The Development of a Learning Potential Assessment Package of Inductive Reasoning for Children

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The purpose of this study was to develop a learning potential assessment package in inductive reasoning that may be used to evaluate and promote the reasoning ability of kindergarten and first grade children. The package consisted of the three modules of classification, series completion, and analogical reasoning. The subtests of Inductive Reasoning Test for Children were conducted in pretest and posttest. This test had satisfactory internal consistency, test-retest reliability, alternate-form reliability, discriminant validity, and criterion-related validity. Norms were also developed for this test. In the stage of mediated learning, a semi-standardized intervention was employed to upgrade children’s cognitive functions. During this stage, the Cognitive Function Rating Scales and the Social Interactive Rating Scales were used to assess the learning process. Both scales had acceptable interrater reliability and expert validity. This study focused on estimating the construct validity of the three modules. Subjects were children with the age of six or seven. Each experimental group received one module. The control group had only pretest and posttest. Each group was administered the subtests of CTONI in addition to other tests. A three-way mixed design analysis of variance was used to evaluate the effectiveness of teaching. The results indicated that each module uplifted the reasoning ability of children on the Inductive Reasoning Test for Children and CTONI. Hierarchical regression analysis was used to estimate the predictive validity. The results showed that the cognitive function score in the four mediated learning stages contributed significantly to the prediction of inductive reasoning post-test score. Besides, some of the social interactive criteria were significant predictors of this post-test score.

KEY WORDS: cognitive function, dynamic assessment, inductive reasoning, learning potential assessment, mediated learning.