S.I. Instruments
256 South Rd. Hilton
South Australia 5033
Ph (08) 8352 5511

info@si-instruments.com.au
www.si-instruments.com.au

Model 32020

PURDUE PEGBOARD TEST

USER INSTRUCTIONS

Lafayette Instrument®

3700 Sagamore Parkway North
P.O. Box 5729 • Lafayette, IN 47903 USA
Tel: 765.423.1505 • 800.428.7545
Fax: 765.423.4111
E-mail: info@lafayetteinstrument.com
www.lafayetteinstrument.com

 Rel. 6.20.06

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PREFACE

Introduction

Joseph Tiffin, Ph.D., Industrial Psychologist, Purdue University (1948), first developed the Purdue Pegboard for the selection of employees for industrial jobs. Today the board has various applications. This Quick Reference Guide focuses solely on Tiffin's original test procedures and test norms, which are presented in Tables 9-16 within Appendix A of the Purdue Pegboard Manual (PPM).

In addition to the original test, test procedures and data appear in PPM for the following applications:

- Indicating the presence and laterality of brain damage (Costa et. Al. 1963);
- Discriminating children with learning disabilities (Kane and Gill 1972);
- Assessing performance of school children with neurologically based learning disabilities (Gardner and Broman 1979);
- Assessing candidates for vocational rehabilitation (Hamm and Curtis 1980)'
- Assessing the performance of dyslexic subjects (Leslie, Davidson, and Batey 1985).

Application

The Purdue Pegboard aids in the selection and rehabilitation of employees for various types of manual labor by measuring 2 types of dexterity:

1. Gross movements of the fingers, hands, and arms
2. Fine fingertip dexterity necessary in assembly tasks

The Purdue Pegboard can be used for many testing applications, such as Physical Therapy, Occupational Therapy, Vocational Evaluation, and Pre-employment Screening. Other applications for the test can be found by doing a bibliography search.

Physical and Occupational therapists use the Purdue Pegboard for injury rehabilitation. They use the test as a tool to obtain baseline data on a patient. They also use it to document patient progress and/or degree of disability.

Vocational Evaluators use the Purdue Pegboard to determine a subject's ability and aptitude for certain work-related applications and for recommending placement in jobs that require manual dexterity. The Purdue Pegboard 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 Purdue Pegboard as a pre-employment screening and selection tool. An applicant's performance on the Purdue Pegboard can indicate their ability to perform in a job/task that requires manual dexterity. ***Note:*** **It is strongly recommended that the testing organization shows a correlation between a subject's performance on the Purdue Pegboard 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 Purdue Pegboard. The high performers should score higher on the Purdue Pegboard than the low performers.

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ADMINISTRATION

Before administering the Purdue Pegboard Test, the test administrator is advised to carefully read this section of the manual. As with any standardized test, it is important to follow the directions very closely. If the Purdue Pegboard Test is to be used as a basis for employee selection, the test must be administered to all applicants according to the standardized test procedure. If the test is not given identically, irrelevant factors may affect test scores. In order to reduce the variability among test administrators, specific details regarding the arrangement of materials and the testing procedures are presented below.

Practice the administration of the Purdue Pegboard before conducting a test on a subject. The amount of practice needed in order to become comfortable with the testing process id dependent upon the test administrator's previous testing experience. The test administrator should practice the Purdue Pegboard until he or she is able to perform each of the tests at an average speed for demonstration purposes. ***Note:*** **The test administrator will be demonstrating to the test subject what is expected of him or her before each test.**

Test Batteries and Timing

The test administrator will compile 5 separate scores from the complete test procedure, one for each test battery:

1. Right Hand (30 seconds)
2. Left Hand (30 seconds)
3. Both Hands (30 seconds)
4. Right + Left + Both Hands ***Note:*** **This is not an actual test; it is a mathematical sum calculation.**
5. Assembly (60 seconds)

The test batteries should be done in this consecutive order, unless the subject is left-handed, where test batteries 1 and 2 are reversed: Left Hand first and then Right Hand. Three test trials are highly recommended: the more trials administered, the more test score reliability. ***Note:*** **The test is well suited for either group or individual testing.**

Equipment Required

The following equipment and supplies are required to ensure that the Lafayette Instrument Purdue Pegboard Test is consistent, standardized test:

1. Purdue Pegboard Test (Model #32020)
   a. Instruction Manual
   b. 1 Test Board
   c. Pins, Collars, Washers
   d. Score Sheets
2. At least one testing table approximately 30 inches tall. ***Note:*** **The subject must be seated throughout the administration of the test**
3. Stopwatch or clock that reads in seconds

TEST PROCEDURES

General Instructions

The subject should be comfortably seated at the testing table directly in front of the Purdue Pegboard, which is placed on the table with the row of cups (Under the nameplate) at the top of the board. The far right and far left cups should have 25 pins in each to equal a total of 50 pins. For right-handed subjects, the cup to the right of center should have 40 washers. If the subject is left-handed, the collar and washer locations should be on the reverse side of center. The following directions are for single subject testing and should be appropriately modified for group testing.

When the subject(s) is seated and ready to begin, say:
"This is a test to see how quickly and accurately you can work with your hands. Before you begin each battery of the test, you will be told what to do and then you will have an opportunity to practice. Be sure you understand exactly what to do."

Right Hand (30 seconds)

Begin by saying and demonstrating:
"Pick up one pin at a time with your right hand from the right-handed cup. Starting with the top hole, place each pin in the right-handed row. (Leave the pin used for demonstration in the hole.) Now you may insert a few pins for practice. If during the testing time you drop a pin, do not stop to pick it up. Simply continue by picking another pin out of the cup."

Correct any errors made in placing the pins and answer any questions. When the subject has inserted three or four pins and appears to understand the operation, say:
"Stop. Now take out the practice pins and put them back into the right-handed cup."

After the subject completes this task, say:
"When I say 'Begin,' place as many pins as possible in the right-handed row, starting with the top hole. Work as rapidly as you can until I say 'Stop.'"
"Are you ready? Begin."

Start timing when you say "Begin." At the end of exactly 30 seconds, say:
"Stop."

Count the number of pins inserted and record the Right Hand score. This is the total number of pins the subject placed with the right hand. Leave the pins in the holes.

Left Hand (30 seconds)

Begin by saying:
"Pick up one pin at a time with your left hand from the left-handed cup. Place each pin in the left-handed row, starting with the top hole. You may insert a few pins for practice."

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When the subject has inserted three or four pins and appears to understand the operation, say:
"Stop. Now take out the practice pins, and put them back into the left-handed cup."

After the subject completes this task, say:
"When I say 'Begin,' place as many pins as possible in the left-handed row, starting with the top hole. Work as rapidly as you can until I say 'Stop.'"
"Are you ready? Begin."

Start timing exactly when you say "Begin." At the end of exactly 30 seconds, say:
"Stop."

Count the number of pins inserted and record the Left-Hand score. This is the total number of pins the subject placed with the left hand. Leave the pins in the holes. After the Right Hand and Left-Hand test batteries have been completed, the subject returns all pins to their proper cups.

Both Hands (30 seconds)

This test battery tests both hands working together. Begin by saying:
"For this part of the test, you will use both hands at the same time. Pick up a pin from the right-handed cup with your right hand, and at the same time pick up a pin from the left-handed cup with your left hand. Then place the pins down the rows. Begin with the top hole of both rows. (Demonstrate. Then replace the pins used for demonstration.) ***Now you may insert a few pins with both hands for practice."***

After the subject has three of four pairs of practice pins correctly inserted, say:
"Stop. Take out the practice pins, and put them back in their cups."

Then say:
"When I say 'Begin,' place as many pins as possible with both hands, starting with the top hole of both rows. Work as rapidly as you can, until I say 'Stop.'"
"Are you ready? Begin."

Start timing when you say "Begin." At the end of exactly 30 seconds, say
"Stop."

Count the number of pairs of pins inserted (not the total number of pins), and record the score. The subject then returns the pins to the proper cups.

Right + Left + Both (Sum of scores)

This score is not based on a separate test; it is obtained from combining the test scores o the previous three test batteries. Add the scores recorder for Right Hand, Left Hand, and Both Hands; this is the score that you record for R + L + Both.

This score does not have to be recorded during the actual testing period. The Assembly test may begin immediately after the Both Hands score is recorded.

Assembly (1 minute)

This test battery consists of assembling pins, collars, and washers. Demonstrate the following operations while saying:
"Pick up one pin from the right-handed cup with your right hand. While you are placing it in the top hole in the right-handed row, pick up a washer with your left hand. As soon as the pin has been placed, drop the washer over the pin. While the washer is being placed over the pin with you left hand, pick up a collar with your right hand. While the collar is being dropped over the pin, pick up another washer with your left hand and drop it over the collar. This completes the first 'assembly,' consisting of a pin, a washer, a collar, and a washer. While the final washer for the first assembly is being placed with your left hand, start the second assembly immediately by picking up another pin with your right hand. Place it in the next hole; drop a washer over it with your left hand, and so on, completing another assembly. Now take a moment to try a few practice assemblies."

Emphasize that both hands should be operating at all times: one picking up a pin, one a washer, one a collar, and so on,

The subject should be allowed to make four or five complete assemblies before the test is begun to make certain the subject fully understands the "alternating" procedure. The subject must keep both hands moving at the same time. If he or she fails to do this, the administrator should give further instructions. ***Note:*** **If the subject is left-handed, the washer and collar locations in the cups are switched. The subject begins by picking up the pin with his/her left hand, the collar with his/her right hand, the collar with his/her left hand, another washer with his/her right hand and so on through all assemblies.**

After the subject has practiced the assemblies say:
"Stop. Now return the pins, collars, and washers to their proper cups."

Then say:
"When I say 'Begin,' make as many assemblies as possible, beginning with the top hole. Work quickly until I say 'Stop.'"

Start timing when you say "Begin." After exactly 1 minute (60 seconds), say:
"Stop."

Count the number of parts assembled and record the Assembly score. Since there are four parts in each assembly, if the subject made eight complete assemblies, the score is 8 multiplied by 4 (parts), or 32. Beyond completed assemblies, if there are additional parts properly placed at the end of the minute, they are also added to the Assembly score. For example, if there is another pin and first washer in addition to those 2 parts, the score is 32 + 2, or 34. After the test administrator records this score, the subject should return the pins, collars, and washers to the proper cups.

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Test Procedure – Hamm and Curtis (1980)

The standard instructions for each task were played on a cassette tape to assure standardization across a variety of test conditions and administrators. Up to 3 clients were tested in a single session. Standard test times were utilized and standard raw scores were recorded.

Test Procedure – Leslie, Davidson, and Batey (1985)

The hand preference was determined by the Harris Tests of Lateral Dominance (Harris, 1958). Psychometric assessments were made of both dyslexic and control groups. This data is illustrated in Appendix F, Table 1. The placement part of the Purdue Pegboard Test was administered exactly as prescribed for the original test.

RELIABILITY AND VALIDITY

Reliability – Tiffin (1948)

Test – retest reliabilities for single-trial scores recorded in the first edition of the Purdue Pegboard Manual ranged from .60 to .76. According to the Spearman-Brown formula, estimated reliabilities for the three trial scores range from .82 to .91. Bass and Stucki (1951) obtained data on 60 industrial education students, which confirmed the previously recorded figures. In 1965 test-retest correlation were determined on the new Purdue Pegboard Test for 28 professional and editorial personnel at Science Research Associates over a 2-week period. The above results may be found in Appendix A, Tables 2-4.

Validity – Tiffin (1948)

Because the validity of any test is situational, it is recommended that the Purdue Pegboard Tests be validated locally. This can be accomplished by relating test scores to actual performance on a specific job for which the test will be used as a selection tool. This is particularly critical in that the same job title may by utilized by different companies to designate jobs with considerably different job functions.

Validity – Fleshman and Ellison (1962) (from Tiffin, 1948)

Two trial inter-correlation scores for a large group of airmen as shown in Appendix A, Table 5. Although low enough to warrant the use of each sub-test as a potential predictor, the common factor called "finger dexterity" caused the authors to conclude that each of the placement test measured "ability to make rapid, skillful, controlled manipulative movements of small objects, where the fingers are primarily involved". Assembly tests appear to measure an additional factor, which these authors called "manual dexterity" and defined as the "ability to make skillful, controlled arm-hand manipulations of larger objects". Several additional validity studies have been conducted as shown in Appendix A, Table 6-7. When lower correlation are shown, it may be due to the fact that employees were utilized in most cases, rather than applicants providing a restricted range of scores of persons already selected to have good dexterity.

Validity – Costa, et. al. (1963)

The Purdue Pegboard Test was first validated against a sample of 80 referred patients independently diagnosed by clinical neurological examination, electroencephalograph, and radiographic procedures. A cross validation sample was subsequently run on 65 consecutive admissions by the same procedures as in the validation sample. A wide variety of acute and chronic disorders including muscular and infectious disease were all represented. Control groups contained patients admitted with lesions either in the peripheral nervous system or below the thoracic spine. (See Appendix B, Table 1-2.)

