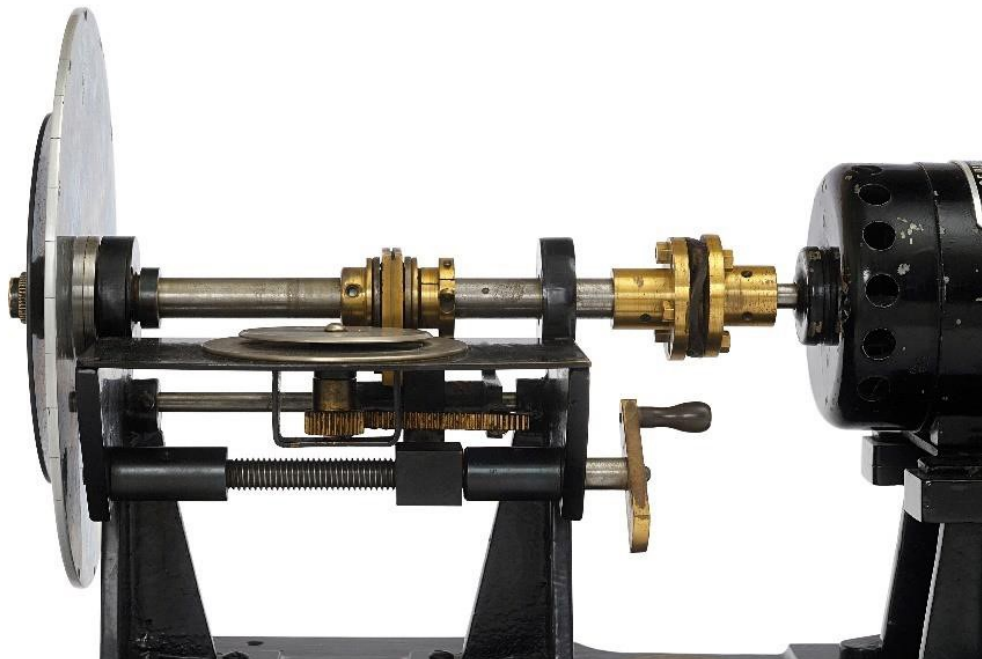


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EMPIRICAL STUDIES IN PSYCHOLOGY

OCTOBER 15TH – 18TH, 2020

FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE



INSTITUTE OF PSYCHOLOGY
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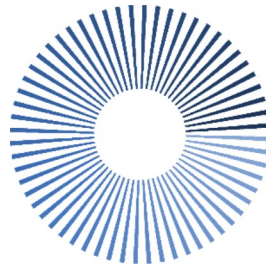
EMPIRICAL STUDIES IN PSYCHOLOGY

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FACULTY OF PHILOSOPHY, UNIVERSITY OF
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Institute of Psychology, Faculty of Philosophy, University of Belgrade



Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade

Belgrade, 2020

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Mechanism for varying the relation between the sectors of Maxwell's discs in the course of their rotation.

Maxwell's discs Maxwell's discs with fixed relations of the sectors can be installed onto the inner disc of the apparatus while discs with sectors of different size are installed onto the outer of the two discs of the apparatus. The size of a sectors that can be read on a circular 3600-scale may be regulated in the course of the operation by means of a lever till colors in both discs are equalized. Rotation speed can be regulated with a rheostat.

From the collection of the old scientific instruments curated by Laboratory for experimental psychology, Faculty of Philosophy, University of Belgrade

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The Development of Conscientiousness scale: measuring personality traits in children in middle childhood

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Abstract

The goal of this study was to develop and validate an instrument for the measurement of the trait of Conscientiousness (C), as conceptualized through the HEXACO model, but in middle childhood, children using their parents' ratings. Following a pilot study that singled out the items with the best psychometric characteristics, the main study was conducted using a final instrument on a sample of 264 children, who were rated by their mothers and/or fathers. Four facets were extracted in both mothers' and fathers' ratings, as well as a higher-order factor. Results suggest that obtained factor structures deviate to some extent from the one proposed by the HEXACO model, with certain discrepancies between factor structures extracted from mothers' and fathers' ratings. We discuss these discrepancies as well as conceptual and practical problems that might arise from attempting to measure children's personality traits.

Keywords: measuring children's personality; children in middle childhood; conscientiousness; personality traits;

Introduction

Conscientiousness (trait C) is one of the six core personality dimensions, as defined in the HEXACO personality model (Lee & Ashton, 2004). For adults, it refers to a person's propensity to maintain order, organize his/her time and environment, and to work and perform tasks thoroughly and diligently. As such, trait C is considered a crucial personality factor (Kim & Kochanska, 2019) that is implicated in various lifelong psychological and behavioral outcomes such as, but not limited to, health behavior, sexual risk-taking, academic success, job performance, and overall adaptability. This suggests that C underpins important developmental outcomes and processes that can make an impact throughout childhood, indicating a need for reliable ways to measure it in younger children. In fact, previous

research has shown that some of the characteristics of the facet-level traits of C in adults can also be observed in children (Tackman et al., 2017) – a conscientious child is committed to completing obligations on time (Eisenberg et al., 2012) and is characterized by prudence and tidiness (Lee & Ashton, 2004). However, assessment of personality in children comes with an additional challenge when it comes to the nature of measurement. Self-report measures can be relatively restricted at a young age, with most of them being picture-based (e.g. Maćkiewicz & Ciecuch, 2016), with limited sets of items, and limited variability of behaviors and indicators they encompass. Consequently, one solution is to employ rating measures as a more appropriate method of assessment in younger children.

