Investigation of the Effects of Visually Disabled and Typical Development Students on Their Multiple Intelligence by Applying Abacus and Right Brain Training

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Abstract : The aim of this study was to reveal the effects of right brain development on reading, comprehension, learning and concentration levels and rapid processing skills in students with low vision and students with standard development, and to explore the effects of right and left brain integration on students' academic success and the permanence of the learned knowledge. A total of 68 students with a mean age of 10.01 ± 0.12 were included in the study, 58 of them with standard development, 9 partially visually impaired and 1 totally visually disabled student. The student with a total visual impairment could not participate in the reading speed test due to her total visual impairment. The following data were measured in the participant students before the project; Reading speed measurement in 1 minute, Reading comprehension questions, Burdon attention test, 50 questions of math quiz timed with a stopwatch. Participants were trained for 3 weeks, 5 days a week, for a total of two hours a day. In this study, right-brain developing exercises were carried out with the use of an abacus, and it was aimed to develop both mathematical and attention of students with questions prepared with numerical data taken from fairy tale activities. Among these problems, the study was supported with multiple-choice, 5W (what, where, who, why, when?), 1H (how?) questions along with true-false and fill-in-the-blank activities. By using memory cards, students' short-term memories were strengthened, photographic memory studies were conducted and their visual intelligence was supported. Auditory intelligence was supported by aiming to make calculations by using the abacus in the minds of the students with the numbers given aurally. When calculating the numbers by touching the real abacus, the development of students' tactile intelligence is enhanced. Research findings were analyzed in SPSS program, Kolmogorov Smirnov test was used for normality analysis. Since the variables did not show normal distribution, Wilcoxon test, one of the non-parametric tests, was used to compare the dependent groups. Statistical significance level was accepted as 0.05. The reading speed of the participants was 83.54 ± 33.03 in the pre-test and 116.25 ± 38.49 in the post-test. Narration pre-test 69.71 ± 25.04 post-test 97.06 ± 6.70; BURDON pretest 84.46 ± 14.35 posttest 95.75 ± 5.67; rapid math processing skills pretest 90.65 ± 10.93, posttest 98.18 ± 2.63 ($P<0.05$). It was determined that the pre-test and post-test averages of students with typical development and students with low vision were also significant for all four values ($p<0.05$). As a result of the data obtained from the participants, it is seen that the study was effective in terms of measurement parameters, and the findings were statistically significant. Therefore, it is recommended to use the method widely.

Keywords : Abacus, reading speed, multiple intelligences, right brain training, visually impaired

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