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Differential Sex Performance on the Language Section of the Leiter Adult Intelligence Scale for a College Population

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DIFFERENTIAL SEX PERFORMANCE ON THE LANGUAGE SECTION OF THE LEITER ADULT INTELLIGENCE SCALE FOR A COLLEGE POPULATION

by

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LIFE

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CHAPTER I

INTRODUCTION

Several authors (Anastasi, 1958; Garrett & Schneck, 1933; Goodenough, 1933; Terman & Tyler, 1954; and Tyler, 1947) have surveyed the literature regarding sex differences in abilities. They have generally concluded: 1) that females are superior in manual dexterity, rapid perception of details, verbal or linguistic functions, memory, and artistic and musical aptitudes; and, 2) that males are superior in gross bodily movements, spatial orientation, spatial and mechanical apptitudes.

Specific to intelligence, most studies (Gainer, 1962; Goolishian & Foster, 1954; Havighurst & Breese, 1947; Hobson, 1947; King, 1959; Meyer & Bendig, 1961; Scottish Council for Research in Education, 1939; Sommer, 1958; Strange & Palmer, 1953; and Wechsler, 1958) indicate that females excel in certain areas, or on certain subtests, and that males excel on other subtests of various intelligence testing instruments. Other studies (Levinson, 1963; Pintner & Paterson, 1924; Roberts, Norman, & Griffiths, 1935; and Scottish Council for Research in Education, 1933) have found no sex differences on intelligence test performance. With respect to memory performance, Tyler (1947) points out that most studies indicate female superiority in memory. Both Anastasi (1958) and Tyler (1947) have suggested that in memory for narratives, the direction of sex differences often depends upon the relative appeal of the content for the two sexes. It is to be noted that neither author documented this latter supposition

by data.

There has been no literature found using the Language Section, or verbal part, of the Leiter Adult Intelligence Scale (LAIS) as an instrument testing for sex differences. This scale was developed by Russell Graydon Leiter in 1951 and is composed of two batteries of tests: Language Tests and Non-language Tests. The standardization of the LAIS was made on the basis of data obtained from a population of 256 unselected male World War II veterans between the ages of 19 and 36 years inclusive.

The present study is concerned with male and female performance on the subtests of the Language Section of the LAIS. These subtests include: 1) Similarities-Differences Test; 2) Digits Forward and Backward Test; and 3) Free Recall-Controlled Recall Test. The following survey of the literature, therefore, includes studies using those intelligence tests which have memory and/or similarities (and differences) subtests, as well as studies treating only memory.

With respect to similarities, most studies using general intelligence tests indicated no significant sex difference; those studies in which there was a significant difference found the females to be superior. With respect to sex differences in memory as tested by general intelligence tests, males were usually found to be superior to females in remembering digits; females generally excelled in memory for words and sentences. There was no specific trend with respect to sex differences on total intelligence test performance.

Most of the studies employing general intelligence tests have used either the Wechsler-Bellevue tests or the Wechsler Adult Intelligence

Scale (WAIS). Wechsler's (1939) original standardization data on the Wechsler-Bellevue I showed insignificant but positive sex differences on the Full Scale scores in favor of female subjects. Jastak (1949), summarizing a number of studies, indicated that on the Wechsler-Bellevue test, males tend to be better in Information, Picture Completion, Object Assembly, Arithmetic, and Digit Span, while females tend to be better in Vocabulary, Digit Symbol, Comprehension, Picture Arrangement, and Block Design. Norman (1953) gave the Wechsler-Bellevue I to 85 male and 68 female college students of superior intelligence (Full Scale IQ = 120+). He found that men were significantly higher only on Arithmetic, and that women were significantly higher only on Digit Symbol. Strange & Palmer (1953) administered the Wechsler-Bellevue (W-B) to 145 male and 90 female psychiatric out-patients. The men obtained significantly higher scores on the Verbal, Performance, and Full Scale IQs, and on all but one subtest, Vocabulary; this subtest yielded no significant difference. Goolishian (1954) who gave the W-B to 190 male and 202 female white psychiatric patients without known organic brain pathology and with age and education held constant, found that his male Ss were superior on Digit Span, and Verbal, Performance, and Full Scale IQs. Studies by Brown & Bryan (1955), and Howell (1955) also revealed sex differences in favor of men. Subsequent studies continued to show that men do significantly better on the W-B as a whole, and particularly on the Performance section.

