

# ASSESSMENT OF MENTAL ABILITIES IN THE BALTIC STATES: THE DEVELOPMENT OF THE VVS/7 SCALE



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## INTRODUCTION

The assessment centre Tripod has offered psychological tests for personnel selection and assessment procedures in the Baltic states over 20 years. Approximately 35.000 people in the Baltics complete Tripod's tests every year and different general mental ability tests are among the most popular tests.

General mental ability or intelligence is defined in this study as a very general capability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience (Gottfredson, 1997).

The aim of this project was to standardize the new version of Tripod's Mental Ability Scale (VVS/7) in Estonia, Latvia, and Lithuania and analyze cross-cultural equivalence of the national versions of VVS/7 in the Baltic countries. The main research questions were (a) what are psychometric properties of the scale and (b) how is educational level related to the mental ability score?

## METHOD

### PARTICIPANTS

The sample consisted of 992 adult individuals (633 Estonians, 189 Latvians, and 170 Lithuanians; 65% females) with a mean age of 38.2 ( $Mdn=38$ ;  $SD=10.9$ ) years. The group was heterogeneous in respect to educational and occupational levels.

### MEASURES

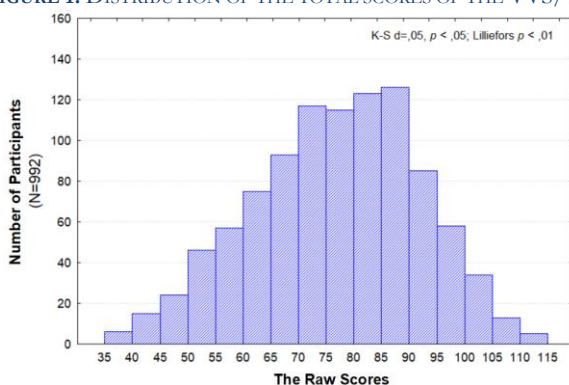
#### ▪ Mental abilities

General mental abilities were measured by the new constructed version of Tripod's Mental Abilities Scale (VVS/7). The test consists of 130 tasks and has four subscales (*Verbal ability*, *Mathematical ability*, *Spatial ability*, and *Logical reasoning*). The time limit 8 minutes per subtest was applied. The raw scores of the test were standardized ( $m = 0$ ,  $SD = 1$ ) for the statistical analyses.

#### ▪ Educational levels

The participants were divided into four groups according to their self-reported educational level as follows: vocational ( $n=129$ ), secondary ( $n=100$ ), bachelor's degree ( $n=437$ ), and master's degree ( $n=310$ ); basic educational level and doctoral degree were excluded because of small number of individuals in the group.

FIGURE 1. DISTRIBUTION OF THE TOTAL SCORES OF THE VVS/7 TEST.



## RESULTS

### (1) Psychometric properties of the test

The VVS/7 scale has good psychometric properties and all the scores of the subscales were distributed similarly to normal curve. The dispersion of the raw scores for the general ability scale is presented graphically in Figure 1. The internal reliability coefficient (Cronbach  $\alpha$ ) of the total scale was .92 and subscales' correlations with the total scale ranged from  $r = .69$  to .84.

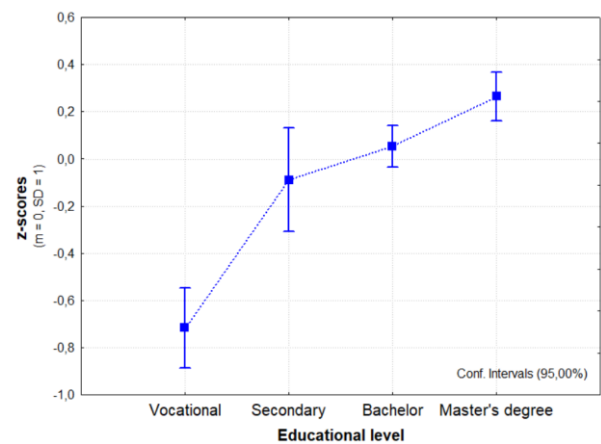
### (2) Mental abilities and educational level

There were no statistically significant differences between the mean scores of Estonians, Latvians, and Lithuanians across the educational levels.

The analyses demonstrated the statistically significant positive relationship between the results of the VVS/7 test and levels of education. For instance, the Spearman's correlation coefficient between the score of the verbal ability scale and educational level was .24,  $p < .001$ .

There were statistically significant differences in the mean total scores across the educational level groups,  $F(3,972) = 33.1$ ,  $p < .001$  (see Figure 2).

FIGURE 2. GENERAL MENTAL ABILITY ACROSS EDUCATIONAL LEVELS.



## SUMMARY

The 7<sup>th</sup> version of Tripod's Mental Ability Scale was standardized in Estonia, Latvia, and Lithuania in 2023. Reliability of the new tool was investigated and the test scores were related to educational levels.

The standardization of VVS/7 was successful, the national versions of the test were comparable, and the pan-Baltic norms for the test can be applied to measure general mental abilities in the Baltic states.

## REFERENCE

Gottfredson, L. S. (1997). Mainstream science on intelligence: An editorial with 52 signatories, history, and bibliography. *Intelligence*, 24(1), 13-23.

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