The hierarchical structure of personality in infancy and childhood, as perceived by parents: Greek data

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Abstract

This paper presents data on the construction and the hierarchical structure of a new series of personality questionnaires for Greek children, based on parental ratings. The free description approach was adopted in order to develop age specific personality inventories for four age groups: 2-4, 5-7, 8-10, and 11-13 years. Child personality descriptors produced by parents were classified on the basis of a categorisation system inspired by the Five-Factor Model and by the developmental temperament literature. Representative items were extracted from each category to form the preliminary versions of the questionnaires, which were administered to a total of 1,817 parents. Further item reduction followed, based on a combination of psychometric criteria. The final versions of the questionnaires consist of 92 items (3-year-olds), 106 items (6-year-olds), 121 items (9-year-olds), and 99 items (12-year-olds). Ninety-one (91) of these items are age-specific, while 123 appear in more than one questionnaire. The underlying structure of parental ratings was examined by applying principal component analyses. Moreover, facets of the emerging components were extracted by factor analysing the items of each component separately, in order to specify the content of lower order personality traits. This procedure resulted in 4 (3-year-olds) to 5 (6-, 9-, and 12-year-olds) factors and in 12 (3-year-olds) to 15 (6-, 9-, and 12-year-olds) facets of child personality/temperament. Alpha reliability coefficients ranged between .76-.96 for the factors, and between .61-.91 for the facets. Several dimensions of the well-known temperament models are included in the new questionnaires. Moreover, the developmental precursors and deviations from the five-factor model of the adult personality are discussed.

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Introduction

The researcher who decides to investigate individual differences in temperament and personality through the course of development has to deal with an enormous number of traits and an unbelievable growth of diagnostic methods (Strelau, 1991). In addition, few theoretical approaches in linking personality and temperament are followed by empirical research (Angleitner, & Ostendorf, 1994). As a result, there exists a lack of agreement among theorists on the structure of temperament and personality from infancy to adolescence.

On the other hand, there is a growing consensus among researchers of the adult personality that individual differences in adulthood can be sufficiently summarised by five broad dimensions, the well known five-factor model (FFM), according to the questionnaire approach, or the big five, according to the lexical tradition (Digman, 1990; Goldberg, 1993; McCrae, & John, 1992; Wiggins, 1996). Unfortunately, inadequate communication between the two fields of research (developmental psychology and personality psychology) may give the impression that our knowledge regarding the development of child personality is more than fragmentary since there are few empirical evidence on the relation of temperament and personality dimensions in childhood and in adulthood. In recent studies, however, it is argued that the definition of temperament as biologically based psychological tendencies with intrinsic paths of development applies to the personality traits of the five-factor model as well (McCrae, Costa, Ostendorf, Angleitner, Hrebickova, Avia, Sanz, Sanchez-Bernardos, Kusdil, Woodfield, Saunders, & Smith, 2000). Moreover, early temperament has been found to systematically predict personality dimensions (especially Extraversion) of 8-9-year-olds (Hagekull, & Bohlin, 1998).

In order to integrate different models and resolve the issue regarding the number of factors that are necessary to tap individual differences, many researchers adopt the hierarchical approach. This considers intermediate-level factors, often called facets, between the item level and the factor level, thus combining parsimony and generalisability with specificity and representativeness (Perugini, 1999). As far as development is concerned, Mervielde and De Fruyt (1999) point out that the hierarchical system is useful for chart-

ing developmental trends as it offers extensive ways to study shifts in structural relationships among factors and facets across age levels.

This paper presents the Greek contribution to a cross-national project that searches for developmental antecedents of the big five from infancy to early adolescence. The aim of the project is to produce a new series of hierarchically organised, age- and culture-specific tools for the assessment of child personality as perceived by parents (for detailed information regarding the goals, methodology, and results of previous phases of the Greek and the international part of the project, see Besevegis, & Pavlopoulos, 1998; Kohnstamm, Halverson, Mervielde, & Havill, 1998; Kohnstamm, Mervielde, Besevegis, & Halverson, 1995).