In light of these findings, Wechsler (1958) analyzed his WAIS standardization data with respect to sex differences. He found that: 1) there were systematic but negligible differences in Verbal, Performance, and

Full Scale scores in favor of males; and, 2) of the 11 WAIS subtests, 8 clearly differentiated the sexes: the females did better on Similarities, Vocabulary, and Digit Symbol, and the males did better on Information, Comprehension, Arithmetic, Picture Completion, and Block Design. There were no significant sex differences on Digit Span, Picture Arrangement, or Object Assembly. From his results, Wechsler obtained an M-F score by ascertaining the algebraic difference of the sum of the weighted scores on Information, Arithmetic, and Picture Completion, and the sum of the weighted scores on Vocabulary, Similarities, and Digit Symbol.

Miele (1958) used 850 males and 850 females (16 to 64 years of age) from Wechsler's standardization population of the WAIS, and 1100 males and 1100 females (5 to 15 years of age) from Wechsler's standardization population of the WISC. Treating the data with the three factor analysis of variance technique, Miele found that: 1) there were no significant sex differences in general intelligence on either the WISC or on the WAIS; and, 2) the WAIS females were consistently superior on Similarities. Levinson (1963) studied the WAIS protocols of 30 male and 30 female Ss who had at least a high school education and who were of at least average intelligence; he found no statistical differences between the two groups. Shaw (1965) gave the WAIS to 50 male and 50 female college students. He found no significant sex differences on the Digit Span and Similarities subtests, and on the Verbal, Performance, and Full Scale IQs. He did find that the Wechsler M-F score differentiated between the sexes more efficiently than any subtest ($p < .001$).

A number of studies have used the Primary Mental Abilities Test (PMA)

to determine sex differences in intelligence. Havighurst & Breese (1947) tested all 13 year-old children in a midwestern community on the PMA. They found that girls excelled on N (Numbers), W (Word Fluency), R (Inductive Reasoning), and M (Visual Memory), while the boys excelled on S (Spatial Orientation). Hobson (1947) gave the PMA to several groups of eighth and ninth grade students and found that girls made significantly higher scores on W, R, and M, whereas boys were higher on S and V (Verbal Comprehension). Herzberg & Lepkin (1954) gave the PMA to 1049 high school seniors (16 to 18 years of age). At all three age levels, boys were significantly higher on S and girls were significantly higher on W. V and R were significantly higher for girls, but only at the 17-year-old level. There was no significant sex difference on M. Meyer & Bendig (1961) gave the PMA to boys and girls when they were in the eighth grade and when they were at the end of the eleventh grade. Their results showed that none of the sex differences was significant in Grade 8, but in Grade 11 the girls did significantly better on V, R, N, and W. The boys scored higher on S at both grade levels, but not significantly. As in the study by Herzberg & Lepkin (1954), there was no significant sex difference on M.

Studies using other intelligence tests have generally found similar results. Pressey (1918) administered the Pressey Group Test of Intelligence to 880 children between the ages of 9 and 14. He found that at all ages, the girls excelled in total score, in rote memory for words, naming opposites, word completion, dissected sentences, analogies, and moral classification; the boys excelled in arithmetic at all ages, and in practical information from age 11 on. When Book & Meadows (1928) administered the

