

EMPIRICAL TEST OF THE "LEVELS" HYPOTHESIS WITH FIVE PROJECTIVE TECHNIQUES¹

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The "levels" hypothesis that there is an inverse relationship between the degree of stimulus structure in a test and the level of personality impulse-control system being tapped by the test was tested for 20 normal and 20 psychiatric Ss. As predicted, an inverse relationship between pathology and stimulus structure over five tests (from low to high structure Draw-a-Person, Rorschach, Thematic Apperception Test, ISB, and Bender-Gestalt) was found for normals. Contrary to hypothesis, no such relationship appeared for psychiatric Ss. Other hypotheses that psychiatric Ss manifest more projection and more pathology than normals and that there is a significant correlation between pathology and projection for every test for each group were confirmed. In view of these findings a new theory of projection of pathology as a function of the stimulus structure of tests was proposed.

When projective techniques first appeared on the psychological horizon as a reaction against more overt psychological measures, they were viewed as providing a royal road to the unconscious and as an X-ray into the private, covert world of the S (Frank, 1939). In time, however, there was a realization that the dichotomies of conscious-unconscious and overt-covert were an oversimplification of the differences between paper-and-pencil tests and projective techniques. Subsequently, several writers stressed the possibility that personality might be viewed as consisting of different levels varying in depth and accessibility (Hanfmann & Getzels, 1953).

If one assumes further that the stimulus properties of the different projective techniques determine the depth of the level of personality tapped, the failure to find inter-projective test correlations for various personality traits may be explained. The principle generally adopted has been that the most structured and unambiguous tests tap the most conscious aspects of personality; consequently, the Rotter Incomplete Sentence Blank (ISB), for example, should elicit more

conscious control than the Rorschach. This does not mean, of course, that the ISB is completely unamenable to unconscious projection nor that the responses to the Rorschach are not subject to conscious control. Rather, it is acknowledged that while any given test may be interpreted at different levels, it might be, nevertheless, at least roughly classified as primarily occupying a given position along the continuum of conscious control.

Despite the considerable number of articles dealing with "levels" theory, the authors discovered only one study in which the theory was empirically tested. Stone and Dellis (1960) hypothesized that "there is an inverse relationship between the degree of stimulus structure inherent in the test and the level of personality or impulse control system being 'tapped' by the test [p. 336]." Consequently, the more disturbed an individual is, the more likely he is to manifest a degree of loss of impulse control on a relatively structured test.

Stone and Dellis examined the protocols of 20 hospitalized patients diagnosed as pseudo-neurotic or pseudocharacterological schizophrenic for the following tests: Wechsler-Bellevue Intelligence Test (WAIS), Forer Structured Sentence Completion Test, Thematic Apperception Test (TAT), Rorschach, and Draw-A-Person (DAP). As expected, each of the tests, in the order named, tapped successively lower or more primitive levels of impulse-control systems when they used

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the Menninger Health-Sickness Rating Scale as a measure of lack of impulse control. However, only one of the mean differences between contiguous tests proved significant (TAT versus Rorschach, $p < .01$), although it is evident from inspection of their results that several significant differences (not computed) existed between nonadjacent tests in accordance with the theory that the more highly structured test showed less pathology than the less structured one.

The Stone and Dellis study is extremely provocative, but it suffers from shortcomings. First, it seems unfortunate that Stone and Dellis did not study a normal group as well as a psychiatric one as has been suggested earlier (Murstein, 1963). One might anticipate that a normal group, in respecting the stimulus structure of the cards, would be more likely to show the levels effect to a series of projective tests varying in degree of stimulus structure than would a psychiatric group. The latter group might experience a breakdown in ego control so that they showed little respect for the stimulus structure in responding to more internal cues. The result would be a flattening out of differences in pathology between tests, thus weakening the levels effect. The failure of Stone and Dellis to find more than one significant difference in computing four tests of significance between projective techniques contiguous along the stimulus dimension may, therefore, have been due to this "flattening" effect.

