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The Psychodiagnostic Test Battery: The Effects of Sequence of Administration on Rorschach Variables

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THE PSYCHODIAGNOSTIC TEST BATTERY: THE EFFECTS OF SEQUENCE OF ADMINISTRATION ON RORSCHACH VARIABLES

by

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VITA

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His elementary education was obtained at Mother of God Grade School in Waukegan, Illinois and secondary education at Carmel High School for Boys in Mundelein, Illinois where he graduated with honors in 1969.

In September, 1969 he entered Loyola University of Chicago and in June, 1973 received the degree of Bachelor of Science Honors, Magna Cum Laude with a major in psychology. While attending Loyola University he was recipient of the Vice President's award for Leadership. He was also admitted into Alpha Sigma Nu, Pi Delta Epsilon, Phi Sigma Tau and Blue Key fraternities.

In September, 1973 he was granted a National Institute of Mental Health fellowship in clinical psychology at Loyola University of Chicago. He received an assistantship in the department of psychology the following year. In the latter position he was graduate assistant to the director of clinical training.

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He has published the following articles: Zechmeister, E., McKillip, J., Pasko, S., and Bespalec, D. Visual memory for place on the page. J. General Psychology, 1975, 92, 43-52; Hunt, W. A. and Bespalec, D. A. An evaluation of current methods of modifying smoking behavior. J. Clinical Psychology, 1974, 30, 431-438; and Hunt, W. A. and Bespalec, D. A. Relapse rates after treatment for heroin addiction. J. Community Psychology, 1974, 2, 85-87.

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INTRODUCTION

In 1921 Herman Rorschach published his Psychodiagnostic (1942), which outlined the theoretical and empirical basis for his test. Since that time several thousand studies have been published on the Rorschach test. While the nature and emphasis of the research have changed, the total productivity is not surpassed by any other psychological assessment device. In view of the test's poor reputation in some quarters and relative age, this situation is a great tribute to the test's author.

Reynolds and Sundberg (1976) recently reported on trends in test research by tabulating references in Buros' Tests in Print II (1974). The top three tests, ranked by total number of publications through 1971, were the Rorschach, Minnesota Multiphasic Personality Inventory (MMPI), and the Thematic Apperception Test (TAT). The authors note that their findings are indicative of a growing emphasis on personality assessment devices. In addition, the authors note a disparity between test research and actual usage. Using the results of Luben, Wallis and Paine (1971) with regard to test usage in 251 facilities using psychological tests during the year 1969, Reynolds and Sundberg calculated a rank order correlation coefficient (rho) between frequency of use of the top ten tests in the 1969 survey and their rank in total publications through 1971. The resulting coefficient was .25 which the authors interpret as indicating a "discouraging lack of correspondence between test research and actual usage" (p. 232). One of the factors which may have

enhanced the lack of correspondence between test usage and research is the relative lack of research efforts but high usage among projective drawing techniques.

On the other hand, Brown and McGuire (1976) measured popularity and frequency of usage for forty popular psychological tests by calculating a weighted score rank, which is the total of the ratings (frequency of usage on a three point scale) multiplied by the frequency with which agencies checked these ratings. The participants were professionals from 249 community mental health agencies and hospitals throughout the United States. The MMPI, Rorschach, and TAT, received ranks of 4, 5, and 6 respectively, surpassed only by the Wechsler Intelligence Scale for Children (WISC), Bender-Gestalt (B-G), and the Wechsler Adult Intelligence Scale (WAIS). Further, the Rorschach was the most popular means of personality assessment across all age groups. The MMPI, Rorschach, and TAT were correspondingly ranked 1, 2, and 3 as to their popularity as means of personality assessment in subjects aged 18 years or older.

Thus it appears that the Rorschach, TAT, and MMPI are not only among the most popularly used research devices but also among the most frequently utilized instruments of personality assessment. But despite the popularity of these devices, very little research has been generated with regard to the influences that these tests might have upon each other when they occur in an assessment battery (Bidus, 1975).

Brower (1958) has observed that clinicians would prefer to see the psychodiagnostic test battery as an organized Gestalt rather than as a mere summation of component tests or as a conglomerate. "In this sense the battery should be seen as one test and it has validity only

if the use of the various tests is to broaden the basis for inference" (p. 22). In a similar vein, Carr (1958) commented that " . . . the need for a battery of tests arises not from the possible invalidity of a single test in the battery, . . . but because different tests tap different levels of functioning and because the relationships between tests reflect the individual's multi-level system of functioning" (p. 28-29). In conclusion, Brown (1958) states "The present day battery is therefore a multidimensional apparatus adapted for the purpose of tapping the multidimensional facets of the patient's personality, and the psychologist is the integrating instrument" (p. 61).

If a clinician is to utilize the battery in this ideal sense for the purpose of tapping the facets of a client's personality and if he chooses the most popular and presumably most useful tests to do so, one is struck by the apparent lack of knowledge that faces the practitioner concerning the complex interaction that the components of the battery may produce. With what level of confidence can the practicing clinician state that the results of his test are reflecting the personality features of the client or are artifacts of the client's immediate experience of testing? In other research areas, practice effects and prior experience of the subject are often controlled as extraneous variables. Yet, it appears from the behavior of most clinicians that in the psychodiagnostic test battery such influencing factors as the nature of prior test or the length of the test battery itself are relatively unimportant to the task of assessment. Even when the sequence of administration of a test battery has been recognized as an important factor there is little research to guide the clinician in planning his testing or in using the resulting data appropriately. As

Bidus (1975) has pointed out " . . . it seems that practicing clinicians use the sequence learned during training, establish their own administration patterns based on what they feel to be rational, thoughtful consideration, or simply disregard the problem altogether" (p. 765).