Method

Sample

A total of 1,817 parents rated their children's temperament/personality. The samples for the four age groups come from the Athens metropolitan area. The distribution of gender of child and gender of parent is shown in Table 1.

| | | | Age g | group | |
|-----------------|---------|---------|---------|---------|----------|
| | | 3 years | 6 years | 9 years | 12 years |
| Gender of adult | Fathers | 141 | 229 | 162 | 231 |
| | Mothers | 241 | 292 | 243 | 278 |
| Gender of child | Boys | 196 | 296 | 207 | 247 |
| | Girls | 186 | 225 | 198 | 262 |
| | Total | 382 | 521 | 405 | 509 |

Table 1. Distribution of samples by gender of adult and gender of child

Measures and procedure

The steps followed for the construction and exploration of the hierarchical structure of the new questionnaires are shown in Table 2.

| PHASE | PROCEDURE |
|-------------------|--|
| Free descriptions | ➢ Interview parents. Collect free descriptions of personality of children aged 3-12. |
| | Code descriptors by means of a 14-category scheme including the big five as well as temperament and developmental characteristics. Work separately for 3-, 6-, 9-, and 12-year-olds. |
| | Group descriptors into clusters within each of the 14 categories. Form 100 clusters. Create personality item pools for the four age groups by choosing 2-3 representative descriptors from each cluster. |
| Factors | Collect and factor-analyse (principal components with varimax rotation) parental ratings of child person- ality. Extract four (3-year-olds) or five (6-, 9-, and 12-year-olds) components. |
| | Psychometric evaluation and reduction of items based on various criteria (e.g. unusually high skew- ness/kurtosis, low reliability, low and/or multiple loadings, high inter-item correlations, etc.) |
| | Principal component analysis of the final version of the questionnaires. Assign component names. Compute alpha reliability coefficients. |
| Facets | Factor-analyse (principal components with oblimin rotation) items within each component separately for the four age levels. Extract three components. |
| | Assign items into facets. Compute alpha reliability coefficients. Reassign items based on inter-item corre- lations and on content analysis of facets across age groups. |
| | Principal component analysis of facets (with varimax rotation). Assign facet names. Final psychometric evaluation of facets. |

Table 2. Phases for the construction of personality questionnaires for 3-, 6-, 9-, and 12-year-olds

Results and Discussion

Table 3 presents names, number of items, alpha reliability coefficients, and percentage of explained variance of the components of the personality questionnaires for 3-, 6-, 9-, and 12-year-olds. As shown in Table 3, three factors similar to the big five are present in all four samples: *Emotional Reactivity, Intellectual Development*, and *Extraversion*. These components constitute the "enormous three" of parental perceptions since they appear in all age-levels, perhaps because their characteristics are more salient to parents or because they meet core parental expectations.

| | Age | group | |
|--|--|--|--|
| 3 years | 6 years | 9 years | 12 years |
| <i>Inhibition</i> 17 items, α=.81, 5.8% var. | <i>Inhibition</i> 14 items, α=.76, 4.7% var. | | |
| <i>Emotional Reactivity</i> 33 items, α =.94, 13.2% var. | <i>Emotional Reactivity</i> 33 items, α=.94, 12.1% var. | <i>Emotional Reactivity</i> 33 items, α =.95, 12.0% var. | <i>Emotional</i> Reactivity 23 items, α=.93, 10.8% var. |
| <i>Intellectual Development</i> 21 items, α =.90, 9.4% var. | <i>Intellectual Development</i> 17 items, α=.88, 6.9% var. | <i>Intellectual Development</i> 20 items, α =.88, 6.1% var. | <i>Intellectual Development</i> 18 items, α=.91, 8.3% var. |
| Extraversion 21 items, α =.88, 7.9% var. | <i>Extraversion</i> 22 items, α =.89, 7.7% var. | <i>Extraversion</i> 19 items, α=.88, 6.4% var. | <i>Extraversion</i> 17 items, α=.87, 6.7% var. |
| | Conscientiousness 20 items, α =.91, 7.7% var. | Conscientiousness 27 items, α =.94, 9.1% var. | Conscientiousness 19 items, α =.94, 9.5% var. |
| | | Agreeableness 22 items, α =.91, 7.2% var. | Agreeableness 22 items, α=.92, 7.8% var. |

Table 3. Component names, number of items, alpha coefficients, and percentage of explained variance(after varimax rotation) of personality questionnaires for 3-, 6-, 9-, and 12-year-olds

As for the rest components: *Conscientiousness* emerges at the age of 6 years, when children are enrolled in the school system. *Agreeableness* becomes evident as a separate dimension only in 9- and 12-year-olds. In younger ages (3 and 6 years) another component is extracted instead, that is called *Inhibition* and does not correspond clearly to a factor of the FFM, since it is a blend of introversion, emotional instability and temperamental traits.

