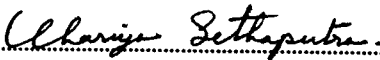
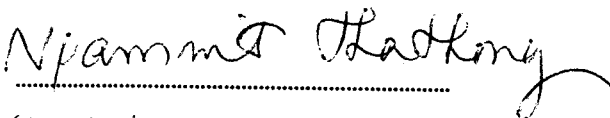


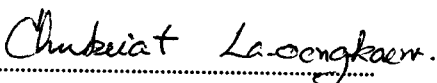
Thesis Title : A Construction of a Fluid Ability Test for Middle Childhood

Author : Mr. Kosom Soosuk

Thesis Advisory Committee :


..... Chairman
(Associate Professor Dr. Chariya Sethaputra)


.....
(Associate Professor Dr. Ngamnit Thathong)


.....
(Mr. Chukiat La-ongkaew)

ABSTRACT

The purpose of this study was to develop a fluid ability test for middle childhood.

The process was divided into two stages.

The first stage was the construction of a fluid ability test. This stage consisted of 8 steps. In step 1, documentary study and a literature review were employed to investigate and understand concepts and theories of a fluid ability. In step 2, the structure of this study was based on the conceptual framework of a fluid ability. In step 3, a prototype model of a fluid ability test was constructed and named the Geometrical Design Test. In step 4, the constructed test was reviewed by a team of experts in educational psychology. In step 5, the sizes of children's tools and hands were investigated in order to determine the sizes of test materials. The sample at this step consisted of 20 students in the first and second grades of Khon Kaen University's demonstration schools : Mordindaeng Demonstration School and Demonstration School of the Faculty of Education. In step 6, children's satisfaction of the colors were investigated in order to determine the colors of test materials. The sample at this step comprised 20 students in the first and second grades of Khon Kaen University's demonstration schools. In step 7, the developed test, the Geometrical Design Test, was administered to determine the time limit for the test items and to observe behavior and performance of examinees during test administration. Interview concerning the difficulty and complexity of items as well as an appropriateness of test materials was also conducted.

The sample at this step consisted of 12 students in the first and second grades of Mordindaeng Demonstration School. In the final step at this stage, the Geometrical Design Test was administered to determine the criteria in scoring and terminating of test performance as well as to determine the quality of the constructed test. The sample at this step consisted of 20 students in the first and second grades of both demonstration schools.

The second stage was to construct the norms. 166 students were randomly drawn from a population of 725 students in the first and second grades of both demonstration schools.

The Block Design Subtest which was a performance subtest in the Wechsler Intelligence Scale for Children-III and the Geometrical Design Test were used as the instruments in this stage.

The result of the first stage showed that the Geometrical Design Test was consistent with the concept of a fluid ability as perceived by a team of experts in educational psychology. The test comprised 17 items with the different time limit. The order of items was arranged according to the item difficulty. The order of color of test materials was arranged from the first to the last item according to children's satisfaction which ranged from the maximum to the minimum levels were as follows : red, pink, yellow, orange, light blue, green and blue, respectively. The total score of the test was 75. The reliability coefficient was estimated using an analysis of variance in the repeated measure design was .925. The discrimination indices ranged from .320 to .926.

In addition, the criteria in scoring and terminating of test performance were also established.

The result of the second stage showed that the concurrent validity with the Block Design Subtest was .707. The estimated reliability coefficient using an analysis of variance in the repeated measure design was .883. The standard error of measurement was 6.497. The correlation coefficients of the examinees's total scores in the Geometrical Design Test and learning achievement in Mathematics and Science were .324 and .277, respectively. These correlation coefficients were significant difference from zero at the .01 level. The discrimination indices of the constructed items ranged from .424 to .759. A mean and a standard deviation of time in completing the constructed test were 15.079 and 5.182 minutes, respectively. A mean and a standard deviation of all age groups' scores were 38.464 and 19.003, respectively. The mean scores of the examinees in 5 age groups were computed : the examinees between the ages of 6 year to 6 years and 5 months, the examinees between the ages of 6 years and 6 months to 6 years and 11 months, the examinees between the ages of 7 years to 7 years and 5 months, the examinees between the ages of 7 years 6 months to 7 years and 11 months, and the examinees between the ages of 8 years to 8 years and 6 months, were 30.226, 38.595, 39.875, 38.667 and 48.750, respectively. The standard deviation of the five age groups' scores as mentioned above were 17.206, 21.997, 18.825, 17.349 and 16.075, respectively. The age norms were constructed in terms of percentile ranks. A manual for test administration of the Geometrical Design Test was also constructed.