The purpose of this study was to investigate the effects of the sequence of administration on the three most popular adult personality assessment devices on Rorschach variables. This investigation sought to clarify the influence of serial position of the Rorschach in a battery and the context of the prior assessment technique on various Rorschach variables. The TAT, MMPI, and Rorschach are here considered component tests in a comprehensive psychodiagnostic test battery designed to assess the personality factors of an adult client.

REVIEW OF RELATED LITERATURE

Gibby, Stotsky, and Miller (1954) observed that in clinics, the Rorschach test is typically given as part of a battery. Because of the varying nature of the techniques, they speculated that it would be necessary to standardize the order of presentation of the various assessment devices. As was noted previously, very little research has been directed at this question (Bidus, 1975; Cassel, Johnson, & Burns, 1962; Grisso & Meadow, 1967). On the other hand, there are numerous hypotheses concerning the proper sequence for tests in a battery.

Piotrowski (1958) believes that the Rorschach should always precede the more formal, impersonal, rational or objective tests.

> The best achievement on the latter demands good intellectual self-control and attentiveness to the externally imposed tasks which exert inhibitory influences upon the free imagination and playful attitude without which Rorschach records cannot be rich or meaningful. Therefore, the Rorschach is administered after the free drawings to facilitate the patient's getting fascinated with his own imagery. (p. 79)

The basic premise for this reasoning by Piotrowski is that people reveal their true nature most easily when they are creative regardless of the degree of that creativity.

L'Abate (1964) suggests a three stage sequence for test batteries much in opposition to that sponsored by Piotrowski. In the first stage, that of "ice-breaking," the examiner should present sufficiently clear and structured stimuli such as free drawings and the B-G. The second stage consists of clear and structured stimuli but involving increased difficulty. In this stage tests such as intelligence tests and objective

paper and pencil questionnaires would be presented. The client is restricted in his freedom to respond as there are right and wrong implied answers. Finally, structure becomes ambiguous and the definition of the task is more vague and difficult in the last stage. The projective tests, TAT and Rorschach, are best presented here where their anxiety producing nature will be less influential on the other tests.

If these two positions are contrasted, it is shown that Piotrowski (who relies heavily on the Rorschach in personality evaluations) believes that freedom to respond or the access to creativity should be emphasized in the beginning and then decrease as the battery is completed. L'Abate places greater emphasis on difficulty in responding, regarding the battery as representing a continuum of increasingly difficult tasks. Thus, while Piotrowski warns of setting up a "test-consciousness" in the client, L'Abate encourages just that cognitive point of view. One of the subjects that L'Abate does not discuss is test influence within a stage, that is, should the TAT precede or follow the Rorschach in the last stage of the battery.

Brown (1958) advocates a sequence which progresses in relation to the degree of interaction between the client and the examiner. Following this rationale, he places the Wechsler-Bellvue after the Rorschach and TAT in his battery sequence. In further support of Piotrowski's position, Bohm (1958) states clearly that intelligence and other psychometric methods should never precede the Rorschach. His reasoning is that such objective tests will create an "examination attitude" within the subject. This in turn, will operate so that the Rorschach will "not be accomplished smoothly." Bohm makes no recommendations, however, relative to the order of projective tests within the psychodiagnostic record other than that

they should follow these objective measures.

On the other hand, Rapaport, Gill, and Schafer (1968) note that the Rorschach is usually not given as the first test in a battery, but do not offer any reasoning for this procedure.

The research studies in this area are consistent with the diversity of the recommended procedures already presented in that they are generally inconclusive and often contradictory in their reported findings.

One investigation (Gibby et al., 1954) reported no over-all differences among Rorschach protocols administered under five conditions with analyses made of the variances of eleven scoring symbols. The authors administered to each subject one of four initial assessments: the B-G, TAT, Wechsler-Bellevue, or the Goldstein-Scherer test, and then the Rorschach. In addition, there was a control group that received no test prior to the Rorschach. Eleven variables were recorded and tallied: number of responses, human movement, pure form, total shading, total color, whole responses, common detail, rare detail, human, animal, and a number of content categories. Gibby et al. concluded from these results that for their sample there is no tendency for an administration of those four tests to influence subsequent performance on the Rorschach test.

Cassel et al. (1962) presented all six possible orders of the House-Tree-Person Test, a short form of the Wechsler-Bellevue II, and the reading, spelling, and arithmetic parts of the Wide Range Achievement Test. They reported having found no statistically reliable differences in the means of each tests among the orders nor was there an over-all difference according to ordinal position. They concluded that the order of presentation of tests in the battery made no difference in the over-all results.

It would appear from these two studies that all of the hypotheses generated concerning battery sequence are more aesthetic and philosophical than practical. On the other hand, two studies point to definite test interactions within a battery. Grisso and Meadow (1967) report that college students in three matched groups were either administered the associative phase of the Rorschach, a modified administration of the Bender-Gestalt or no preceding test prior to the WAIS. Results indicated that there were significant pre- and post-test differences on selected WAIS subtests for the group receiving the Rorschach. While Gibby used neurotics in his study, and Grisso and Meadow utilized college students, and so population differences might be an operative factor, the results generally support L'Abate's type of sequence and his rationale and suggest a sequence different from Piotrowski's or Brown's.