The search for the hierarchical structure of the five main components led to the emergence of three facets within each component for the four age groups. Table 4 presents the names of facets, number of items and alpha reliability coefficients, while Table 5 shows the results of separate principal components analyses (followed by varimax rotation) of facet scores for 3-, 6-, 9-, and 12-yearolds. On the total, 27 facets were formed. Of them, 19 were common across ages while 8 shifted to a different factor in different age levels.

Emotional Reactivity, which is the first component to emerge, the most reliable, and explains the largest amount of variance, consists of the same three facets for all age groups, i.e. Manageability, Selfishness, and Emotional Instability. Almost all Emotional Reactivity items have negative connotation, thus giving the picture of a difficult child, which is similar to the respective concepts of Bates (1980) and of Thomas and Chess (1977).

Intellectual Development is the component that comprises the largest number of facets (eight). Of them, only Intelligence is found in all age levels, while Assertiveness emerges at the age of 6 years. Maturity, Talkativeness, Dominance, and Openness are age-specific facets for the 3-, 6-, 9-, and 12-year-olds respectively. This may reflect differentiated goals that parents have for their children at different developmental stages (Goodnow, & Collins, 1990).

Extraversion is composed by five facets, three of which are also found in other components at certain age groups. Sociability is the most stable facet of this component. Withdrawal also moves to Extraversion after the disappearance of Inhibition at the age of 9 years. Warmth and Altruism load either on Extraversion or on Agreeableness, a result that is similar to research findings on the adult personality.

| | | 3 ye | ears | 6 years | | 9 ye | ears | 12 years | |
|-------------------|---------------------------|---------|-------|---------|-------|---------|-------|----------|----------|
| Factors | Facets | N items | Alpha | N items | Alpha | N items | Alpha | N items | Alpha |
| Inhibition | Withdrawal ^(*) | 5 | 0,65 | 4 | 0,66 | | - | | - |
| | Attachment | 5 | 0,68 | 3 | 0,61 | | | | |
| | Emotional Sensitivity | 7 | 0,72 | | | | | | |
| | Anxiety | | | 7 | 0,73 | | | | |
| Emotional | Manageability | 15 | 0,89 | 11 | 0,85 | 15 | 0,91 | 5 | 0,74 |
| Reactivity | Selfishness | 9 | 0,85 | 11 | 0,89 | 9 | 0,87 | 9 | 0,87 |
| • | Emotional Instability | 9 | 0,84 | 11 | 0,84 | 9 | 0,84 | 9 | 0,82 |
| Intellectual | Maturity | 7 | 0,76 | | , | | , | | , |
| Development | Intelligence | 10 | 0,85 | | | 8 | 0,79 | 5 | 0,81 |
| 1 | Verbal Intelligence | | , | 7 | 0,77 | | | | , |
| | Memory-Perception | | | 4 | 0,71 | | | | |
| | Assertiveness | 4 | 0,72 | | , | 6 | 0,75 | 6 | 0,79 |
| | Talkativeness | | , | 6 | 0,79 | | | | , |
| | Dominance | | | | | 6 | 0,75 | | |
| | Openness ^(*) | | | | | | , | 7 | 0,81 |
| Extraversion | Activity | 7 | 0,76 | | | 5 | 0,75 | | |
| | Sociability | 8 | 0,77 | 8 | 0,81 | 7 | 0,78 | 9 | 0,81 |
| | Warmth ^(*) | 6 | 0,75 | 7 | 0,76 | | | 4 | 0,72 |
| | Altruism ^(*) | | | 7 | 0,81 | | | | |
| | Withdrawal ^(*) | | | | , | 7 | 0,77 | 4 | 0,74 |
| Conscientiousness | Dependability | | | 7 | 0,83 | | , | | , |
| | Openness ^(*) | | | 5 | 0,73 | | | | |
| | Diligence | | | 8 | 0,84 | 10 | 0,89 | 8 | 0,88 |
| | School Competence | | | | | 7 | 0,81 | 5 | 0,88 |
| | Lack of Motivation | | | | | 10 | 0,86 | | , |
| | Achievement Motivation | | | | | | , | 6 | 0,81 |
| Agreeableness | Compliance | | | l | | 6 | 0,81 | 7 | 0,84 |
| C | Altruism-Vulnerability | | | | | 10 | 0,84 | | <i>,</i> |
| | Altruism ^(*) | | | | | | - | 10 | 0,87 |
| | Vulnerability | | | | | | | 5 | 0,82 |
| | Warmth ^(*) | | | | | 6 | 0,75 | | , |