NORMATIVE DATA

Normative Data or Results – Tiffin (1948)

Although no systematic sampling was used to select the companies or data, the normative information provided in Appendix A, Table 8-15 has been accumulated over the years to aid test interpreters who lack local norms. A brief description of each normative group is provided.

Results – Costa, et. al. (1963)

The frequency distribution of scores for patients in the validating group only were utilized to determine the following cut-off rules.

SUBJECT BELOW AGE 60

1. Call brain damaged if one or more of the following apply:
   A. Left less than 11
   B. Right less than 13
   C. Simultaneous less than 10
   D. Left greater than Right
   E. Right greater than Left plus 3
   F. If none apply, call non-brain damaged.
2. Call lesion:
   A. Left lesion if Left is greater than the Right
   B. Right lesion if Right is greater than the Left
3. If called Brain Damaged but A and B NO NOT apply, call brain damaged bilateral.

SUBJECT AGE 60 AND ABOVE

1. Call brain damaged if one or more of the following apply:
   A. Left less than 10
   B. Right less than 10
   C. Simultaneous less than 8
   D. Left greater than Right
   E. Right greater than Left plus 3
   F. If none apply, call non-brain damaged.

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2. Call lesion:
   A. Left lesion if Left is greater than the Right
   B. Right lesion if Right is greater than the Left plus 3
   C. If called brain damaged but A and B DO NOT apply, call brain-damaged bilateral.

The predictive efficiency of the above cut off rules was then cross validated with results shown in Appendix B, Table 3. The predictive accuracy with regard to laterization is shown in Appendix B, Table 4.

Results – Kane and Gill (1972)

The significance of a child's performance was determined by the procedures of Costa, et. al. (1963). Appendix C, Table 1 presents a distribution of 150 children with learning problems but which had not received any type of remedial intervention. Appendix C, Table 2 represents the results of all learning disabled children, those in Group 1 as well as 45 children enrolled in a program for children with minimal brain dysfunction who had received at least months of remediation consisting of remedial reading, perceptual training, controlled physical and motor coordination exercises and special class placement (Group 2).

Normative Data – Gardner and Broman (1979)

Appendix D, Table 1-4 provide extensive normative data collected from 1934 normal school children from ages 5 through 16 in Burgen County, New Jersey. Any child suspected of having any signs or symptoms of minimal brain dysfunction were excluded from the study. A comparison of normal with minimal brain dysfunction children was then conducted using an MBD group of 145 boys (ages 5-0 to 15-11) and 67 MBD girls as illustrated in Appendix D, Table 5. These T-Test comparisons at the p less than .001 level 62 of the 76 comparisons. Twelve of the remaining 14 comparisons were significant at the p less than .01 level and only two comparisons were found to be non-significant.

Results – Hamm and Curtis (1980)

Means and standard deviations on 5 categories of the Purdue Pegboard Test are shown on Appendix E, Table 1 on 340 candidates for vocational rehabilitation ranging in age from 16 to 58 years. These clients were suspected of possessing a physical or mental disability of significant vocational handicaps relative to gainful employment. The means from this sample fell significantly (p less than .05) below the = means of the industrial applicants used for the original norms (Tiffin, 1946).

Results – Leslie, Davidson, and Batey (1985)

The subjects in this study consisted of 46 males between the ages of 9 and 12 years, one-half of which the reading disabled with the mean age of 11.25 years and half of which were normal readers with a mean average of 11.16 years. All subjects came from school districts in Westchester, New York. This study found that disabled readers perform comparably to normal controls on the bimanual test of the Purdue Pegboard but did significantly poorer in the unimanual conditions with the largest differences occurring in the left hand. Appendix F, Figure 1-3 illustrates these findings.

INTERPRETATION AND SCORING

Types of Interpretation Scales

There are several ways to evaluate the subject and his/ her raw scores. ***Note:*** **It is assumed that the data represents a normal distribution.** These three types of interpretation scales follow:

1. Percentile scale
2. Standard scale
3. Verbal scale

Percentile Scale

Use the ***percentile scale*** when a subject's score must be interpreted in terms of a percent of the normal population surpassed by the subject. For example, if the subject's score is at the midpoint (50 percentile on the scale), it means that the score made by a subject was better than 50 percent of the normative population. Other percentile points are interpreted in a similar fashion. The instructions for scoring appear in the ***Normative Data and Scoring*** section.

Standard Scale

The ***standard scale*** is a statistical analysis of a subject's score. It is derived from a normal frequency curve or bell-shaped curve. The Mean, which is the arithmetic average, and Standard Deviation (S.D.) numbers are provided in PPM as well as in the New Instruction Charts, which are labeled as Figure 2 (A-H) on pages 9-16. Generally, 68 percent of scores fall between –2 and +2 S.D.' 99.70 percent between –3 and +3 S.D. There are a very small percentage of scores that fall either above or below 3 S.D. from the Mean. The instructions for scoring appear in the ***Using New Interpretation Charts*** section of page 7.

Normative Data and Scoring

Percentile rank tables in Appendix A (Table 8 through 15) address each occupation area so the test administrator may plot the subject's raw scores and convert them into a percentile score that can be recorded. This will enable the test administrator to conduct subject score comparisons with the normative population.

To utilize the percentile tables, identify the appropriate table (8 through 15) for the occupation area that best describes the subject. Locate the subject's raw score or the average of 3 trials for each test battery under the corresponding heading (i.e., Right Hand, Left Hand) within the percentile box. Draw a line from that raw score across to the left or right outside edge of the box to where the percentile scores are located (1-99). This will give you the converted score, from raw scores to percentiles. Record this number on the score sheet. ***Note:*** **If the subject's preferred hand is the Left Hand, the Left Hand score should be looked up under the Right Hand column heading on these tables.**

The Mean and Standard Deviations (S.D.) have also been provided at the bottom of each percentile table. ***Note:*** **The Mean does not always represent 50th percentile, this may be attributed to sampling size and/or sampling error. The difference between the mean and 50th percentile do not seem to be significant.** The Mean and S.D. can be used to plot the subject's score on a bell-shaped curve and interpret using the standard scale or verbal scale. The instructions for using these scales appear in the next section.

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Using New Interpretation Charts

All of the possible scores that fall into the range of data provided in Appendix A have been analyzed and plotted, using the "Standard Scale" (Mean and S.D.). The scores are presented in the form of a color-coded bar graph. The bar graph represents a normal distribution or bell curve, but the actual curve is not shown. The colors indicate the gradations of performance based on the "Verbal Scale." ***Note:*** **This is illustrated in Figure 1 on page 33.**

To utilize the new interpretation charts, identify the appropriate chart for the occupational area that best describes the subject. Refer to the proper bar graph for data regarding each test battery. Locate the subject's raw score or the average of 3 trials. Evaluate the score using the verbal scale, the standard scale, or both. Look at the top of the bar graph for the verbal score. The sections are color coded for convenience. The subject's raw score can also be used to determine how many S.D. above or below the Mean the sore falls. Read the S.D. from the outside inward. Notice the arrows in the example chart (Figure 1) on the page 33.

Using the data in Figure 1, if the raw score is 14, then evaluate the subject's score as **2 S.D.** below the Mean. The score is **Low-average** compared to the normative population. If the raw score is 19, then the score falls within **1 S.D.** above the Mean, which is also **Average**, compared to the normative population. All raw scores are evaluated in this manner. **Note: Customers using the Lafayette Purdue Pegboard have reported a decrease in subject scores in recent years. Therefore, the scores may appear lower as compared to the original normative data.**

REPLACEMENT PARTS AND REORDERING INFORMATION

We, at Lafayette Instrument Company, continue our service after the sale by offering the following replacement parts for the Purdue Pegboard:

Pins, Collars, & Washers	# 32103
Manual	# 32108
Score Sheets	# 32107

We can be contacted between 8:00 a.m. - 5:00 p.m. Monday through Friday for pricing and ordering at with the following contact information:

Tel: 765.423.1505 • 800.428.7545
Fax: 765.423.4111
E-mail: info@lafayetteinstrument.com
www.lafayetteinstrument.com

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APPENDIX A

Purdue Pegboard Examiner Manual

Joseph Tiffin, Ph. D.

TABLE 1. Comparison of Old and New Pegboards (N-35)

SUBTEST	OLD BOARD M	OLD BOARD S.D.	NEW BOARD M	NEW BOARD S.D.	DIFFERENCE BETWEEN MEANS Z-SCORE
Right Hand	53.71	4.5	52.23	4.4	1.4
Left Hand	50.14	5.0	48.71	5.1	1.2
Both Hands	42.49	3.5	41.37	3.5	1.3
R + L + B	146.34	11.1	142.31	10.7	1.5
Assembly	131.26	13.2	134.77	12.2	1.2

TABLE 2. Test-Retest Reliability

SUBTEST	GROUP	N	ONE TRIAL	THREE TRIALS†
Right Hand	College students (men and women	434	.63	.84
Left Hand	College students (men and women)	434	.60	.82
Both Hands	College students (men and women)	434	.68	.86
R + L + B	College students (men	175	.71	.88
Assembly	College students (men and women)	434	.68	.86
Assembly[1]	Radio tube mounter trainees (women)	233	.76	.91

NOTE: In this and subsequent charts, † means three-trial reliabilities estimated by means of the Spearman-Brown prophecy formula.

[1]Surgent, 1947.

TABLE 3. Test-Retest Reliability Correlations for Industrial Education College Students (N-60)

SUBTEST	ONE TRIAL	THREE TRIALS†
Right Hand	.67	.86
Left Hand	.66	.85
Both Hands	.71	.90
R + L + B	.79	.91
Assembly	.72	.90

TABLE 4. Test-Retest Correlations for Professional and Editorial Personnel (N-28)

SUBTEST	ONE TRIAL	THREE TRIALS†
Right Hand	.68	.86
Left Hand	.65	.84
Both Hands	.73	.89
R + L + B	.71	.88
Assembly	.67	.85

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TABLE 5. Intercorrelations of Pegboard Tests Based on Two Trial Scores for Airmen (N-760)

SUBTEST	RIGHT HAND	LEFT HAND	BOTH HANDS	ASSEMBLY
Right Hand	---	.42	.49	.42
Left Hand		---	.50	.41
Both Hands			---	.49
Assembly				---

TABLE 6. Previously Reported Purdue Pegboard Validity Studies

SUBTEST	CORRELATION	N	CRITERION	GROUP
Right Hand	.56*	17	Makeup pay while learning	Light-machine operators
Left Hand	.23	17	Makeup pay while learning	Light-machine operators
Both Hands	.21	17	Makeup pay while learning	Light-machine operators
R+L+B	.31	16	Makeup pay while learning	Light-machine operators
Assembly	.38	16	Makeup pay while learning	Light-machine operators
Right Hand	.52*	17	Earnings after learning period	Light-machine operators
Left Hand	.20	17	Earnings after learning period	Light-machine operators
Both Hands	.07	17	Earnings after learning period	Light-machine operators
R+L+B	.33	16	Earnings after learning period	Light-machine operators
Assembly	.38	16	Earnings after learning period	Light-machine operators
Assembly	.15	28	Production index	Textile quilling
Right Hand	.76**	15	Production index	Assemblers
Assembly	.76**	15	Production index	Assemblers
Assembly	.64**	233	3 or more pooled overall ratings	Radio tube mounters

* significant at the .05 level. ** significant at the .01 level.

TABLE 7. Purdue Pegboard Validity Studies

STUDY	SUBTEST	CORRELATION	N	CRITERION	GROUP
1	Right Hand	.10	103	Job Sample	Seed Analysts
	Left Hand	.10	103	Job Sample	Seed Analysts
	Both Hands	—.09	103	Job Sample	Seed Analysts
	R+L+B	.13	103	Job Sample	Seed Analysts
	Assembly	.11	103	Job Sample	Seed Analysts
2	Assembly	.07	11	Ratings	Electric Shaver Repairmen
3	R+L+B	.10	100	Average Ratings	High School Shop Trainees
	R+L+B	.31**	100	Job Sample	High School Shop Trainees
	R+L+B	.17	100	Rating of Quality	High School Shop Trainees
	R+L+B	.26**	100	Rating with time	High School Shop Trainees
4	Right Hand	.18	57	Production Records	Proof-Machine Operators
	Left Hand	.13	57	Production Records	Proof-Machine Operators
	Both Hands	.29*	57	Production Records	Proof-Machine Operators
	R+L+B	.22	57	Production Records	Proof-Machine Operators
	Assembly	.61**	57	Production Records	Proof-Machine Operators
5	Right Hand	.19	27	Supervisor's Rating	Packers
	Left Hand	.32*	27	Supervisor's Rating	Packers
	Both Hands	.19	27	Supervisor's Rating	Packers
	R+L+B	.27	27	Supervisor's Rating	Packers
	Assembly	.47**	27	Supervisor's Rating	Packers

* significant at the .05 level. ** significant at the .01 level.

