

Abstract

The objectives of The Construction and Development of A Speed and Power Test of General Cognitive Ability for Entry Level Thai Civil Servants are threefold:

1. To construct a general cognitive ability test that can rapidly compare applicants' ability for entry level Thai civil servant selection.
2. To examine the measurement properties of the test, including reliability, content validity, construct validity and concurrent validity.
3. To normalize the test both for whole and particular groups of job family.

The population of this study was entry level Thai civil servants from civil service departments located in Bangkok and the surrounding area (A.D.2005). There were 564 samples. The instruments used were a general cognitive ability test built for item analysis and a performance appraisal form. The general cognitive ability test was designed to measure verbal-educational factor in Vernon's hierarchical group factor theory. The performance appraisal form including result of work, interpersonal relationship and cognitive dimension was used as a criterion for concurrent validation.

The statistical methods used were Lawshe's content validity ratio, item difficulty and discrimination power, Pearson correlation coefficient, Spearman-Brown correlation coefficient, t-Test, one-way ANOVA, confirmatory factor analysis, exploratory factor analysis and percentile rank.

One of the results of this study was a 48-item general cognitive ability test in a spiral omnibus format, with a time limit of 30 minutes. All test items were judged by a cognitive test specialist to determine whether the test measured general cognitive ability. The items ranged from very easy to rather difficult. Split-half reliability of the test was .86. For construct validity, confirmatory factor analysis indicated that the data did not fit the verbal-educational factor model in Vernon's hierarchical group factor theory due to some statistical characteristics resulted from improper analysis. Thus exploratory factor analysis was used. The result showed that the verbal-educational factor comprised two minor group factors: the verbal factor which consisted of verbal comprehension and analogies, and the number factor which consisted of number

series, quantitative relations, mathematics problem solving and inference. No criterion validity was found because the raw scores of the general cognitive ability test did not correlate with three dimensions of performance appraisal: result of work, interpersonal relationship and cognitive. This result may be caused by sample restriction of range effect and the use of job performance appraised by supervisors as a criterion without other criteria. Nevertheless, percentile norms were developed for whole and particular groups, categorized by sex, age and job family.

There are two recommendations:

1. In order to use the result of this study for selection purposes, the test should be retested for concurrent validity to confirm its quality. The test manual should be provided and the test results should be collected in order to update the norms. Producing alternative forms and follow-up studies are also recommended.

2. For further study, research to develop the test efficiency and to test the test quality may be necessary. Examining how general cognitive ability correlates with job performance appraised by supervisors is also useful for the construction and development of a general cognitive ability test.