Table 4. Facet names, number of items and alpha coefficients of personality questionnaires for 3-, 6-, 9-, and 12-year-olds

Note. Asterisk indicates that a facet appears in different factors for different age groups.

| | | EMOT REACT | | | | | ECTU DPME | | | EXT | TRA- SION | | | NSCI DUSNI | | | REE- ENESS | | HI- 'ION |
|-----------------------|---------------|-------------------|------------------------|----------------|-------|--|--------------|--------------|-------|----------------------|------------------------------|-------|-------|-------------------|-----------|-------|---------------|--------------|-----------------|
| Facets | 3 | <u>(EAC)</u> 6 | 9 | 12 | 3 | <u>6 6 6 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7</u> | <u>9</u> | 12 | 3 | <u>ver</u> , 6 | <u>9</u> | 12 | 6 | <u>90511</u> 9 | <u>12</u> | | <u>12</u> | 3 | <u>10N</u> 6 |
| Manageability | 0,89 | 0,90 | 0,82 | 0,87 | -0.13 | 0,01 | -0,01 | 0,05 | 0,12 | -0.09 | 0,16 | 0.09 | -0,16 | -0,27 | -0,25 | -0.33 | -0,11 | -0.11 | -0,11 |
| Selfishness | 0,82 | 0,88 | 0,85 | 0,89 | 0,13 | 0,01 | 0,01 | 0,03 | 0,12 | 0,09 | -0,10 | -0,01 | 0,10 | -0,11 | -0,11 | -0,10 | -0,14 | 0,11 | -0,08 |
| Emotional Instability | 0,88 | 0,87 | 0,89 | 0,88 | -0,10 | -0,05 | -0,09 | -0,04 | -0,17 | -0,15 | -0,05 | -0,10 | -0,20 | -0,26 | -0,23 | -0,08 | 0,14 | 0,19 | 0,00 |
| Intelligence | 0,04 | 0,07 | -0,02 | -0,04 | 0,83 | -0,05 | 0,77 | 0,82 | 0,34 | -0,15 | 0,21 | 0,06 | -0,20 | 0,23 | 0,21 | 0,18 | 0,03 | 0.04 | 0,17 |
| Assertiveness | 0,04 | | -0,13 | 0.07 | 0,78 | | 0,83 | 0,82 | 0,34 | | 0,21 | 0,00 | | 0,25 | 0,21 | -0,03 | -0,05 | -0,08 | |
| Maturity | -0,25 | | -0,15 | 0,07 | 0,78 | | 0,05 | 0,70 | 0,27 | | 0,10 | 0,50 | | 0,25 | 0,17 | -0,05 | -0,05 | -0,03 | |
| Openness | -0,23 | 0,22 | | -0,05 | 0,00 | 0,28 | | 0,83 | 0,15 | 0,25 | | 0,22 | 0,76 | | 0,21 | | 0,16 | -0,03 | -0,11 |
| Verbal Intelligence | | 0,22 | | -0,05 | | 0,28 0,76 | | 0,05 | | 0,23 | | 0,22 | 0,23 | | 0,21 | | 0,10 | | -0,11 |
| Memory-Perception | | -0,09 | | | | 0,70 | | | | 0,23 | | | 0,23 | | | | | | -0,10 |
| Talkativeness | | 0,30 | | | | 0,70 | | | | 0,00 0,39 | | | 0,17 | | | | | | -0,18 |
