

Psychometric Examination of Atma Jaya's Multiple Intelligence Batteries for University Students

Authors : Angela Oktavia Suryani, Bernadeth Gloria, Edwin Sutanto, Jessica Kristianty, Ni Made Rai Sapitri, Patricia Catherine Agla, Sitti Arlinda Rochiadi

Abstract : It was found that some blogs or personal websites in Indonesia sell standardized intelligence tests (for example, Progressive Matrices (PM), Intelligence Structure Test (IST), and Culture Fair Intelligence Test (CFIT)) and other psychological tests, together with the manual and the key answers for public. Individuals can buy and prepare themselves for selection or recruitment with the real test. This action drives people to lie to the institution (education or company) and also to themselves. It was also found that those tests are old. Some items are not relevant with the current context, for example a question about a diameter of a certain coin that does not exist anymore. These problems motivate us to develop a new intelligence battery test, namely of Multiple Aptitude Battery (MAB). The battery test was built by using Thurstone's Primary Mental Abilities theory and intended to be used by high schools students, university students, and worker applicants. The battery tests consist of 9 subtests. In the current study we examine six subtests, namely Reading Comprehension, Verbal Analogies, Numerical Inductive Reasoning, Numerical Deductive Reasoning, Mechanical Ability, and Two Dimensional Spatial Reasoning for university students. The study included 1424 data from students recruited by convenience sampling from eight faculties at Atma Jaya Catholic University of Indonesia. Classical and modern test approaches (Item Response Theory) were carried out to identify the item difficulties of the items and confirmatory factor analysis was applied to examine their internal validities. The validity of each subtest was inspected by using convergent-discriminant method, whereas the reliability was examined by implementing Kuder-Richardson formula. The result showed that the majority of the subtests were difficult in medium level, and there was only one subtest categorized as easy, namely Verbal Analogies. The items were found homogenous and valid measuring their constructs; however at the level of subtests, the construct validity examined by convergent-discriminant method indicated that the subtests were not unidimensional. It means they were not only measuring their own constructs but also other construct. Three of the subtests were able to predict academic performance with small effect size, namely Reading Comprehension, Numerical Inductive Reasoning, and Two Dimensional Spatial Reasoning. GPAs in intermediate level (GPAs at third semester and above) were considered as a factor for predictive invalidity. The Kuder-Richardson formula showed that the reliability coefficients for both numerical reasoning subtests and spatial reasoning were superior, in the range 0.84 - 0.87, whereas the reliability coefficient for the other three subtests were relatively below standard for ability test, in the range of 0.65 - 0.71. It can be concluded that some of the subtests are ready to be used, whereas some others are still need some revisions. This study also demonstrated that the convergent-discrimination method is useful to identify the general intelligence of human.

Keywords : intelligence, psychometric examination, multiple aptitude battery, university students

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