



Langdon Adult Intelligence Test

STATISTICAL REPORT

LAIT NORMING #2, 7/15/79

This report provides an overview of the norming of the Langdon Adult Intelligence Test completed in July 1979, including 553 testees. Only a handful of the earliest responses to the test's appearance in the April 1979 issue of *Omni* are included. A further norming will be completed after the bulk of the *Omni* response has been analyzed.

The norming sample included 207 persons tested on Form A and 346 tested on Form B. Form A was an early version of the test, now out of print, differing from Form B only in a few items. Thus, one form cannot be used to obtain an independent measure of intelligence for an individual tested using the other.

Raw scores of all testees were computed using the appropriate formula for Form A or Form B. Additionally, a score for items unchanged between the two forms, and scores for each of two matched sets of items containing one half of the items on each part of the test, were computed for each testee.

Correlations between halves of a test (split-test correlations) are generally lower than those which would be obtained if the tests were full length because any chance variation is a larger percentage of the half test. To compensate for this effect, it is usual to apply the formula $r_2 = \frac{2r_1}{1+r_1}$, where

r_1 is the uncorrected correlation coefficient and r_2 is the corrected correlation. For Form A of the LAIT $r_1 = .822$ and $r_2 = .902$ and for Form B $r_1 = .815$ and $r_2 = .898$.

Scores on other tests reported by testees were entered into the computer with other data from the answer sheets and paired with LAIT scores. A table of LAIT-previous score pairs for LAIT total score and each subscore was constructed for each test which was used in the norming (see Table 1) and arranged in LAIT score order (lowest to highest).

MEANS AND STANDARD DEVIATIONS OF
TESTS USED IN NORMING THE LAIT

<u>Test</u>	<u>Test Code</u>	<u>Mean</u>	<u>Standard Deviation</u>
Stanford-Binet	S	100	15.8
Terman Concept Mastery	T	67	29
Army General Classification Test	A	100	20
California Test of Mental Maturity	C	100	16
Miller Analogies	M	10	28
Wechsler Adult Intelligence Scale	W	100	15
Scholastic Aptitude Test (Total)	X	765	255
Graduate Record Exam (Total)	G	715	255
Cattell Verbal	V	100	23.65
Harding Skyscraper	H	100	16
W87	8	100	16
Bloom Analogies Test	B	0	7.75
Cattell Culture Fair	F	100	16
Eysenck	E	100	15
RAM	R	23	3
ACT	7	23	3

Table 1

CORRELATIONS BETWEEN LAIT AND VARIOUS STANDARD I.O. TESTS

<u>Test Code</u>	<u>Total Number</u>	<u>Part</u>	<u>Limit Number</u>	<u>Limit LAIT Score</u>	<u>Limit Correlation</u>	<u>Total Correlation</u>
S	44	0 Verbal	32	594	.330	.136
		1 Spatial	36	568	.327	.085
		2 Inductive	44	850	.225	.225
		3 Total	32	563	.429	.204
T	10	0	7	665	.295	.169
		1	7	505	.617	.240
		2	8	551	.747	.177
		3	7	599	.522	.273
A	46	0	27	564	.282	.167
		1	45	787	.146	.139
		2	44	766	.138	.107
		3	46	837	.136	.136
C	139	0	87	544	.365	-.242
		1	75	368	.328	-.202
		2	44	263	.342	.165
		3	71	422	.305	-.198
M	37	0	37	818	.338	.338
		1	36	703	.362	.339
		2	10	258	.715	.272
		3	36	710	.441	.410
W	22	0	22	746	.285	.285
		1	15	370	.350	.282
		2	22	783	.271	.271
		3	22	814	.285	.285
X	54	0	54	1000	.141	.141
		1	54	881	.119	.119
		2	54	913	.140	.140
		3	54	865	.111	.111
G	55	0	55	1000	.534	.534
		1	54	829	.484	.470
		2	54	775	.457	.447
		3	55	860	.532	.532
V	160	0	160	974	.311	.236
		1	158	838	.312	.229
		2	158	850	.276	.198
		3	159	870	.323	.245
H	18	0	12	597	.571	.096
		1	9	289	.285	-.150
		2	7	349	.573	.019
		3	10	405	.275	-.082
R	4	0	4	974	.561	.561
		1	4	838	.204	.204
		2	4	757	.586	.586
		3	4	846	.529	.529
7	4	0	4	949	.617	.617
		1	4	872	.607	.607
		2	4	913	.642	.642
		3	4	907	.617	.617

Table 2

Correlations between the LAIT and previous score distributions for LAIT-previous score pairs from the lowest LAIT score through each LAIT score were calculated and printed out and a cutoff point was determined to maximize r^2N , where r is the correlation coefficient and N is the number of score pairs included. Table 2 shows the total number of previous scores reported, the total falling below the cutoff, the overall correlations, and the correlations for the truncated distributions for each test used. Scores on each test were weighted by this correlation figure, representing the relationship between the LAIT and the test concerned without the effects of the generally lower effective ceiling of most other tests, in calculating the overall means, standard deviations, and correlations for LAIT and previous score distributions for all tests included in the norming.

A scatter diagram of LAIT scores against all reported scores on other tests was produced for LAIT total scores and subscores. Outlying points were identified and were not used in calculating distribution means and standard deviations and correlations between LAIT and previous scores. Table 3 summarizes the values obtained.

