Experiment #5
Manual Dexterity Test
(Placing test and Turning test)

Introduction:

The Complete Minnesota Dexterity Test (CMDT) is a frequently administered, standardized test for the evaluation of a subject's ability to move small objects various distances.

The Minnesota Manual Dexterity Test (MDT) is used to measure a subject's simple but rapid eye-hand coordination as well as arm-hand dexterity. In general, the MDT measures gross motor skills.
Many approaches have been developed to classify motor skills. Each classification system is based on the general nature of the motor skills relating to some specific aspect of the skills. Magill considers three systems, in which motor skill classification is based:

1. The precision of the movement
2. Defining the beginning and end points of the movement
3. The stability of the environment

The MDT incorporates all three of these systems in its 5 different tests.
The MDT can be used for many testing applications. Physical Therapy, Occupational Therapy, vocational evaluation, and pre-employment screening are four generalized uses of the MDT.

Physical and Occupational Therapists use the MDT for injury rehabilitation. The MDT is a tool used to obtain baseline data on a patient. This test can also be used to document patient progress and/or degree of disability.

Vocational evaluators use the MDT to determine a subject's ability and aptitude for certain work-related applications and for recommending job placement that requires manual dexterity. The MDT is also used to develop a specific training program that will give an individual the skills to complete a job task that requires manual dexterity.

Human Resource Directors and Temporary Staffing Agencies use the MDT as a pre-employment screening and selection tool. An applicant's performance on the MDT can indicate their ability to perform in a job/task that requires manual dexterity. Note: It is strongly recommended that the testing organization show a correlation between a subject's performance on the MDT and a subject's performance in the specific job task. This may be accomplished by testing subjects currently working in a specific job task who are high performers and low performers. Then test the same subjects using the CMDT. The high performer should score higher on the CMDT than the low performers.
Administration

Supplies Needed

You will need the following supplies or items in order for the Minnesota Manual Dexterity Test (MMDT) to be a consistent, standardized test:

1. Minnesota Manual Dexterity Test:
    1. Instruction Manual
    2. 1 test board

3. 60 black and red plastic disks
4. Tablet of score sheets.

2. Testing table that should be between 28 and 32 inches in height.
3. Stopwatch or clock that reads in seconds. A stopwatch or interval timer is highly recommended, especially for group testing.

Procedure:

Placing Test

1. Starting Position. Put the board on the table about 10 inches from the edge. Insert the disks into the holes in the board. Lift the board UP, allowing the disks to fall through the holes and remain in straight rows and columns on the table. Now place the board directly in front of the disks. Note: If the disks moved out of place, manually realign the disks. The board should now be about 1 inch from the edge of the table closest to the subject. This is the starting position for the placing test. Figure 2 illustrates this position.

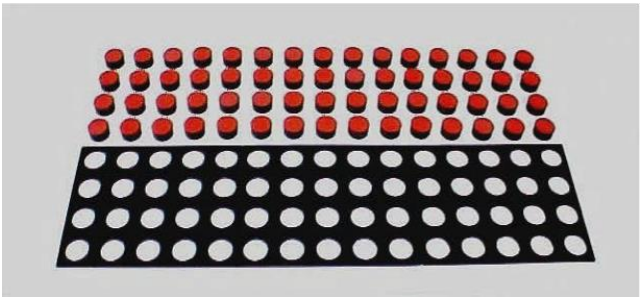

Figure 2 Starting position for the Placing Test.

2. The object of this test is to see how fast you can put the disks into the holes of the board using only one hand. You will want to use your dominant hand.
3. You must begin on your RIGHT. Pick up the bottom disk and insert it into the top hole of the board. Now, you must pick up the next disk in the column on the right, and so on. You will move from right to left on this test. Once you complete one column, repeat the previous sequence in the second column until you have filled the entire board.
4. You must make sure that all of the disks are fully inserted into the holes of the board before the trial is complete. If you dropped a disk, you must pick it up and insert it into the proper hole before the time is stopped. Your score will be the total number of seconds it takes to complete several trials. We will record the time for each trial separately. When you finish one trial, we must rearrange the board and disks into a starting position before starting another trial.

Turning Test

1. Starting Position: Put the board on the table about 1 inch from the edge closest to the subject. Insert all of the disks into the holes in the board with either the RED or BLACK side facing UP (the color must be consistent on the whole board). You should now be in the starting position for the Turning Test, which is illustrated below in Figure 3.

Figure 3 Starting position and sequence of rows with directions of travel for the Turning Test.

2. The object of this test is to see how fast you can pick up the disks with one hand, turn them with the other hand, and replace the disks back into the holes on the board.
3. With your LEFT hand, pick up the block from the upper right-hand corner. Turn the disk while passing it to your RIGHT hand and return it into the original hole in the board with the BOTTOM side facing UP. You must work to your LEFT across the board on the top row.
4. Continue to demonstrate until you complete the entire TOP row. As you start to demonstrate the second row, now with your RIGHT hand, pick up the first block in the second row. Turn the disk while passing it to your LEFT hand and return it into the original hole with the BOTTOM side facing UP. You will work to your RIGHT until you complete the entire row.
5. The subject always picks UP the blocks with the hand that LEADS and put them DOWN with the hand that FOLLOWS. Continue demonstrating the test in its entirety. As you work back to the LEFT in the third row, you will use your LEFT hand to pick up the disk and your RIGHT hand to return it back to the original hole. Working back to your RIGHT on the fourth row, you must use your RIGHT hand to pick up the disk and your LEFT hand to return it."

Calculations:

1- Calculate the Mean, Standard deviation for each test.
2- Compare your data with tables blow and comment on it.
3- Record your maximum and minimum score and comment on what do they mean in terms of skill.

Placing Test

	Percentile Rank	Seconds for Three Trials	Standard Score
Very High	100		
	90	138	6.28
High	80	144	5.84
	70	148	5.53
Average	60	152	5.25
	50	155	5.00
	40	159	4.75
Low	30	162	4.47
	20	167	4.16
Very Low	10	174	3.72
	0		

Turning Test

	Percentile Rank	Seconds for Three Trials	Standard Score
Very High	100		
	90	109	6.28
High	80	114	5.84
	70	118	5.53
Average	60	121	5.25
	50	124	5.00
	40	127	4.75
Low	30	131	4.47
	20	135	4.16
Very Low	10	142	3.72
	0		