APPENDIX A

NORMATIVE DATA

TABLE 8
Male and Female Applicants for Assembly Jobs

The 146 men and women of this group were from four companies that routinely use the Purdue Pegboard as part of the screening process of applicants for assembly jobs. The companies are located in California, Illinois, Florida, and North Carolina. The applicants ranged in age from 18 to 55, with an average of 30.5. Their educational level ranged from 7 to 14 years of education, with an average of 11.5.

TABLE 9
Male and Female Applicants for General Factory Work

The 282 men and women of this group were from three companies that use the Purdue Pegboard as part of the screening process of applicants for all factory jobs. The companies are located in California, Kentucky, and North Carolina. The applicants ranged in age from 17 to 55, with an average of 30.6. Data on their educational level were available on only 40 applicants and their average number of years of education was 10.1.

TABLE 10
Men and Female Applicants for Production Work

The 454 men and women of this group were from three companies that use the Purdue Pegboard as part of the screening process of applicants for production jobs. The companies are located in Pennsylvania, Illinois, and South Carolina. The applicants ranged in age from 17 to 65, with an average of 26.7. Their educational level ranged from 3 to 16 years of education, with an average of 10.6.

TABLE 11
Female Applicants for Electronics Production Work

The 533 women of this group were all tested as part of the screening process of a large Midwestern manufacturing concern. The applicants ranged in age from 17 to 59, with an average of 27.3. Their education level ranged from 7 to 16 years of education, with an average of 11.5.

TABLE 12
Female Hourly Production Workers

The 373 female hourly production workers of this group were all employed in a large Southern plant of a nationally known manufacturing concern. The women were all given the Purdue Pegboard as part of the selection process. Information on the age and educational level of this group was not available.

TABLE 13
Male Hourly Production Workers

The 288 male hourly production workers of this group were all employed in a large Southern plant of a nationally known manufacturing concern. The men were all given the Purdue Pegboard as part of the selection process. Information on the age and educational level of this group was not available.

TABLE 14
Male Utility and Service Workers

The 237 utility and service workers of this group were employed in the Eastern plant of a large manufacturing concern. The employees ranged in age from 17 to 52, with an average of 22.7. Their educational level ranged from 8 to 16 years of education with an average of 12.5.

TABLE 15
Female Sewing-Machine Operator Applicants

Complete data from which new three-trial norms could be constructed were available for just one group of 187 female applicants for sewing-machine operator positions in four companies, located in Georgia, Illinois, Nebraska, and North Carolina. The applicants ranged in age from 17 to 61, with an average of 28. Their educational level ranged from 6 to 13 years of education, with an average of 10.5. These three-trial norms are given in Table 15.

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TABLE 8. Male and Female Applicants for Assembly Jobs (N-146)

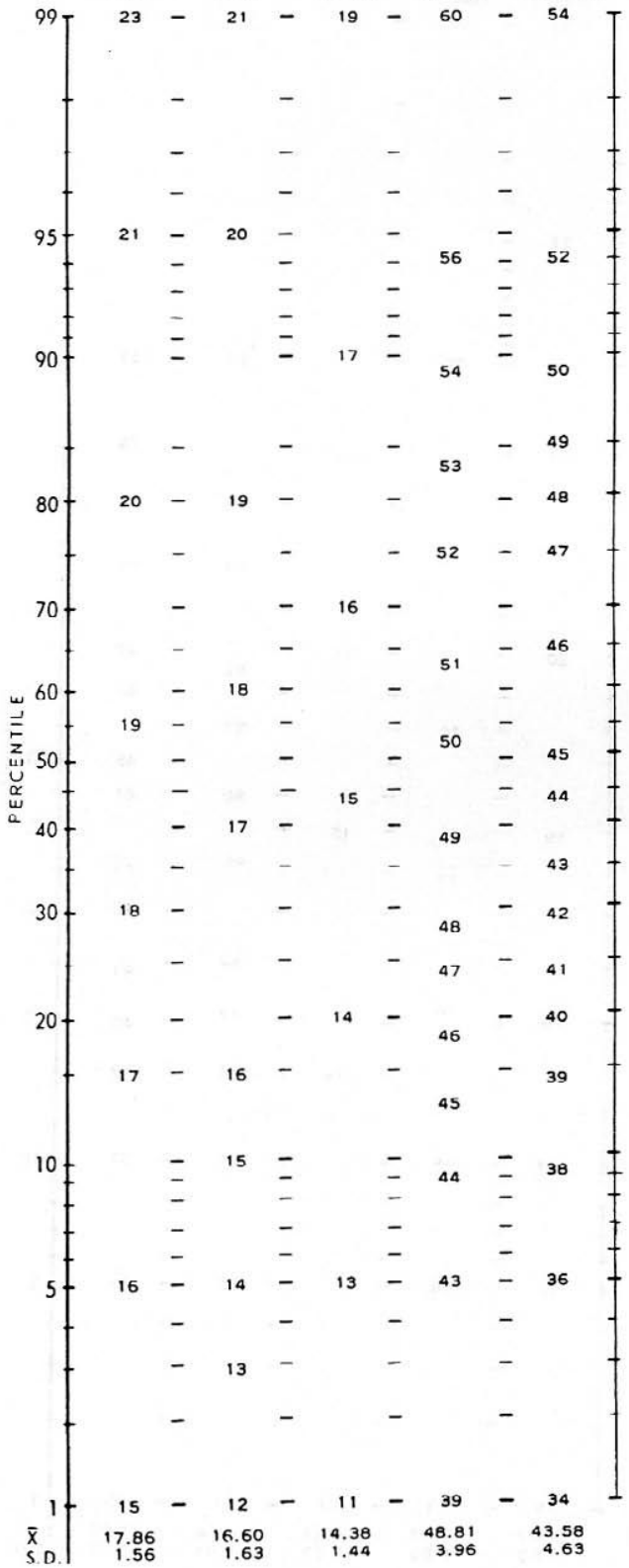

TABLE 9. Male and Female Applicants for General Factory Work (N-282)

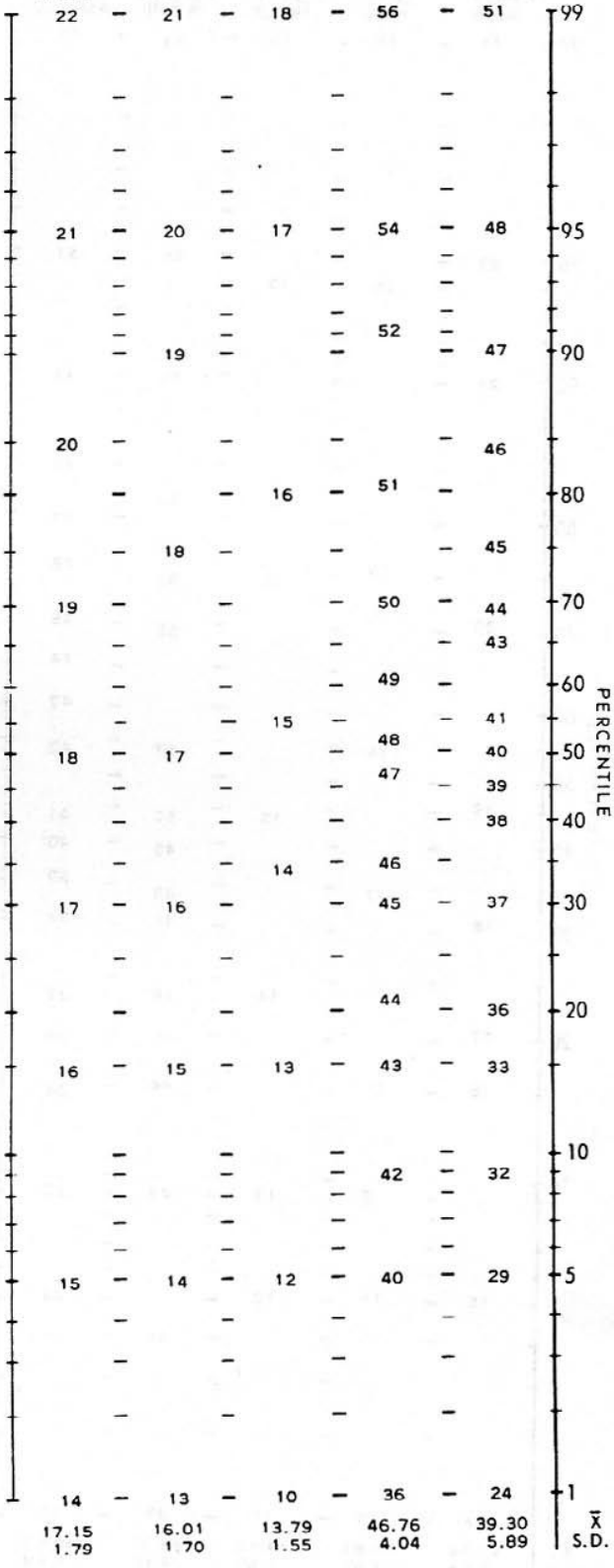

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TABLE 10. Male and Female Applicants for Production Work (N-454)

PERCENTILE	Right Hand	Left Hand	Both Hands	Right & Left & Both	Assembly
99	23	21	18	58	56
95	22	20	17	56	51
90	21			55	49
80		19	16	54	48
				53	46
70	20			52	45
60		18		51	44
					43
50	19		15	50	42
40		17		49	41
				48	40
30	18			47	39
			14	46	38
20	17			45	37
	16	16		44	36
10		15	13	43	34
5	15	14	12		32
				41	29
1	13	13	10	37	24
$\bar{X}$	17.94	16.81	14.10	48.85	40.67
S.D.	2.03	1.67	1.50	4.68	6.69

TABLE 11. Female Applicants for Electronics Production Work (N-533)

PERCENTILE	Right Hand	Left Hand	Both Hands	Right & Left & Both	Assembly
99	23	21	18	59	56
95	22			57	52
90		20		55	51
80	21		17	54	49
		19		53	48
70	20		16		47
60		18		52	46
				51	45
50	19		15	50	44
40		17		49	43
					42
30	18			48	41
20		16		47	40
			14	46	39
10	17	15		45	37
5	16	14		44	35
1	15	13	13	41	30
$\bar{X}$	18.47	16.77	14.53	49.84	43.76
S.D.	1.69	1.80	1 39	3.91	5.32

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TABLE 12. Female Hourly Production Workers (N-373)

