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Comparison of an Oral Form of the MMPI with a Booklet Form

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COMPARISON OF AN ORAL FORM OF THE MMPI WITH A BOOKLET FORM

by

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INTRODUCTION

The purpose of this study is to compare a tape recorded form of the Minnesota Multiphasic Personality Inventory (MMPI) with the standard booklet form (Hathaway & McKinley, 1967). Both tests used in the study are distributed by the Psychological Corporation.

Historical Perspective

Salient work in evaluating oral tests for "handicapped" Ss, i.e., illiterates, the blind, people with low IQs, delinquents, etc., began essentially in 1945 (Altus & Bell). They were the first to use the MMPI orally.

Altus and Bell (1945) adapted the MMPI for oral administration in the military. Soldiers were assigned to a Special Training Center on the basis of results of group tests. A test of maladjustment was read to the soldiers as an adjunct to group testing. The purpose of the Special Training Center was to raise the reading level of the soldiers to a fourth grade level within a 16-week period. Those soldiers who did not achieve a fourth grade level were discharged from the service. Men discharged had more deviant scores on standard measures of maladjustment than did those men not discharged.

Two scales from the MMPI, Hypochondria and Paranoia, were markedly altered and combined with The Army Adjustment Test and

The Bell Adjustment Inventory, Student Form, to devise a new measure of maladjustment. The resultant product was an 87-item orally administered test. The authors concluded that the test was a good predictor of trainee success in school, i.e., graduation or discharge.

Two important points were evident from the study. First, very low Wechsler scores and very low literacy levels precluded success regardless of adjustment level. Secondly, the extent to which motivational factors influenced the results could not be determined. Subsequent evaluation (Altus & Bell, 1947) of the 87-item test led the authors to conclude that it was both reliable and valid. They felt that oral tests which have rigorous validation of items would not have low reliability and could prove to be useful elsewhere.

Reading tests to a large number of men can be tiring and time consuming. Thus, 24 of 87 items of the test of maladjustment were included in an abbreviated scale, to which were added six altered items from the MMPI's Depression scale, and six items developed by an Army psychiatrist (Altus, 1945). Validity of the 36-item adjustment test was determined by trainee disposition, i.e., graduated or discharged, and also by the frequency with which medical attention was sought by trainees though no organic problem was uncovered. Validity for the shortened test was subsequently re-evaluated by Altus (1946). The 36-item test discriminated between a group of enuretic soldiers and a closely matched control group. The shortened

oral test was subsequently used by Altus (1949) as a criterion for assessing a food aversion checklist and as a measure of maladjustment for 100 male illiterates having frequent constipation (1950).

The usual booklet form of the MMPI is inappropriate not only for illiterate Ss but for blind Ss as well (Cross, 1945). The complete MMPI was transcribed into braille. The braille version was given to 25 blind men and 25 blind women by Cross (1947) resulting in profiles considered valid. The conclusion of this study was that the shift in modality from visual to tactile did not significantly alter their MMPI profiles and that the braille version could be used with the blind.

Potter (1950), attempting to describe the blind personality, combined an oral recording with printed cards. He incorporated a system of check cards so that evaluation could be made of how accurately cards could be placed into one of three piles, True, False, or Cannot Say. Instructions were given to Ss to place the check cards into specified piles such as the True pile. The procedure was effective. Since inexpensive printed cards could be used, the necessity for the expensive braille cards was obviated.

Dean (1957a) also utilized the MMPI in attempting to quantitatively evaluate 54 blind Ss. He tried to determine the efficacy of tests for assessing blind adjustment and to delineate personality characteristics of the blind. He did not report how the MMPI was administered, but the citation of Cross' 1947 study would suggest

that he used the braille version of the MMPI. Dean found no reason to doubt the validity of his test results. He developed a single indicator of adjustment. The score was based on the T value of each scale. If all clinical scales were between 41 to 59 T points, an adjustment score of 10 was earned, or one point for each scale within plus or minus one T score. Two points were earned for scores in either the 60 to 69 or 31 to 40 range. This is a rather rare and unusual method of evaluating the MMPI.

A more comprehensive discussion of the previous study was reported subsequently by Dean (1957b). Gough's test-taking attitude, F minus K, and the Taylor Manifest Anxiety Scale were utilized to determine a purported characteristic of the blind, anxiety. The first 366 items, plus all of scales K and Si, were used from the MMPI's 566 items. The test was administered verbally. Results indicated the blind to be more defensive, attempting to "look good."

Hibbeler (1947) attempted to assess personality patterns of patients suffering from glaucoma. Three hundred sixty-six of the 566 items from the booklet form of the MMPI were read to 19 of the 27 patients. On the basis of the MMPI results, the author believed the glaucoma patients had a higher incidence of severe personality disorders than the general population. Two-thirds of the sample had a score on one or more of the scales equal to or greater than a T score of 70. The high incidence of primed scales should have been indicative

of the need to further evaluate the oral version of the MMPI. Deviant results may have been due to the shift in administration from visual to oral, or to the blind population per se. Hibbeler felt the MMPI results were valid and unaffected by oral administration. No objective criteria for validity was defined.

Another group of people frequently unable to use the booklet form of the MMPI are juvenile delinquents. Glenn (1949) evaluated personality patterns of delinquents who had low intelligence test scores. It was necessary to read the MMPI to many Ss in the study. He felt oral administration had potential value for those Ss reading between a third and fourth grade level and having a Wechsler-Bellevue IQ of not less than 60. For convenience, only the first 465 items of the inventory were given, though. Glenn did not specify his rationale in shortening the test. Synonyms, phrase substitutions, or colloquial expressions were used for item clarifications. Examples of some of the words on which the delinquents required clarification were "constipation," "diarrhea," and "journalist."

More currently and more relevant to this project were studies done in the early 60's (Urmer, Black & Wendland, 1960; Wolf, Freinek & Shaffer, 1964). Each of the recent research projects was concerned specifically with the MMPI as an orally administered test.

Utilization of the MMPI was incidental to the major questions of adjustment or personality descriptions of people with various

handicaps until Urmer, et al., (1960) made a direct assessment of the comparability of a recorded tape version with the booklet form. The first 375 items plus items 383, 398, 406, and 502 were tape recorded along with standard instructions. The test was given individually in a counterbalanced design to 39 male and two female hospital patients. Intervals between tests ranged from one week to three months. No statistically significant differences were found between the two forms, and the Pearson product-moment correlation coefficients for the two tests yielded results in concordance with a previous test-retest study of the booklet form (Rosen, 1953).

The first study to use the complete MMPI as an oral test was conducted by Wolf, et al., (1964). They recorded all 566 items from the booklet form of the MMPI with instructions. Their intent was to evaluate the full inventory, as the number of working items within the test is diminishing. Dahlstrom and Welsh (1960) list 213 subtests from the MMPI of which 14 are commonly used, i.e., the four validity scales and the 10 clinical scales. The test was administered in a counterbalanced order on consecutive days to the following Ss: 58 female student nurses, 120 literate male penitentiary inmates with a reading level equal to or greater than the sixth grade, and to 120 semi-literate male penitentiary inmates with a reading level below the sixth grade. The test was administered in groups to approximately 30 Ss with a single tape recorder. The authors concluded that no

statistical difference existed between the oral and booklet forms. Differences between the literate and semi-literate prisoners were interpreted as evidence of psychopathology, regardless of test format. Correlational coefficients were compared with a previous test-retest study and indicated similar magnitudes.

