



Tilburg University Press

Personality Psychology in Europe Volume 7

Selected Papers from the Eighth
European Conference on Personality
held in Ghent, Belgium
July 1996

Edited by

Ivan Mervielde
Ian Deary
Filip de Fruyt
Fritz Ostendorf

© 1999 Tilburg University Press
ISBN 90-361-9929-8

No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission from the copyright owner.

7 Personality components in parental ratings of 12-year-olds: Mothers vs. fathers, boys vs. girls

Elias Besevegis and Vassilis Pavlopoulos

University of Athens, Greece

The assessment of human personality has a rather long history, and it manifests an impressive variety in both theoretical and psychometric terms. The various projective techniques, the typologies (with their respective questionnaires), as well as the sociometric scales and personality inventories attest to this variety. (Anastasi, 1968; Cronbach, 1964).

Inherent in the process of constructing personality assessment tools is the issue of the *structure* of human personality. While quite a few different answers have been given to this question, probably the most influential approach for describing individual differences in personality is the *trait approach*. It is an old and proliferous approach, which has been proposed and elaborated upon by such scholars as Allport (Allport and Odbert, 1936), Cattell (1946, 1957), Guilford (Guilford and Zimmerman, 1949) and the Eysencks (Eysenck and Eysenck, 1964). Personality traits are expressed in linguistic terms, i.e. adjectives and/or verbs that encode personality characteristics. Even from a purely linguistic point of view, it comes as no surprise that personality traits can be grouped into conceptual categories representing broader personality dimensions.

As a matter of fact, quite early in the history of this scientific domain (e.g. Fiske, 1949) it was realised – and later shown statistically by means of factor analysis – that various personality characteristics could be grouped into more general components or dimensions of personality, to assess human individual differences. This led to the well-known development in the area of adult personality, that is referred to as the *Big Five* or *Five-Factor Model - FFM* (Goldberg, 1990; John, 1990a; McCrae and Costa, 1985). The five main personality dimensions included in this model are labelled as *Extraversion*, *Agreeableness*, *Conscientiousness*, *Emotional Stability/Neuroticism*, and *Intellect, Culture or Openness to Experience*.

The lexical approach assumes that individual differences in personality that are important in a given society will be encoded in the language of its members. Consequently, the frequency by which a specific characteristic (such as an adjective) appears in language reflects its importance and salience (Goldberg, 1982).

Although the Five-Factor Model has generated a growing consensus among researchers of adult personality, the state of art concerning personality development is less ideal. Besides psychodynamic theories on personality, the study of child and adolescent personality has been fragmentary and has not yet produced a generally accepted theoretical framework. Even the widely respected work by Thomas and Chess (1977) has met some doubts about its replicability, since only five to seven (out of the initial nine) factors emerge, when factor analysis is performed on the individual items of the Thomas and Chess, and on Carey's (McDevitt and Carey, 1978) scales (Hagekull, 1994; Martin, Wisenbaker, and Huttunen, 1994).

The need for a model of the developing personality structure with a more general acceptance, coupled with the quest for another method of data collection (e.g. parental descriptions in natural language) has led to the development of a large international research project of which this study is a part.

The present chapter reports part of the Greek contribution to an international project on children's personality, including research teams from an additional six countries (Belgium, The Netherlands, Germany, Poland, China, and the USA). This research project has two main goals: First, to collect an extended list of terms (mainly verbs and adjectives), that parents use when asked to describe their children's personality/temperament. This pool of representative parental expressions can then be used to construct questionnaires. The second aim is to factor analyse these questionnaires and to compare the emerging structure with the factors proposed by the Five Factor Model for adult personality.

Up to the late 80's, there was only one study (Digman, 1963), which attempted to test the applicability of the Big Five to assessment of children's personality. Evidence is now accumulating indicating that antecedents of the 'Big Five' emerge in factor analyses of teacher ratings of children's personality (Digman and Inouye, 1986; Mervielde, 1994).