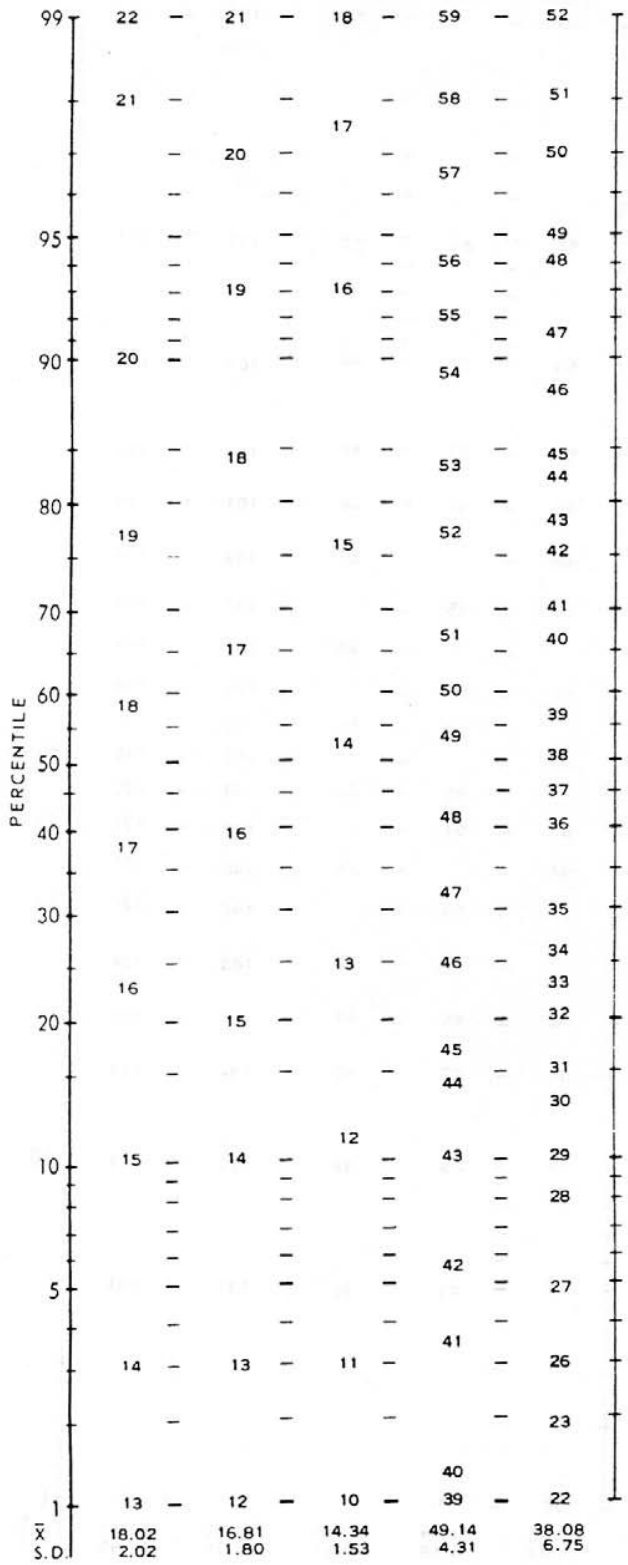
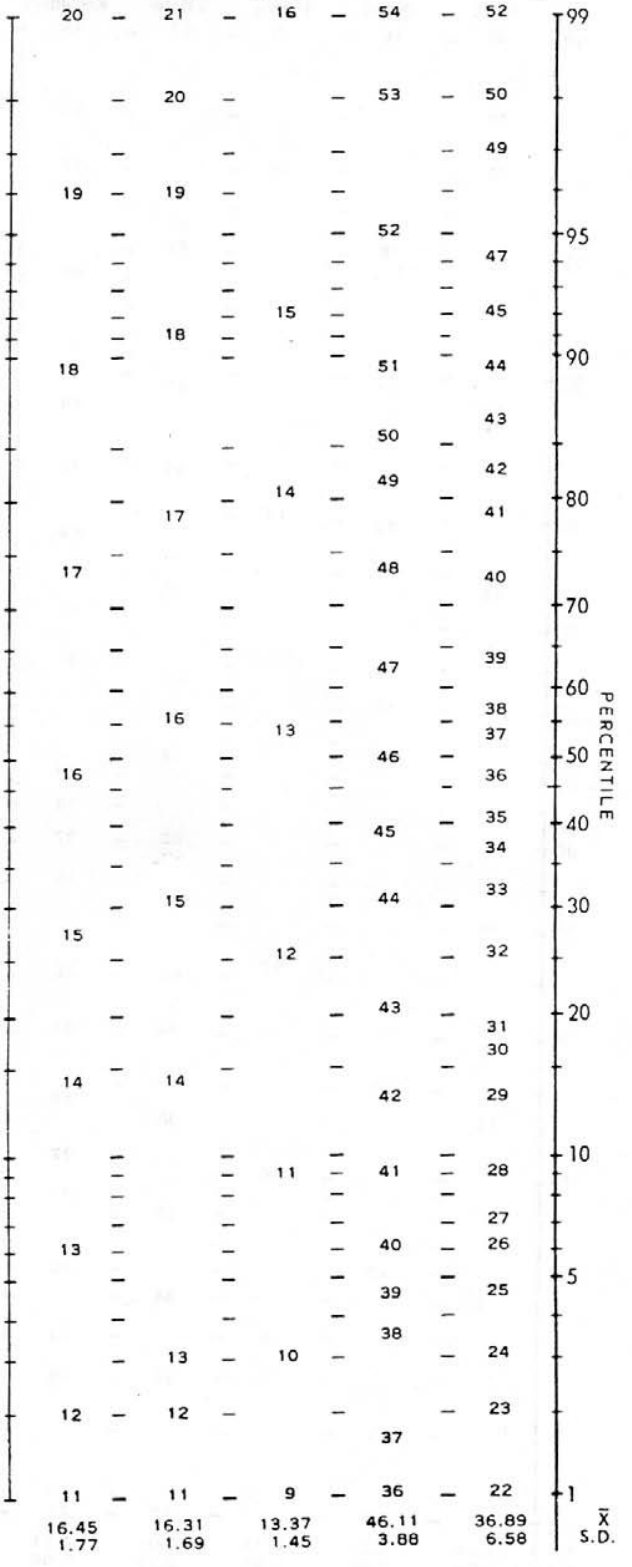


TABLE 13. Male Hourly Production Workers (N-288)



APPENDIX A

TABLE 14. Male Maintenance and Service Employees (N-237)

PERCENTILE	Right Hand	Left Hand	Both Hands	Right & Left & Both	Assembly
99	20	19	15	51	49
	19				48
	18		14		47
				50	
95		18		49	
					46
				48	
90					45
		17		47	
	17				44
				46	43
80		16	13		42
				45	
	16				41
70					
				44	40
60		15			
			12	43	
50	15				39
					38
40				42	37
		14		41	36
30	14				
			11		
				40	35
20				39	34
		13			
	13			38	33
					32
10			10		
					31
				37	
		12			30
5	12			36	
			9		29
				34	28
		11			
1	11	10		32	27
$\bar{X}$	15.49	15.25	12.31	43.04	38.71
S.D.	1.88	1.80	1.38	3.93	5.06

TABLE 15. Female Applicants for Sewing-Machine Operator (N-187) Three Trials

PERCENTILE	Right Hand	Left Hand	Both Hands	Right & Left & Both	Assembly
99	68	65	58	184	170
95	65	61	52	174	161
90	63	58	50	168	156
80	60	56	48	161	148
70	58	55		157	143
60	57	54		154	139
50	56	53	45	153	137
40	55	52	44	151	133
30	53	51		149	131
20	52	50	43	148	127
10	51	49	42	146	126
5	49	47	40	143	124
1	46	45	39	141	122
	38	43	38	138	117
		41		135	111
				131	101
					77
$\bar{X}$	55.20	51.78	44.03	151.09	133.41
S.D.	5.44	5.18	4.41	12.70	17.95

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APPENDIX B

Purdue Pegboard as a Predictor of the Presence and Laterality of Cerebral Lesions

Louis D. Costa, Herbert G. Vaughan, Jr., Eric Levita, and Norman Farber

TABLE 1

Correlation of Age and Education with Intellectual and Sensorimotor Tests in a Group of 26 Non-Brain-Damaged Patients

Tests	Age	Education	Education with age held constant
Age	—	—.56	—
Mill Hill vocabulary	—.43	.69	.60
WAIS block design	—.48	.60	.56
Pressure threshold (right hand)	.74	—.61	—.40
Two-point discrimination (right hand)	.22	—.30	—.23
Finger oscillation (right hand)	—.57	.39	.14
Purdue Pegboard (right hand)	—.39	.30	.11

TABLE 2

Sex, Age, and Education of Validation and Cross-Validation Samples

Group	Sex			Age		Education	
	N	M	F	*M*	*SD*	*M*	*SD*
Validation sample							
Control	26	10	16	51.92	16.73	8.53	2.90
Left lesion	20	11	9	57.50	13.80	8.05	4.44
Right lesion	20	10	10	57.75	8.51	7.65	3.07
Bilateral lesions	14	8	6	47.14	12.93	8.17	3.68
Cross-validation sample							
Control	15	9	6	48.33	14.29	9.60	3.84
Left lesion	10	7	3	47.10	14.29	9.10	2.84
Right lesion	10	7	3	55.10	14.20	6.10	2.88
Bilateral lesions	20	17	3	51.60	15.79	7.80	3.38

APPENDIX B

TABLE 3

Accuracy of Prediction of Presence or Absence of Brain Lesions with the Purdue Pegboard

Sample	Neurological diagnosis	N	Prediction		Percent accuracy
			Correct	Incorrect	
Validation	Control	26	24	2	92
	Left lesion	20	16	4	80
	Right lesion	20	19	1	95
	Bilateral lesion	14	13	1	95
	(All brain damaged)	(54)	(48)	(6)	(89)
	Total	80	72	8	90
Cross-validation	Control	15	11	4	73
	Left lesion	10	10	0	100
	Right Lesion	10	9	1	90
	Bilateral lesion	20	19	1	95
	(All brain damaged)	(40)	(38)	(2)	(95)
	Total	55[a]	49	6	89
Validation cross-validation combined	Control	41	35	6	85
	Left lesion	30	26	4	87
	Right lesion	30	28	2	93
	Bilateral lesion	34	32	2	95
	(All brain damaged)	(94)	(86)	(8)	(92)
	Total	135[a]	121	14	90

[a] Ten nondiagnosed cases omitted.

TABLE 4

Accuracy of Prediction of Laterality of Brain Lesions with Purdue Pegboard

Sample	Neurological diagnosis	N	Prediction				Accuracy		Percent accuracy
			Non-lesion	Left lesion	Right lesion	Bilateral lesion	Correct	Incorrect	
Validation	Control	26	24	1	—	1	24	2	92
	Left lesion	20	4	11	1	4	11	9	55
	Right lesion	20	1	—	13	6	13	7	65
	Bilateral lesion	14	1	2	3	8	8	6	57
	(All brain damaged)	(54)	(6)	(13)	(17)	(18)	(32)	(22)	(59)
	Total	80	30	14	17	19	56	24	70
Cross-validation	Control	15	11	1	1	2	11	4	73
	Left lesion	10	0	8	—	2	8	2	80
	Right lesion	10	1	—	6	3	6	4	60
	Bilateral lesion	20	1	4	7	8	8	12	40
	(All brain damaged)	(40)	(2)	(12)	(13)	(13)	(22)	(18)	(55)
	Total	55	13	13	14	15	33	22	60
Validation cross-validation combined	Control	41	35	2	1	3	35	6	85
	Left lesion	30	4	19	1	6	19	11	63
	Right lesion	30	2	—	19	9	19	11	63
	Bilateral lesion	34	2	6	10	16	16	18	48
	(All brain damaged)	(94)	(8)	(25)	(30)	(31)	(54)	(40)	(57)
	Total	135	43	27	31	34	89	46	66

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APPENDIX C

Implications of the Purdue Pegboard as a Screening Device
Joan Kane and Richard P. Gill

TABLE 1

Results of the Purdue Pegboard Test and the various classifications of Group 1.

	Number	Significant Score		Nonsignificant Score	
INTELLIGENCE	N	%	N	%	N
Average	44	34	(15)	66	(29)
Slow Learner	31	61	(19)	39	(12)
Educable Mentally Retarded	68	73	(50)	27	(18)
Trainable Mentally Retarded	7	100	(7)		
TOTAL	150		91		59
READING PROBLEMS	25*	40	(10)	60	(15)
EMOTIONAL DISTURBANCE	25*	36	(9)	64	(16)
LEARNING DISABILITY	15*	73	(11)	27	(4)

* *Included in the total 150 children.*

TABLE 2

Results of the Purdue Pegboard Test with learning disabled children.

	Number	Significant Scores		Nonsignificant Score	
		%	N	%	N
Group 1	15	73	(11)	27	(4)
Group 2	45	29	(13)	71	(32)
TOTAL	60	40	(24)	60	(36)

APPENDIX D

The Purdue Pegboard: Normative Data on 1334 School Children

Richard A. Gardner and Melinda Broman (1979)

TABLE 1

Purdue Pegboard Scores — Boys

Age	N	Preferred Hand		Non-Preferred Hand		Both Hands		Assembly	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
5-0 to 5-5	30	9.33	1.81	8.40	1.33	6.73	1.17	14.10	3.29
5-6 to 5-11	30	9.93	1.51	8.83	1.95	6.97	1.54	15.57	3.56
6-0 to 6-5	30	9.77	1.57	9.13	1.83	7.30	1.53	15.93	2.94
6-6 to 6-11	30	11.57	1.45	10.17	2.17	8.23	1.77	19.20	3.84
7-0 to 7-5	30	11.67	1.67	11.00	1.70	8.77	1.41	19.23	4.95
7-6 to 7-11	30	12.07	1.95	11.23	1.68	9.57	1.59	20.40	4.10
8-0 to 8-5	30	12.70	1.60	12.17	1.51	9.83	1.51	23.20	3.80
8-6 to 8-11	30	13.90	2.19	12.57	1.85	10.90	1.73	24.47	5.35
9-0 to 9-5	30	13.33	1.60	12.43	1.59	10.50	1.48	24.57	3.75
9-6 to 9-11	30	13.87	1.91	12.87	2.05	11.33	1.65	27.37	4.55
10-0 to 10-5	30	14.03	1.88	12.87	1.72	10.93	1.84	26.37	6.15
10-6 to 10-11	30	14.73	1.51	13.90	1.84	11.77	1.65	28.17	5.38
11-0 to 11-5	30	14.93	1.86	14.00	1.98	11.30	1.68	29.53	6.19
11-6 to 11-11	30	14.83	1.60	13.93	1.60	12.27	1.41	31.33	5.19
12-0 to 12-5	30	14.83	1.78	13.67	2.02	11.67	1.52	31.13	5.78
12-6 to 12-11	30	15.37	2.81	14.00	2.38	11.87	1.87	30.13	6.08
13-0 to 13-5	40	15.15	1.92	13.90	2.00	11.85	1.58	33.73	5.00
13-6 to 13-11	30	14.87	1.72	14.10	1.47	11.53	1.80	34.57	5.88
14-0 to 14-5	30	15.67	1.47	14.40	1.57	12.03	1.67	33.97	6.58
14-6 to 14-11	30	14.70	1.49	14.33	1.65	12.20	1.61	31.37	7.24
15-0 to 15-5	30	15.57	1.59	14.87	1.50	12.57	1.48	32.20	6.21
15-6 to 15-11	23	15.09	1.50	14.30	1.61	12.65	1.30	33.04	6.24
	663								