Bidus (1975) also assessed the effects of the sequence of administration on the WAIS and Rorschach variables. Forty pairs of subjects were matched for age, sex, race, and Full Scale IQ and placed in one of two groups with the sequence of administration B-G - WAIS - Rorschach or B-G - Rorschach - WAIS. The results indicated that there was no effect on WAIS variables following administration of the Rorschach, but the converse was not true. Bidus concluded that administration of the WAIS before the Rorschach generally results in a more sparse, inhibited Rorschach protocol. Bidus surmised that his results supported Piotrowski's contention that it may be best to administer unstructured tests first in a battery.

It becomes clear from the literature that more research is necessary before any decisive conclusions can be drawn. It is the opinion of this author that influence on Rorschach variables may stem from

any one or combination of three general factors. These factors of cognitive set, anxiety, or fatigue will be discussed below.

Cognitive Set

As Hutt, Gibby, Milton, and Pottharst (1950) point out, only limited experimental evidence is available concerning the relationship between performance on the Rorschach test and the attitudes of the client. Hutt and his associates found that their subjects, college students, significantly altered their responses to reflect attitudes encouraged by the instructions. The authors conclude that since the Rorschach is a very sensitive device, it is crucial to know the manner in which an individual perceives the total test situation. The subjects in this study altered (D + Dd)%, number of M responses, and even their experience balance scores to a statistically significant degree. This study dealt with conscious sets induced clearly by instructions from the experimenters. In another study, Kurtz and Riggs (1954), attempted to set up an unconscious peripheral set to perceive a large number of animals on the Rorschach. The subjects were shown pseudo words too rapidly for accurate perception. The experimental subjects were told that they would see words which pertained to animals and birds while the control group was given no such slant. Following this task the subjects completed partial words as a direct measure of the existence of the unconscious set. Both groups were then administered the Rorschach test. The results indicated that despite clear indications of the presence of an unconscious set, the Rorschachs displayed no significant differences between the groups. The authors concluded that their evidence suggested that Rorschach material was genuinely coercive, evoking from the subjects their characteristic

behavior and overriding a strongly established pre-existent set.

Gibby et al. (1954) assumed pre-existing sets when they varied the preceding test to a Rorschach in a test battery. They hypothesized that an intelligence test would create a readiness in the subject to give a large number of Rorschach responses, while a thematic instrument might predispose the subject to see motion. In addition, they believed that colored blocks would sensitize a subject to see color on the Rorschach and that a drawing test would elicit a set to focus on form. None of the results attained or even approached significance. In general, it appears that while cognitive set would be logically related to a subject's Rorschach performance, the extent of conscious impact and importance or congruency of the set with respect to the individual's personality are strong considerations in evaluating the strength of this factor in determining Rorschach responses.

Anxiety

Newmark, Hetzel, and Frerking (1974) administered four psychological tests (Rorschach, TAT, MMPI, and Rotter Sentence Completion Test) in counterbalanced order to each subject in their research study over a four day period. Immediately prior to and following the administration of each psychological test the subjects received the State-Trait Anxiety Inventory. The results indicated that state anxiety measures increased significantly following the administration of the more ambiguous unstructured test stimuli (Rorschach and TAT) while the more structured direct assessment methods (MMPI and Sentence Completion) did not induce any significant changes in state anxiety. In all cases trait anxiety measures had remained relatively stable. Brower (1958)

believes that humans first behave adaptively to ambiguous stimuli and only later become increasingly disrupted by persisting or increasing ambiguous stimuli. In Brower's view, up to a threshold of ambiguity intolerance projectives are ego-syntonic and therefore suggestive of ego-structure and personality dynamics. Beyond the threshold, projectives are ego-dystonic and projectives are suggestive of superficial tendencies. Grisso and Meadow (1967) attributed differences between pre- and post-test scores on WAIS subtests to the anxiety producing nature of the Rorschach. They analyzed six Rorschach variables proposed as indices of anxiety and found that subjects showing the most interference on the WAIS produced more constricted and conventional protocols, in general, than did those showing less interference. The cases were too few, however, to submit them to significance tests.

In summary, it appears that anxiety as a factor in the alteration of test behavior within a battery is worthy of consideration. While this factor may vary with the test and the subject interaction, that is, some tests may be more anxiety provoking to some subjects than others, as well as the situation in specific, in general, anxiety does appear to have a definite effect on test performance.

Fatigue

One factor operating within a battery that has been often considered but rarely studied is fatigue. In general, clinicians try to keep their batteries short both for their sake as well as in consideration for the client. It can be hypothesized that fatigue may lower defenses and thus allow testing to reflect basic personality patterns rather than situational factors. On the other hand, Bidus (1975) pointed out that

for less bright and for older subjects performance is poorest on the last test in a battery regardless of the nature of the preceding tasks. Since this topic has not been dealt with extensively, the differential effects expected within the test battery are largely unknown.

Summary and Conclusions

Despite a general lack of research in this area of test interference within a battery, some general hypotheses may be drawn. First, prior tests in a battery may create cognitive sets for clients which can affect their later test performance. One aim of this study was to calculate the amount of interference due to a preceding test if and where it may present itself in the Rorschach test.