Free natural language personality descriptions of personality have rarely been used in adult or in the child personality research as a method of data collection. For instance, John's work (John, 1990a, 1990b), with college students, is often referred to as the only example of using free self-descriptions as a method to construct personality questionnaires. John found a close resemblance between the factor structure of a questionnaire based on free descriptions and the Big Five.

The use of free descriptions of children's personality as a method for delineating the content of a questionnaire is the cornerstone of the research project of the international consortium mentioned earlier. Results of the first phase of this project clearly indicated that, about 80% of the categorised parental descriptors fell into categories that are similar in content to the well-known Big Five

(Kohnstamm, Halverson, and Mervielde, 1996; Kohnstamm, Mervielde, Besevegis, and Halverson, 1995).

Besides checking the applicability of the Big Five to children's personality, the present study also looks at differences in the way fathers and mothers describe the behaviour/personality of their sons and daughters. Gender has been shown to be a source of differentiation of human personality (e.g. Feingold, 1994), and this could affect parental perceptions of a child. Moreover, fathers and mothers might differ in assessing their children's personality due to such factors as: the kind and extent of information that is available to them, their readiness to perceive and explain perceptual cues given provided by the child, their gender role standards and stereotypes, the kind and amount of experiences they have with their children, their goals, values, beliefs, needs, and attitudes concerning children, childhood, and parenting, and so on.

The child's gender might also affect what parents see in their children's behaviour as it has been suggested by some research (e.g. Bacon and Ashmore, 1985). All factors mentioned so far could affect the way children interact with by parents. However, research on socialisation practices has not yielded clear results on gender differentiation (Block, 1979; 1983).

METHOD

Sample and procedure

The questionnaire (see below) was administered to 278 mothers and 231 fathers, who were parents of 165 12-year-old girls and 155 boys of the same age. For 189 of the children's ratings came from both parents, while for the remaining 131 children ratings came from either the mother (in 89 cases) or the father (in 42 cases). Mothers were between 28 and 50 years old and fathers between 30 and 60 years old. About half of the parents were graduates of higher education, while about 9% of them received only primary education. Participants came from the greater Athens area that as a whole, is considered a middle-class region in socio-economic terms.

Parents were asked to think of their child's behaviour during the last 12 months and then indicate on a 5-point Likert-type scale - from 0 (not at all) to 4 (a lot/very much) - the degree to which the content of each item/statement fit, i.e. best described, their child's behaviour/personality.

The questionnaire

The questionnaire consisted of 214 items, i.e. verb - and/or adjective phrases - that described a specific characteristic of 12-year-old children's personality/

behaviour. The items were selected from a list of phrases, which was made up of all different terms that parents - in the first phase of the project - had used to freely describe, in natural language, the behaviour/personality of their children.

Prior to item selection, these parental descriptors had been conceptually sorted into 14 categories, following a coding system which was developed for the specific purpose of classifying parental free descriptions of children's personality (Havill, Allen, Halverson, & Kohnstamm, 1994). This system includes five categories inspired by the Big Five framework, i.e. Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect/Openness to Experience, (with three subcategories each), and a set of eight additional categories, i.e. Independence, Maturity, Physical Illness/Health, Rhythmicity, Gender Appropriate Behaviour, School Performance, and Cuddliness, which were added to represent specific characteristics that are known from the developmental literature to be elements of the developing personality. A 14th category included ambiguous items. The additional eight categories are believed to increase the chances to detect factors other than those traditionally emerging from the lexical approach (Kohnstamm et al., 1995).

Descriptors of each main category were subsequently clustered into one hundred smaller and conceptually more homogenous groups in order to allow selection of items representing all possible different personality characteristics. The 214 selected items (124 verbal phrases and 90 adjectives) represent all clusters (from all 13 categories) in proportions similar to those obtained while categorising the free descriptions. It must be noted, also, that the questionnaire mirrors the distribution of evaluative positive and negative parental descriptors. About 65% of the items were positive (66% of the free descriptions were coded as evaluative positive) and 35% were negative (34% of the free descriptions were coded into evaluative negative categories).