An incidental addition to the experiment involved testing 30 inmates unable to read the booklet form. Forty-seven percent of the profiles in this sample were valid as determined by the following criteria: (a) F minus K less than plus nine, (b) L less than 10, (c) and F less than 16.

Statement of Problem and Hypotheses

Previous assessments of tape recorded versions of the MMPI and versions read have several major drawbacks. The literature indicates but one study directly assessing comparability of oral and booklet MMPI forms which uses the full 566-item inventory (Wolf, et al., 1964). Increased utility of newer scales necessitates evaluation of the full inventory.

Sample size has typically been small in studies administering oral tests individually. Also, the sample selections have been less than optimal. Reading level, probably one of the more salient variables, has not often been clearly evaluated. Another facet in assessment of the two testing formats is the time span between the first and second

testing periods. The literature has time spans ranging from one day to several months. Variation appears to result from attempts to make studies convenient. Unfortunately, convenience is not synonomous with good science.

Two additional drawbacks in past studies are relative to administration techniques and validity criteria. Both how a test is given and how it is assessed need to be clearly specified if techniques are to contribute to behavioral science and become stepping stones rather than curios.

It is this experimenter's belief that the current exploratory procedure ought to be grounded in pragmatism. Administration of the MMPI by tape recorder most likely will not become a routine procedure. The oral form of the MMPI is more cumbersome, expensive, and time consuming to give to average readers than the booklet form. If we are interested in giving a test which is similar to the standard booklet form, then we should remember that reading is essentially a self-paced, quiet, individual procedure. Evaluation of testing procedures should duplicate as much as possible actual conditions. The oral version should be evaluated as an individual test, both because it is closer to reading conditions and because Ss will seldom come for testing in groups.

Sample selection is always important, but it has particular significance in this study. This experiment attempts to do two things

which initially seem contradictory. First, it is hypothesized that the taped version of the MMPI will yield similar results to the booklet version. However, if the oral test is to be useful, it should reach blind or illiterate Ss which the booklet test is unable to reach. Consequently, it is also hypothesized that the oral test will be more advantageous than the booklet form at times.

College students and juvenile delinquents were employed as Ss to assess comparability of the oral form and the booklet form and the possible advantages of the oral form over the booklet form.

College students were chosen as they are accessible, and it is assumed they will have a reading level sufficiently high to allow them to take the booklet test. If the oral MMPI is comparable to the booklet MMPI, then no significant differences should result.

Juveniles were also employed as their ages and behavioral problems may evidence potential reading difficulty. Should the reading level of the juveniles prove to be marginal or submarginal, then results from them for the two modes of testing ought to be different. As the tape version of the MMPI mitigates the necessity to read well, juveniles should produce more valid profiles on the oral test than on the booklet test.

The following hypotheses are based on the preceding assumptions about college and juvenile Ss.

1. There will be no statistically significant difference in scale scores between the oral and booklet form of the MMPI for either college females or college males.

2. There will be statistically significant differences in scale scores between the oral and booklet forms of the MMPI for juvenile females and juvenile males.

3. Juvenile females and juvenile males will produce a higher number of valid profiles on the oral form of the MMPI than on the booklet form.

METHOD

Both the standard booklet MMPI and a tape recorded MMPI were given to 80 Ss. The booklet form of the MMPI, all 566 items, plus standard instructions and brief definitions of words such as "diarrhea," "constipation," and "nausea" were tape recorded. Each item on the tape recording was read twice with a delay of approximately three seconds between items. A standard monaural tape recorder was employed with padded earphones for individual administration. Both versions of the MMPI employed in this study are sold commercially through the Psychological Corporation. In order to use the complete oral version, approximately two hours and 15 minutes were required. National Computer Service (NCS) answer sheets were used and were machine scored. The Wide Range Achievement Test was used to assess reading level for all Ss (Jastack & Jastack, 1955).

Taking the test was not mandatory, and all Ss were solicited. No S was allowed to participate in the experiment who volunteered prior to solicitation. Although randomness cannot be assumed for selection, it can be assumed for assignment in order of presentation (booklet-oral vs. oral-booklet).

Subjects

Two groups of Ss were used in the study to obtain representation of differing age groups. The college group had 40 undergraduate students, consisting of 20 college females and 20 college males. The students tested were part of a speech course. The entire class, with the exception of six students, was tested. Six male students and four female students were gained from a work-study program.

Table 1 indicates little difference in age, class rank, or reading level between college students. Approximately two-thirds of the students were from 19 to 22 years of age, had a class rank of sophomore or above, and read at a grade level of college freshman or higher.

The juvenile group had 40 members of a juvenile home, consisting of 20 females and 20 males. The juveniles were part of a group being restrained on weekends; consequently, they represented a population which authorities from the juvenile home felt to be less trustworthy than the general population of juveniles at the facility. There was close agreement in age, class rank, and reading level for juveniles as indicated in Table 1. A majority of both sexes were between 13 and 16 years of age, had a class rank of between the eighth and tenth grades, and read at approximately a fifth grade level or higher.

The salient data in Table 1 are the disparities between college students and juveniles, i.e., intergroup comparisons rather than

intragroup comparisons. For example, whereas college females and males had a mean reading level of 13.6 and 13.5 respectively with standard deviations of 1.7 and 1.3, juvenile females and males had a mean reading level of 8.3 and 6.0 with standard deviations of 3.1 and 2.8. The juveniles had a much lower reading level and greater variability.

Racial background for the Ss in the study was as follows: the college females and males were all Caucasian, of the 20 juvenile females 18 were Caucasian and two Negro, of the 20 juvenile males 12 were Caucasian, seven Negro and one American Indian.

No college male was discarded from the study, but one college female was discarded as the time which she took to submit the second test exceeded the limit of one week. Two male juveniles were discarded from the study. One boy refused to take the oral form of the test after completing the booklet form. The second boy discarded from the study took both forms of the test. On the oral test, however, he answered all but seven of the 566 items True. Seven juvenile girls were removed from the study for the following reasons: three were unwilling to complete both forms, two were released before completion of both forms, and two were willing to continue but were unable to do so without extensive clarification of numerous items.

Procedure

The purpose of this study was to compare the 566-item oral and 566-item booklet forms of the MMPI individually administered.