Pressey Group Test of Intelligence to 4929 high school seniors ranging in age from 16 to 23, the males excelled in total score. Performance on the separate tests, however, showed the same hierarchy as that in Pressey's study. Whipple (1927) examined the scores of 834 freshman and senior high school students -- 356 males and 478 females -- on the Army Alpha and reported male superiority on the number series test. Terman & Cuneo (1918) gave the Stanford-Binet to 112 kindergarten children and found the girls superior on the tests of digit span and memory for sentences. When Terman & Miles (1936) administered the Stanford-Binet to older children, they reported girls superior to boys in memory for digits and in reproduction of drawings from memory. Roberts, Norman, & Griffiths (1935) administered the Advanced Otis test to 3500 children (9½ to 13½ years of age) from Bath, England. Findings showed no sex differences in mean scores. When the Scottish Council for Research in Education conducted its first (1933) and second (1939) surveys, no significant sex differences were found on the 1916 Stanford-Binet test results of all children in the country who were born on February 1, May 1, August 1, and November 1, in 1926. The third survey (1949), using a similar sampling of children born in 1936, reported boys as having a significantly higher mean IQ when the Terman-Merrill Revision of the Stanford-Binet, Form L, was used, and the girls as having a significantly higher mean IQ when the group form was used.

Various tests of memory have yielded conflicting results as to sex differences. Kirkpatrick (1894) and Pyle (1920) each measured memory span for words on children (third grade to high school students) and found girls to be superior to boys. Achilles (1920) tested adults and children in

memory for words as well as for syllables, proverbs, and geometric forms; he found female superiority in nearly every comparison made. Bryan (1934) administered a vocabulary test, the Stanford-Binet test, and 11 memory tests to 100 boys and 100 girls (5 to 6 years of age); no significant sex differences were found. Duggan (1950) administered an immediate recall test to groups of secondary school students. The test was divided into three parts: a) observational noting of common objects; b) word memory; and, c) number memory. She found girls to be superior at observational noting and word memory, and boys to be superior in remembering numbers. Pintner & Paterson (1917) gave a digit span test to children and found no sex difference. Some studies involving narratives have shown slight superiority of boys (Bassett, 1929; Dietze, 1932; and Shaw, 1896), while other studies have shown superiority of girls (King, 1959, Mulhall, 1917; and Pyle, 1913). Bassett tested 95 boys and 95 girls in the sixth and seventh grades on a history knowledge retention test (the sexes were matched on the basis of performance on certain standardized history tests). He found the boys to be slightly superior to the girls in their ability to remember the facts and principles of history, and especially in retention of information concerning war, fighting, and geographical location. The girls were superior to the boys in their retention of that content which treated of domestic conditions and home life. Dietze tested 2789 boys and girls in grades 7 to 12 (paired as to both age and grade) for factual memory on three articles of approximately 100 words in length. The boys were better in 20 out of 26 comparisons, the girls in 5, and in 1 there was no difference. A biserial r of +.20 indicated, however, that the relationship between sex and memory was not marked. King had his 29 groups of Ss learn

partly connected meaningful material and computed both the mean number of words recalled and the mean delayed recall scores for the two sexes. He found that women recalled significantly more words in 21 of the 29 groups, but that there were no sex differences in terms of loss of material. In the studies by Mulhall and Pyle, narratives were used whose content favored neither sex; girls were found to excel more consistently in logical than in rote memory. Sommer (1958), using 49 female and 27 male psychiatric nursing students, showed that males were significantly better able to retain new quantitative information when tested for immediate recall of two paragraphs; no significant sex differences were found in remembering non-quantitative material. When this test was repeated on a group of 154 university students, Sommer obtained the same results, as well as a lack of significant difference between the males and females in the recall of six and seven digits on a brief digit span test.

Based upon the above literature, it is best to treat the present study as an empirical investigation of male and female performance on the Language Section of the LAIS. Weaver (1950), using 50 male and 50 female college students for his sample, made a study of sex differences only on the Non-language Section of the LAIS and found no significant sex differences (either in central tendency or in variability) on any of the subtests. There has been no literature found concerning sex differences on the Language Section, or verbal part, of the LAIS. It is possible to offer a rather tenuous hypothesis regarding male and female differences on the memory subtest. This subtest, the Free Recall-Controlled Recall Test, has as the content of its passage a war story, which has been considered by a group of peers to be

somewhat "masculine" (see Appendix I for memory subtest passage). A tentative hypothesis was, therefore, that males would perform significantly better than females on the memory subtest of the Language Section of the LAIS.

CHAPTER II

METHOD

Subjects

The Ss were 80 students -- 40 males and 40 females -- enrolled in introductory psychology classes at Loyola University, Lewis Towers. These Ss participated in the study in order to fulfill a course requirement.