RESULTS AND DISCUSSION

Factor structure of parental ratings

Principal components (with Varimax rotation) were extracted from parental ratings of the 214 items, and four-, five-, and six-factor solutions were inspected. Based on scree plots and the conceptual meaning of the emerging components, it was decided that a five-factor solution best described children's personality as assessed by parents. The total amount of variance accounted for by these factors was 43.2%. Out of the 214 items, 99 qualified for their inclusion in the final form of the questionnaire. This item reduction was based on a combination of the following psychometric criteria: Low loading (we set the cut-off point at .40), high multiple loadings (>.30), low communality (<.30) and reliability (alpha),

unusually high skewness and/or kurtosis, and close conceptual inter-item similarity (based on high correlations).

Table 1. Distribution of 99 items over free description categories and principal components

| Free description category | Principal component | | | | |
|---------------------------------------|---------------------|-----|-----|-----|-----------|
| | C1 | C2 | C3 | C4 | C5 |
| I <i>Extraversion</i> | | | | | |
| A. Sociability | | | 1 | 2 | <i>13</i> |
| B. Dominance | 1 | | 3 | 1 | |
| C. Activity | 1 | | | | 3 |
| II <i>Agreeableness</i> | | | | | |
| A. Helpfulness | 5 | | | 8 | |
| B. Manageability | 7 | | | 4 | |
| C. Honesty | | | | 1 | |
| III <i>Conscientiousness</i> | | | | | |
| A. Carefulness | | 6 | | | |
| C. Diligence | | 9 | | 1 | |
| IV <i>Emotional stability</i> | | | | | |
| A. Emotional reactivity | 8 | | | 4 | |
| B. Self-confidence | | | 1 | | |
| C. Anxiety | | 1 | | | |
| V <i>Intellect/Culture</i> | | | | | |
| A. Openness to experience | | | 6 | | |
| C. Intelligence | | | 6 | | |
| VI <i>Independence</i> | | | 1 | | |
| VII <i>Maturity</i> | | 1 | | | |
| IX <i>Rhythmicity</i> | 1 | | | | |
| X <i>Gender appropriate behaviour</i> | | | | | 1 |
| XI <i>School performance</i> | | 2 | | | |
| XII <i>Cuddliness</i> | | | | 1 | |
| Total number of items | 23 | 19 | 18 | 22 | 17 |
| Cronbach alpha | .93 | .94 | .91 | .92 | .87 |

Note. Numbers in italic indicate highest frequency of category items for each component.
 C₁: Emotional reactivity. C₂: Conscientiousness. C₃: Intellect. C₄: Agreeableness
 C₅: Extraversion.

Table 1 presents the frequency distribution of the 99 questionnaire items of the five components as a function of the categories they were assigned to in the first phase of this project. Inspection of this table reveals a rather close resemblance between the Big Five and this factor structure. This is especially true for

components 2, 3, and 5, where the large majority of items comes from categories conceptually similar to the respective Big Five factors. This resemblance, we believe, indicates that dimensions similar to the Big Five can be retrieved from parental ratings of children's personality. This evidence gains in importance, if one takes into account that the questionnaire items were neither devised nor retrieved from any established list of verbs/adjectives, but were based on natural-language parental descriptions.

A closer look at the content of each component yields the following picture: The first component (C_1) is essentially a blend of Agreeableness (12 items) and Emotional Stability/Instability. In fact, all these items are negative or low (on the scale of their respective traits). The 23 items that constitute this component conjure up the image of a child who is stubborn, selfish, difficult to manage, nervous, and angry. Adequate labels for Component 1 could be *Negative Interpersonal Relations/Emotional Reactivity* or *Disagreeableness*.

Component 2 is clearly a *Conscientiousness* factor, as 15 (out of its 19) items were drawn from the two facets of the respective category of our coding system. The remaining items represent qualities that can reasonably be considered as supplementing Conscientiousness: Fear of failure, Maturity, and School Performance.

