23<br>(0.76) | 4.38<br>(0.87)      | 4.42<br>(0.84) |
| Organization                  | 4.53<br>(0.63) | 4.69<br>(0.68) | 4.50<br>(0.62) | 4.58<br>(0.74) | 4.14<br>(0.74)      | 4.55<br>(0.79) |
| Positive Emotions             | 5.05<br>(0.68) | 5.29<br>(0.80) | 5.13<br>(0.74) | 5.23<br>(0.80) | 4.47<br>(0.86)      | 4.50<br>(0.78) |
| Shyness                       | 3.34<br>(0.72) | 3.08<br>(0.91) | 3.30<br>(0.77) | 3.14<br>(0.89) | 3.75<br>(0.97)      | 3.72<br>(1.08) |
| Sociability                   | 4.76<br>(0.68) | 4.99<br>(0.77) | 4.85<br>(0.71) | 5.01<br>(0.75) | 4.16<br>(0.94)      | 4.17<br>(1.00) |
| Strong Will                   | 4.26<br>(0.65) | 4.35<br>(0.66) | 4.32<br>(0.74) | 4.39<br>(0.59) | 3.86<br>(0.96)      | 3.92<br>(0.98) |
| <b>Personality Dimensions</b> |                |                |                |                |                     |                |
| E                             | 4.91<br>(0.54) | 5.10<br>(0.61) | 4.97<br>(0.57) | 5.08<br>(0.66) |                     |                |
| C                             | 4.56<br>(0.59) | 4.71<br>(0.58) | 4.61<br>(0.60) | 4.64<br>(0.64) |                     |                |
| DisA                          | 3.75<br>(0.67) | 3.61<br>(0.62) | 3.76<br>(0.68) | 3.68<br>(0.61) | 3.61<br>(0.94)      | 3.51<br>(0.89) |
| N                             | 3.50<br>(0.64) | 3.24<br>(0.74) | 3.46<br>(0.63) | 3.30<br>(0.75) |                     |                |
| C/O                           |                |                |                |                | 4.24<br>(0.70)      | 4.43<br>(0.64) |
| E/-N                          |                |                |                |                | 4.27<br>(0.77)      | 4.24<br>(0.83) |

Note: Standard deviations presented in parenthesis. E = Extraversion; C = Conscientiousness; DisA = Disagreeableness; N = Neuroticism; C/O = Conscientiousness/Openness; E/-N = Extraversion/Emotional Stability.

Table A3: Means and standard deviations of maternal, paternal and pre-school teachers' reports on child personality traits and dimensions: Five-year-olds.

|                               | Mothers        |                | Fathers        |                | Pre-school Teachers |                |
|-------------------------------|----------------|----------------|----------------|----------------|---------------------|----------------|
|                               | Boys           | Girls          | Boys           | Girls          | Boys                | Girls          |
| <b>Personality Traits</b>     |                |                |                |                |                     |                |
| Achievement                   | 4.72<br>(0.67) | 4.99<br>(0.86) | 4.79<br>(0.66) | 5.00<br>(0.80) | 4.30<br>(0.87)      | 4.54<br>(0.98) |
| Activity Level                | 5.07<br>(0.84) | 5.12<br>(0.82) | 5.15<br>(0.74) | 5.16<br>(0.79) | 4.66<br>(1.00)      | 4.39<br>(0.90) |
| Antagonism                    | 3.26<br>(0.75) | 2.85<br>(0.87) | 3.23<br>(0.73) | 2.87<br>(0.80) | 3.46<br>(1.08)      | 3.30<br>(1.10) |
| Compliance                    | 4.53<br>(0.56) | 4.83<br>(0.73) | 4.61<br>(0.57) | 4.92<br>(0.72) | 4.29<br>(0.74)      | 4.44<br>(0.88) |
| Consideration                 | 5.01<br>(0.71) | 5.29<br>(0.81) | 5.07<br>(0.65) | 5.34<br>(0.83) | 4.40<br>(0.89)      | 4.50<br>(0.90) |
| Distractibility               | 3.55<br>(0.71) | 3.31<br>(0.93) | 3.51<br>(0.79) | 3.27<br>(0.89) | 3.80<br>(0.96)      | 3.44<br>(1.03) |
| Fear/ Insecurity              | 3.62<br>(0.67) | 3.39<br>(0.78) | 3.60<br>(0.63) | 3.34<br>(0.80) | 3.65<br>(0.85)      | 3.58<br>(0.75) |
| Intelligence                  | 4.96<br>(0.76) | 5.26<br>(0.85) | 5.03<br>(0.68) | 5.34<br>(0.79) | 4.52<br>(0.89)      | 4.64<br>(0.99) |
| Negative Affect               | 3.75<br>(0.74) | 3.46<br>(0.97) | 3.71<br>(0.84) | 3.46<br>(0.88) | 3.63<br>(1.08)      | 3.44<br>(1.21) |
| Openness to Experience        | 5.05<br>(0.73) | 5.35<br>(0.86) | 5.12<br>(0.64) | 5.34<br>(0.79) | 4.52<br>(0.89)      | 4.60<br>(0.97) |
| Organization                  | 4.51<br>(0.64) | 4.75<br>(0.80) | 4.54<br>(0.57) | 4.76<br>(0.80) | 4.18<br>(0.84)      | 4.60<br>(0.97) |
| Positive Emotions             | 5.01<br>(0.72) | 5.39<br>(0.80) | 5.15<br>(0.64) | 5.46<br>(0.82) | 4.63<br>(0.83)      | 4.60<br>(0.84) |
| Shyness                       | 3.28<br>(0.79) | 3.05<br>(0.98) | 3.34<br>(0.82) | 2.97<br>(0.88) | 3.52<br>(0.91)      | 3.48<br>(0.98) |
| Sociability                   | 4.79<br>(0.69) | 5.09<br>(0.81) | 4.85<br>(0.62) | 5.14<br>(0.78) | 4.37<br>(0.87)      | 4.47<br>(0.88) |
| Strong Will                   | 4.18<br>(0.61) | 4.23<br>(0.67) | 4.33<br>(0.68) | 4.20<br>(0.63) | 4.02<br>(0.90)      | 4.10<br>(1.09) |
| <b>Personality Dimensions</b> |                |                |                |                |                     |                |
| E                             | 4.92<br>(0.57) | 5.19<br>(0.71) | 5.00<br>(0.50) | 5.24<br>(0.69) |                     |                |
| C                             | 4.56<br>(0.61) | 4.81<br>(0.78) | 4.61<br>(0.59) | 4.83<br>(0.76) |                     |                |
| DisA                          | 3.73<br>(0.59) | 3.51<br>(0.70) | 3.76<br>(0.60) | 3.51<br>(0.65) | 3.70<br>(0.90)      | 3.61<br>(1.04) |
| N                             | 3.45<br>(0.68) | 3.22<br>(0.82) | 3.47<br>(0.67) | 3.16<br>(0.77) |                     |                |
| C/O                           |                |                |                |                | 4.38<br>(0.74)      | 4.56<br>(0.79) |
| E/-N                          |                |                |                |                | 4.47<br>(0.74)      | 4.45<br>(0.72) |

Note: Standard deviations presented in parenthesis. E = Extraversion; C = Conscientiousness; DisA = Disagreeableness; N = Neuroticism; C/O = Conscientiousness/Openness; E/-N = Extraversion/Emotional Stability.

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