Table 1

Age, Grade, and Reading Level for College Students and Juveniles

	College Females (N=20)		College Males (N=20)		Juvenile Females (N=20)		Juvenile Males (N=20)	
Age	Years	Frequency	Years	Frequency	Years	Frequency	Years	Frequency
	18	1	18	2	13	4	13	2
	19	7	19	2	14	4	14	7
	20	6	20	4	15	4	15	5
	21	4	21	5	16	5	16	5
	22	2	22	5	17	2	17	1
			24	1	18	1		
			25	1				
School Grade	Class Rank	Frequency	Class Rank	Frequency	Class Rank	Frequency	Class Rank	Frequency
	Freshman	1	Freshman	1	Spec.Ed.	1	6th	1
	Sophomore	5	Sophomore	9	5th	1	7th	1
	Junior	9	Junior	3	7th	1	8th	9
	Senior	5	Senior	7	8th	3	9th	3
					9th	5	10th	3
					10th	6	11th	2
					11th	2	12th	1
					12th	1		
Reading Level	Grade	Frequency	Grade	Frequency	Grade	Frequency	Grade	Frequency
	9th-10th	1	9th-10th	1	0 - 1st	0	0 - 1st	2
	11th-12th	6	11th-12th	7	2nd - 4th	3	2nd- 4th	6
	13th-14th	9	13th-14th	10	5th - 7th	7	5th - 7th	9
	15th-16th	4	15th-16th	2	8th -10th	7	8th - 10th	2
					11th -13th	3	11th - 13th	1
	$\bar{X}$=13.6 SD=1.7		$\bar{X}$=13.5 SD=1.3		$\bar{X}$=8.3 -SD=3.1		$\bar{X}$=6.0 SD=2.8	
	Range=9.2 to 16.5		Range=10.8 to 16.5		Range=2.6 to 13.8		Range=1.5 to 12.6	

Both forms of the test, oral and booklet, were administered to all 40 college students and all 40 juveniles. The presentation of the test form was randomly assigned with half of the Ss taking the oral form first and half of the Ss taking the booklet form first, i.e., a counterbalanced design. The second form of the test was completed within one week of the first. Ss were permitted to seek help on both forms of the test, though individual work was encouraged. All scores are reported as raw scores and are not K corrected. All Ss were tested for reading level just before receiving the first MMPI administration.

Statistical Analysis

The method of statistical evaluation was descriptive, i.e., mean, range, and standard deviation. In addition, Pearson product-moment correlational coefficients were used, and t tests were computed for correlated data to determine the significance of difference between scale means under two conditions. Non-parametric statistics were used in evaluating extraneous variables, such as effect of presentation order and boredom due to repetition.

The college group was viewed as one sample represented by two subsamples. The juvenile group was evaluated as another sample represented by two other subsamples.

RESULTS AND DISCUSSION

The taped version of the MMPI, it has been hypothesized, will yield similar results to the booklet version. Comparability for the two forms of the MMPI can be suggested by several assessments. Raw scores for scales of the oral MMPI should be similar to raw scores for scales of the booklet MMPI. Also, the correlation between scores earned by Ss on the two forms ought to be similar to test-retest studies which employed the standard booklet form twice. Finally, comparability for significant differences between scale means on the oral MMPI in comparison with the booklet MMPI.

Comparability of Oral and Booklet Forms of the MMPI

The results listed in Table 2 support the hypothesis that there is no statistically significant difference between the oral and booklet forms of the MMPI for college females and college males. The significant t value for the Hs scale is apparently due to chance as subsequent analysis does not support the difference. Figures in Table 2 represent college females and males combined into a group of 40 Ss. This combination is arbitrary and has no clinical implication. It is included only for initial statistical scrutiny.

Table 2

Raw Score Comparison of Oral and Booklet Forms

Scale		College Ss, N=40 (20 females & 20 males) Oral	Booklet	r	t	Juvenile Ss, N=40 (20 females & 20 males) Oral	Booklet	r	t
?	$\bar{X}$	7.50	6.78	.97	-	5.55	9.68	.55	2.01
	SD	16.91	13.29			9.25	15.54		
L	$\bar{X}$	2.75	2.70	.86	-	2.95	4.40	.31	3.32[b]
	SD	1.75	1.77			1.84	2.71		
F	$\bar{X}$	6.73	6.90	.94	-	15.35	18.10	.80	2.88[b]
	SD	5.45	5.26			8.36	9.93		
K	$\bar{X}$	13.73	13.33	.84	1.02	9.55	11.18	.49	2.55[a]
	SD	4.39	4.35			3.83	4.17		
Hs	$\bar{X}$	5.05	5.78	.95	2.61[a]	10.05	11.60	.53	1.80
	SD	5.69	5.45			5.88	5.28		
D	$\bar{X}$	19.53	19.95	.83	-	24.08	25.30	.72	1.85
	SD	5.96	5.51			5.96	4.78		
Hy	$\bar{X}$	21.48	22.25	.82	1.70	20.80	23.30	.44	2.39[a]
	SD	4.42	5.02			6.00	6.43		
Pd	$\bar{X}$	18.55	18.78	.89	-	24.90	25.33	.73	-
	SD	6.37	6.20			5.34	5.05		
Mf*	$\bar{X}$	33.95	33.75	.92	-	30.33	30.93	.72	-
	SD	8.25	7.69			7.23	5.18		
Pa	$\bar{X}$	11.35	11.48	.76	-	15.58	17.00	.49	1.90
	SD	3.55	3.24			4.77	4.66		
Pt	$\bar{X}$	15.70	16.55	.94	1.61	24.53	25.08	.67	-
	SD	9.31	9.25			8.39	6.64		
Sc	$\bar{X}$	15.55	16.43	.95	1.64	29.55	32.08	.79	1.88
	SD	11.22	10.58			13.89	11.80		
Ma	$\bar{X}$	19.60	20.25	.77	1.40	23.15	23.00	.74	-
	SD	4.47	4.24			5.77	4.77		
Si	$\bar{X}$	26.18	26.63	.94	-	33.60	34.55	.87	1.38
	SD	9.70	9.56			8.84	7.71		

*Mf is a composite of both sexes; extrapolation cannot be made.

Note: Values for $t<1$ are not entered.

[a] $p < .05$

[b] $p < .01$

[c] $p < .001$

College females

The Ss were separated by sex into groups of 20. Table 3 lists the raw scores, correlation coefficients, and t values for the college females, There is no marked discrepancy between raw scores of the oral version as compared with the booklet version. The correlation coefficients are generally high, and no t value is statistically significant.

Raw scores produced by coeds on the oral form of the MMPI are compared in Table 4 with freshmen coeds from the University of Alabama (Fowler & Coyle, 1969). The freshmen from Alabama took the standard booklet form of the MMPI. Both means and standard deviations are in close agreement for the two studies; however, those of this study tend to exceed those of the Alabama study. Perhaps the higher values can be ascribed to the relatively small sample size of females here employed (N=20 vs. N=1173).

Correlational coefficients yielded by the two forms of administration for college females are listed in Table 5. Table 5 is a composite of test-retest studies. The current study is actually not a test-retest experiment as two different procedures have been used. Comparison with past reliability studies has utility as indirect confirmation of results of this study. Figures of college females in the current study compare extremely well with past observations. In fact, the correlation coefficients of this study tend to consistently exceed those of past studies.