LAIT AND PREVIOUS SCORE MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

	<u>VERBAL</u>	<u>SPATIAL</u>	<u>INDUCTIVE</u>	<u>TOTAL</u>
Number of Score Pairs	563	566	564	575
LAIT Mean	442.014	408.889	364.927	466.990
LAIT Standard Deviation	238.188	233.495	221.871	222.501
Previous Mean (Z-score form)	2.63167	2.62932	2.62215	2.64632
Previous Standard Deviation	.517525	.527115	.511561	.533550
Correlation	.258021	.479881	.179265	.463281

Table 3

A correction for the very tight distribution of previous scores reported due to the bulk of the norming population having been preselected by these scores was applied to the previous score standard deviations by the formula

$\sigma_2 = \sigma_1 \left(1 + \frac{(1-r)^2}{r} \right)$, where σ_1 is the uncorrected standard deviation, σ_2 is the corrected standard deviation, and r is the correlation between LAIT and previous score distributions.

MEAN LAIT SCORES OF SELECTED GROUPS

<u>Group</u>	<u>Number</u>	<u>Verbal</u>	<u>Spatial</u>	<u>Inductive</u>	<u>Total</u>
All Testees	553	476.262	393.278	414.326	445.333
Men	455	495.323	410.222	432.530	462.455
Women	98	387.765	314.612	329.806	365.837
Mensa Members	442	487.113	397.887	418.570	453.219
Intertel Members	75	462.920	361.907	375.253	418.653
ISPE Members	61	519.049	417.590	434.492	475.754
MM Members	11	622.000	490.364	531.182	553.091
Four Sigma Members	43	840.023	782.861	757.233	802.093
Age Under 20	24	424.348	421.261	423.217	438.087
Age 20-24	52	412.865	385.788	384.846	413.615
Age 25-29	118	514.492	433.712	457.898	485.025
Age 30-34	102	500.794	424.461	436.441	470.657
Age 35-39	61	482.443	413.246	421.869	452.934
Age 40-44	53	464.792	361.698	397.755	424.283
Age 45-49	51	472.588	370.490	395.608	432.333
Age 50-54	37	503.595	383.514	422.811	457.757
Age 55-59	26	491.731	331.885	394.538	425.462
Age 60-64	19	371.526	245.947	279.947	315.368
Age 65+	10	351.400	245.300	254.300	315.800

Table 4

At this point, the LAIT and previous total score means and standard deviations were equated and I.O.'s were calculated. Total and part score means and standard deviations for the entire score distributions were equated to yield subscore I.O.'s. General population percentiles were looked up in an internal table and tested population percentiles were calculated directly.

Correlations between each pair of LAIT score distributions are shown on Table 5.

MUTUAL CORRELATIONS OF LAIT
TOTAL SCORES AND SUBSCORES

	<u>SPATIAL</u>	<u>INDUCTIVE</u>	<u>TOTAL</u>
Verbal	.815947	.941721	.946253
Spatial		.939251	.939024
Inductive			.963145

Table 5

Tables 4, 6, and 7 summarize some general features of the score distributions.

LAIT SCORE DISTRIBUTIONS FOR TESTED POPULATION

VERBAL

<u>Tested Group Percentile</u>	<u>LAIT Scaled Score</u>	<u>General Population Percentile</u>	<u>IO</u>
10	138	89	120
20	239	94	126
30	341	97	132
40	402	98	136
50	493	99	141
60	559	99.7	145
70	628	99.8	149
80	706	99.96	154
90	777	99.98	158
95	848	99.99	162
98	899	99.997	165
99	949	99.999	168

SPATIAL

<u>Tested Group Percentile</u>	<u>LAIT Scaled Score</u>	<u>General Population Percentile</u>	<u>IO</u>
10	104	93	124
20	186	96	129
30	232	97	131
40	304	98	136
50	368	99	140
60	445	99.7	144
70	539	99.9	150
80	616	99.96	154
90	703	99.98	159
95	764	99.996	163
98	838	99.998	167
99	872	99.999	169

Table 6

LAIT SCORE DISTRIBUTIONS FOR TESTED POPULATION (Continued)

INDUCTIVE

<u>Tested Group Percentile</u>	<u>LAIT Scaled Score</u>	<u>General Population Percentile</u>	<u>IQ</u>
10	133	93	124
20	203	95	128
30	298	98	134
40	352	98	137
50	402	99	141
60	476	99.7	145
70	541	99.8	149
80	616	99.96	154
90	705	99.98	159
95	757	99.996	163
98	827	99.998	167
99	870	99.9995	170

TOTAL

<u>Tested Group Percentile</u>	<u>LAIT Scaled Score</u>	<u>General Population Percentile</u>	<u>IQ</u>
10	161	92	123
20	253	96	129
30	324	98	133
40	385	98	137
50	441	99	141
60	501	99.7	144
70	581	99.8	149
80	651	99.96	154
90	720	99.98	158
95	790	99.99	162
98	857	99.998	167
99	870	99.998	167

Table 6 (Continued)

IQ DISTRIBUTIONS FOR TESTED POPULATION

IQ RANGE	VERBAL	SPATIAL	INDUCTIVE	TOTAL
110 - 114	22	0	0	6
115 - 119	25	18	31	25
120 - 124	48	53	45	36
125 - 129	56	64	55	56
130 - 134	46	78	53	58
135 - 139	69	65	83	79
140 - 144	65	68	60	72
145 - 149	61	44	66	58
150 - 154	63	61	62	62
155 - 159	56	53	50	54
160 - 164	25	27	32	30
165 - 169	16	18	11	15
170 - 174	1	4	4	2
175 - 179	0	0	1	0

Table 7