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APPENDIX D

TABLE 2

Purdue Pegboard Percentiles — Boys

		Preferred Hand									Non-preferred Hand								
Age	N	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80	90
5-0 to 5-5	30	7.0	8.0	8.0	9.0	9.0	10.0	10.0	11.0	11.0	6.1	7.0	8.0	8.0	8.5	9.0	9.0	9.0	10.0
5-6 to 5-11	30	8.0	9.0	9.0	10.0	10.0	10.0	11.0	11.8	12.0	6.1	8.0	8.0	8.0	9.0	9.6	10.0	10.0	11.0
6-0 to 6-5	30	7.1	9.0	9.0	9.0	9.5	10.0	11.0	11.0	11.9	6.0	8.0	9.0	9.0	9.0	10.0	10.0	10.0	12.0
6-6 to 6-11	30	9.1	10.2	11.0	11.0	12.0	12.0	12.0	13.0	13.0	7.1	8.2	9.0	10.0	10.5	11.0	11.7	12.0	13.0
7-0 to 7-5	30	9.1	10.2	11.0	11.4	12.0	12.0	12.7	13.0	13.9	9.0	10.0	10.0	11.0	11.0	11.0	12.0	12.0	12.9
7-6 to 7-11	30	9.0	10.0	11.0	12.0	12.0	12.6	13.0	14.0	14.0	9.1	10.0	10.0	11.0	11.0	11.0	12.0	13.0	13.9
8-0 to 8-5	30	11.0	12.0	12.0	12.0	13.0	13.0	14.0	14.0	14.0	10.0	11.0	11.0	12.0	12.5	13.0	13.0	13.0	14.0
8-6 to 8-11	30	11.1	12.0	12.3	13.0	14.0	15.0	15.0	16.0	17.0	10.1	11.0	11.0	12.0	12.0	13.0	13.7	14.0	15.9
9-0 to 9-5	30	11.0	12.0	12.0	13.0	13.0	14.0	15.0	15.0	15.0	10.0	11.0	11.3	12.0	13.0	13.0	13.7	14.0	14.0
9-6 to 9-11	30	12.0	12.0	13.0	13.0	14.0	14.6	15.0	15.0	15.9	10.0	11.2	12.0	12.0	12.0	13.0	14.0	15.0	16.0
10-0 to 10-5	30	11.1	12.2	13.0	14.0	14.0	15.0	15.0	15.8	16.9	10.1	12.0	12.0	13.0	13.0	13.6	14.0	14.0	15.0
10-6 to 10-11	30	13.0	13.2	14.0	14.0	15.0	15.0	15.0	16.0	17.0	11.0	12.2	13.0	13.0	14.0	14.0	15.0	15.8	17.0
11-0 to 11-5	30	13.0	13.0	13.0	14.0	14.5	16.0	16.0	16.8	17.0	12.0	13.0	13.0	13.0	13.5	14.0	15.0	15.8	16.9
11-6 to 11-11	30	13.0	14.0	14.0	14.0	15.0	15.0	15.0	16.8	17.0	11.1	13.0	13.0	14.0	14.0	14.0	15.0	15.0	16.0
12-0 to 12-5	30	13.0	13.0	14.0	14.0	14.5	15.0	15.7	16.0	17.9	12.0	13.0	13.0	13.0	14.0	14.0	15.0	15.0	16.0
12-6 to 12-11	30	13.0	13.2	15.0	15.0	15.0	15.0	16.0	17.0	18.9	11.0	12.2	13.0	13.4	14.0	14.0	15.0	16.0	16.9
13-0 to 13-5	40	12.1	14.0	14.0	15.0	15.0	15.0	16.0	16.8	18.0	11.0	11.2	13.0	14.0	14.0	15.0	15.0	16.0	16.0
13-6 to 13-11	30	13.0	13.0	14.0	14.4	15.0	15.0	16.0	16.0	17.0	12.0	13.0	13.0	14.0	14.0	14.0	15.0	15.8	16.0
14-0 to 14-5	30	14.0	14.0	14.3	15.0	16.0	16.0	17.0	17.0	17.9	12.1	13.0	14.0	14.0	14.5	15.0	15.7	16.0	16.0
14-6 to 14-11	30	13.0	13.0	14.0	14.4	15.0	15.0	15.0	16.0	16.9	11.2	13.2	14.0	14.0	14.5	15.0	15.0	15.8	16.0
15-0 to 15-5	30	14.0	14.0	14.0	15.0	15.5	16.0	16.7	17.0	18.0	13.0	14.0	14.3	15.0	15.0	15.0	16.0	16.0	16.9
15-6 to 15-11	23	13.0	14.0	14.0	15.0	15.0	15.0	16.0	17.0	17.0	12.0	13.0	13.0	14.0	15.0	15.0	15.0	16.0	16.6
	663																		

		Both Hands									Assembly								
Age	N	10	20	30	40	50	60	70	80	90	10	20	30	40	50	60	70	80	90
5-0 to 5-5	30	5.1	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	10.0	11.2	12.0	13.0	14.0	14.6	16.0	16.0	17.9
5-6 to 5-11	30	5.0	6.0	6.0	6.4	7.0	7.0	8.0	8.0	9.0	10.1	12.2	14.0	15.0	16.0	16.0	17.7	18.0	20.9
6-0 to 6-5	30	5.0	6.0	6.3	7.0	7.0	7.6	8.0	9.0	9.0	12.1	14.0	15.0	15.0	16.0	16.0	17.0	19.0	20.0
6-6 to 6-11	30	6.0	7.0	8.0	8.0	8.0	8.6	9.0	9.0	10.9	14.0	16.2	18.0	18.0	19.5	20.6	22.0	22.8	24.0
7-0 to 7-5	30	7.0	8.0	8.0	8.0	8.0	9.0	10.0	10.0	10.0	12.1	16.0	17.3	18.4	19.0	20.6	21.7	23.0	26.7
7-6 to 7-11	30	8.0	8.0	8.0	9.0	9.5	10.0	10.7	11.0	12.0	16.0	17.2	18.3	19.4	21.0	22.0	22.7	24.0	25.0
8-0 to 8-5	30	8.0	8.0	9.0	9.0	10.0	10.0	11.0	11.0	12.0	19.0	20.2	21.0	22.4	23.5	24.0	24.0	26.8	28.9
8-6 to 8-11	30	9.0	9.2	10.0	10.0	11.0	11.0	12.0	12.8	13.0	18.0	20.0	20.3	23.4	24.0	25.0	27.1	30.0	32.0
9-0 to 9-5	30	8.1	9.0	10.0	10.0	10.0	11.0	11.0	12.0	12.0	20.0	21.2	23.0	24.0	24.0	26.0	26.0	27.0	28.0
9-6 to 9-11	30	9.1	10.0	10.0	11.0	11.0	11.6	12.0	13.0	13.9	21.1	24.0	24.3	25.4	26.0	29.2	30.7	31.8	32.0
10-0 to 10-5	30	9.0	9.0	10.0	10.4	11.0	11.0	11.0	12.8	13.9	19.1	20.2	24.0	25.0	26.0	26.0	28.7	30.0	35.7
10-6 to 10-11	30	10.0	10.2	11.0	11.0	12.0	12.0	12.0	13.0	14.0	22.0	24.0	25.3	28.4	29.0	30.0	30.0	31.0	33.8
11-0 to 11-5	30	9.0	10.0	10.3	11.0	11.0	12.0	12.7	13.0	13.0	22.0	22.2	26.0	27.4	28.0	31.0	32.0	34.6	39.9
11-6 to 11-11	30	11.0	11.0	12.0	12.0	12.0	13.0	13.0	13.8	14.0	25.1	27.0	28.6	30.0	31.0	32.6	33.7	35.0	39.0
12-0 to 12-5	30	9.1	11.0	11.0	11.0	12.0	12.0	12.0	12.8	14.0	25.0	26.0	27.0	29.0	29.0	32.6	35.4	36.0	40.9
12-6 to 12-11	30	9.1	10.2	11.0	12.0	12.0	12.6	13.0	13.8	14.0	23.1	25.4	28.0	29.0	30.5	32.2	34.0	35.8	37.0
13-0 to 13-5	40	9.1	11.0	11.0	11.4	12.0	12.0	13.0	13.0	14.0	27.0	30.0	31.0	32.0	34.0	34.8	36.0	37.0	40.9
13-6 to 13-11	30	9.1	10.0	11.0	11.0	11.0	12.0	12.0	13.0	14.0	27.1	30.0	30.0	33.0	34.5	35.6	36.7	39.8	43.8
14-0 to 14-5	30	10.1	11.0	11.0	11.0	12.0	12.0	13.0	14.0	14.0	26.1	29.2	31.0	32.0	34.0	36.0	38.7	40.0	41.0
14-6 to 14-11	30	10.0	11.0	11.0	12.0	12.0	12.0	13.0	14.0	15.0	23.0	25.2	26.3	29.0	30.5	32.0	34.7	35.8	45.4
15-0 to 15-5	30	10.1	11.0	12.0	12.0	13.0	13.0	13.0	14.0	14.9	24.0	26.0	28.0	31.4	33.5	35.6	36.0	37.8	39.9
15-6 to 15-11	23	11.0	11.8	12.0	12.0	13.0	13.0	13.0	14.0	14.0	24.4	26.8	29.4	32.0	33.0	34.4	35.8	39.0	42.0
	663																		

APPENDIX D

The Purdue Pegboard: Normative Data on 1334 School Children

Richard A. Gardner and Melinda Broman (1979)

TABLE 3

Purdue Pegboard Scores — Girls

Age	N	Preferred Hand		Non-Preferred Hand		Both Hands		Assembly	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
5-0 to 5-5	30	10.00	1.53	8.50	1.36	6.97	1.25	14.70	2.55
5-6 to 5-11	30	9.30	1.73	9.13	1.59	6.77	1.28	14.37	4.02
6-0 to 6-5	30	11.43	1.33	10.23	1.52	8.53	1.46	18.03	3.54
6-6 to 6-11	30	11.87	1.68	10.47	1.38	8.67	1.79	20.63	4.27
7-0 to 7-5	30	12.03	1.65	10.47	2.08	8.83	1.80	19.77	4.49
7-6 to 7-11	30	12.47	1.53	11.50	1.80	9.50	1.70	20.20	4.61
8-0 to 8-5	30	13.07	1.78	12.03	1.40	10.10	1.81	21.93	4.31
8-6 to 8-11	30	13.77	1.63	12.30	1.26	10.43	1.59	24.50	5.83
9-0 to 9-5	30	13.37	1.79	11.83	2.12	9.83	1.62	24.97	6.81
9-6 to 9-11	30	14.40	1.52	13.03	1.67	11.60	1.65	29.07	6.01
10-0 to 10-5	30	15.13	1.48	13.20	1.35	11.33	1.42	27.90	5.10
10-6 to 10-11	30	15.47	1.59	13.63	1.33	12.27	1.46	31.70	6.02
11-0 to 11-5	30	14.90	1.79	14.00	2.00	11.67	1.63	32.77	5.50
11-6 to 11-11	30	15.70	1.84	13.83	1.88	12.00	1.82	33.47	7.24
12-0 to 12-5	30	15.57	1.65	14.20	1.73	12.00	1.23	34.57	5.20
12-6 to 12-11	30	15.40	1.96	14.07	1.66	12.03	1.65	34.70	7.52
13-0 to 13-5	40	15.55	1.69	14.15	1.64	12.03	1.44	34.85	5.57
13-6 to 13-11	32	15.38	1.58	14.09	1.44	12.13	1.31	37.40	5.34
14-0 to 14-5	30	16.33	1.73	14.93	1.78	12.63	1.61	36.43	6.76
14-6 to 14-11	30	16.03	1.77	14.83	1.66	12.40	1.94	34.17	6.62
15-0 to 15-5	28	16.68	1.49	14.89	1.40	12.89	1.64	36.89	7.75
15-6 to 15-11	31	16.42	1.84	15.29	2.04	12.77	1.45	37.35	8.24
	671								