| Dominance | | 0,50 | 0,34 | | | 0,70 | 0,78 | | | 0,39 | 0,22 | | 0,15 | 0,05 | | 0,04 | | | -0,10 |
| Sociability | -0,05 | 0,21 | 0,04 | 0,10 | 0,19 | 0,20 | 0,30 | 0,33 | 0,83 | 0,78 | 0,22 | 0,78 | 0,13 | 0,03 | -0,02 | 0,04 | 0,19 | -0,16 | -0,28 |
| Warmth | , | -0,15 | 0,01 | -0,18 | 0,19 | 0,20 | 0,30 | 0,33 0,37 | 0,83 | 0,78 | 0,31 | 0,78 | 0,13 | 0,10 | -0,02 | 0,29 | 0,19 | 0,06 | -0,28 |
| Activity | 0,23 | -0,15 | 0,24 | -0,18 | 0,31 | 0,10 | 0,10 | 0,57 | 0,77 | 0,79 | 0 ,31 0 ,71 | 0,74 | 0,19 | 0,09 | -0,02 | 0,03 | 0,21 | -0.13 | -0,00 |
| Diligence | | -0,22 | -0,14 | -0,35 | 0,50 | 0,11 | 0,14 | 0,20 | 0,70 | 0,12 | -0,01 | 0,08 | 0,87 | 0,28 | 0,81 | 0,03 | 0,14 | -0,13 | 0,04 |
| Dingence | | -0,22 | -0,14 | -0,33 | | 0,11 | 0,23 | 0,20 | | 0,12 | -0,01 | 0,08 | 0,87 | 0,05 | 0,01 | 0,51 | 0,14 | | 0,04 |
| School Competence | | -0,55 | 0,22 | -0,29 | | 0,23 | 0,23 | 0,14 | | 0,20 | 0,10 | -0,02 | 0,74 | 0,86 | 0,87 | 0,19 | 0.08 | | 0,01 |
| Lack of Motivation | | | -0,42 | -0,29 | | | 0,23 | 0,14 | | | 0,10 | -0,02 | | 0,80 | 0,07 | -0.02 | 0,08 | | |
| Achiev. Motivation | | | -0,42 | -0,10 | | | 0,15 | 0,35 | | | 0,20 | 0,04 | | 0,01 | 0,80 | -0,02 | 0,29 | | |
| Compliance | | | -0,43 | -0,10 -0,44 | | | 0,15 | 0,33 | | | -0,06 | 0,04 | | 0,27 | 0,22 | 0,73 | 0,29 | | |
| AltrVulnerability | | | - 0,4 5 0,01 | -0,44 | | | -0.04 | 0,55 | | | 0,00 | 0,12 | | 0,27 | 0,22 | 0,75 | 0,07 | | |
| Altruism | | -0,21 | 0,01 | -0,25 | | 0,07 | -0,04 | 0,31 | | 0,78 | 0,00 | 0,27 | 0,23 | 0,14 | 0,14 | 0,90 | 0,74 | | 0,13 |
| Vulnerability | | -0,21 | | -0,23 | | 0,07 | | -0,09 | | 0,78 | | -0,02 | 0,23 | | 0,14 | | 0,74 | | 0,15 |
| Withdrawal | -0,08 | -0,04 | -0,14 | 0,01 | 0,05 | 0.20 | 0,09 | 0,09 | 0.25 | 0.22 | 0.00 | / | 0,19 | 0,05 | 0,21 | 0.01 | -0,14 | 0.74 | 075 |
| | -0,08 0,04 | -0,04 0,04 | -0,14 | 0,03 | -0,05 | -0,29 0,14 | 0,09 | 0,01 | -0,35 | -0,23 0,39 | 0,89 | 0,88 | 0,19 | 0,05 | 0,09 | -0,01 | -0,14 | 0,74 0,84 | 0,75 |
| Attachment | , | 0,04 | | | | 0,14 | | | 0,22 | 0,39 | | | 0,05 | | | | | | 0,63 |
| Emotional Sensitivity | 0,33 | 0.01 | | | -0,04 | 0.14 | | | -0,20 | 0.17 | | | 0.24 | | | | | 0,73 | 0.75 |
| Anxiety | | -0,01 | | | | -0,14 | | | | -0,17 | | | -0,24 | | | | | | 0,75 |