Second, anxiety elicited as a response to a test has been found to effect later test performance. Which tests are most likely to elicit this anxiety and the degree was examined in this case relative to consequential Rorschach performance.

Finally, the study analyzed changes, if any, in Rorschach variables as a function of serial position in the battery. From this analysis the relationship factors such as fatigue can be deciphered.

METHOD

Subjects

The subjects were 90 undergraduate psychology students obtained from the subject pool sponsored by the Psychology Department, and from volunteer lists circulated through undergraduate psychology classes. Credits were given to most of the participants in partial fulfillment of the requirements for their course.

The 45 male and 45 female subjects aged in range from 17 to 29 with a mean age of 19.86. The subjects were randomly assigned to a sequence and examiner. When the subjects signed up for the experiment, they were informed that they would be given a battery of psychological tests. They were assured of the anonymity of the records and were told that they would not be able to receive any feedback from the examiner concerning their test results. The examiners explained to the subjects that interpretations of their results could be obtained by making appointments with the Student Counseling Service, to which the results of their tests would be made available only upon their own request.

Examiners

The examiners were first year graduate students in an APA approved clinical psychology training program. All of the examiners had previously completed a course in the administration and scoring of psychological tests including the MMPI, TAT, and Rorschach test. In addition, the examiners were supervised *in vivo* as well as via videotape

prior to their testing in this study. During one of the first three administrations of the study, the examiners were again videotaped and supervised by the experimenter and a registered Ph.D. psychologist. There were no abnormalities in the testing procedure noted.

Of the 11 male and 4 female examiners, 4 had previously received Master's degrees in psychology. Four of the examiners were married and two were from religious orders. The examiners administered and scored the protocols as partial fulfillment for a graduate course in advanced procedures in psychological testing.

Materials

Each of the batteries was preceded by a structured interview (see Appendix A). The examiner then proceeded with testing according to the designated sequence and standard testing procedures. The Rorschach was administered and scored in accordance with Klopfer, Ainsworth, Klopfer, and Holt (1954). All twenty cards of the TAT, in the sex appropriate series were administered in the session. The stories were hand written by the examiner. Form R of the MMPI (Hathaway & McKinley, 1967) utilizing the NCS answer sheet was administered and scored by hand. Only the first 399 items of the inventory were asked to be answered by the subjects.

Procedure

The examiners were assigned a sequence of administration and a subject prior to testing. They were not informed as to the hypotheses of the study. The six possible orders of test battery sequences are presented in Table 1. Each examiner would administer all six of the sequences; three batteries to males and three to females. The sex of

Table 1

Test Battery Compositions

Sequence	Order of Administration*
1	R - T - M
2	R - M - T
3	T - R - M
4	M - R - T
5	T - M - R
6	M - T - R

* R - Rorschach test

T - Thematic Apperception Test (TAT)

M - Minnesota Multiphasic Personality Inventory (MMPI)

the subject was balanced for position of the Rorschach in the test battery sequence and for the test preceding the Rorschach.

Prior to the beginning of the actual test administration the examiner conducted a structured interview. The examiner then reminded the subject of the limitations of the situation and asked him or her to save any questions that they had regarding the tests themselves until all testing was completed. The examiner then administered the tests in the required sequence and then scored according to the appropriate standard procedures. Testing was to be completed in one session. Breaks were allowed for short periods between tests if needed. Questions regarding the tests were answered appropriately following the battery.

The Rorschach protocols were checked and rescored for agreement by the experimenter and the course instructor, who were blind to the particular sequence administered. Note of any unusual circumstances involved in the testing was made. After copying the Rorschach scores on the data sheet, the protocols were returned to the examiner for the purpose of course work.

RESULTS

Because of the nature of the data it was decided that analysis would focus upon variance as opposed to measures of central tendency. Since it is postulated that serial position will effect a change in the responding, one must consider the possibility of regression toward the mean, or middle position. Hence, two multivariate ANOVA's on the individual subject's responses were performed. To do this analysis, each individual's variability score was computed. The number of responses in each of the ten Rorschach scoring categories as a percentage of the total number of responses in the individual's record was divided by the number of trials (in this case 10 in reference to the 10 standard Rorschach stimulus cards) to compute the variability score. The ten variables selected for these analyses and conversion procedure were: human movement (M); animal movement plus inanimate movement (FMM); all vista and shading responses (TSHADE); total color responses (TCOLOR); pure form (F); whole and cut-off whole location responses (W); large and small usual details (DD); unusual and space locations (DRS); whole human and human detail content (HUMAN); and, whole animal and animal detail content (ANIMAL). Only main responses and determinants were used in calculating the variables listed.

Since variance is distributed as Chi-squared, the variability scores needed to be normalized to meet the assumptions of the MANOVA. To accomplish this conversion, the logarithm of each score was used in the analyses. Each variability score was in turn supplemented by a constant

of one (1) to eliminate difficulties of the zero totals found in empty cells.

The first MANOVA was to decipher if there was any change in the variance within the individual's record because of the position of the Rorschach in the test battery. The second MANOVA was planned to detect any change as a result of the prior test's influence on the Rorschach.

One-way ANOVAs were performed on four variables. The total number of responses in an individual's record (R), the total number of popular responses (POP), the total number of additional determinants scored (TOTADDS) and the difference in seconds (RTDIFF) between the subject's reaction times for achromatic (ART) and chromatic cards (CRT) were analyzed in this manner.