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APPENDIX D

TABLE 4

Purdue Pegboard Percentiles — Girls

		Preferred Hand										Non-preferred Hand								
Age	N	10	20	30	40	50	60	70	80	90	N	10	20	30	40	50	60	70	80	90
5-0 to 5-5	30	8.0	8.2	9.3	10.0	10.0	10.6	11.0	11.0	12.0	30	7.0	7.0	8.0	8.0	9.0	9.0	9.0	10.0	10.0
5-6 to 5-11	30	7.0	8.0	8.0	9.0	9.5	10.0	11.0	11.0	11.0	30	7.0	7.2	8.0	8.4	9.0	10.0	10.0	11.0	11.0
6-0 to 6-5	30	9.1	10.2	11.0	11.0	11.5	12.0	12.0	12.0	13.0	30	8.0	8.2	9.3	10.0	10.0	11.0	11.0	11.8	12.0
6-6 to 6-11	30	10.1	11.0	11.0	11.0	11.0	12.0	13.0	14.0	14.0	30	9.0	9.2	10.0	10.0	10.0	11.0	11.0	12.0	12.0
7-0 to 7-5	30	10.0	11.0	11.0	12.0	12.0	12.6	13.0	13.0	14.9	30	8.0	9.0	10.0	10.0	11.0	11.0	11.0	12.0	13.0
7-6 to 7-11	30	10.1	11.0	12.0	12.0	13.0	13.0	13.0	14.0	14.0	30	9.0	10.0	10.3	11.0	11.0	12.0	13.0	13.0	14.0
8-0 to 8-5	30	11.0	12.0	12.0	12.4	13.0	13.0	14.0	14.8	15.9	30	10.0	11.0	11.0	12.0	12.0	12.0	12.7	13.0	14.0
8-6 to 8-11	30	12.0	12.0	13.0	13.0	14.0	14.0	14.7	15.0	16.9	30	11.0	11.0	12.0	12.0	12.0	12.6	13.0	13.8	14.0
9-0 to 9-5	30	10.1	12.0	13.0	13.0	13.0	14.0	14.0	15.0	16.0	30	9.0	10.0	11.0	11.0	11.5	12.6	13.0	14.0	14.9
9-6 to 9-11	30	12.0	13.0	14.0	14.0	14.0	15.0	15.0	16.0	16.9	30	11.0	11.0	12.0	12.0	13.0	13.6	14.0	14.8	15.0
10-0 to 10-5	30	13.0	14.0	14.0	15.0	15.0	15.0	16.0	16.0	17.9	30	11.0	12.0	13.0	13.0	13.0	13.6	14.0	14.8	15.0
10-6 to 10-11	30	13.1	14.0	14.3	15.0	15.5	16.0	16.0	16.8	17.9	30	11.2	13.0	13.0	13.4	14.0	14.0	14.0	14.8	15.0
11-0 to 11-5	30	12.0	13.2	14.0	15.0	15.0	15.0	15.7	16.8	17.0	30	10.2	12.4	14.0	14.0	14.0	15.0	15.0	15.0	16.8
11-6 to 11-11	30	14.0	14.0	15.0	15.0	16.0	16.0	17.0	17.0	18.0	30	11.0	12.0	13.0	14.0	14.0	14.0	15.0	15.0	16.0
12-0 to 12-5	30	14.0	14.0	14.0	15.0	15.0	16.0	17.0	17.0	17.9	30	12.0	13.0	13.3	14.0	14.0	14.0	15.0	16.0	16.9
12-6 to 12-11	30	12.1	13.2	15.0	15.0	16.0	16.0	16.0	17.0	18.0	30	12.0	13.0	13.0	13.0	14.0	15.0	15.0	15.0	16.9
13-0 to 13-5	40	14.0	14.0	15.0	15.0	16.0	16.0	16.0	17.0	18.0	40	12.1	13.0	13.0	13.4	14.0	14.0	15.0	16.0	16.0
13-6 to 13-11	32	13.3	14.0	14.0	15.0	15.0	15.0	16.0	17.0	18.0	32	12.0	13.0	14.0	14.0	14.0	15.0	15.0	15.0	16.0
14-0 to 14-5	30	14.1	15.0	15.0	16.0	16.0	16.0	17.0	17.8	19.0	30	13.0	13.0	14.0	15.0	15.0	15.0	15.7	16.0	17.0
14-6 to 14-11	30	14.0	14.0	15.0	15.0	16.0	16.6	17.0	17.0	18.9	30	13.0	13.2	14.0	14.0	15.0	15.0	16.0	16.8	17.0
15-0 to 15-5	28	15.0	15.0	16.0	16.0	17.0	17.0	18.0	18.0	19.0	28	12.9	14.0	14.0	14.6	15.0	15.4	16.0	16.0	17.0
15-6 to 15-11	31	14.0	15.0	15.6	16.0	16.0	17.0	17.4	18.0	19.0	31	13.0	13.0	14.0	14.0	15.0	16.0	16.4	17.6	18.0
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		Both Hands										Assembly								
Age	N	10	20	30	40	50	60	70	80	90	N	10	20	30	40	50	60	70	80	90
5-0 to 5-5	30	5.0	6.0	6.0	7.0	7.0	7.6	8.0	8.0	8.0	30	11.1	13.0	13.0	14.0	15.0	15.6	16.0	17.0	18.0
5-6 to 5-11	30	5.0	6.0	6.0	6.4	7.0	7.0	7.7	8.0	8.0	30	9.0	11.0	12.3	13.4	14.0	15.6	16.0	17.0	20.0
6-0 to 6-5	30	6.1	7.2	8.0	8.0	9.0	9.0	9.0	10.0	10.0	30	14.0	16.0	16.0	16.0	17.0	18.0	20.0	22.0	23.9
6-6 to 6-11	30	6.1	8.0	8.0	8.0	8.0	8.6	9.7	10.0	12.0	30	16.0	17.0	18.0	19.0	20.0	21.0	22.7	25.6	27.8
7-0 to 7-5	30	6.0	7.2	8.0	9.0	9.0	9.0	10.0	10.8	11.0	30	14.0	15.2	17.0	18.0	19.5	21.6	22.0	24.0	24.9
7-6 to 7-11	30	7.0	8.0	9.0	9.0	9.5	10.0	10.7	11.0	11.0	30	14.0	16.0	17.0	18.4	19.5	21.6	23.4	25.8	26.9
8-0 to 8-5	30	8.0	8.2	9.0	10.0	10.0	11.0	11.0	11.0	12.0	30	16.0	17.0	20.0	21.0	22.0	23.0	23.0	24.8	28.9
8-6 to 8-11	30	8.0	9.0	10.0	10.0	10.5	11.0	11.0	12.0	12.9	30	18.0	19.2	20.3	21.4	23.0	24.6	27.4	31.8	32.0
9-0 to 9-5	30	8.0	8.0	9.0	9.4	10.0	10.0	11.0	11.0	12.0	30	18.0	19.0	20.3	22.0	23.5	26.0	29.0	31.8	36.0
9-6 to 9-11	30	9.0	10.0	11.0	12.0	12.0	12.0	13.0	13.0	13.0	30	22.1	23.2	26.0	27.0	28.0	31.0	32.0	34.8	37.9
10-0 to 10-5	30	10.0	10.0	11.0	11.0	11.0	11.6	12.0	12.0	13.0	30	20.3	23.2	26.0	27.0	28.0	29.0	29.7	30.8	35.8
10-6 to 10-11	30	11.0	11.0	11.3	12.0	12.0	12.0	13.0	13.8	14.9	30	24.1	27.0	28.3	29.4	30.5	31.6	35.7	37.8	39.8
11-0 to 11-5	30	9.1	10.0	11.0	11.4	12.0	12.0	12.7	13.0	13.0	30	25.1	28.0	29.3	31.4	32.5	34.0	35.7	37.0	40.9
11-6 to 11-11	30	9.1	10.2	11.0	11.0	13.0	13.0	13.0	14.0	14.0	30	22.2	25.4	28.3	31.0	34.5	37.0	39.0	40.0	41.0
12-0 to 12-5	30	10.0	11.0	12.0	12.0	12.0	12.0	12.0	13.0	14.0	30	28.0	31.0	32.0	34.0	34.0	34.6	36.7	39.0	43.6
12-6 to 12-11	30	10.0	10.2	11.0	12.0	12.0	12.0	13.0	13.8	14.0	30	24.0	28.0	30.3	32.8	35.0	36.0	38.7	41.7	45.7
13-0 to 13-5	40	10.0	11.0	11.0	12.0	12.0	12.0	13.0	13.0	14.0	40	27.8	31.2	32.3	33.4	35.0	37.6	38.0	39.0	41.9
13-6 to 13-11	32	10.3	11.0	11.9	12.0	12.0	12.0	13.0	13.0	13.7	32	29.5	33.0	34.9	36.4	38.0	38.0	40.0	42.0	44.1
14-0 to 14-5	30	11.0	11.0	12.0	12.0	12.0	13.0	13.0	14.8	15.0	30	25.3	30.2	34.0	34.0	36.0	38.0	40.7	43.0	45.9
14-6 to 14-11	30	9.1	11.0	11.3	12.0	12.0	13.0	13.7	14.0	15.0	30	27.1	28.2	30.3	32.0	33.0	35.2	37.7	40.8	44.9
15-0 to 15-5	28	11.0	11.0	12.0	12.0	13.0	13.0	14.0	14.0	16.0	28	28.7	29.8	31.7	33.6	35.5	38.4	41.3	43.2	50.2
15-6 to 15-11	31	11.0	11.0	12.0	13.0	13.0	13.0	13.4	14.0	14.0	31	23.2	29.4	33.0	36.8	39.0	40.0	41.0	43.0	47.8
	671										671									

APPENDIX D

TABLE 5

T-Test Group Comparisons of Normals & MBD'

Preferred Hand

Age	Normal Boys N	Normal Boys Mean	Normal Boys S.D.	MBD Boys N	MBD Boys Mean	MBD Boys S.D.	P
5-0 to 5-11	60	9.63	1.68	7	5.71	2.98	**
6-0 to 6-11	60	10.67	1.75	21	8.10	3.16	**
7-0 to 7-11	60	11.87	1.81	22	8.45	2.46	**
8-0 to 8-11	60	13.30	1.99	17	10.06	2.97	**
9-0 to 9-11	60	13.60	1.77	13	11.69	2.78	*
10-0 to 10-11	60	14.38	1.73	16	12.25	1.88	**
11-0 to 11-11	60	14.88	1.72	20	11.65	2.81	**
12-0 to 12-11	60	15.10	2.35	15	12.53	2.17	**
13-0 to 13-11	70	15.03	1.83	10	13.90	2.28	NS
14-0 to 14-11	60	15.18	1.55	4	11.75	3.30	**
15-0 to 15-11	53	15.35	1.55				
	663			145			

Non-preferred Hand

Age	Normal Boys N	Normal Boys Mean	Normal Boys S.D.	MBD Boys N	MBD Boys Mean	MBD Boys S.D.	P
5-0 to 5-11	60	8.62	1.67	7	5.57	3.87	**
6-0 to 6-11	60	9.65	2.06	21	7.52	3.49	*
7-0 to 7-11	60	11.12	1.68	22	8.14	2.21	**
8-0 to 8-11	60	12.37	1.69	17	9.47	2.27	**
9-0 to 9-11	60	12.65	1.83	13	10.62	2.36	*
10-0 to 10-11	60	13.38	1.84	16	11.13	2.63	**
11-0 to 11-11	60	13.97	1.78	20	11.10	2.29	**
12-0 to 12-11	60	13.83	2.20	15	10.93	2.05	**
13-0 to 13-11	70	13.99	1.78	10	11.50	2.07	**
14-0 to 14-11	60	14.20	2.16	4	10.00	2.31	**
15-0 to 15-11	53	14.62	1.56				
	663			145			

Preferred Hand

Age	Normal Girls N	Normal Girls Mean	Normal Girls S.D.	MBD Girls N	MBD Girls Mean	MBD Girls S.D.	P
5-0 to 5-11	60	9.65	1.66	4	6.75	2.22	*
6-0 to 6-11	60	11.65	1.52	10	6.90	3.45	**
7-0 to 7-11	60	12.25	1.59	12	8.58	3.12	**
8-0 to 8-11	60	13.42	1.73	10	9.60	3.13	**
9-0 to 9-11	60	13.88	1.73	5	10.40	2.70	**
10-0 to 10-11	60	15.30	1.53	4	9.75	3.40	**
11-0 to 11-11	60	15.30	1.84	13	10.77	2.95	**
12-0 to 12-11	60	15.48	1.80	5	9.20	2.39	**
13-0 to 13-11	72	15.47	1.64	4	11.50	3.00	**
14-0 to 14-11	60	16.18	1.74				
15-0 to 15-11	59	16.54	1.67				
	671			67			