 Table 5. Principal Components (varimax rotation) of personality facets for 3-, 6-, 9-, and 12-year-olds

Note. Loadings higher than |.35| in bold. Shaded cells represent expected primary loadings.

All six facets of *Conscientiousness* seem to be developmental precursors of respective aspects of big factor III. Actually, Dependability, Diligence, Competence, and Motivation are also present in the literature of the adult Conscientiousness. The only exception to this rule is Openness, a facet that shifts to Intellectual Development after the age of 9 years. However, a blend of openness and conscientiousness items in factor analysis is not a rare case when the sample consists of young children (Mervielde, 1994; Slotboom, & Elphick, 1997).

Agreeableness facets, e.g. Compliance, Altruism, and Warmth, are also typical of this factor, according to the literature. Note that the facet of Vulnerability goes with Agreeableness (and not with Emotional Reactivity, as one would expect) perhaps because it is evaluated positively by parents. In general, the content of Agreeableness can be placed at the opposite pole of Emotional Reactivity, thus describing an easy-going but also fragile kid.

Inhibition facets, i.e. Emotional Sensitivity, Anxiety and Withdrawal, come from the conceptual categories of Emotional Instability and Introversion. Attachment, a facet with strong age-specific elements, is also found here. Inhibition facets are the least reliable, with the fewest items, and explain the smallest amount of variance until the age of 9 years when this component disappears.

Conclusion

In conclusion, it is evident that the structure of infant and child personality comprises dimensions, which are similar to the five-factor model to an extent that varies for the different components. Stronger resemblance appears in older age groups (9- and 12-year-olds). However, findings such as the existence of an age-specific factor (Inhibition) and the emergence of Conscientiousness and Agree-ableness at different age levels reflect developmental trends that should be examined more carefully. Even factors that are present in all age groups (e.g., Intellectual Development) are not identical in terms of content. These differences both in facet and in factor level may explain the existence of age-specific questionnaires even though it remains to find out what happens if a single questionnaire is used for all age groups, at least after 6 years of age.

Finally, it is important to keep in mind that the new questionnaires reflect parental *perceptions* of child personality. Factors influencing parents' views of their children (e.g., parents' personality, expectations, and values) are not discussed here.

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| | v | ears 382) | v | ears 521) | • | ears 405) | v | ears 509) |
|--------------------------|------|-----------------|------|-----------------|------|-----------------|------|---------------------|
| | Mean | (S.D.) |
| Personality Components | | | | | | | | |
| Inhibition | 2.18 | (.53) | 1.89 | (.48) | | | | |
| Emotional Reactivity | 2.14 | (.59) | 2.17 | (.60) | 1.80 | (.64) | 2.05 | (.65) |
| Intellectual Development | 3.27 | (.44) | 3.19 | (.43) | 2.98 | (.44) | 3.13 | (.45) |
| Extraversion | 3.33 | (.39) | 3.35 | (.36) | 3.00 | (.52) | 3.01 | (.50) |
| Conscientiousness | | | 3.03 | (.46) | 2.66 | (.59) | 2.83 | (.65) |
| Agreeableness | | | | | 3.34 | (.39) | 3.18 | (.44) |

Table X. Mean ratings and standard deviations of personality components for 3-, 6-, 9-, and 12-year-olds

<u>Note</u>. Rating scale ranges from 0=not at all to 4=very much.

Table X. Facets of <u>Emotional Reactivity</u> for 3-, 6-, 9-, and 12-year-olds (facet names, number of items, Cronbach alpha, mean ratings)

Age group 3 years 6 years 9 years 12 years *Manageability Manageability Manageability Manageability* 15 items, α =.89, M=2.03 11 items, α =.85, M=1.94 15 items, α =.91, M=1.55 5 items, α =.74, M=2.14 Selfishness Selfishness Selfishness Selfishness 9 items, α =.85, M=2.70 9 items, α =.87, M=2.19 9 items, α=.87, M=2.09 11 items, α =.89, M=2.68 **Emotional Instability Emotional Instability Emotional Instability Emotional Instability** 9 items, α =.84, M=1.76 11 items, α =.84, M=1.89 9 items, α =.84, M=1.82 9 items, α =.82, M=1.96

Note. Rating scale ranges from 0=not at all to 4=very much.

| | Age group | | | | | |
|-------------------------|--------------------------------|--------------------------------|--------------------------------|--|--|--|
| 3 years | 6 years | 9 years | 12 years | | | |
| Maturity | | | | | | |
| 7 items, α=.76, M=3.14 | | | | | | |
| | Verbal Intelligence | | | | | |
| Intelligence | 7 items, α=.77, M=3.19 | Intelligence | Intelligence | | | |
| 10 items, α=.85, M=3.37 | Memory-Perception | 8 items, α=.79, M=3.23 | 5 items, α=.81, M=3.42 | | | |
| | 4 items, α =.61, M=3.20 | | | | | |
| Assertiveness | | Assertiveness | Assertiveness | | | |
| 4 items, α=.72, M=3.26 | | 6 items, α =.75, M=2.80 | 6 items, α=.79, M=2.90 | | | |
| | Talkativeness | | | | | |
| | 6 items, α=.79, M=3.18 | | | | | |
| | | Dominance | | | | |
| | | 6 items, α =.75, M=2.82 | | | | |
| | | | Openness | | | |
| | | | 7 items, α =.81, M=3.12 | | | |

