

RELATING THE MFFT TO VISUAL SKILLS
IN ADULTS WITH READING PROBLEMS

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Although much research has been done with the Matching Familiar Figures Test relating reflective/impulsive behavior to reading problems in children, a look at this type of problem solving behavior in adults with reading problems is also needed. This study was conducted to determine if a significant correlation exists between the Matching Familiar Figures Test, tests of visual pursuit, speed, and accuracy, and the American College Test, each administered to two groups of college freshmen; one group being enrolled in a reading disabled class, with the other enrolled in the basic freshman english program.

The purpose of the study was to gain insight into the predictability of reading problems in adults. By comparing the results of the aforementioned tests, conclusions may be drawn concerning the etiology of reading disabilities. It is important to know, for example, if the reading problem is due to poor eye movement ability or an overly impulsive or reflective style of collecting and analyzing written material.

The Matching Familiar Figures Test (MFFT) was developed in 1904 by Kagan, Rosman, Albert, and Phillips as a test to measure reflection-impulsivity, thereby examining problem solving strategies in the subjects. Those who respond in a

fast error prone manner are categorized as impulsive decision makers while subjects who took more time to decide and made more correct answers were labeled reflective. Research is generally supportive of the notion that the reflective strategy is related to success on academic tasks like reading, while the impulsive strategy is frequently correlated with learning disabilities.²

The Visual Pursuit Test (VPT) and the Visual Speed and Accuracy Test (VSAT) were developed by Dr. James S. Ford and Dr. Floyd L. Ruch as part of an adult employment aptitude testing series.⁶ The VPT tested the ability of a subject to move his eyes across a highly structured maze. The VSAT tested how quickly and accurately a subject could determine if a series of two groups of numbers were exactly the same or different. These two tests were chosen because they represent pure visual tasks. Very little research has been done with them in the area of reading disabilities.

The American College Test (ACT) measures a prospective college student's academic ability in the area of Social Studies, Math, English, and Natural Science. The composite score was used as an overall indication of a student's readiness for college.

The experimental group consisted of twenty three subjects enrolled in a class for students with reading problems. The class

was designed to help students with reading difficulties better understand and deal with their problem. In many cases these students were urged to take the class by their academic advisors, while others did so completely on their own. In most cases these students had some awareness of their problem. The class is offered three terms each year, with each term lasting ten weeks. The students tested were in the third term class. The majority of the experimental group were students in their freshman year of college. The average age was 20.2 years, with a range of 18 to 27 years of age. There were 16 males and 7 females.

The control group also consisted of twenty three subjects, the majority of whom were college freshmen. Ten of the subjects were enrolled in a third quarter freshman english class, while the remaining thirteen subjects were first year Optometric Technician students. Part of the technician curriculum requires a year of freshman english or its equivalency. The average age of the group was 19.7 years, with a range from 18 to 27 years of age. There were six males and seventeen females in the group.

Methods-

The adult form of the MFFT has no normative values, therefore the control group was used as a guideline by which to compare

the experimental group. This test consists of 12 items. Each subject was instructed to match one of eight figures that was the same as the stimulus item. They were told that it was not a test for speed and that they should take their time in order to be accurate. The time that it took for the first response on each item was recorded as the latency. The total number of errors on each of the twelve items was also noted. Each subject was seen individually, and on the average the test took 15 minutes to complete.

The VPT and VSAT were five minute timed tests, administered on a group basis. Both tests had instruction sheets with sample items. Any questions the subjects had about taking the tests were answered in front of the entire class. The VPT consisted of 30 items in which the subject was asked to use only his eyes to follow a line through a maze. The number of correct responses was recorded as the total score. The VSAT consisted of 120 items. In each item the subject was asked to determine whether two pairs of numbers were exactly alike or in some way different. Again the number of correct responses was recorded as the total score. For both the VSAT and VPT the importance of speed and accuracy was stressed.

Results-

In order to draw on statistical analysis it was necessary

to put the results of the MFFT, VPT, and VSAT in the form of z scores, where $z = \frac{\text{raw score} - \text{mean score}}{\text{standard deviation}}$. Without such a procedure it would not be possible to compare scores on the different tests.

Comparing the z scores of the MFFT latency between the experimental and control groups showed no significant difference, with the t being 1.0538 ($p > .01$). There was also no significant difference between the two groups in MFFT error rate, with $t = -1.93504$ ($p < .01$), but the t score was very close to being significant.

Analysis of the VPT scores showed no significant difference between the two groups, $t = -1.60758$ ($p > .01$). The VSAT comparison generated a t score of 0.61982 ($p > .01$), no significant difference.

A correlation matrix was developed to further analyze the data. Such a matrix allows for a more comprehensive analysis since each individual z score can be compared to all other z scores compiled. The only significant relationship found was a correlation of $r = -0.61$ ($p < .05$) for errors versus latency on the MFFT in the control group. This was to be expected as research has indicated that as errors declined latency time increased.¹ In the experimental group this tendency was also evident, although not statistically significant ($r = -.038$, $p < .05$).

Discussion-

The main conclusion derived from the compiled data is that scores on the MFFT, VSAT, VPT, and ACT are completely independent of each other. A poor score on any one test cannot predict a corresponding low score on the others. This suggests that the visual skills of pursuit, speed, and accuracy are not related to reflective or impulsive problem solving strategies.

Since there were no significant correlations between the experimental and control groups, no conclusions can be drawn as to the etiology or predictability of reading problems in adults. However the t score in the comparison of MFFT error rate between the two groups was so close to being significant that further investigation into this relationship is warranted.

In the future it would be interesting to repeat the study using more carefully selected sample groups. In particular the experimental group should be more carefully defined. Different results may have been obtained had these students been in their first term of college and actually been labeled as reading disabled. Since these students were in at least their third term of college they may have already gotten help with their reading problems.

Other sources of error in the samples include the male/female

ratio difference between the groups and a motivational factor. In many instances it appeared as though students in the experimental group tried harder. It is possible that because these students knew they had reading difficulties they were more interested in the study.

Although the results of the study did not allow substantial conclusions to be drawn, they did show tendencies that suggest more investigation is necessary into the area of problem solving behavior in adults with reading difficulties.

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