Non-preferred Hand

Age	Normal Girls N	Normal Girls Mean	Normal Girls S.D.	MBD Girls N	MBD Girls Mean	MBD Girls S.D.	P
5-0 to 5-11	60	8.82	1.50	4	2.50	2.38	**
6-0 to 6-11	60	10.35	1.45	9	6.00	2.74	**
7-0 to 7-11	60	10.98	2.00	11	9.09	2.81	*
8-0 to 8-11	60	12.17	1.33	9	7.33	2.00	**
9-0 to 9-11	60	12.43	1.99	5	9.60	3.05	*
10-0 to 10-11	60	13.42	1.34	4	10.50	2.52	**
11-0 to 11-11	60	13.92	1.92	13	9.69	2.59	**
12-0 to 12-11	60	14.13	1.68	5	8.20	1.48	**
13-0 to 13-11	72	14.13	1.55	4	10.00	3.37	**
14-0 to 14-11	60	14.88	1.71				
15-0 to 15-11	59	15.12	1.77				
	671			64			

Both Hands

Age	Normal Boys N	Normal Boys Mean	Normal Boys S.D.	MBD Boys N	MBD Boys Mean	MBD Boys S.D.	P
5-0 to 5-11	60	6.85	1.36	5	4.20	3.03	**
6-0 to 6-11	60	7.77	1.71	18	6.61	2.40	NS
7-0 to 7-11	60	9.17	1.54	21	6.14	2.03	**
8-0 to 8-11	60	10.37	1.70	17	7.41	2.09	**
9-0 to 9-11	60	10.92	1.61	13	8.15	2.82	**
10-0 to 10-11	60	11.35	1.78	16	8.75	2.41	**
11-0 to 11-11	60	11.78	1.62	20	9.30	2.74	**
12-0 to 12-11	60	11.77	1.69	15	9.13	1.77	**
13-0 to 13-11	70	11.70	1.67	10	9.50	2.37	**
14-0 to 14-11	60	12.12	1.63	4	9.25	1.71	*
15-0 to 15-11	53	12.60	1.39				
	663			139			

Assembly

Age	Normal Boys N	Normal Boys Mean	Normal Boys S.D.	MBD Boys N	MBD Boys Mean	MBD Boys S.D.	P
5-0 to 5-11	60	14.83	3.48	5	10.60	6.23	*
6-0 to 6-11	60	17.57	3.77	16	12.13	4.86	**
7-0 to 7-11	60	19.80	4.54	20	12.15	3.76	**
8-0 to 8-11	60	23.83	4.64	17	16.94	4.55	**
9-0 to 9-11	60	25.97	4.37	13	19.38	5.74	**
10-0 to 10-11	60	27.27	5.80	16	22.75	6.37	*
11-0 to 11-11	60	30.43	5.74	20	22.50	6.54	**
12-0 to 12-11	60	30.63	5.90	15	21.93	6.03	**
13-0 to 13-11	70	34.09	5.37	10	25.60	5.10	**
14-0 to 14-11	60	32.67	6.99	4	21.25	5.56	*
15-0 to 15-11	53	32.56	6.17				
	663			136			

Both Hands

Age	Normal Girls N	Normal Girls Mean	Normal Girls S.D.	MBD Girls N	MBD Girls Mean	MBD Girls S.D.	P
5-0 to 5-11	60	6.87	1.26	3	2.67	1.53	**
6-0 to 6-11	60	8.60	1.62	9	3.44	1.94	**
7-0 to 7-11	60	9.17	1.77	10	6.50	1.90	**
8-0 to 8-11	60	10.27	1.70	9	6.11	2.32	**
9-0 to 9-11	60	10.72	1.85	5	7.40	2.88	**
10-0 to 10-11	60	11.80	1.50	4	7.00	2.83	**
11-0 to 11-11	60	11.83	1.72	13	7.77	3.09	**
12-0 to 12-11	60	12.02	1.44	5	6.80	1.48	**
13-0 to 13-11	72	12.07	1.38	4	8.00	2.94	**
14-0 to 14-11	60	12.52	1.77				
15-0 to 15-11	59	12.83	1.53				
	671			62			

Assembly

Age	Normal Girls N	Normal Girls Mean	Normal Girls S.D.	MBD Girls N	MBD Girls Mean	MBD Girls S.D.	P
5-0 to 5-11	60	14.53	3.34	3	7.33	1.15	**
6-0 to 6-11	60	19.33	4.10	9	8.22	3.11	**
7-0 to 7-11	60	19.98	4.52	10	12.10	4.23	**
8-0 to 8-11	60	23.22	5.24	7	14.86	1.86	**
9-0 to 9-11	60	27.02	6.69	5	18.40	7.70	*
10-0 to 10-11	60	29.80	5.85	4	19.25	9.03	*
11-0 to 11-11	60	33.12	6.38	13	18.08	8.25	**
12-0 to 12-11	60	34.63	6.41	5	18.80	3.42	**
13-0 to 13-11	72	35.99	5.58	4	20.75	8.42	**
14-0 to 14-11	60	35.30	6.73				
15-0 to 15-11	59	37.13	7.95				
	671			60			

* = p<.01 ** = p<.001 NS = Not Significant

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APPENDIX E

Normative Data for the Purdue Pegboard on a Sample of Adult Candidates for Vocational Rehabilitation

Norman H. Hamm and Dennis Curtis

TABLE 1

Means and Standard Deviations on Five Categories of Purdue Pegboard for Candidates for Vocational Rehabilitation

Task		Candidates 35 Yr. and Younger		Candidates 35 Yr. and Older	
		Males, 116	Females, 102	Males, 60	Females, 62
Right Hand	*M*	13.59	15.18	12.96	14.08
		1.25	2.41	1.81	2.22
Left Hand	*M*	13.18	14.49	11.9	15.14
		3.84	2.13	3.02	4.19
Both Hands	*M*	10.81	12.24	10.23	11.33
		2.93	1.83	1.70	1.60
Right & Left,	*M*	37.60	40.32	35.1	40.13
Both		3.61	14.68	4.31	10.23
Assembly	*M*	27.86	36.19	28.31	31.76
		11.12	6.99	3.97	4.84

APPENDIX F

Purdue Pegboard Performance of Disabled and Normal Readers: Unimanual versus Bimanual Differences

Susan C. Leslie, Richard J. Davidson, and Orit B. Batey

TABLE 1

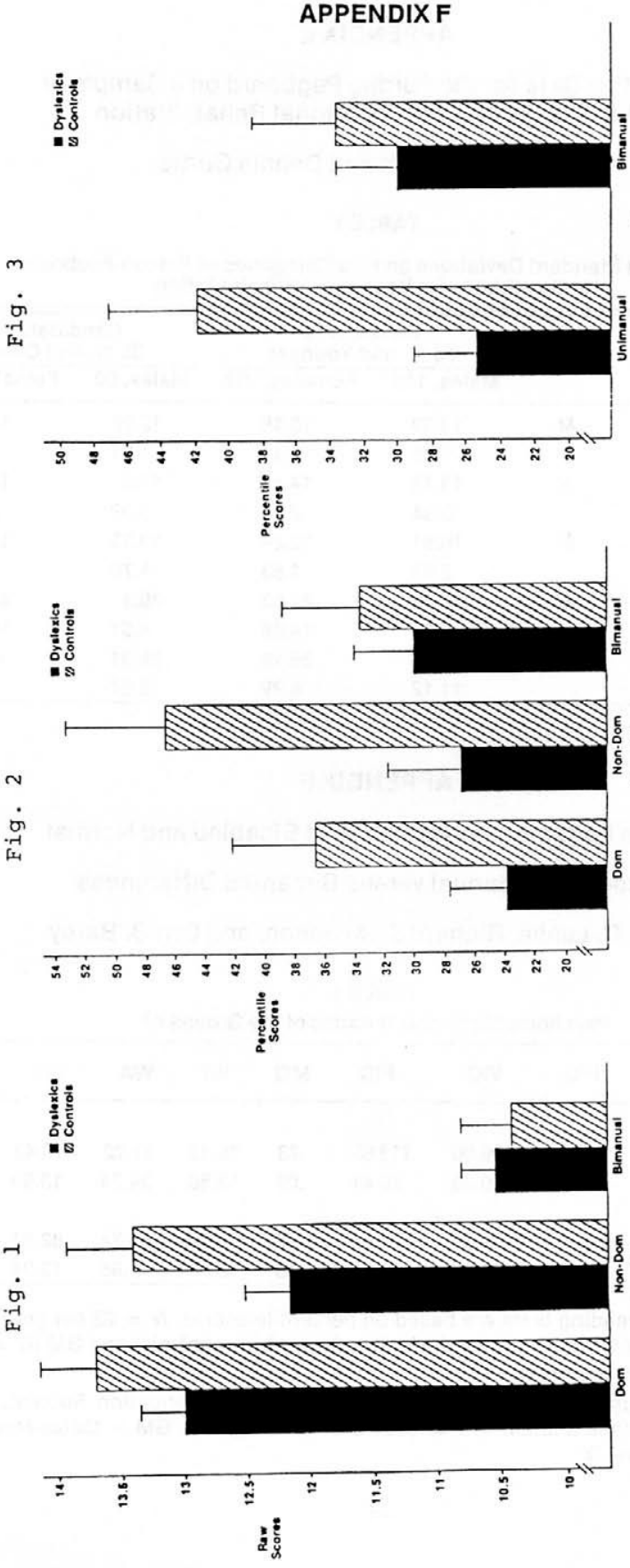
Psychometric Characteristics of the Groups [a,b]

	Age	PIQ	VIQ	FIQ	MQ	WI	WA	GO	GM
Dyslexics									
M	11.25	116.35	109.00	113.65	.73	16.13	31.22	19.43	30.89
SD	1.16	11.68	10.33	10.41	.09	13.80	24.24	13.50	24.67
Controls									
M	11.16	113.74	122.61	120.57	1.17	76.09	83.74	82.37	82.47
SD	1.06	14.63	11.17	12.66	.16	12.58	.95	13.34	17.48

[a] Means for the reading tests are based on percentile scores. $N = 23$ per group for all variables except for GO ($N = 21$ for dyslexics; $N = 19$ for controls) and GM ($N = 18$ for dyslexics; $N = 19$ for controls).

[b] MQ = Myklebust Quotient. WI = Woodcock Word Identification Subtest. WA = Woodcock Word Attack Subtest. GO = Gray Oral Reading Test. GM = Gates-MacGinitie Reading Test — Level D.

APPENDIX F



Mean raw score performance (i.e., number of pegs placed) for dyslexics and controls (N = 23 for both) separately for each of the three hand conditions.

Mean percentile scores for dyslexics and controls separately for each of the three hand conditions. Percentiles are based upon Gardner and Broman (1979).

Mean percentile scores for dyslexics and controls for unimanual (i.e., average of left and right hand conditions) and bimanual conditions.

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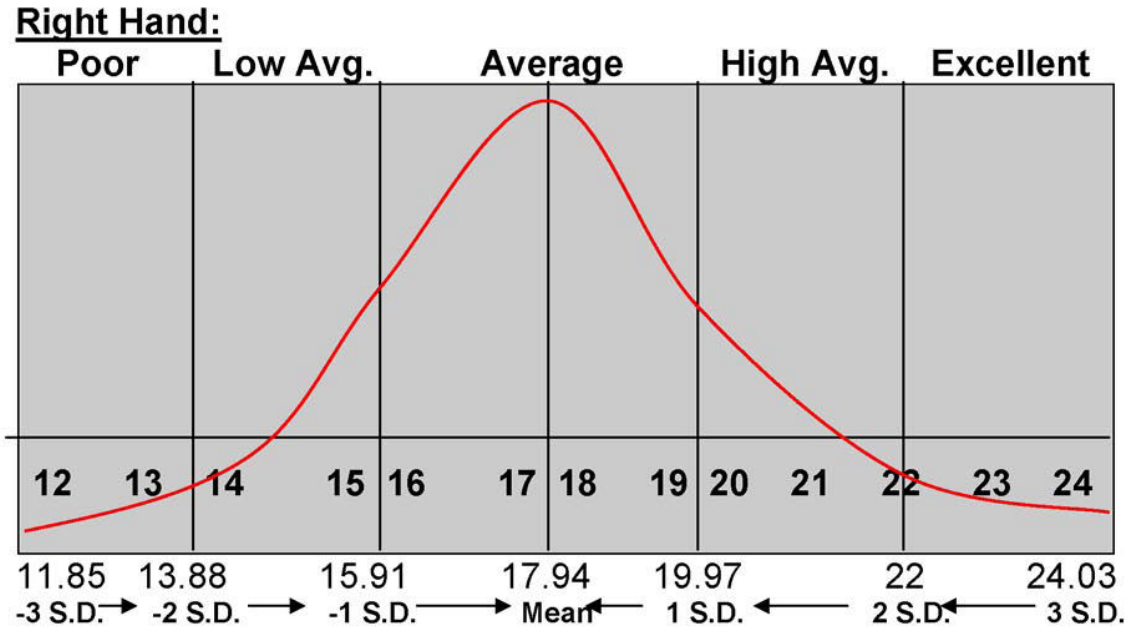
Figure 1

INTERPRETATION CHART EXAMPLE
Male and Female Applicants for Production Work
(n = 454)



Male & Female Applicants for Assembly Jobs (n = 146)

Figure 2A

Right Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
13	14	15	16	17		18	19	20	21	22

13.18	14.74	16.30	17.86	19.42	20.98	22.54
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Left Hand:

Poor		Low Avg.			Average			High Avg.		Excellent	
12	13	14		15	16	17	18	19	20	21	

11.71	13.34	14.97	16.60	18.23	19.86	21.49
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Both Hands:

Poor		Low Avg.		Average			High Avg.		Excellent	
	11	12	13	14	15		16	17	18	

10.06	11.50	12.94	14.38	15.82	17.26	18.70
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Right + Left + Both:

Poor		Low Avg.		Average			High Avg.		Excellent	
37 - 42		43 -	46	47 -	51	52 -	55	51	- 57	

36.93	40.89	44.85	48.81	52.77	56.73	60.69
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Assembly:

Poor		Low Avg.		Average			High Avg.		Excellent	
30 - 36		37 -	41	42 -	45	46 -	50	51	- 57	

26.69	34.32	38.95	43.58	48.21	52.84	57.47
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D

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Figure 2B **Male and Female Applicants for General Factory Work (n = 282)**

Right Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
12	13	14	15	16	17	18	19	20	21	22
11.78	13.57	15.36		17.15		18.94	20.73		22.52	
-3 S.D.	-2 S.D.	-1 S.D.		Mean		1 S.D.	2 S.D.		3 S.D.	