Table X. Facets of Intellectual Development for 3-, 6-, 9-, and 12-year-olds(facet names, number of items, Cronbach alpha, mean ratings)

<u>Note</u>. Rating scale ranges from 0=not at all to 4=very much.

| | Age g | group | |
|------------------------|------------------------|--------------------------------|--------------------------------|
| 3 years | 6 years | 9 years | 12 years |
| Activity | | Activity | |
| 7 items, α=.76, M=3.41 | | 5 items, α=.75, M=3.16 | |
| Sociability | Sociability | Sociability | Sociability |
| 8 items, α=.77, M=3.26 | 8 items, α=.81, M=3.32 | 7 items, α=.78, M=3.18 | 9 items, α=.81, M=3.15 |
| Warmth | Warmth | | Warmth |
| 6 items, α=.75, M=3.32 | 7 items, α=.76, M=3.44 | | 4 items, α=.72, M=3.10 |
| | Altruism | | |
| | 7 items, α=.81, M=3.29 | | |
| | | $Withdrawal^{(*)}$ | $Withdrawal^{(*)}$ |
| | | 7 items, α =.77, M=2.69 | 4 items, α =.74, M=2.58 |

Table X. Facets of <u>Extraversion for 3-, 6-, 9-, and 12-year-olds</u> (facet names, number of items, Cronbach alpha, mean ratings)

| | Age group | | | | | |
|---------|--------------------------------------|-----------------------------------|------------------------|--|--|--|
| 3 years | 6 years | 9 years | 12 years | | | |
| | Dependability | | | | | |
| | 7 items, α =.83, M=3.14 | | | | | |
| | Openness | | | | | |
| | 5 items, $\alpha = .73$, $M = 3.15$ | | | | | |
| | Diligence | Diligence | Diligence | | | |
| | 8 items, α=.84, M=2.87 | 10 items, α=.89, M=2.91 | 8 items, α=.88, M=2.71 | | | |
| | | School Competence | School Competence | | | |
| | | 7 items, α=.81, M=2.87 | 5 items, α=.88, M=2.84 | | | |
| | | Lack of Motivation ^(*) | Achievement Motivation | | | |
| | | 10 items, α=.86, M=2.27 | 6 items, α=.81, M=2.99 | | | |

| Table X. Facets of Conscientiousness | for 3-, 6-, 9-, and 1 | l2-year-olds (facet names, | number of items, | Cronbach alpha, mean ratings) |
|--------------------------------------|-----------------------|----------------------------|------------------|-------------------------------|
| | | | | |

<u>Note</u>. Rating scale ranges from 0=not at all to 4=very much; asterisk ~ indicates reversed coding.

| | Age group | | | |
|---------|-----------|----------------------------------|----------------------------------|--|
| 3 years | 6 years | 9 years | 12 years | |
| | | Compliance | Compliance | |
| | | 6 items, $\alpha = .81$, M=3.33 | 7 items, $\alpha = .84$, M=3.15 | |
| | | | Altruism | |
| | | Altruism-Vulnerability | 10 items, α=.87, M=3.32 | |
| | | 10 items, α=.84, M=3.25 | Vulnerability | |
| | | | 5 items, α=.82, M=2.92 | |
| | | Warmth | | |
| | | 6 items, α=.75, M=3.49 | | |

Table X. Facets of <u>Agreeableness</u> for 3-, 6-, 9-, and 12-year-olds (facet names, number of items, Cronbach alpha, mean ratings)

<u>Note</u>. Rating scale ranges from 0=not at all to 4=very much.

| Age group | | | | | |
|--------------------------------|--------------------------------|---------|----------|--|--|
| 3 years | 6 years | 9 years | 12 years | | |
| Withdrawal | Withdrawal | | | | |
| 5 items, α=.63, M=1.89 | 4 items, α=.66, M=1.78 | | | | |
| Attachment | Attachment | | | | |
| 5 items, α=.68, M=2.74 | 3 items, α=.70, M=2.87 | | | | |
| Emotional Sensitivity | | | | | |
| 7 items, α =.72, M=2.00 | Anxiety | | | | |
| | 7 items, α =.73, M=1.53 | | | | |

Table X. Facets of Inhibition for 3-, 6-, 9-, and 12-year-olds (facet names, number of items, Cronbach alpha, mean ratings)

Note. Rating scale ranges from 0=not at all to 4=very much.