The results of the analyses reveal that there were significant differential effects for serial position of the Rorschach in the battery and for context effects produced by the test preceding the Rorschach.

The raw score, median, means and standard deviations for the entire sample as a whole are presented in Table 2. The summary of the raw scores for each of the groups defined by position of the Rorschach test in the battery is presented in Table 3. Subjects who were administered the Rorschach in the first position produced greater numbers of all of the determinants with the exception of W. Those subjects who were presented the Rorschach in the last position of the battery produced more W than the first position group. In addition, the second position group had greater total reaction times both for achromatic and chromatic cards than either the first or third position groups.

Table 4 presents the summary of raw scores for the three groups

Table 2

Raw Score Medians, Means and Standard Deviations of Rorschach Variables on the Total Sample of 90 Subjects

	Rorschach Variables							
	M	FMM	TSHADE	F	TCOLOR	HUMAN	ANIMAL	R
MED.	2.46	3.89	3.50	5.60	2.28	3.45	9.20	17.93
M	2.87	4.08	4.03	6.61	2.64	4.23	9.72	20.21
SD	1.93	2.81	3.15	4.64	2.14	2.74	4.28	8.80

	CRT	ART	POP	TOTADDS	W	DD	DRS
MED.	63.00	54.50	5.43	9.70	7.60	6.39	2.75
M	76.64	65.50	5.30	10.89	8.76	7.94	3.51
SD	47.33	45.04	1.75	6.60	4.06	6.04	3.18

Table 3

Summary of Raw Scores for Serial Position Effects

of the Rorschach in the Battery

Position		Rorschach Variables							
		M	FMM	TSHADE	F	TCOLOR	HUMAN	ANIMAL	R
1	MED	2.50	4.01	4.50	6.25	2.36	4.50	10.50	20.50
	M	3.27	4.63	4.93	7.43	2.97	4.70	10.90	23.07
	SD	2.23	3.30	2.89	4.52	2.47	2.95	3.75	8.75
2	MED	2.42	3.79	3.00	4.17	2.50	3.67	8.75	17.50
	M	2.83	3.67	2.93	5.53	2.57	4.23	9.03	17.50
	SD	1.73	2.71	1.96	4.55	1.87	2.62	4.33	6.40
3	MED	2.50	3.50	3.36	5.83	2.07	3.10	8.25	17.10
	M	2.50	3.93	4.23	6.87	2.40	3.77	9.23	20.07
	SD	1.80	2.36	4.01	4.81	2.08	2.64	4.61	10.20

Table 3
(Contd.)

Summary of Raw Scores for Serial Position Effects

of the Rorschach in the Battery

Position		Rorschach Variables						
		CRT	ART	POP	TOTADDS	W	DD	DRS
1	MED	49.50	42.50	5.83	9.17	8.00	9.17	3.10
	M	64.73	50.83	5.57	11.77	8.57	10.33	4.17
	SD	37.72	30.48	1.85	7.51	4.13	5.90	3.58
2	MED	66.50	70.50	5.36	9.50	6.50	6.10	2.50
	M	83.20	80.57	5.33	9.67	7.83	6.73	2.93
	SD	51.95	59.30	1.71	5.67	3.47	4.44	2.38
3	MED	67.50	57.50	5.10	10.17	8.00	4.25	2.50
	M	82.00	65.10	5.00	11.23	9.87	6.77	3.43
	SD	50.32	36.36	1.70	6.54	4.40	6.96	3.44

Table 4

Summary of Raw Scores for the Effects of Test Preceding the Rorschach in the Battery

Preceding Test		Rorschach Variables							
		M	FMM	TSHADE	F	TCOLOR	HUMAN	ANIMAL	R
None	MED	2.50	4.01	4.50	6.25	2.36	4.50	10.50	20.50
	M	3.27	4.63	4.93	7.43	2.97	4.70	10.90	23.07
	SD	2.23	3.30	2.89	4.52	2.47	2.95	3.75	8.75
MMPI	MED	2.50	2.75	3.00	4.50	1.61	3.23	7.50	14.25
	M	2.50	3.03	3.40	5.87	1.87	3.73	8.53	16.67
	SD	1.70	2.09	3.70	4.16	1.89	2.32	5.01	8.38
TAT	MED	2.40	4.60	3.28	5.50	3.13	3.50	9.17	18.83
	M	2.83	4.57	3.77	6.53	3.10	4.27	9.73	20.90
	SD	1.82	2.71	2.65	5.22	1.86	2.90	3.77	8.30

Table 4
(Contd.)

Summary of Raw Scores for the Effects of Test Preceding the Rorschach in the Battery

Preceding Test		Rorschach Variables						
		CRT	ART	POP	TOTADDS	W	DD	DRS
None	MED	49.50	42.50	5.83	9.17	8.00	9.17	3.10
	M	64.73	50.83	5.57	11.77	8.57	10.33	4.17
	SD	37.72	30.48	1.85	7.51	4.13	5.90	3.58
MMPI	MED	65.50	57.50	5.25	9.83	6.50	5.50	2.36
	M	80.30	65.93	5.17	10.17	7.30	6.23	3.13
	SD	51.41	36.32	1.68	5.80	3.15	6.04	2.98
TAT	MED	71.50	62.50	5.25	10.00	9.00	5.50	2.83
	M	84.90	79.73	5.17	10.73	10.40	7.27	3.23
	SD	50.77	59.54	1.74	6.51	4.31	5.57	2.96

defined by the test preceding the Rorschach. Group 1 for serial position and the NONE group for preceding test were the same group. The group having no preceding test (NONE) had higher total determinant production in each of the categories but W and TCOLOR. The TAT group, who were administered the TAT preceding the Rorschach, produced more color responses and W responses than either of the other two groups. The TAT group also had greater total reaction times to color and achromatic cards than the other groups.