Another problem lies in the possibility of an alternate explanation for their findings. Almost all assessment systems used with projective techniques are rather negatively or morbidly oriented. Thus, the more one projects on a test, the more one may be prone to give pathological responses. Further, the more unstructured a test is in its stimulus properties, the more likely it is to be sensitive to the negatively oriented scoring systems. The DAP for example, is a magnet for eliciting signs of maladjustment, especially when the Machover (1951) approach to scoring is used. Every part of the body and each article of clothing become potential signs of maladjustment. The slightly more structured Rorschach yields a few signs of ego strength but still elicits a preponderance of signs of maladjust-

ment according to most analytical schemes. The TAT appears to be more evenly balanced since the overall theme is judged, and good as well as poor themes are acknowledged. The ISB offers a simple possibility of achieving good adjustment by *S*'s choosing the socially desirable response although he may elect not to do so. The Bender-Gestalt (B-G) is perhaps the easiest test on which to achieve an adjusted score because one has merely to copy adequately some simple geometric designs.

In classifying the tests along the dimensions of stimulus structure, the authors were aware that the task requirements or directions regarding the response do not necessarily parallel the structuring of the stimulus. Hence, for example, the B-G which is the most stimulus-structured test might be analyzed with respect to the response (copying the figures) in such a broad manner that the slight rotation of figure, elongation of dot, or flattening of curve would have diagnostic significance. On the other hand, the less stimulus-structured ISB is usually analyzed simply for goodness or poorness of response—a far narrower scoring schema than that commonly employed for the B-G.

Unfortunately, the authors know of no way at the present time of classifying scoring systems across tests as readily as the stimulus properties of the tests can be classified. This factor thus remained a source of uncontrolled variance in the present study. Despite this handicap, the study seemed worthwhile simply because recent research on the moderately structured TAT (Murstein, 1963, 1968) suggested that the stimulus is by far the most potent determinant of the nature of the response. Hence, it was decided to replicate the Stone and Dellis study taking cognizance of the difficulties described in the preceding paragraphs regarding the interpretation of their findings. The B-G was substituted for the WAIS as the most structured test since it could be more readily classified on a stimulus continuum than the WAIS which is not primarily a projective test.

The hypotheses were the following:

1. Psychiatric *Ss* manifest more pathology than normal *Ss*.
2. The levels effect, as described by Stone and Dellis, is found for a series of projective

tests for both (a) normal and (b) psychiatric Ss. A very strong verification of the levels effect occurs if tests contiguous to each other on the stimulus-structured continuum manifest significant differences in pathology. However, because each test actually may be amenable to analysis from a spectrum of levels rather than a particular point on a continuum, the levels effect is considered to be supported if, among the 5 tests to be used (10 tests of significance), 3 or more tests are significant in accordance with the hypothesis that increasing structure results in less pathology.

3. There is a significant correlation between projection and pathology for both (a) normal and (b) psychiatric Ss.

4. From Hypotheses 2 and 3, it follows that psychiatric Ss manifest more projection on their tests than normals.

METHOD

The Ss consisted of two groups of 20 Ss ranging in age 16–20 yr. The control group was composed of 11 female college students who volunteered as Ss for credit in an elementary psychology class. The remainder of the control group consisted of 9 male volunteers from the United States Naval Submarine Base. The criteria of normal adjustment used were that Ss have no history of psychiatric treatment and that there be no indications that such treatment was necessary at the present time.

The experimental group (also 11 females and 9 males) consisted of 15 hospitalized patients from the Norwich State Hospital adolescent ward and 5 psychiatric patients from the United States Naval Submarine Base. The individual diagnoses varied widely, from mild character disorder to severe, acute psychosis. All Ss were sufficiently organized to be capable of participation in the study.

There were no differences in age between groups, the means for the normal and psychiatric Ss being, respectively, 18.9 and 18.6 yr. Since the Vocabulary subtest of the WAIS has been found to correlate .87 with full scale score IQ for a normative population (Wechsler, 1955), it was administered to each S to obtain an estimate of IQ. Normal Ss showed significantly higher scores than psychiatric ones ($t = 2.03$, $p < .05$).