Table 3

Raw Score Comparison of College Females

Scale		Oral	Booklet	r	t
?	$\bar{X}$	3.40	3.20	.49	-
	SD	3.45	3.94		
L	$\bar{X}$	2.30	2.25	.72	-
	SD	1.34	1.45		
F	$\bar{X}$	6.80	6.80	.89	-
	SD	4.60	4.34		
K	$\bar{X}$	13.00	12.80	.72	-
	SD	3.71	3.85		
Hs	$\bar{X}$	5.85	6.75	.94	1.92
	SD	6.22	5.51		
D	$\bar{X}$	20.35	21.10	.85	1.02
	SD	6.28	5.74		
Hy	$\bar{X}$	21.70	22.80	.75	1.55
	SD	4.44	4.56		
Pd	$\bar{X}$	18.60	18.25	.91	-
	SD	5.58	5.98		
Mf	$\bar{X}$	39.90	38.90	.85	1.89
	SD	4.52	4.14		
Pa	$\bar{X}$	11.85	12.25	.74	-
	SD	3.30	3.31		
Pt	$\bar{X}$	18.70	19.15	.90	-
	SD	7.97	8.29		
Sc	$\bar{X}$	17.90	18.65	.94	-
	SD	10.93	9.80		
Ma	$\bar{X}$	21.30	22.10	.72	1.20
	SD	3.96	4.02		
Si	$\bar{X}$	28.10	27.75	.96	-
	SD	10.91	11.06		

Note: Values for $t < 1$ are not entered.

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

Table 4

Raw Score Comparison of Female College Student's Oral Tests with an Independent Booklet Study (Oral N=20 - Booklet N=1173)

Scale		Mean	SD	Maximum	Minimum
?	a	3.40	3.45	12	0
	b	6.15	20.82	363	0
L	a	2.30	1.34	5	0
	b	3.69	1.95	11	0
F	a	6.80	4.60	22	1
	b	3.51	2.82	30	0
K	a	13.00	3.71	21	5
	b	15.31	4.40	28	3
Hs	a	5.85	6.22	25	0
	b	4.94	3.47	21	0
D	a	20.35	6.28	37	12
	b	19.05	4.39	37	7
Hy	a	21.70	4.44	30	13
	b	21.48	4.24	40	10
Pd	a	18.60	5.58	35	8
	b	15.65	3.93	34	1
Mf	a	39.90	4.52	48	31
	b	37.17	4.41	51	17
Pa	a	11.85	3.30	19	5
	b	9.82	2.92	24	1
Pt	a	18.70	7.97	42	4
	b	13.04	6.90	36	1
Sc	a	17.90	10.93	54	3
	b	10.72	6.84	41	0
Ma	a	21.30	3.96	29	13
	b	16.62	4.71	31	0
Si	a	28.10	10.91	58	7
	b	25.47	8.53	55	3

(a) Represents figures from the oral tests given in this study.
(b) Represents figures from the booklet tests given to college students in the Fowler and Coyle study (1969).

Table 5

A Chronological Listing of Test-Retest Correlation Coefficients for College Students

Author	Date	Sex	Test Form	?	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
Cofer, Chance, & Judson	1949	F/M	B		.79	.64	.80	.71	.71	.52	.63	.83	.54	.75	.62	.62	
Cottle	1950	F/M	C-B		.46	.75	.76	.81	.66	.72	.80	.91	.56	.90	.86	.76	
		F	C-B		.34	.72	.72	.91	.69	.83	.79	.79	.63	.87	.82	.75	
		M	C-B		.51	.77	.79	.72	.65	.65	.81	.83	.53	.92	.90	.78	
Gilliland & Colgin	1951	F/M	C-B					.29	.81	.39	.79	.71	.67	.70	.55	.56	
Blanton & Landsman	1952	F/M	B					.48	.66	.57	.63	.77	.59	.53	.57	.63	
MacDonald*	1952[a]	F/M	C-B		.62	.71	.72	.59	.77	.61	.63	.88	.51	.79	.82	.75	
MacDonald*	1952[b]	F/M	C-B		.85	.85	.80	.51	.84	.61	.50	.89	.72	.82	.85	.52	
Windle	1955	F	B		.79	.62	.92	.73	.84	.71	.84		.81	.92	.82	.79	
Wolf, Freinek, & Shaffer**	1964	F	O-B	.27	.81	.75	.86	.64	.80	.73	.74	.83	.73	.86	.81	.74	.90
Simia	1969	F/M	O-B	.97	.86	.94	.84	.95	.83	.82	.89	.92	.76	.94	.95	.77	.94
		F	O-B	.49	.72	.89	.72	.94	.85	.75	.91	.85	.74	.90	.94	.72	.96
		M	O-B	.98	.91	.96	.91	.97	.80	.88	.90	.86	.78	.95	.97	.75	.92

* Nurses and college students were used in the study.
** Nurses were used in the study.
B-The booklet form. C-Card form. O-Oral form.
(-) Direction of administration with two test forms.
(=) Counterbalanced administration with two test forms.

College males

Table 6 lists the raw scores, correlation coefficients, and *t* values for college males. The raw scores of the oral administration compare favorably with the booklet administration. Correlation coefficients are noticeably high, and no *t* value reaches a level of statistical significance.

Raw scores produced by male undergraduates on the oral MMPI are compared with freshmen males of the Fowler and Coyle study (1969) in Table 7. As is the case with college females, means and standard deviations, though in essential agreement, tend to be larger in the current study. The sample size of males for this study is much smaller than that employed in Alabama (N=20 vs. N=1538).

Correlation coefficients for college males are listed in Table 5. The high coefficients suggest comparability between the oral and booklet forms. Perhaps one additional reason for the higher values yielded in this experiment is the short-time interval between test administrations which was one week or less.

Juvenile females and males

A comparison of oral and booklet MMPI raw scale scores for juveniles is shown in Table 2. The *Ss* were combined into a group of 40. In comparing each scale's mean score from the oral administration

Table 6

Raw Score Comparison of College Males (N=20)

Scale		Oral	Booklet	r	t
?	$\bar{X}$	11.60	10.35	.98	-
	SD	23.24	17.90		
L	$\bar{X}$	3.20	3.15	.91	-
	SD	2.02	1.98		
F	$\bar{X}$	6.65	7.00	.96	-
	SD	6.32	6.16		
K	$\bar{X}$	14.45	13.85	.91	1.26
	SD	4.97	4.84		
Hs	$\bar{X}$	4.25	4.80	.97	1.81
	SD	5.14	5.34		
D	$\bar{X}$	18.70	18.80	.80	-
	SD	5.66	5.16		
Hy	$\bar{X}$	21.25	21.70	.88	-
	SD	4.51	5.51		
Pd	$\bar{X}$	18.50	19.30	.90	1.12
	SD	7.23	6.51		
Mf	$\bar{X}$	28.00	28.60	.86	-
	SD	6.69	6.95		
Pa	$\bar{X}$	10.85	10.70	.78	-
	SD	3.80	3.06		
Pt	$\bar{X}$	12.70	13.95	.95	1.81
	SD	9.77	9.62		
Sc	$\bar{X}$	13.20	14.20	.97	1.51
	SD	11.29	11.09		
Ma	$\bar{X}$	17.90	18.40	.75	-
	SD	4.39	3.66		
Si	$\bar{X}$	24.25	25.50	.92	1.75
	SD	8.14	7.91		

Note: Values for $t < 1$ are not entered.