Instruments

The test material included the three subtests of the Language Section of the LAIS (Leiter, 1951): 1) Similarities-Differences Test (Sim.-Diff.); 2) Digits Forward and Backward Test (Digit Span); and, 3) Free Recall-Controlled Recall Test (FR-CR).

Procedure

Ss were tested individually in the same testing booth. Each S was told by E: "I'm going to give you the Language Section of the Leiter Adult Intelligence Scale. I'm interested in the general performance of college students on this particular test, since no one has ever used it for research purposes before. Your performance will be kept confidential and will have no effect whatsoever on your grades. Do you have any questions?"

Each subtest of the Language Section was administered using the instructions exactly as they appeared in the Manual, and in the same order as the subtests appeared in the Scale.

CHAPTER III

RESULTS

Raw scores and IQ scores on the subtests and on the total Language Section were computed for each S, using Leiter's Manual. In converting the raw scores to IQ scores, it was necessary to interpolate, as Leiter's conversion tables did not extend beyond the range of IQs of 49 to 150. The following statistical calculations were made: 1) The mean differences between male and female performance on the subtests and on the total Language Section were tested for significance by using *t* tests; 2) Sex differences in variability on the subtests and on the total Language Section were tested for significance by using Bartlett's tests for homogeneity of variances; 3) Item analyses were made of the FR and CR sections of the FR-CR subtest; 4) For both males and females, comparisons were made between the number of correct items on CR and the number of correct corresponding items on FR; 5) Finally, comparisons were made between males and females with respect to the relative performance on FR and CR.

The means, standard deviations, and *t* ratios are included in Table 1. Regarding sex differences in central tendency, as shown by the *t* ratios, the males scored significantly higher on the Controlled Recall (CR) section of the Free Recall-Controlled Recall subtest (FR-CR); here, $t = 2.39$ ($p < .01$). The males also scored significantly higher on the FR-CR subtest as a whole; based on raw scores, $t = 2.01$ ($p < .02$), and based on IQ scores

TABLE 1

MEANS, STANDARD DEVIATIONS, AND T-SCORES
OF RAW SCORES AND IQ SCORES

	Males		Females		
Variable	M	SD	M	SD	t-score
Raw Scores					
Sim.	15.10	2.39	15.15	2.35	0.10
Sim.-Diff.	27.80	5.12	28.70	3.94	0.88
Digit Span	50.40	9.62	48.50	8.16	0.95
FR	12.85	5.79	11.13	5.43	1.38
CR	7.95	2.88	5.85	3.91	2.39**
FR-CR	20.80	8.20	16.98	8.80	2.01*
Total Raw Score	99.00	13.69	94.18	13.91	1.56
IQ Scores					
Sim.-Diff.	110.30	15.82	112.50	13.11	0.68
Digit Span	127.18	36.46	120.80	32.42	0.83
FR-CR	110.10	34.51	92.80	38.95	2.10*
Total	115.23	12.53	110.35	13.66	1.66

Significance: * .05 level
** .02 level

$t = 2.10$ ($p < .02$). There was no significant difference between males and females on the Free Recall (FR) section of the FR-CR subtest. With respect to the other subtests and to the total score, no significant sex differences were revealed, either with raw scores or with IQ scores.

There were no significant sex differences in variability. The variances for males and females on each subtest are shown in Table 2.

Tables 3 and 4 show item analyses of the FR and CR sections of the FR-CR subtest. Although there were no significant sex differences on the total FR section, more males than females were correct on 22 out of 30 items; females surpassed males on only 6 items; and on 2 items, an equal number of males and females got the items correct. On the CR section, more males than females were correct on 6 out of 7 items, and more females than males were correct on 1 item. Sign tests applied to these item analyses yielded a $p < .001$ for the FR analysis and a $p < .05$ for the CR analysis.