The multivariate F for serial position effects on ten variables was not significant ($F\ [20, 156] = 1.053$). This analysis points to the lack of support for an overall pattern of differences among the three groups defined by position of the Rorschach in the test battery. Table 5 gives the results of the univariate F-tests on variability scores for these ten variables and reveals two significant differences. Both W and DD scores were significantly different among the three groups. A posteriori examination (LSD = 2.81, $p < .05$; Scheffe's S = 3.52, $p < .05$) reveal that the proportion of W scores of the subjects receiving the Rorschach as the first test in the battery differed significantly from that produced by members of the group receiving the Rorschach last. Similarly, the proportion of DD scores differed significantly between the first and last group. There was no evidence for any significant differences between the second group and either of the other two groups on these two variables.

The individual ANOVA's for serial position effects on the remaining four variables are presented in Table 6. Only one variable, R, differed significantly among the groups. Post hoc analysis revealed a significant difference (LSD = 2.81, $p < .05$; Scheffe's S = 3.52, $p < .05$) in the

Table 5

Univariate F-tests on Rorschach Variability Scores for Serial Position Effects

Variables	df	F	p less than
M	2, 87	1.111	.334
FMM	2, 87	0.023	.977
TSHADE	2, 87	1.024	.363
F	2, 87	0.390	.678
TCOLOR	2, 87	0.901	.410
HUMAN	2, 87	1.716	.186
ANIMAL	2, 87	0.783	.460
W	2, 87	4.389	.015
DD	2, 87	5.025	.009
DRS	2, 87	0.098	.907

Table 6

Summary of Analyses of Variance on Rorschach Variables for Serial Position Effects

Variables	df	MS	F	p less than
R	2, 87	232.884	3.153	.0476
RTDIFF	2, 87	1697.377	1.198	.3066
POP	2, 87	2.434	0.790	.4571
TOTADDS	2, 87	35.744	0.816	.4456

production of total responses between serial position groups one and two. There was no statistically significant difference between total responses produced by those subjects receiving the Rorschach last and the total responses produced by those who received the Rorschach either first or second in the battery. Inspection of the median number of the total number of responses produced by each of the three groups indicated a potential trend for the same significant difference between the first and third group. This possible difference was not statistically significant.

Two other variables were also analyzed in conjunction with the investigation of sequence effects. The two components of the variable RTDIFF, the total reaction time to chromatic Rorschach cards (CRT) and the total reaction time to the achromatic cards (ART) were examined. The results are presented in Table 7. While there were no significant differences among the three groups for the chromatic reaction sums, an overall significant difference was obtained for the achromatic reaction times ($F\ [2, 87] = 3.45$, $p < .036$). Further analysis revealed a significant difference between the first position group and the second position group. No statistically significant difference was found between the third position group and either of the other two groups.

In summary, the various analyses of serial position effects revealed significant differences in the proportion of W and DD in inverse relationship to each other between serial position one and position three. While DD production was higher in the first group and lowest in the third, W production was highest in the third position and lowest in the first. In addition, the total number of responses was significantly greater in the first sequence position group and lowest in the second

Table 7

Summary of Analysis of Variance on Reaction Times

for Serial Position Effects

Variables	df	SS	MS	F	p less than
CRT					
Between	2	6405.959	3202.979	1.444	.2415
Within	87	192956.457	2217.890		
ART					
Between	2	13268.239	6634.117	3.450	.0361
Within	87	167273.972	1922.686		

group. The achromatic reaction times of the second position group were significantly higher than those of the first position group.

When the data were analyzed for effects due to the influence of the preceding test, four significant differences were revealed. Although the multivariate F was not significant ($F[20, 156] = .934$), which points to the lack of support for an overall pattern of differences among the three groups on the ten listed variables, the univariate F-tests on variability scores reported in Table 8 reveal two significant differences. Both W and DD varied significantly among the three groups. Post hoc analysis established that both variables differed significantly (LSD = 2.81, $p < .05$; Scheffe's $S = 3.52$, $p < .05$) between the group which received the Rorschach first and those who were administered the Rorschach following the TAT. The TAT group had a higher proportion of W and a lower proportion of DD production than the no-preceding-test group. There were no significant differences between the group which received the MMPI before the Rorschach and the other two groups. In essence the TAT and MMPI groups were barely distinguishable on these two variables when the variability scores were compared.

Table 9 presents the results of the one-way ANOVAs on the other four variables. When the Rorschach followed the MMPI there were significantly fewer responses produced by the subjects than when the Rorschach was not preceded by any test in the battery. There were no statistically significant differences noted on this variable between the TAT group and the other two groups.

