# Module 1: Brief Psychomotor Testing

Reaction Time Screen

The Reaction Time Screen has two purposes in this study: to test the ability of the study participants to respond accurately to different places on the screen as a means to check their ability to do the tests, and to assess their reaction and movement times. The subjects are shown a series of 30 targets on the screen. The targets remain visible until the test participant clicks on the target.   At that time the next target appears. The target sequence is fixed so that each target is separated from the next by no more than 3 steps horizontally, vertically or diagonally.
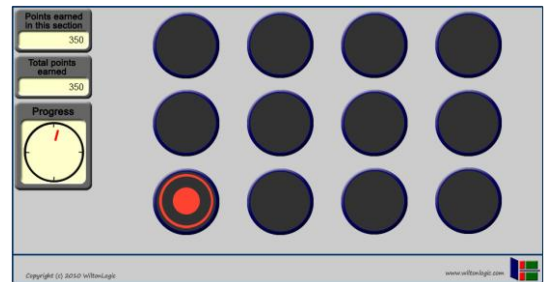
The key measure in this task is the reaction time.   Reaction times are separately recorded depending on the distance between successive targets.

Digit Symbol Substitution Test (DSST)

The digit symbol substitution test is a standard method of assessing psychomotor speed which has been used in many neuropsychological studies of normal volunteers and patient groups (Lezak, Howieson and Loring, 2004).   This test has been administered in both paper and pencil form and computerized form, and the two are generally considered to be comparable.
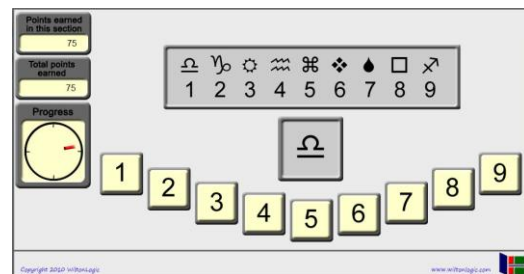
In the version to be used here, 9 symbols are presented at the top of the screen.   Examples of these symbols are presented, one at a time, in the middle of the screen.   The test participant is required to click on the button in the row below, labeled with the digit corresponding to the symbol.   The task is to identify as many symbol-digit pairs as possible within 90s.   The symbols are presented in a randomized order to ensure roughly equal numbers of presentations of each, and repeated choice of the same number terminates the test and indicates a failure to comply.

The total number of correct substitutions and the percentage of errors are recorded and used as measures of performance.

Trails A/B Tests

The trails tests were designed to assess visuomotor tracking, divided attention and cognitive flexibility (Lezak, Howieson and Loring, 2004).   It has been used in both paper and pencil and computerized forms, and there are numerous different variants in the published literature. The test participant must first connect consecutively numbered circles – in the variant to be used here, by clicking on the appropriate button (Part A).   The time to complete the series is recorded.   In part B, the same number of consecutively numbered and lettered circles should be connected, alternating between the letter and number sequences. The time to complete Part B is recorded, as well as the number of errors. A measure of cognitively flexibility can be obtained by subtracting the time to complete Part A from the time to complete Part B.