COMPARISON OF THE INTELLIGENCE MODELS USING STRUCTURAL EQUATION MODELING AND SELF-ORGANIZING FEATURE MAPS

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ABSTRACT – The problem of comparing hierarchical and nested intelligence factor models is under study. These models were developed according to existing theories of intelligence and enable to investigate latent factors of a general intelligence as well as factors of a verbal and nonverbal intelligence influences on observed parameters measured by the Wechsler intelligence test. Presented is a new technique for estimating goodness-of-fit measure in case of unrestricted factor models, which is based on the capabilities of self-organizing feature maps (Kohonen networks). This technique makes it possible to avoid tight restrictions imposed on observed data and factor model structure, which are inherent for the traditional factor model identification procedure. The procedure of estimating model components' statistical significance via comparison of goodness-of-fit measures for saturated and reduced models is also under consideration.

KEYWORDS: Model of intelligence, structural equation modeling, model goodness-of-fit, Kohonen networks.