Component 3 is evidently an *Openness to Experience/Intellect* factor, since two-thirds of its constituent items belong to the respective FFM category. Again, the remaining items represent qualities/traits that conform to the general picture of this dimension. Subsequently, it is worth noting that most of the dominance items loaded on this component. This probably means that dominance, as a personality trait, at least in childhood, is not just an interpersonal quality, but a characteristic that has to do with the child's attitude toward the world in general.

The fourth component (C_4) displays the highest variability, since its items come from eight different categories. However, the majority of these items come from Agreeableness and Emotional Stability and they all form the picture of the «good» child, a child who cares for others, is helpful, respects older people and is sensitive to others' needs. It is worth mentioning that even the four emotional reactivity items of this factor that were coded as negative descriptors (e.g. «s/he is too sensitive»), are taken by parents as having a clearly positive interpersonal connotation. Hence, this component could be labelled as i.e. *Interpersonal Sensitivity*, or just *Agreeableness*. This component can to some extent be considered as the opposite pole of the first component.

The most straightforward component is the fifth one (C_5), which has the clearest conceptual meaning, i.e. *Extraversion*: Sixteen (out of 17) items represent the respective dimension of the Five Factor Model. A reason that might explain this

clear resemblance is that this dimension probably represents the most observable, overt facet of human behaviour, that can be identified and coded.

Two additional comments can be made on the data presented so far. Despite the clustering of most items within one of the five main personality dimensions, the same-category item dispersion over different factors still warrants further explanation. This can be twofold: There is the possibility of wrong decisions made by the coders while categorising the free descriptions. However, this explanation seems inadequate, given the high inter-rater reliability obtained in the first phase of this project (93.8%). Thus, one could assume that some items, although correctly coded in a category, are in fact blends of several factors. This is clearly the case, for instance, for two sociability items (an extraversion category), having their heighest loading on the C₄ Agreeableness factor.

A second comment to be made has to do with items representing the minor categories (from VI to XII). As shown in Table 1, they loaded, as single items, on the five factors that emerged, probably because of their conceptual similarity to the core meaning of each component. The best example of this would be the two school performance items that loaded on Component 2, a Conscientiousness factor: Doing good (or bad) in school clearly goes together with Diligence.

Fathers versus mothers

Separate principal component analyses were run on fathers' and mothers' ratings. The five factors obtained for each parent were strikingly similar -in structure and content- both to each other and to the ones obtained for the whole sample. Thus, there appears an *Emotional Reactivity/Disagreeableness*, a *Conscientiousness*, an *Intellect/Openness to Experience*, an *Agreeableness/Interpersonal Sensitivity*, and an *Extraversion* factor in both parents' ratings. Table 2 presents Cattell's salient similarity coefficients (Tabachnick and Fidell, 1989), on the congruence between paternal and maternal ratings. Although the five components were not extracted in the same order in both parents, it is evident that there is a systematic resemblance between them, as indicated by the statistically significant coefficients for each pair of components. In subsequent analyses (two-way ANOVA's) discussed elsewhere in detail (Besevegis and Pavlopoulos, in press), it was found that the mean ratings of each component did not significantly differ between the two parents (see Table 3). These findings clearly indicate that fathers and mothers have quite similar perceptions of the structure of their child's personality. Evidently, the two parents, when describing their children, do not seem to be affected by factors (referred to earlier) that were expected to differentiate the perception of their children.