Aim of the study

The overall goal of the study was to develop a conscientiousness rating scale for children in middle childhood and examine its psychometric and construct validity. Additionally, we wanted to compare its latent structure to the expected theoretical content of the HEXACO trait C. Finally, we wanted to inspect the diagnostic validity of the rating scale in its ability to predict gender differences, given that previous research suggests their existence (Lee & Ashton, 2004; Matthews et al., 2009).

Method

Instrument

DOK-C The final instrument ($\alpha = .93$) consists of 40 items, with 10 items mapping each of the four facets of HEXACO C – Organization, Diligence, Perfectionism, and Prudence. Participants rate their children by indicating their agreement

with statements on a dichotomous (yes/no) scale. The items were selected based on a pilot study (N = 104, 87.5% mothers), where 83 items were assessed based on IRT model reliability, fit, separation, and item difficulty.

Sample

The sample was convenient, with a total of 264 children (58% girls) evaluated by 215 mothers ($M_{age}=42$, $SD_{age}=4.83$) and 125 fathers ($M_{age}=41$, $SD_{age}=5.08$). There were 76 parenting couples rating the same child. Children were aged 7 (29%), 8 (49%), and 9 (22%) ($M_{age}=7.85$, $SD_{age}=0.7$). The sample was collected in two elementary schools in Belgrade, Serbia.

Results

Factor analyses

EFA was conducted separately on mothers' and fathers' ratings, using the ML method with Promax rotation. In both cases, the values of the Kaiser-Meyer-Olkin and Bartlett's sphericity test were satisfactory (mothers: KMO=.825, Bartlett's sphericity test $\chi^2 = 2944.413$, sig <.01; fathers: KMO (.819), Bartlett sphericity test $\chi^2 = 2300.191$, sig <.01). In the mothers' subsample, Horn's parallel analysis suggested that 4 factors should be retained, while for the fathers' subsample Horn's criteria suggested a three-factor solution. However, after inspection of factor loadings, it was decided to keep the four-factor solution, which had a clearer differentiation of factors and better interpretation potential.

The first factors explained the highest proportion of variance in both mothers' (19.89%) and fathers' ratings (26.66%). Factor intercorrelations were positive and moderate both in mothers' ($r=.231 - .516$) and fathers' ($r=.332 - .581$) ratings data. A higher-order factor emerged in both groups and was labeled as Conscientiousness. To estimate the similarity of the factors extracted from mothers' and fathers' ratings orthogonal Procrustes rotation was done. Congruence was 1.0, while for facets estimates were .67 (Organization), .87 (Diligence), .70 (Perfectionism), .75 (Prudence), which suggested factors were fairly similar, but with certain deviations.

The latent structure of the scale deviates from the one proposed by the HEXACO model to some extent. Items constructed to reflect the facets of Diligence and Prudence were redistributed differently in the mothers' and fathers' ratings as to form factors of *Effortful Control* and *Task Persistence* on one side (mothers' data), and *Responsibility* and *Obedience* on the other (fathers' data). Organization and Perfectionism on both mothers' and fathers' data resembled the original facets of the HEXACO model.

The diagnostic validity

Diagnostic validity of the scale was tested with CDA (Table 1). One statistically significant discriminant function was obtained, suggesting there are differences in the way mothers and fathers rate girls and boys on the C dimension.

The fathers' ratings showed a greater difference between rated Conscientiousness of boys and girls, while both mothers and fathers tended to rate girls higher on the dimension as a whole, with centroids for girls in both samples being positive as opposed to the boys'. The proportion of variance of differences between boys and girls explained by a linear combination of isolated factors was not large in either of the subsamples (fathers' subsample – 18.06%; mothers' subsample – 7.61%).

Table 1: Significance of discriminant function, canonical correlation, and centroids

	Wilks' Lambda	Canonical correlation	Centroids for girls	Centroids for boys
mothers' data	.924*	.276	.271	-.301
fathers' data	.819*	.425	.420	-.517

Discussion and Conclusion

The results indicate that the newly developed instrument showed sound factorial validity overall. However, some discrepancies between the expected and empirical latent structure did emerge. It is possible to assume that these discrepancies stem from the fact that personality traits, while evidently present in children, are still not sufficiently differentiated as to form clear cut facet level factors, resulting in an unstable factor structure in different parents' subsamples. This is in line with the temperamental framework of personality development where constructs such as voluntary control (Rothbart & Rueda, 2005), task persistence (Karnes et al., 2005), and dedicated obedience (Kochanska, 1993), which can be considered the basis of the latter trait C in adults (Tackman et al., 2017), most often encompass a wide range of behaviors, from which different facets of C and other personality traits are later differentiated.

Moreover, results imply that parents could be evaluating their children differently which is reflected in the somewhat divergent nature of the factors that emerged on fathers' and mothers' subsamples – fathers seem to pay more attention to child's obedience, while mothers are more oriented to outcomes of solving tasks. This may generally indicate that fathers have a greater role in disciplining the child, while mothers are more involved in education and teaching. Nevertheless, there seems to be evidence of Conscientiousness as early as the age of 7, especially the facets of Organization and Perfectionism, which emerged both in mothers' and fathers' ratings. The reason behind the stability of these two facets may be the fact that they include specific behavioral manifestations that are easier to observe from the outside.

In conclusion, while both conceptual and practical problems in measuring children's personality traits do arise,

developing rating scales within the established personality models can help us understand how the structure of the trait changes during development.

Given the potentially unstable nature of the structure of personality in children, a pathway for future studies might be to employ such scales in a longitudinal design, in order to better understand how and when personality traits start to differentiate.

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