Table 5 shows a comparison between the number of males getting an item correct on CR and the number of males getting the same item correct as it appears in FR (since CR items 2, 6, and 7 are each composed of 2 corresponding FR items, these 3 CR items were analyzed in 2 parts; thus, for the purposes of this analysis, 10 CR items will be considered in both Tables 5 and 6). Results show that on 7 out of 10 corresponding FR and CR items, more males got an item correct on the CR than on the FR; on 2 corresponding FR and CR items, more males got the item correct on the FR than on the CR; and on 1 corresponding FR and CR item, there was an equal number of males getting that item correct on the FR as on the CR. In general, there were 35 times when a CR item was answered correctly while its corresponding FR item was

TABLE 2

MEANS, VARIANCES, AND BARTLETT'S TESTS OF
RAW SCORES AND IQ SCORES FOR MALES AND FEMALES

	Mean		Variance		
Variable	Males	Females	Males	Females	B'
Raw Scores					
Sim.	15.10	15.15	5.73	5.52	0.1733
Sim.-Diff.	27.80	28.70	26.22	15.50	2.6635
Digit Span	50.40	48.50	92.55	66.62	1.0417
FR	12.85	11.13	33.52	29.45	0.1554
CR	7.95	5.85	8.31	15.26	3.5066
FR-CR	20.80	16.98	67.24	77.46	0.1886
Total Raw Score	99.00	94.18	187.49	193.58	0.0135
IQ Scores					
Sim.-Diff.	110.30	112.50	250.11	171.85	1.3649
Digit Span	127.18	120.80	1329.07	1050.73	0.5384
FR-CR	110.10	92.80	1191.17	1517.29	0.5666
Total	115.23	110.35	156.95	186.64	0.2945

TABLE 3

ITEM ANALYSIS OF FR ITEMS FOR MALES (M) AND FEMALES (F)

	FR Item	M	F	F>M	M>F	M=F	Sign of M-F*
1.	While on night patrol	5	3		2		+
2.	on the Normandy Beachhead	12	9		3		+
3.	in June, 1944	22	20		2		+
4.	Sergeant	30	34	4			-
5.	Fenn	18	23	5			-
6.	and his squad	5	4		1		+
7.	were ordered to wipe out	30	23		7		+
8.	a machine gun position	32	17		5		+
9.	about a mile away	6	8	2			-
10.	After advancing	12	6		6		+
11.	a half mile	8	7		1		+
12.	they came to a swamp	20	20			=	0
13.	not shown on their map	16	14		2		+
14.	The sergeant sent	21	17		4		+
15.	Corporal	18	15		3		+
16.	Coburn	16	11		5		+
17.	with half of the squad	14	7		7		+
18.	around the southern side	20	21	1			-
19.	of the swamp	8	7		1		+
20.	and took the rest	12	12			=	0
21.	around the northern side	18	17		1		+
22.	Both groups	15	13		2		+
23.	attacked	15	17	2			-
24.	two hours after starting from camp	14	11		3		+
25.	The machine gun nest	29	24		5		+
26.	was wiped out	31	28		3		+
27.	The next day	19	18		1		+
28.	the sergeant was praised	26	29	3			-
29.	by his commanding officer	10	8		2		+
30.	for resourcefulness	13	9		4		+

* A sign test was applied and showed that $p < .001$.

TABLE 4

ITEM ANALYSIS OF CR ITEMS FOR MALES (M) AND FEMALES (F)

CR Item	M	F	F>M	M>F	Sign of M-F*
1. What was the sergeant's name?	16	17	1		-
2. What was his squad ordered to do?	32	18		5	+
3. What did they find after going a half mile?	25	22		3	+
4. Which way did the sergeant go around the swamp?	27	18		9	+
5. What was the corporal's name?	12	9		3	+
6. What did the commanding officer tell the sergeant the next day?	15	8		7	+
7. What was the result of the attack?	32	22		10	+

* A sign test was applied and showed that $p < .05$.

TABLE 5

ITEM ANALYSIS OF CORRESPONDING FR AND CR ITEMS FOR MALES

CR #	CR Item frequency	FR #	FR Item frequency	FR>CR	CR>FR	FR=CR	Sign of CR-FR
1.	16	5.	18	2			-
2.	37	7.	30		7		+
	32	8.	32			=	0
3.	25	12.	20		5		+
4.	27	21.	18		9		+
5.	12	16.	16	4			-
6.	29	28.	26		3		+
7.	32	25.	29		3		+
	37	26.	31		6		+
				6	35	1	

* A sign test was applied and showed that $p < .07$.

not; there were 6 times when an FR item was answered correctly while its corresponding CR item was not; and there was 1 instance where a CR item and its corresponding FR item were answered correctly an equal number of times. A sign test applied to this analysis yielded a $p < .07$.