Table 2. Cattell's salient similarity coefficients for fathers' and mothers' ratings of their children's personality

| RATINGS BY FATHERS | | RATINGS BY MOTHERS | | | | |
|--|----|--------------------|------------------|------------------|------------------|------------------|
| | | PCM ₁ | PCM ₂ | PCM ₃ | PCM ₄ | PCM ₅ |
| | | EMR | CON | AGR | INT | EXT |
| PCF ₁ : Emotional reactivity (EMR) | s | .88* | -.14 | -.32 | .00 | .00 |
| | HP | 64% | 48% | 47% | 39% | 42% |
| PCF ₂ : Conscientiousness (CON) | s | -.11 | .83* | .19 | .27 | .00 |
| | HP | 49% | 73% | 52% | 55% | 52% |
| PCF ₃ : Intellect (INT) | s | .00 | .00 | .23 | .77* | .29 |
| | HP | 48% | 55% | 53% | 68% | 59% |
| PCF ₄ : Extraversion (EXT) | s | .00 | .00 | .15 | .35 | .83* |
| | HP | 48% | 54% | 51% | 57% | 71% |
| PCF ₅ : Agreeableness (AGR) | s | -.15 | .18 | .88* | .00 | .00 |
| | HP | 50% | 59% | 71% | 50% | 54% |

Note. *:p<.001. s: Salient similarity index. HP: Hyperplane count.

PCF: Principal component extracted from ratings made by fathers.

PCM: Principal component extracted from ratings made by mothers.

There were, however, a few differences between parents for single items that loaded on different factors. For instance, the Conscientiousness component attracted one anxiety and one maturity item in mothers' but not in fathers' ratings, while the opposite was true for the Extraversion factor, which attracted more items in fathers' than in mothers' ratings. Similarly, the Intellect/Openness to Experience factor attracted one Agreeableness and one Diligence item in fathers

Table 3. Mean ratings of children's personality by gender of parent and child

| | Gender of parent | | | Gender of child | | |
|--|------------------|------------------|------|-----------------|----------------|------|
| | Fathers N=231 | Mothers N=278 | p | Boys N=247 | Girls N=262 | p |
| PC ₁ : Emotional Reactivity | 2.04 | 2.06 | n.s. | 2.14 | 1.97 | .01 |
| PC ₂ : Conscientiousness | 2.81 | 2.85 | n.s. | 2.67 | 3.00 | .01 |
| PC ₃ : Intellect | 3.13 | 3.13 | n.s. | 3.16 | 3.10 | n.s. |
| PC ₄ : Agreeableness | 3.15 | 3.21 | n.s. | 3.10 | 3.25 | .01 |
| PC ₅ : Extraversion | 2.98 | 3.01 | n.s. | 3.04 | 2.95 | .05 |

Note. n.s.: not significant. p: probability level. PC: Principal component

(but not in mothers), while Interpersonal Sensitivity included an anxiety item in mothers' (but not in fathers') ratings. These data probably represent differences in the way that mothers and fathers conceptually group specific characteristics of

children's personality into major dimensions. They are reminiscent of findings reported by Bacon and Ashmore (1985), although these authors used a different method of data collection and analysis.

Boys versus girls

Separate principal component analyses were also run on parental ratings for boys and girls. Once again, the resemblance of both structures to the Big Five was evident. Table 4 presents Cattell's salient similarity coefficients on the congruence between parental ratings of boys and girls. Again, the five components were not extracted in the same order in both child genders.

Table 4. Cattell's salient similarity coefficients for parental ratings of boys' and girls' personality

| RATINGS OF BOYS | | RATINGS OF GIRLS | | | | |
|---|----|------------------|------------------|------------------|------------------|------------------|
| | | PCG ₁ | PCG ₂ | PCG ₃ | PCG ₄ | PCG ₅ |
| | | EMR | CON | INT | AGR | EXT |
| PCB ₁ : Emotional reactivity (EMR) | s | .87* | -.23 | .00 | -.20 | .00 |
| | HP | 62% | 45% | 34% | 47% | 45% |
| PCB ₂ : Conscientiousness (CON) | s | -.00 | .80* | .27 | .00 | .13 |
| | HP | 42% | 68% | 49% | 48% | 57% |
| PCB ₃ : Agreeableness (AGR) | s | -.23 | .26 | .00 | .85* | .00 |
| | HP | 48% | 52% | 43% | 70% | 54% |
| PCB ₄ : Intellect (INT) | s | .11 | .24 | .68* | .17 | .00 |
| | HP | 46% | 56% | 63% | 56% | 59% |
| PCB ₅ : Extraversion (EXT) | s | .00 | .00 | .50 | .19 | .81* |
| | HP | 42% | 45% | 54% | 53% | 72% |

Note. *: $p < .001$. s: Salient similarity index. HP: Hyperplane count.