While the variable RTDIFF did not differ among the groups, analyses of CRT and ART (see Table 10) established that the total reaction times on achromatic cards were greater when the Rorschach followed

Table 8

Univariate F-tests on Rorschach Variables

for Preceding Test (Context) Effects

Variables	df	F	p less than
M	2, 87	0.641	.529
FMM	2, 87	0.310	.734
TSHADE	2, 87	0.539	.585
F	2, 87	0.789	.458
TCOLOR	2, 87	2.416	.095
HUMAN	2, 87	.783	.460
ANIMAL	2, 87	.360	.699
W	2, 87	3.696	.029
DD	2, 87	3.901	.024
DRS	2, 87	.347	.708

Table 9

Summary of Analyses of Variance on Rorschach Variables for Serial Position Effects

Variables	df	MS	F	p less than
R	2, 87	317.878	4.421	.0148
RTDIFF	2, 87	805.645	.561	.5728
POP	2, 87	1.600	.516	.5986
TOTADDS	2, 87	19.744	.447	.6410

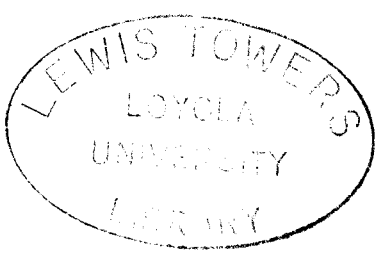
Table 10

Summary of Analysis of Variance on Reaction Times for Preceding Test (Context) Effects

Variables	df	SS	MS	F	p less than
CRT					
Between	2	6701.722	3350.861	1.513	.2260
Within	87	192660.645	2214.490		
ART					
Between	2	12536.537	6268.266	3.246	.0437
Within	87	168005.195	1931.094		

the TAT than when the Rorschach was given first. There were no significant differences between the total achromatic reaction times given on the Rorschach following the MMPI and either of the other groups.

In summary, there were significantly fewer responses produced on the Rorschach test when it followed the MMPI. Additionally there were proportionally more DD responses scored for subjects who received the Rorschach first than where it followed the other tests, while proportionally fewer W locations were found in the Rorschach protocols where the Rorschach was given first. Finally, total reaction times for achromatic cards on the Rorschach were longer when the Rorschach followed the TAT than when the Rorschach was unpreceded or preceded by the MMPI.



DISCUSSION

The purpose of this study was to investigate the possible influence of serial position of the Rorschach test in the psychodiagnostic test battery and the effects of the specific assessment device preceding the Rorschach, or context, on Rorschach variables. The results indicate that both context and the serial position of the Rorschach have some significant effects on Rorschach variables.

In the analysis of serial position, it was noted that there were significantly fewer responses to the Rorschach when it was presented in the second position. In addition the achromatic reaction times were significantly longer in the second position than in the first. Those subjects who received the Rorschach third produced significantly more whole and fewer detail responses than those who were administered the Rorschach first. One might conclude quite simply that giving the Rorschach either first or last in the battery is the most appropriate procedure with reference to Rorschach performance. Such a conclusion is consistent with L'Abate's (1964) position in that there should be an increasing progression of ambiguity, which places the Rorschach last in the battery as well as Piotrowski's (1958) point of view that there should be a progressive increase in structure, which positions the Rorschach first. In some sense both hypotheses were supported since the Rorschach was most affected when it was in the second or middle position as opposed to either end of the battery.

It is not clear how the differences in number of responses and

reaction times can be accounted for. One possible explanation may be that there is a differential effect on productivity if the individual subject has a closer interpersonal interaction with the examiner immediately preceding the Rorschach as opposed to a more distant one. That is, the subject, having completed a brief and structured interview, procedes to become involved in a highly interactive relationship in the Rorschach test. As a result, he is more productive and generates a good number of responses. When the subject is first given a TAT or an MMPI prior to the Rorschach testing, he is not engaged in a highly interactive relationship. In fact, the MMPI is devoid of interaction. It is noteworthy that the number of responses on the Rorschach is significantly lower if the Rorschach follows the MMPI than when the Rorschach is not preceded by any test or is preceded by the TAT. Accounting for the subsequent rise in the number of responses in the third position, one may further hypothesize that what has been missing in quality and intensity of an interaction, has been made up for by quantity of interaction and the subject's achieved comfort in the testing situation. The data are not clear as to whether productivity in the third position is increasing or whether it failed to decrease.

It is not surprising that the proportional production of whole and detail responses were inversely related. Characteristically as the number of responses increases, so does the number of detailed responses. What needs to be considered is whether the number of responses are indicative of an increase in the subject's use of details or whether the increase in details is a necessary result of the increase in the number of responses. Since the variability scores took into account the productivity of the individual subject, the significant findings for whole and detail locations

appear more the result of a preference for that type of response than consequences of the productivity factor. Contradictory to the predicted effects of fatigue, the increase in the number of whole responses indicates a high energy level (Hertz, 1960). This preference for whole locations is also an indication of anxiety and stress, which is handled by restrictive and intellectualizing controls (Phillips & Smith, 1953; Schafer, 1954). In this case the parental figure usually associated in these hypotheses is the authority figure of the examiner. Once again there appears to be some support for an examiner influence in terms of the type of relationship established with the client. Exner's (1974) summary of subject-examiner influence on the Rorschach is consistent with this hypothesis. His final conclusion emphasizes the importance of this factor. "The assessor who does not weigh the potential impact of his behaviors in the assessment situation only makes his own task more difficult and may even provide a disservice to his subject" (p. 26).