Left Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
11	12	13	14	15	16	17	18	19	20	21
10.91	12.61	14.31		16.01		17.71	19.41		21.11	
-3 S.D.	-2 S.D.	-1 S.D.		Mean		1 S.D.	2 S.D.		3 S.D.	

Both Hands:

Poor		Low Avg.		Average			High Avg.		Excellent	
11	12	13	14	15	16	17	18	19	20	21
10.91	12.61	14.31		16.01		17.71	19.41		21.11	
-3 S.D.	-2 S.D.	-1 S.D.		Mean		1 S.D.	2 S.D.		3 S.D.	

Right + Left + Both:

Poor	Low Avg.		Average			High Avg.		Excellent
35 - 40	41 -	44	45 -	48	49 -	52	53	- 58
34.64	38.68	42.72		46.76		50.80	54.84	58.88
-3 S.D.	-2 S.D.	-1 S.D.		Mean		1 S.D.	2 S.D.	3 S.D.

Assembly:

Poor	Low Avg.		Average			High Avg.		Excellent
22 - 30	31 -	36	37 -	42	43 -	48	49	- 56
21.63	27.52	33.41		39.90		45.19	51.08	56.97
-3 S.D.	–2 S.D.	–1 S.D.		Mean		1 S.D.	2 S.D.	3 S.D.

Figure 2C

Male & Female Production Work (n = 454)

Right Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
12	13	14	15	16	17	18	19	20 21 22	23	24

11.85	13.88	15.91	17.94	19.97	22.00	24.03
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Left Hand:

Poor		Low Avg.		Average			High Avg.		Excellent
12	13	14	15	16	17	18	19	20	21

11.80	13.47	15.14	16.81	18.48	20.15	21.82
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Both Hands:

Poor		Low Avg.		Average			High Avg.		Excellent
10	11	12		13 14	15		16	17	18

9.60	11.10	12.60	14.10	15.60	17.10	18.60
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Right + Left + Both:

Poor	Low Avg.		Average			High Avg.		Excellent
35 - 41	42 -	46	47	- 51	52 -	56	57	- 60

34.27	39.13	43.99	48.85	53.71	58.57	63.43
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Assembly:

Poor	Low Avg.		Average			High Avg.		Excellent
21 - 30	31 -	37	38 -	43	44 -	50	51	- 60

20.60	27.29	33.98	40.67	47.63	54.05	60.74
-3 S.D.	–2 S.D.	–1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

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Figure 2D

Female Electronic Production Work (n = 533)

Right Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
14	15	16	17	18	19	20	21		22	23
13.40	15.09	16.78	18.47		20.16		21.85		23.54	
-3 S.D.	–2 S.D.	–1 S.D.	Mean		1 S.D.		2 S.D.		3 S.D.	

Left Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
12	13	14	15	16	17	18	19	20	21	22
11.37	13.17	14.97	16.77		18.57		20.37		22.17	
-3 S.D.	–2 S.D.	–1 S.D.	Mean		1 S.D.		2 S.D.		3 S.D.	

Both Hands:

Poor		Low Avg.		Average			High Avg.		Excellent	
10	11	12	13	14	15		16	17	18	
10.36	11.75	13.14	14.53		15.92		17.31		18.70	
-3 S.D.	–2 S.D.	–1 S.D.	Mean		1 S.D.		2 S.D.		3 S.D.	

Right + Left + Both:

Poor		Low Avg.		Average			High Avg.		Excellent	
39 - 43		44 -	47	48 -	51	52 -	55	56	- 61	
38.11	42.02	45.93	49.84		53.75		57.66		61.57	
-3 S.D.	–2 S.D.	–1 S.D.	Mean		1 S.D.		2 S.D.		3 S.D.	

Assembly:

Poor		Low Avg.		Average			High Avg.		Excellent	
28 - 35		36 -	41	42 -	46	47 -	51	52	- 59	
27.80	33.12	38.44	43.76		49.08		54.40		59.72	
-3 S.D.	–2 S.D.	–1 S.D.	Mean		1 S.D.		2 S.D.		3 S.D.	

Figure 2E

Female Hourly Production Workers (n = 373)

Right Hand:

Poor		Low Avg.			Average			High Avg.		Excellent	
12	13	14	15	16	17	18	19	20	21	22	23	24

11.96	13.98	16.00	18.02	20.04	22.06	24.08
-3 S.D.	**-2 S.D.**	**-1 S.D.**	**Mean**	**1 S.D.**	**2 S.D.**	**3 S.D.**

Left Hand:

Poor		Low Avg.		Average			High Avg.		Excellent	
12	13	14	15	16	17	18	19	20	21	22

11.41	13.21	15.01	16.81	18.61	20.41	22.21
-3 S.D.	**-2 S.D.**	**-1 S.D.**	**Mean**	**1 S.D.**	**2 S.D.**	**3 S.D.**

Both Hands:

Poor		Low Avg.			Average			High Avg.		Excellent	
10	11	12			13	14	15	16	17	18	

9.75	11.28	12.81	14.34	15.87	17.40	18.93
-3 S.D.	**-2 S.D.**	**-1 S.D.**	**Mean**	**1 S.D.**	**2 S.D.**	**3 S.D.**

Right + Left + Both:

Poor		Low Avg.			Average			High Avg.		Excellent	
37	- 42	43	-	46	47	- 51	52	- 55	56	- 62	

36.21	40.52	44.83	49.14	53.45	57.76	62.07
-3 S.D.	**-2 S.D.**	**-1 S.D.**	**Mean**	**1 S.D.**	**2 S.D.**	**3 S.D.**

Assembly:

Poor		Low Avg.			Average			High Avg.		Excellent	
18	- 27	28	-	34	35	- 41	42	- 48	49	- 58	

17.83	24.58	31.33	38.08	44.83	51.58	58.33
-3 S.D.	**-2 S.D.**	**-1 S.D.**	**Mean**	**1 S.D.**	**2 S.D.**	**3 S.D.**

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Figure 2F **Male Hourly Production Workers (n = 288)**

Right Hand:

Poor	Low Avg.		Average			High Avg.	Excellent	
12	13	14	15	16	17	18	19	20	21

11.14	12.91	14.68	16.45	18.22	19.99	21.76
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Left Hand:

Poor	Low Avg.		Average			High Avg.	Excellent	
12	13	14	15	16	17	18	19	20	21

11.24	12.93	14.62	16.31	18.00	19.69	21.38
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Both Hands:

Poor	Low Avg.		Average		High Avg.		Excellent
10	11	12	13	14	15	16	17

9.02	10.47	11.92	13.37	14.82	16.27	17.72
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Right + Left + Both:

Poor	Low Avg.		Average			High Avg.	Excellent	
35 - 40	41 -	44	45 -	48	49 -	51	52	- 57

34.47	38.35	42.23	46.11	49.99	53.87	57.75
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Assembly:

Poor	Low Avg.		Average			High Avg.	Excellent	
18 - 27	28 -	33	34 -	40	41 -	46	4Ri	- 56

17.15	23.73	30.31	36.89	43.47	50.05	56.63
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Figure 2G **Male Maintenance & Service Employees (n = 237)**

Right Hand:

Poor		Low Avg.		Average				High Avg.		Excellent	
10	11	12	13	14	15	16	17	18	19	20	21

9.85	11.73	13.61	15.49	17.37	19.25	21.13
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Left Hand:

Poor		Low Avg.		Average				High Avg.		Excellent	
10	11	12	13	14	15	16	17	18		19	20

9.85	11.65	13.45	15.25	17.05	18.85	20.65
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Both Hands:

Poor	Low Avg.		Average			High Avg.	Excellent
9	10	11	12	13	14	15	16

8.17	9.55	10.93	12.31	13.69	15.07	16.45
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Right + Left + Both:

Poor	Low Avg.		Average			High Avg.	Excellent
32 - 37	38 -	41	42 -	43	44 -	46	47 - 54

31.25	35.18	39.11	43.04	46.97	50.90	54.83
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Assembly:

Poor	Low Avg.		Average			High Avg.	Excellent
24 - 31	32 -	36	37 -	41	42 -	46	47 - 53

23.53	28.59	33.65	38.71	43.77	48.83	53.89
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

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Figure 2H

Female Applicants for Sewing-Machine Operator (n = 146)

**Valid only when 3 trials of each test battery have been completed*
Do not take the average; add all 3 trials together.

Right Hand:

Poor	Low Avg.	Average	High Avg.	Excellent
39 - 47	48 - 52	53 - 57	58 - 63	64 – 71

38.88	44.32	49.76	55.20	60.64	66.08	71.52
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Left Hand:

Poor	Low Avg.	Average	High Avg.	Excellent
37 – 44	45 - 49	50 - 54	55 - 59	60 – 67

36.24	41.42	46.60	51.78	56.96	62.14	67.32
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Both Hands:

Poor	Low Avg.	Average	High Avg.	Excellent
31 – 37	38 - 41	42 - 46	47 - 50	51 – 57

30.80	35.21	39.62	44.03	48.44	52.85	57.26
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Right + Left + Both:

Poor	Low Avg.	Average	High Avg.	Excellent
113 - 132	133 - 144	145 - 157	158 - 170	171 - 189

112.99	125.69	138.39	151.09	163.79	176.49	189.19
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Assembly:

Poor	Low Avg.	Average	High Avg.	Excellent
80 - 106	107 - 124	125 - 142	143 - 160	161 - 187

79.56	97.51	115.46	133.41	151.36	169.31	187.26
-3 S.D.	-2 S.D.	-1 S.D.	Mean	1 S.D.	2 S.D.	3 S.D.

Purdue Pegboard Score Sheet

For Model #32020

Quick Reference Means (normative population averages) in Parts

Occupational Area	Right Hand	Left Hand	Both Hands	Right + Left + Both	Assembly
Male & Female Applicants for Assembly Jobs*	17.86	16.60	14.38	48.81	43.58
Male & Female Applicants for Gen. Factory Work*	17.15	16.01	13.79	46.76	39.30
Male & Female Applicants for Production Work*	17.94	16.81	14.10	48.85	40.67
Female Applicants for Electronic Prod. Work*	18.47	16.77	14.53	49.84	43.76
Female Hourly Production Workers*	18.02	16.81	14.34	49.14	38.08
Male Hourly Production Workers*	16.45	16.31	13.37	46.11	36.89
Male Maintenance and Service Employees*	15.49	15.25	12.31	43.04	38.71
Female Applicants for Sewing Machine Operator: Three Trial Sum*	55.20	51.78	44.03	151.09	133.41

** Data taken from the Appendix A (Tables 8-15) in the original Purdue Pegboard Manual*

Subject Record

Name: _____ Dominant Hand: Right or Left

Reason for Administering: _____

_____

Test Administrator Name: _____ Test Date:____ /____/____

Scoring Grid Based on Number of Parts

	Trial One	Trial Two	Trial Three	Trial Average
Right Hand				
Left Hand				
Both Hands				
Right + Left + Both				
Assembly				

Lafayette Instrument Company

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