Experiment #6
O'Connor Tweezer Dexterity Test

Introduction:

The O'Connor Tweezer Dexterity Test consists of 5 7/8" W x 11 5/8" L board. Located in the upper half of the board is a pin well measuring 4 3⁄4" in diameter arranged in 10 rows of 10 holes each spaced 1⁄2" apart. Into these holes, the subject can insert one pin 1" long and 1/16" in diameter.

This test measures the speed with which an employee using tweezers, or some similar instrument is able to pick up pins or similar small items one at a time and place them in small holes on a board or other metal plate.

It very much resembles the Finger Dexterity Test (same test but with bare fingers instead of the tweezer) but since a finger eye-hand coordination is required in the Tweezer Dexterity Test, some employees can make good scores in the Finger Dexterity Test, but not in this test.

The higher degree of dexterity presumably measured by this test may belong to persons who are successfully engaged in doing very minute work requiring delicate assembling such as in watch-making, in making precision instruments, cutting small dies, making fine glass work, setting jewels, microscopic laboratory work and wood engraving; in fact all kinds of employment requiring very delicate and skillful manipulation of small tools at a fast rate.

A high score indicates manual aptitude for work involving precision and steadiness in the **use of small hand tools**, such as:

- forceps in the hands of the anatomist
- surgeon
- biological laboratory worker
- tweezers in the hands of a watch repairer
- stamp collector.

Supplies Needed

You will need the following for the **O'Connor Tweezer Dexterity Test**:

1. Dexterity Test board
2. Dexterity Test pins
3. Tweezer
4. Proper chair and table (more details below)

Procedure:

1. The subject should be seated comfortably at a table about 30 inches in height.
2. The Tweezer Dexterity Test is placed before him about one foot from the edge of the table with the tray at the right, if the right hand is to be used, and at the left if the left hand is preferred. It should be at an angle of about 90 degrees with the subjects working hand but may be changed if so desired.
3. The board consists of 100 holes each large enough to hold one pin. Pick up one pin at a time with the tweezers and fill the holes, placing one pin in each as fast as you can. Pick up the pins by the end opposite or farthest away from you. Use only the hand in which you hold the tweezers.
4. Pick up the pin rather lightly, so it will fall into a vertical position by itself, all ready to drop into the hole.
    - **That is the best way. Otherwise, if you hold the pin tightly, pick it up by the middle, or by the wrong end, it takes an awkward twist of the wrist to get it in.**
    - **This way it goes naturally. It is easiest to start in the farthest corner and work toward you.**
    - **If you can start in this corner your sleeve will not catch the pins.**
    - **There are enough extra pins in the tray so that if you drop one or two on the floor you will still have enough left. Do not pick them up.**
    - **Holes are to be filled from left to right, for a right-handed subject, and each row completed before the next is started.**
    - **The elbow <u>may</u> rest on the table.**
5. Place ten (10) pins, thus filling the top line of ten holes, for practice.
6. Accurately time with a stopwatch the number of seconds required to fill the board from placing the first pin to placing the last.

Calculations:

1- Calculate the Mean, Standard deviation for both genders.
2- Calculate upper quartile, lower quartiles, and median.
3- Compare your data with tables blow and comment on it.

Table 1:
Early Norms

	Men	Women
Upper Quartile	300	324
Median	340	372
Lower Quartile	372	438

Table 2:
Standard Norms for the O'Connor Tweezer Dexterity Test

Men	Women	Standard Score	Percentile Rank
225	249	7.5	99.4
271	263	7.0	97.7
289	279	6.5	93.3
309	297	6.0	84.1
333	318	5.5	69.1
360	342	5.0	50.0
393	369	4.5	30.9
432	401	4.0	15.9
479	440	3.5	6.7
539	487	3.0	2.3
615	544	2.5	0.6

Table 3:
For Men and Women

Men	Women	Mid Sigma Score	Percentile Range
– 289	– 279	7.0	93.4 – 100.0
290 – 333	280 – 318	6.0	69.2 – 93.3
334 – 393	319 – 369	5.0	30.9 – 69.1
394 – 479	370 – 440	4.0	6.7 – 30.8
480 –	441 –	3.0	0.0 – 6.6