In summary, there is evidence for an increase in anxiety among subjects who receive the Rorschach later in the battery as opposed to first. This is considered as support for the positions of Piotrowski (1958) and Brown (1958). Their general response to this anxiety is to react with restrictive, suppressive controls such as slowing down and giving fewer responses or increasing intellectual controls. This anxiety may be specific to personalities such as those more frequently represented in college students who may find the TAT and MMPI more disturbing because of their "test-like" format or the result of decreasing test structure in a context of greater prior structure. Whether the disturbance is due to the depression and achievement themes of the TAT and the emphasis on pathology with the corresponding desire to appear normal on the MMPI is

not clear. Further analysis of the TAT stories and MMPI scores would clarify this point. In any case, the lack of an initial intensity of relationship and opportunity for rapport may operate to force the subject to handle his anxiety by significantly altering his behavior on the Rorschach test.

In the preceding analysis it was hypothesized that subjects were handling their anxiety by manipulating their behavior on the Rorschach. It was noted that the clients used consistent defenses but which were sometimes procedurally different. That is, while the "genotype" of the defense remains the same, the "phenotype" differs. This finding would lead one to suspect that there may be influences of the type of preceding test on the type of behavior seen on the Rorschach.

When the Rorschach followed the MMPI, significantly fewer responses were produced. Two possible reasons for the lowered number of responses can be offered. First, consistent with the anxiety-examiner influence discussion presented above, the client may have increased anxiety following a test which not only centers upon the detection of pathology but also one which asks very personal questions. In addition, if the client realizes that a truthful answer will indicate pathology he either must accept that fact or fake. In either case his anxiety level may be elevated. The combined pathology set from the MMPI with the lack of structure in the Rorschach could result in constriction shown in fewer responses.

In analyzing the proportion of whole locations used, it was found that subjects who received the Rorschach following the TAT produced more whole responses than those subjects who were administered the Rorschach with no preceding test. The TAT group was more similar to the MMPI

group which indicates a tendency for the conclusion that either test preceding the Rorschach will elevate whole location use. Consistent with the increase in whole production when the Rorschach is preceded by a test, is the finding that when the Rorschach is not preceded the subjects show a preference for detail responses.

Subjects who received the TAT first were also slower to respond to achromatic cards on the Rorschach than those subjects who were administered the MMPI or no test at all preceding the Rorschach. It appears from these findings that the TAT may encourage a particular procedure for dealing with the testing anxiety, that is, responding to the whole card in an integrated fashion, which would emphasize intellectual efforts.

In summary, it seems that whether subjects are less anxious and inhibited prior to testing following the brief interview or comfortable in the testing situation because of established rapport, they are more spontaneous on the Rorschach test when it is given unpreceded by any other assessment device in the test battery. This is congruent with the results of the Bidus study (Bidus, 1975). The major contentions of this study were that there were effects due to order of presentation of the tests and due to the type of preceding test on Rorschach variables. The results of the present study support those contentions.

Although the preceding explanations of these findings are more speculative than data-based, the results indicate clearly that more research is needed to identify the nature of the effect of examiner-client and test-client interactions when the Rorschach test is utilized. What has not been answered here is the effect the Rorschach has on the other two tests. It will be the job of further research efforts to

clarify those relationships. It may be that the Rorschach is more sensitive to these situational variables than the other two tests, in which case it would be suggested that when it is used, the Rorschach be given as the first test in a psychodiagnostic battery. Further analysis of the data collected on the TAT and MMPI in this study will hopefully cast some light on these relationships.

The results of the present study are limited in their generalizability since the population sample was restricted to college students. Future research should also attempt to explore the relationship of serial position and prior test on Rorschach variables with a variety of pathological groups, as well as groups from different age levels. The effects of serial position and prior test may be multivariate and complex. Regardless of this, the well-trained professional, whose responsibility it is to assess to the best of his ability the nature and personality process of the client, will need to know more about the extraneous variables affecting his assessment procedures.

In any case, the results of the present study indicate that the psychological examiner should give serious consideration to the type of battery given and the order in which the tests are presented to the client when he is both planning and executing psychodiagnostic functions. The results of the present investigation suggest that different serial positions and contexts do affect Rorschach performance. The examiner's placement of the Rorschach should vary depending on the importance that he or she gives the Rorschach relative to the other tests in the assessment battery.

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APPENDIX A

INTERVIEW OUTLINE

Name (I.D.)_____ Sex_____ Age_____

Religious Affiliation _____

Education (years) _____ Major _____

Race_____ Occupation_____

Marital Status _____ Spouse's Age_____

How long married_____Children # _____Ages_____
divorced_____ _____
separated_____ _____
engaged_____ _____

Parent's Age Mother _____ Occupation_____
Father _____ _____

Parent's Religious Affiliation Mother _____
Father _____

Sibling's	Age	Sex	Occupation	Education
1.	___	___	_____	_____
2.	___	___	_____	_____
3.	___	___	_____	_____
4.	___	___	_____	_____
5.	___	___	_____	_____

Who is living at home ? (Parents, Siblings)_____

_____

To which of the siblings is the subject closest?____

To which of the parents is the subject closest?____

Subject's Hobbies _____

_____

Any other important persons in subject's life?_____

Relationship_____

EXAMINER_____ PROTOCOL # _____ SEQUENCE (number) _____
order TAT___MMPI___ROR___
Time Begin _____ End_____ Total Time _____ Any Special Remarks or Observations

APPROVAL SHEET

The dissertation submitted by Dale A. Bespalec has been read and approved by the following Committee:

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

8/22/77
Date

Alan S. DeWolfe
Director's Signature