[a] $p < .05$

[b] $p < .01$

[c] $p < .001$

Table 7

Raw Score Comparison of Male College Student's Oral Tests with an Independent Booklet Study (Oral N=20 - Booklet N=1538)

Scale		Mean	SD	Maximum	Minimum
?	a	11.60	23.24	104	0
	b	7.05	24.77	300	0
L	a	3.70	2.02	8	0
	b	3.38	2.03	13	0
F	a	6.65	6.32	25	1
	b	4.13	3.41	30	0
K	a	14.45	4.97	24	6
	b	15.17	4.70	29	3
Hs	a	4.25	5.14	20	0
	b	4.28	3.18	26	0
D	a	18.70	5.66	37	12
	b	17.55	4.33	38	5
Hy	a	21.25	4.51	30	14
	b	19.64	4.17	41	8
Pd	a	18.50	7.23	34	9
	b	16.80	4.30	37	7
Mf	a	28.00	6.69	38	16
	b	23.65	4.90	41	9
Pa	a	10.85	3.80	18	4
	b	9.56	2.90	26	1
Pt	a	12.70	9.77	39	0
	b	11.61	7.15	44	0
Sc	a	13.20	11.29	47	3
	b	11.32	7.70	62	0
Ma	a	17.90	4.39	27	9
	b	17.60	4.75	34	3
Si	a	24.25	8.14	41	16
	b	23.33	8.45	55	4

(a) Represents figures from the oral tests given in this study.
(b) Represents figures from the booklet tests given to college students in the Fowler and Coyle study (1969).

with each scale's mean score from the booklet administration, differences were found on four of 14 scales. Significant differences as determined by t tests were found on the scales L, F, K, and Hy.

The determination of differences for the four scales was based on data for Ss grouped into a sample size of 40 represented by 20 females and 20 males. The evaluation of data in a combined group has utility in directing further inquiry, but it has little usefulness in clarifying the differences found. A second step employed in evaluating the data was the separation of the Ss by sex.

Juvenile females

It is interesting to note Table 8 which has comparisons of correlation coefficients for juvenile females and college females. The coefficients yielded by juvenile females as compared with the coefficients yielded by college females are remarkably similar. In fact, seven of the 14 coefficients for juvenile females are equal to or greater than coefficients produced by college females.

Table 9 represents 20 females juvenile delinquents and their performances on the oral and booklet forms of the MMPI. Evaluation of comparability of each scale indicates significant differences on but one scale, Mf. The difference evidenced for the two methods of taking the test was significant at the .01 level as determined by t tests assessing the difference between means for correlated data.

Table 8

Test-Retest Correlation Coefficients of Juvenile Females and College Females

	Scales													
	?	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
Juvenile Females	.72	.72	.93	.64	.80	.91	.80	.87	.83	.83	.89	.92	.88	.91
College Females	.49	.72	.89	.72	.94	.85	.75	.91	.85	.74	.90	.94	.72	.96

Table 9

Raw Score Comparison of Juvenile Females (N=20)

Scale		Oral	Booklet	r	t
?	$\bar{X}$	8.10	10.00	.72	-
	SD	11.89	18.20		
L	$\bar{X}$	2.95	3.15	.72	-
	SD	1.67	1.76		
F	$\bar{X}$	13.35	13.00	.93	-
	SD	7.42	7.55		
K	$\bar{X}$	9.10	9.30	.64	-
	SD	3.16	3.88		
Hs	$\bar{X}$	10.35	10.55	.80	-
	SD	5.31	5.28		
D	$\bar{X}$	24.80	24.85	.91	-
	SD	6.62	5.89		
Hy	$\bar{X}$	22.20	22.35	.80	-
	SD	5.39	6.31		
Pd	$\bar{X}$	26.50	26.35	.87	-
	SD	5.98	6.29		
Mf	$\bar{X}$	36.00	33.95	.83	3.52[b]
	SD	4.59	4.33		
Pa	$\bar{X}$	15.15	16.35	.83	1.71
	SD	4.51	5.65		
Pt	$\bar{X}$	25.70	25.10	.89	-
	SD	7.97	7.35		
Sc	$\bar{X}$	29.75	30.80	.92	-
	SD	14.59	14.04		
Ma	$\bar{X}$	23.15	22.15	.88	1.30
	SD	7.05	5.53		
Si	$\bar{X}$	35.50	35.85	.91	-
	SD	9.53	9.18		

Note: Values for $t<1$ are not entered.

[a] $p<.05$

[b] $p<.01$

[c] $p<.001$

Though statistically significant, it should be remembered that 14 scales were evaluated and on the basis of chance alone it is conceivable that a few scales would deviate to a statistically significant degree; thus, one deviant scale does not suggest a great deal.

Juvenile males

The correlational coefficients of juvenile males produced by the two modes of testing are much lower than are the correlational coefficients of college males, college females or the juvenile females. On seven of the 14 scales utilized in this study, as listed in Table 10, there were statistically significant differences between raw scores. Many more of the remaining scales approached significance for juvenile males than juvenile females. It should be noted that the juvenile males were the youngest group in the study, the poorest readers, achieved the lowest average grade level, and seemed to take testing the least seriously.

Table 10 indicates a high number of significant t values. A prominent feature, in addition to the aforementioned, is that each of the 14 scales, four validity and 10 clinical, yielded lower values on the oral test than on the written test.

Advantages of the Oral Form Over the Booklet Form

Superiority of the oral form of the MMPI for Ss such as poor readers presupposes that the same Ss who earn valid profiles on the

Table 10

Raw Score Comparison of Juvenile Males (N=20)

Scale		Oral	Booklet	r	t
?	$\bar{X}$	3.00	9.35	.11	2.16[a]
	SD	4.53	12.83		
L	$\bar{X}$	2.95	5.65	.17	3.68[b]
	SD	2.04	2.94		
F	$\bar{X}$	17.35	23.20	.73	3.85[b]
	SD	8.93	9.52		
K	$\bar{X}$	10.00	13.05	.41	3.07[b]
	SD	4.44	3.63		
Hs	$\bar{X}$	9.75	12.65	.35	1.92
	SD	6.53	5.19		
D	$\bar{X}$	23.35	25.75	.40	2.13[a]
	SD	5.28	3.45		
Hy	$\bar{X}$	19.40	24.25	.24	2.72[a]
	SD	6.39	6.57		
Pd	$\bar{X}$	23.30	24.30	.32	1.02
	SD	4.17	3.26		
Mf	$\bar{X}$	24.65	27.90	.15	2.65[a]
	SD	4.28	4.13		
Pa	$\bar{X}$	16.00	17.65	.04	1.23
	SD	5.09	3.42		
Pt	$\bar{X}$	23.35	25.05	.47	-
	SD	8.83	6.04		
Sc	$\bar{X}$	29.35	33.35	.63	1.69
	SD	13.53	9.22		
Ma	$\bar{X}$	23.15	23.85	.46	-
	SD	4.31	3.83		
Si	$\bar{X}$	31.70	33.25	.81	1.48
	SD	7.87	5.84		

Note: Values for $t < 1$ are not entered.