PCB: Principal component extracted from ratings of boys

PCG: Principal component extracted from ratings of girls.

Nevertheless, the statistically significant coefficients for each pair of components show that there is a systematic relationship between them. However, it is instructive to note a few differences, which may be the result of different parental perspectives on the personality structure of boys and girls. The Conscientiousness factor for girls, compared to that for boys, consists of two additional items: An anxiety and a maturity item, the latter loading on the Intellect/Openness to Experience component in boys. On the other hand, the Intellect/Openness to Experience component clearly attracts more extraversion items in girls than in boys. The only self-confidence item had its highest loading on this component in girls, but on the Extraversion component in boys. Finally, Extraversion seemed to be stronger in boys than in girls, because it attracts most items from the first

category of our coding system. These differences, taken together, gain in importance, if one looks at the mean parental ratings for boys and girls (Besevegis and Pavlopoulos, in press). As shown in Table 3, parents rated boys as significantly more emotionally reactive and more extrovert than girls, the latter being rated as more conscientious and agreeable than the former. No significant interactions (gender of parent X gender of child) emerged.

CONCLUSIONS

Based on the data reported in this chapter, the following concluding remarks are formulated:

1. The major finding of this study is the correspondence between the factor analysis of the questionnaire for twelve-year-olds and the adult Big Five personality structure. However, two deviations are worth noting:
 - (a) Agreeableness and Emotional Stability blended into two different components both with a strong interpersonal connotation: an evaluative positive component (Agreeableness/Interpersonal Sensitivity - C₄) and a negative component (Emotional Reactivity, Negative Interpersonal Relations or Disagreeableness - C₁). It is likely that this reflects the interpersonal connotation of emotional stability/instability in childhood, present in emotional reactivity items (e.g. «overreacts when scolded by his/her parents»).
 - (b) Some of the five components seem to be broader in content, as they include characteristics representing minor personality dimensions thought to be part of child personality. Independence loaded on Openness to Experience; Maturity and School performance were associated with Conscientiousness, Rhythmicity was associated with the child's 'Difficultness', Cuddliness was an element of Interpersonal Sensitivity and Gender appropriate behaviour was related to Extraversion.
2. There is a substantial similarity between both parents' ratings of their child's personality. Besides attesting to the robustness of our questionnaire, this finding implies, from a practical point of view, that asking both parents to rate the child yields highly redundant information.
3. It seems that the present questionnaire is sensitive enough to detect at least some differences in how parents rate the personality of their sons and daughters. It is not possible to decide whether these differences reflect only parental perceptions, expectations and values, or whether they depict real behavioural differences. The resulting pattern of differences can be illustrated by the following quotations from the parental descriptions "She is a *mature, conscientious, careful, and anxious little girl*" and "he is a *mature, intelligent, and creative boy*"¹.

¹ These are quotations from the transcribed parental child descriptions.

