



Goran D. Pljakić¹ 

The Academy of Applied Preschool Teaching and Health Studies,
Kruševac, Serbia

Aleksandar S. Tadić

University of Belgrade, Faculty of Philosophy, Belgrade, Serbia

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Design and Validation of the Scale for Measuring the Representation of the Basic Components of the Structure of Cooperative Learning in Teaching²

Extended summary

Research of cooperative learning is deeply rooted in the framework of the social interdependence theory (Deutsch, 1962; Johnson & Johnson, 2015) which postulates that groups are formed in such a way as to ensure positive internal interdependence that enables students to accomplish tasks successfully. Positive interdependence is possible only in cooperative social situations in which a student can reach a certain goal only if other group members reach it as well. (Johnson & Johnson, 2018). In the classroom, cooperation implies a sort of social interaction among the students in one group, as well as between teachers and students. In the given context, cooperative learning involves using teaching techniques that enable individuals to form small groups, and then the groups work together to help students master the teaching content successfully (Slavin, 2011). However, it is highly unlikely that the expected positive effects will be made if the teaching process does not contain any of the five basic elements of cooperative learning (Johnson & Johnson, 2009). For this reason, monitoring and evaluation of using cooperative learning in the classroom is an important research area in pedagogy. The de-

¹ goran.p@vaspks.edu.rs

 <https://orcid.org/0009-0007-0344-1513>

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sign and validation of instruments for testing the adequacy of implementing cooperative teaching in practice is of great significance.

The goal of the research is to construct and validate a new comprehensive instrument which will measure, in a valid and reliable way, the representation of the basic components of cooperative learning in primary schools. Relying on the conceptualisations of cooperative learning by the most prominent authors in this field (Johnson & Johnson, 2018; Slavin, 2011), and based on the findings of some researchers who investigated the issues related to cooperative learning, an initial version of the scale for measuring the representation of the Basic Components of the Structure of Cooperative Learning (acronym BCSCCL-53) was constructed. The initial version was used for conducting a pilot research on a sample of respondents from the territory of Rasina district. The sample included only the pupils who are taught regularly by using cooperative learning. Three primary schools met these criteria. Twelve 7th-grade pupils were selected randomly and they participated in the pilot research which confirmed that the items of the BCSCCL-53 scale are easily understood by the primary school pupils.

In the second stage, the goal was to investigate the dimensional structure of BCSCCL-53 scale using Principal Component Analysis, and to test its representativity and reliability. The research was conducted on a sample of 516 primary school pupils in Serbia, from Rasina and Pomoravlje districts, selected by using the above-mentioned criterion. In line with the presented theoretical framework, the results of the analysis of the main components showed that the BCSCCL-53 scale consists of five dimensions: (1) Practicing social skills, (2) Group processing, (3) "face-to-face" promotive interaction, (4) Positive interdependence and (5) Individual accountability. Parallel Analysis results supported a five-factor solution that explains 43.437% of the total variance. All correlations among the said components are positive and are in the range from strong-medium to weak strength. The metric features of the scale are entirely satisfactory ($\alpha=.95$; $KMO=.95$). Cronbach's alpha coefficients of subscale Practicing social skills ($\alpha=.91$) and subscale Group processing ($\alpha=.88$) are high. The subscale "face-to-face" promotive interaction ($\alpha=.78$), subscale Positive interdependence ($\alpha=.72$) and subscale Individual accountability ($\alpha=.72$) have acceptable internal consistency. In line with Kaiser's criterion (Kaiser, 1974), representativeness is in the range from marvelous to middling, while the highest is on the subscale Practicing social skills ($KMO=.95$) and subscale Group processing ($KMO=.93$).

The conclusion is that BCSCCL-53 scale is a valid and reliable instrument for measuring the representation of the basic components of the structure of cooperative learning. The instrument comprises 53 items, which makes it economical and easy to use with primary school pupils.

Keywords: social interdependence theory, cooperative learning, scale design, construct validity

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