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

booklet form also earn valid profiles on the oral form. If Ss produce valid MMPI profiles on the booklet MMPI and not on the oral MMPI, some extraneous variable may be operative.

An important consideration in evaluating the superiority of the oral form for "exceptional" Ss is that the order of administration not be a factor. Two variables which might be reflected in a higher number of valid profiles for the first or second administration are regression to the mean and fatigue. Regression to the mean would suggest that the second administration of the MMPI would yield less deviant profiles than the first even if the second test form is the same as the first. Windle (1955) suggested that scale scores would tend to decrease on retest even with brief intervals between testing. Fatigue, boredom or disinterest due to repetition of the test would suggest a reduction in valid profiles for the second administration.

One additional view to consider concerns the increase in profiles on the oral form of the MMPI for Ss who did not earn valid MMPI profiles on the booklet form. The question of concern is whether or not valid oral profiles for marginal readers more frequently arises as the first or second procedure or if increases are unrelated to order of presentation.

Perhaps the most crucial evaluation of the oral form of the MMPI is not whether it can yield valid profiles for poor readers, but rather if it does yield valid profiles. The criteria for valid profiles required

each of the following cut off scores: (a) L raw score of nine or less, (b) F raw score of 15 or less, and (c) F minus K of plus eight or less. A similar set of criteria for validity was used by Wolf, et al., (1964).

College females and males

Table 11 lists the number of valid profiles earned and the method of testing employed. All college Ss who produced valid profiles on the booklet MMPI also had valid profiles on the oral MMPI. Order of administration and selective increase in valid profiles were not influential factors for college students. Only three Ss, two male and one female, had invalid profiles for both forms.

Juvenile females

Thirteen juvenile girls earned valid profiles on both the oral and booklet modes of testing. One juvenile female earned a valid profile on the booklet MMPI and an invalid profiles on the oral MMPI. All other juvenile females who earned a valid booklet MMPI also earned a valid oral MMPI.

Table 12 compares presentation order of tests for juvenile girls with the number of valid profiles. No distinct trend is suggested by the order of presentation.

One juvenile girl earned an invalid booklet and a valid oral profile. For her, the valid oral form represented the second test taken.

Table 11

Valid Profiles Yielded by Oral and Booklet Modes of Administering the MMPI

		College Females (N=20)		College Males (N=20)		Juvenile Females (N=20)		Juvenile Males (N=20)	
		Oral	Booklet	Oral	Booklet	Oral	Booklet	Oral	Booklet
Valid	Number	19	19	18	18	13	13	9	3
	Percent	95%	95%	90%	90%	65%	65%	45%	15%

Table 12

Valid Profiles and Order of Administration, Juvenile Females (N=20)

	Booklet		Oral	
	Valid	Invalid	Valid	Invalid
First Test	5	5	7	3
Second Test	8	2	6	4
Totals	13	7	13	7

Juvenile males

Juvenile males earned three valid booklet MMPI's. The same three Ss also earned valid oral profiles. The juvenile males earned nine valid oral profiles. Table 13 shows the relationship between order of test taken and valid profiles.

Six juvenile males earned valid oral and invalid booklet MMPI profiles. Two of the valid oral tests were the first tests taken. For four Ss the valid oral test was the second test taken.

The numbers we are dealing with in this instance get increasingly smaller as we more closely scrutinize the data; nevertheless, order of administration does not appear to be a prominent variable in the present study.

Results of Reading Level

Assessment of reading level and its relationship to scale elevation involved three steps. Initially, each scale of the MMPI was correlated with the Ss' reading level. Correlations were derived from the 14 scales yielded by the oral administration and from the 14 scales yielded by the booklet administration resulting in 28 correlation coefficients, or two per scale.

A second step in assessing reading's relationship to the MMPI involved determining the absolute difference between scale scores earned on the oral mode from scale scores earned on the booklet mode.

Table 13

Valid Profiles and Order of Administration,
Juvenile Males (N=20)

	Booklet		Oral	
	Valid	Invalid	Valid	Invalid
First Test	3	7	2	8
Second Test	0	10	7	3
Totals	3	17	9	11

Reading level was correlated with the absolute difference, i.e., the disparity between raw scores of the same scale under the two conditions of testing.

The third step involved dichotomizing profiles into valid and invalid categories. Profiles were plotted against reading grade level.

All Ss

Table 14 presents a comparison between the reading level of Ss and each of the scales of the MMPI and between reading level and the disparity between scores under the two test procedures. Initially, correlation coefficnets were derived by comparing reading level for the 80 Ss.

In general, the lower the reading level of the Ss the higher the scale scores. When the mode of testing was oral as compared with booklet, the magnitude of this inverse relationship was less on 10 of 14 scales (?, L, Hs, D, Hy, Pd, Pa, Sc, and Si). The inverse relationship was slightly more for two scales, only (Pt and Ma). The higher the reading level of the Ss the higher was the raw score for scales K and Mf. Both scales have customarily been associated with cultural educational level which seems a laudable interpretation in view of these findings.

Correlating the disparity between scale scores under two test modes with reading level indicates an inverse relationship. The 14

Table 14

Correlational Coefficients Between Reading Level and MMPI Scales

	All Ss N=80			College Females (N=20)			College Males (N=20)			Juvenile Females (N=20)			Juvenile Males (N=20)		
Scale	O r	B r	D r	O r	B r	D r	O r	B r	D r	O r	B r	D r	O r	B r	D r
?	.00	-.18	-.30	+.16	-.19	-.12	-.23	-.30	-.33	-.35	-.05	.00	+.06	-.40	-.27
L	-.03	-.37	-.33	+.16	+.28	+.25	+.05	-.01	-.17	-.06	-.23	+.16	+.04	+.02	+.03
F	-.59	-.69	-.42	+.37	+.31	+.28	-.13	-.08	+.12	-.40	-.36	+.32	-.43	-.65	-.27
K	+.40	+.18	-.34	+.04	+.08	-.04	+.05	-.01	-.04	-.11	+.15	+.34	+.33	+.12	-.29
Hs	-.41	-.52	-.34	+.06	+.13	+.10	-.39	-.36	-.03	-.22	-.29	+.21	-.25	-.40	-.02
D	-.34	-.44	-.20	-.13	+.10	+.25	-.17	-.30	+.21	-.29	-.34	+.06	+.06	+.12	-.11
Hy	+.08	-.18	-.43	+.06	+.23	-.01	-.42	-.52	+.17	-.10	-.10	+.12	+.14	-.20	-.30
Pd	-.41	-.48	-.30	-.17	-.11	+.38	-.18	-.29	-.01	-.11	-.15	-.24	-.18	-.49	-.45
Mf	+.34	+.28	-.24	+.24	+.23	+.12	-.11	-.06	+.07	+.36	+.40	-.11	+.06	-.14	-.09
Pa	-.43	-.54	-.44	+.06	+.15	+.30	-.30	-.39	-.06	-.10	-.14	-.03	-.13	-.20	-.39
Pt	-.47	-.45	-.35	-.09	+.12	+.24	-.35	-.30	+.05	-.33	-.25	-.01	-.33	-.26	-.21
Sc	-.55	-.60	-.39	-.04	+.05	+.01	-.31	-.24	+.11	-.36	-.34	-.02	-.44	-.49	+.01
Ma	-.33	-.32	-.21	-.12	.00	+.15	-.11	-.13	-.11	-.06	-.10	-.17	-.29	-.30	+.08
Si	-.30	-.35	-.12	+.07	-.01	+.20	-.14	-.09	+.19	-.13	-.16	+.05	-.06	-.06	-.01

O = The Oral form.