References

- Allport, G. W., & Odbert, H. S. (1936). Trait names: A psycho-lexical study. *Psychological monographs*, 47(No 211).
- Anastasi, A. (1968). *Psychological testing*. New York: MacMillan.
- Bacon, M. K., & Ashmore, R. D. (1985). How mothers and fathers categorize descriptions of social behaviour attributed to daughters and sons. *Social Cognition*, 2, 193-217.
- Besevegis, E., & Pavlopoulos, V. (in press). Axiologisi tis prosopikotitas paedion kai efivon apo tous goneis: Kataskevi kai psychometrika charactiristika enos erotimatologiou. (Parental evaluation of children's personality: Construction and psychometric properties of a questionnaire). *Psychologia, special issue*.
- Block, J. H. (1979). Another look at sex differentiation in the socialization behaviour of mothers and fathers. In J. Sherman & F. L. Denmark (Eds.), *Psychology of women: Future directions of research*. New York: Psychological Dimensions.
- Block, J. H. (1983). Differential premises arising from differential socialization of the sexes: Some conjectures. *Child Development*, 54, 1335-1354.
- Cattell, R. B. (1946). *The description and measurement of personality*. Yonkers, NY: World Book.
- Cattell, R. B. (1957). *Personality and motivation structure and measurement*. New York: World Book.
- Cronbach, L. (1964). *Essentials of psychological testing*. New York: Harper-Row.
- Digman, J. M. (1963). Principal dimensions of child personality as seen in teachers' judgments. *Child Development*, 34, 43-60.
- Digman, J. M., & Inouye, J. (1986). Further specification of the five robust factors of personality. *Journal of Personality and Social Psychology*, 50, 116-123.
- Eysenck, H. J., & Eysenck, S. B. G. (1964). *Manual of the Eysenck personality inventory*. London: University Press.
- Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin*, 116, 429-456.
- Fiske, D. W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal and Social Psychology*, 44, 329-344.
- Goldberg, L. R. (1982). From Ace to Zombie: Some explorations in the language of personality. In C. Spielberger & J. Butcher (Eds.), *Advances in Personality assessment, Vol. 1* (pp. 203-234). Hillsdale, NJ: Erlbaum.
- Goldberg, L. R. (1990). An alternative «Description of personality»: The Big Five factor structure. *Journal of Personality and Social Psychology*, 59, 1216-1229.
- Guilford, J. P., & Zimmerman, W. S. (1949). *The Guilford-Zimmerman temperament survey*. Beverly Hills, CA: Sheridan Supply.

- Hagekull, B. (1994). Infant temperament and early childhood functioning: Possible relations to the five-factor model. In C. F. Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 227-240). Hillsdale, NJ: Erlbaum.
- Havill, V. L., Allen, K., Halverson, C. F., & Kohnstamm, G. A. (1994). Parents' use of Big Five categories in their natural language descriptions of children. In C. F. Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood*, (pp. 371-386). Hillsdale, NJ: Erlbaum.
- John, O. P. (1990a). The «Big Five» factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 66-100). New York: Guilford.
- John, O. P. (1990b). Towards a taxonomy of personality descriptors. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions*. New York: Springer Verlag.
- Kohnstamm, G. A., Halverson, C. F., & Mervielde, I. (1996). Do parents' free descriptions of characteristics of their child support a Five Factor Model of personality? In S. Harkness & M. Super (Eds.), *Parents' cultural belief systems. Cultural origins and developmental consequences*.
- Kohnstamm, G. A., Mervielde, I., Besevegis, E., & Halverson, C. F. (1995). Tracing the Big Five in parents' free descriptions of their children. *European Journal of Personality*, 9, 283-304.
- Martin, P. R., Wisenbaker, J., & Huttunen, M. (1994). Review of factor-analytic studies of temperament measures based on the Thomas-Chess structural model: Implications for the Big Five. In C. F. Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 157-172). Hillsdale, NJ: Erlbaum
- McCrae, R. R., & Costa, P. T., Jr. (1985). Updating Norman's «adequate taxonomy»: Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology*, 49, 710-721.
- McDevitt, S. C., & Carey, W. B. (1978). The measurement of temperament in 3- to 7-year old children. *Journal of Child Psychology and Psychiatry*, 19, 245-253.
- Mervielde, I. (1994). A five-factor model classification of teachers' constructs on individual differences among children ages 4 to 12. In C. F. Halverson, G. A. Kohnstamm, & R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 387-398). Hillsdale, NJ: Erlbaum.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd edition). New York: Harper Collins
- Thomas, A., & Chess, S. (1977). *Temperament and development*. New York: Brunner/Mazel.