Table 6 shows a comparison between the number of females getting an item correct on CR and the number of females getting the same item correct as it appears in FR. Results show that on 4 out of 10 items, more females got an item correct when it appeared in the CR than when it appeared in the FR; on 4 corresponding CR and FR items, more females got the item correct on the FR than on the CR; and on 2 items, there was an equal number of females getting the items correct on the FR as on the CR. In general, there were 6 items when a CR item was answered correctly while its corresponding FR item was not; there were 10 times when an FR item was answered correctly while its corresponding CR item was not; and there were 2 instances where a CR item and its corresponding FR item were answered correctly an equal number of times. A sign test applied to this analysis yielded a $p < .27$.

An overall comparison between Tables 5 and 6 indicates that males improved on the CR while females performed better on the FR, with respect to items which appeared in both the FR and CR sections of the FR-CR subtest.

TABLE 6

ITEM ANALYSIS OF CORRESPONDING FR
AND CR ITEMS FOR FEMALES

CR #	CR Item frequency	FR #	FR Item frequency	FR>CR	CR>FR	FR=CR	Sign of CR-FR*
1.	17	5.	23	6			-
2.	22	7.	23	1			-
	19	8.	17		2		+
3.	22	12.	20		2		+
4.	18	21.	17		1		+
5.	9	16.	11	2			-
6.	30	28.	29		1		+
	8	30.	9	1			-
7.	24	25.	24			=	0
	28	26.	28			=	0
				10	6	2	

* A sign test was applied and showed that $p < .27$.

CHAPTER IV

DISCUSSION

The literature surveyed indicates that: 1) there is no specific trend with respect to sex differences on total intelligence performance; 2) most studies have found either no sex difference or female superiority on similarities subtests; and, 3) regarding memory, many studies have shown males to be superior in remembering digits, and females to excel in memory for words and sentences. With respect to the last finding, the direction of sex differences has been said (Anastasi, 1958; Tyler, 1947) to depend upon the relative appeal of the content for the two sexes, but this supposition was not documented by data.

The findings from the present study confirm the first and second statements, but conflict with the third. Regarding the first conclusion, these results indicate no significant sex difference in total intelligence performance; the males did slightly better than the females ($p < .10$), but this is partly attributable to the difference in CR scores. On the Sim.-Diff. subtest, the raw score and IQ means of the females were higher than those of the males, but these differences were not significant. When the similarities section was analyzed, an even smaller sex difference was found. The findings on the Digits Forward and Backward subtest do not confirm previous studies: here, no significant sex differences were found, although the males were slightly higher than the females.

The results obtained on the FR-CR subtest seemed rather interesting, since there was a significant sex difference on CR in central tendency,

but no significant differences on FR. The fact that a significant sex difference in central tendency was found on the FR-CR subtest as a whole is largely attributable to the significant CR difference, but FR was in the predicted direction. An item analysis of this subtest showed that more females than males were correct on only 6 of the 30 FR items and on only 1 of the CR items. The author could find no particular difference between those FR items on which females excelled and those on which they did not. It should be noted that of the 6 FR items on which females surpassed males, 5 did not employ any warfare terminology. The other item in the FR surpassed by the females -- which was also the item that more females got correct on the CR -- consisted of the word "Sergeant"; although a warfare term, it is rather common. With respect to "warfare vs. non-warfare" terminology, the author can offer no explanation for the finding that females excelled on a few non-warfare items but not on other non-warfare items. The non-warfare FR items surpassed by females were distributed over the entire narrative, thus excluding any hypothesis about the relationship of correct items and the position of these items in the narrative when it was read by E.