B = The Booklet form.

D = Disparity between the raw scores on the oral form compared with the booklet form.

negative correlations suggest that the poorer the reader the greater the disparity between raw scores earned on each scale of the oral form of the test as compared with the raw scores earned on each scale of the booklet form of the test. This relationship suggests lower reliability for performances of poorer readers. Correlation coefficients from Table 10 support this view.

College females, college males, and juvenile females, i.e., the three subsamples other than juvenile males, showed no increase in the number of valid profiles with the oral form of administration of the MMPI.

College females

A comparison of reading level for college females with results of the oral and booklet forms of administration indicated that the magnitude of the coefficients were similar for both modes of testing. The college females tended to have higher disparity between scores of scales as their reading level increased. On 11 of 14 scales positive correlations were found. The values are small but perhaps indicated either increased selectivity or indifference in answering the second time the test was taken.

College males

Comparison of the method of administration with reading level did not suggest differences for college males either. Correlations

between reading level and the disparity score was positive for half of the scales. The negative values were very small for all scales but Cannot Say. College males earned the highest negative correlation coefficient on this scale. Perhaps they were leery of the test and attempted to disguise test results through omissions.

Juvenile females

Reading level of juvenile females, surprisingly, did not seem to influence scale values markedly. However, the reading level of the juveniles in this study was higher than had been expected. Correlation between reading level and the disparity relationship was positive for half of the scales and did not indicate a conspicuous trend.

Figure 1 evaluates validity of the female profiles and reading level. The females for this sample did as well on either form of the test. One girl earned a valid booklet profile and an invalid oral profile; she read at a seventh grade level. One girl earned an invalid booklet profile and a valid oral profile; she also read at a seventh grade level.

Juvenile males

An evaluation of juvenile male scores in Table 14 indicated a reduction in elevation on nine of 14 scales when the method of administration was oral as compared with booklet. On 11 of 14 scales, negative correlation coefficients were found between reading level

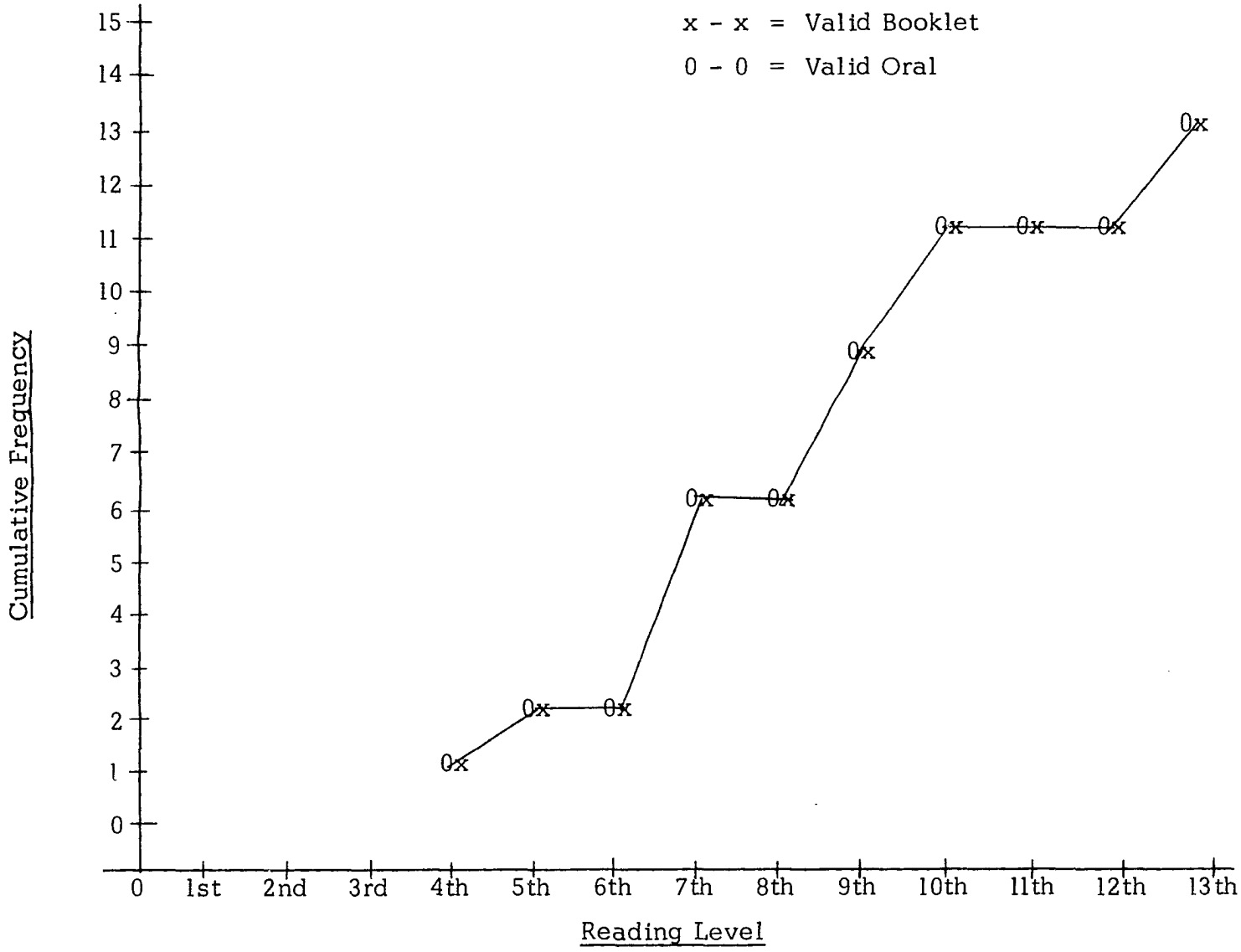

Fig. 1 Valid profiles and reading level for juvenile females (N=20).

and the disparity between raw scale scores. Thus, reading is an important variable for juvenile males.

The juvenile males increased the number of valid profiles which they produced from three valid profiles out of 20, or 15 percent on the booklet form to nine valid profiles out of 20, or 45 percent on the oral form as earlier cited in Table 11. The number of valid profiles produced by the oral administration of the MMPI is in close agreement with the 47 percent valid profile production of Wolf, et al., (1964). However, involved in that study were 30 illiterate penitentiary inmates; this study does not have as poor readers as those producing the 47 percent valid profiles. The Ss of this study also were younger and perhaps less motivated.

The increased number of valid profiles yielded by oral administration for juvenile males does not reach a traditional level of statistical significance. Perhaps in an exploratory study such as this with a population such as incarcerated juvenile delinquents, the increased number of valid profiles can be viewed as a complimentary indication.

Figure 2 indicates that valid profiles on the oral form are earned at grades as low as the first and second. Note the increase in valid profiles as reading level goes beyond the sixth grade.

Additional work and more detailed analysis is suggested by assessment of reading in this paper. Reading level seems to be a

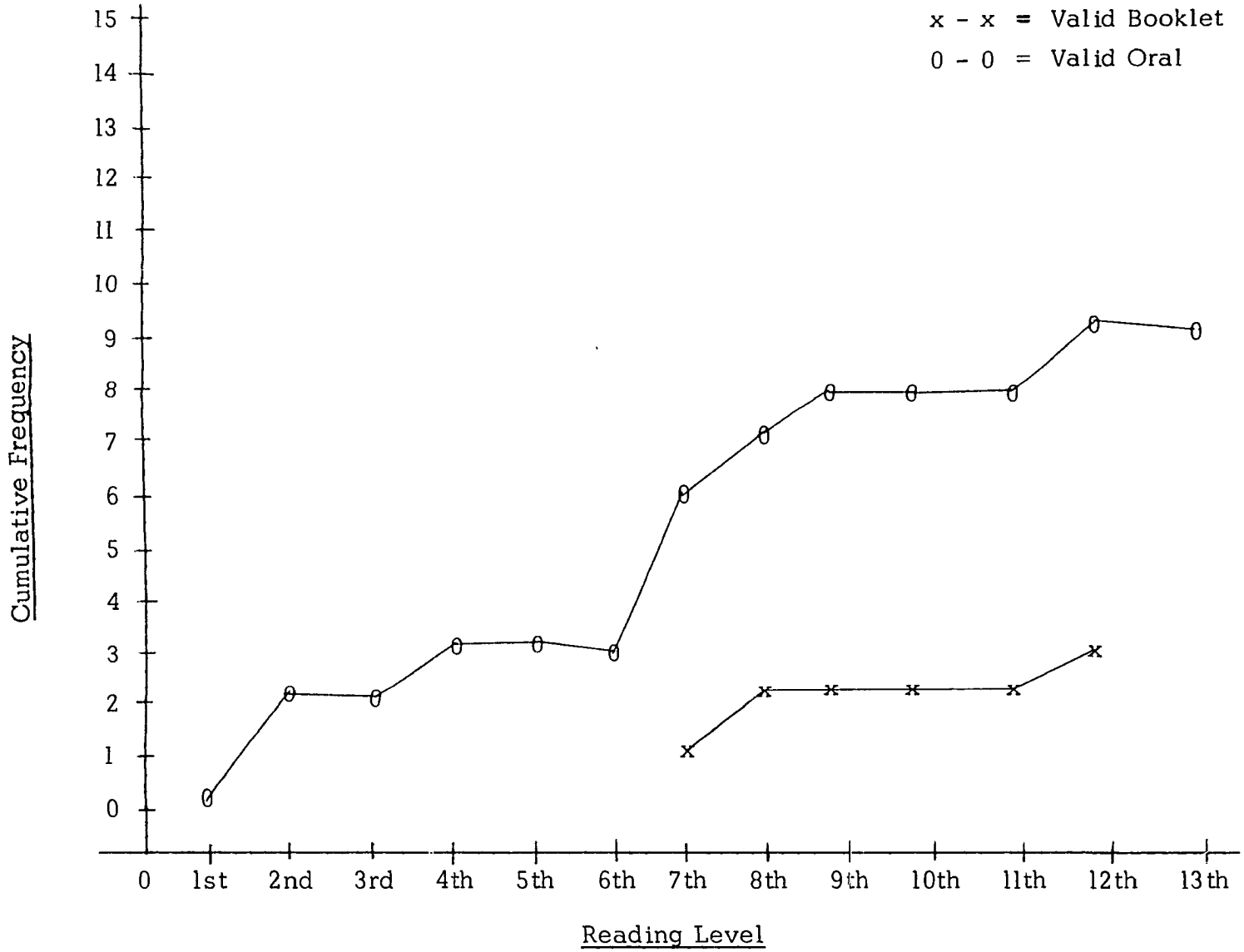

Fig. 2 Valid profiles and reading level for juvenile males (N=20).

complex variable, which is at times correlated positively and at other times negatively with scale elevation, depending upon population sample.

Summary

A tape recorded version of the full 566-item MMPI was compared with the standard booklet form. Four groups of Ss were tested, 20 college females, 20 college males, 20 juvenile delinquent females, and 20 juvenile delinquent males. Both versions of the MMPI were given to each S individually in a counterbalanced design. All Ss were also tested for reading level.

Evaluation of results suggested no statistically significant difference between any of the scales for college females, or college males. Additional support for comparability was suggested by comparing the scale scores of this study with current college norms. Norms listing means, standard deviations, and ranges concurred with this study. Also in agreement are test-retest correlation coefficients for past reliability studies.

One scale was significantly different when one mode of the test was compared with the other for juvenile females. Whether this is a meaningful difference or a chance occurrence cannot be ascertained at this time. Seven of the 14 scales were different at a statistically significant level for juvenile males, ?, L, F, K, D, Hy, and Mf.

Individual analysis of profiles indicated that the juvenile males had a greater number of valid profiles with the taped version of the MMPI than with the booklet.

Comparison of the reading level of the Ss was made with the individual scales of both forms of the test. Comparison was also made between reading level and the disparity between oral and written scores. In general, the poorer the reader the higher the scale scores. Poorer readers also had greater disparity between scores on scales for the two modes of testing than did better readers. The reading variable appears to influence profiles more significantly for very poor readers. The F scale was the most adversely affected by reading. Two exceptions to the inverse relationship between reading level and scale elevation just described were scales K and Mf. Both scales tended to increase as reading level increased or when the oral mode of testing was used.

Experience gained from this study strongly suggests that the taped version of the MMPI is inappropriate for normal Ss. The tape required over two hours, whereas normal Ss can complete the booklet inventory in less than an hour. College Ss were generally impatient with the long test period and were often quite tired after the oral test. At times, they were annoyed with the earphones used with the tape recorder. Annoyance with the earphones was less in evidence for the juveniles. However, they too exhibited impatience with the length of time required to finish the oral test. It is doubtful, however, that many of the teenagers had ever worked as hard before.

The MMPI has undergone a large number of changes. Changes were effected in an attempt to improve the instrument as a clinical tool and to extend its range of usefulness. Shifts in modality were helpful in making the instrument useful to Ss who had behaviors or characteristics which would spuriously influence test results. Some of these characteristics were low motivational level, low educational level, incapacitation, and concentration difficulty.

Impetus for this study is grounded in pragmatism. The MMPI is used as a screening instrument for all new patients at many mental health facilities. Evaluation of the tape version with 566 items administered individually may aid in determining usefulness and shortcomings of this test and this testing method.

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