A comparison was made between the number of correct items on CR with the same correct items as they appear on FR, for each sex. The males got these items correct more often on CR, and the females got these items correct more often on FR. The hypothesis offered by Anastasi (1958) and Tyler (1947) -- that the direction of sex differences depends on the relative appeal of the content for the two sexes -- could be an explanation for this results. In the FR, Ss were required to state any information,

in any order of presentation, which they could remember about the narrative. In the CR, Ss were required to answer specific questions about the content of the narrative. These questions pertained to the most important elements of the story, i.e., those elements making up the plot of the story. Performance on the CR section, therefore, required the ability to understand and organize the material, as well as the ability to repeat the content of the story. According to the "relative appeal" hypothesis, the more one is interested in certain material, the better one can deal with, understand, and organize it. Since the material in the FR-CR subtest has been considered somewhat "masculine" -- because it deals with war -- it is to be expected that the males would be more proficient than the females in understanding and organizing material of this nature. As mentioned above, the females surpassed the males on only one warfare item (which appeared in both FR and the CR), and this item ("Sergeant") was considered to be rather common in everyday experience.

In sum, the results of this study seem to correspond to previous investigations with respect to sex differences on total intelligence performance and on similarities performance. The present study did not confirm previous findings on memory, but did support the hypothesis posited by Anastasi (1958) and Tyler (1948) that the direction of sex differences will depend upon the relative appeal of the content for the two sexes.

CHAPTER V

SUMMARY

A survey of the literature was made on sex differences in intelligence, with specific attention being paid to sex differences in memory performance. The Language Section of the Leiter Adult Intelligence Scale (1951) was administered to 40 male and 40 female students enrolled in introductory psychology classes at Loyola University. This Section contains three subtests. The memory subtest involves a topic which by common consensus in considered "masculine", namely, warfare. Thus, it was hypothesized that males would perform better than females on the memory, or Free Recall-Controlled Recall subtest (FR-CR).

Results showed: 1) no significant differences in central tendency or in variability on the Similarities-Differences subtest and on the Digits Forward and Backward subtest; 2) a significant difference in central tendency on the FR-CR; 3) significantly more items answered correctly by males on both FR and CR; and, 4) better performance by males on CR than on FR, and better performance by females on FR than on CR.

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FR-CR TEST

PART I—FREE RECALL

	SCORE		SCORE		SCORE
WHILE ON NIGHT PATROL		A HALF MILE		AROUND THE NORTHERN SIDE.	
ON THE NORMANDY BEACHHEAD		THEY CAME TO A SWAMP		BOTH GROUPS	
IN JUNE, 1944		NOT SHOWN ON THEIR MAP.		ATTACKED	
SERGEANT		THE SERGEANT SENT		TWO HOURS AFTER STARTING FROM CAMP.	
FENN		CORPORAL		THE MACHINE GUN NEST	
AND HIS SQUAD		COBURN		WAS WIPED OUT.	
WERE ORDERED TO WIPE OUT		WITH HALF OF THE SQUAD		THE NEXT DAY	
A MACHINE GUN POSITION		AROUND THE SOUTHERN SIDE		THE SERGEANT WAS PRAISED	
ABOUT A MILE AWAY:		OF THE SWAMP		BY HIS COMMANDING OFFICER	
AFTER ADVANCING		AND TOOK THE REST		FOR RESOURCEFULNESS.	

Score: Part I

PART II—CONTROLLED RECALL

QUESTIONS	SCORE
1. WHAT WAS THE SERGEANT'S NAME?	
2. WHAT WAS HIS SQUAD ORDERED TO DO?	
3. WHAT DID THEY FIND AFTER GOING A HALF MILE?	
4. WHICH WAY DID THE SERGEANT GO AROUND THE SWAMP?	
5. WHAT WAS THE CORPORAL'S NAME?	
6. WHAT DID THE COMMANDING OFFICER TELL THE SERGEANT THE NEXT DAY?	
7. WHAT WAS THE RESULT OF THE ATTACK?	
Score: Part II	

Raw Score (Part I + Part II)

I.Q. Score

APPROVAL SHEET

The thesis submitted by Shula Avni Luber has been read and approved by the director of the thesis. Furthermore, the final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

Jan 18, 1967
Date

Ronald E Walker
Signature of Adviser