A test battery, consisting of the B-G, ISB, TAT (Cards 1, 2, 6GF, 8BM, 8GF, 9GF, 10, 13B, 14, and 18GF),⁴ Rorschach test, and DAP, was administered individually to each S by the second author. The tests were presented to Ss so that order and

sequence effects of administration were counter-balanced by use of a Latin-square design.

Each of the 200 tests (40 Subjects \times 5 Tests Each) was scored for pathology, as measured by the Menninger Health-Sickness Rating Scale, according to the procedure of Stone and Dellis (1960). The Menninger scale ranges 0–100 with 100 indicating "an ideal state of complete functioning integration, of resiliency in the face of stress, of happiness and social effectiveness," and 0 indicating "Any condition which if unattended, would quickly result in the patient's death, but not necessarily by his own hand. . . . A completely regressed schizophrenic (incontinent, out-of-contact) who requires complete nursing care, tube feedings [The Menninger Foundation, 1962, p. 3]."

Each test was also evaluated on a 5-point scale of projection ranging from a score of 5, which was assigned for unusually rich projection in which a great deal about S was learned from his response, to 1, which represented considerably below average projection with almost no projection of personality-relevant material.

Each of the three judges (two interns and a post-intern at Norwich State Hospital) scored the protocols of 13 or 14 Ss (65 or 70 tests). Each judge received an equal number of each kind of test drawn from both groups and was unaware of either how many Ss were represented or from what diagnostic category they stemmed. The judges knew only that half of their protocols came from each group.

Interjudge reliability was obtained for both scales by having the raters score complete test batteries of the same three Ss (15 tests) without knowing, however, how many Ss were represented by the tests. Reliability estimates (Winer, 1962, p. 127) were .81 ($p < .01$) for projection and .68 ($p < .01$) for the Menninger scale, which were considered sufficiently high for the purposes of the study.

RESULTS

The means, standard deviations, and t tests for differences between the normal and psychiatric groups for each test for both pathology (low score on Menninger scale) and projection are presented in Table 1. For four of the five tests, the normal Ss manifested significantly less pathology than the psychiatric group, thus confirming Hypothesis 1. The normal group also showed significantly less projection on three of the five tests, thus supporting Hypothesis 4.

Table 2 shows that, for the normal Ss, none of the differences in pathology between tests contiguous on the stimulus continuum (B-G versus ISB, ISB versus TAT, TAT versus Rorschach, Rorschach versus DAP) were significant though all were in the predicted direction except for B-G versus ISB. When non-

⁴ These cards were chosen by the first author as being, in his judgment, suitable for a college age population of men and women.

contiguous tests were compared, however, five of the six were found to be highly significant, the sixth (B-G versus TAT) showing a non-significant trend in the predicted direction.

Turning to the psychiatric Ss, Table 2 shows that none of the differences between either contiguous or noncontiguous pairs of tests were significant. Hypothesis 2, therefore, is accepted for normal Ss, but not for psychiatric ones.

Although no predictions were made for the relationship of projection to the levels effect, an analysis of variance was computed between all projective tests for the normal group and for the psychiatric one. No significant *F*s were found for either the normal or psychiatric

TABLE 2

t VALUES BETWEEN PROJECTIVE TESTS WITHIN GROUPS FOR PATHOLOGY

Test	B-G	ISB	TAT	Rorschach	DAP
B-G		.10	.45	1.82*	3.26**
ISB	1.28		.44	1.84*	2.34*
TAT	1.44	.39		1.21	2.67**
Rorschach	1.39	.52	.76		.95
DAP	1.27	.14	.23	.49	

Note.—Values above diagonal are for the normal group; values below the diagonal are for the psychiatric group. B-G = Bender Gestalt; ISB = Incomplete Sentence Blank; TAT = Thematic Apperception Test; DAP = Draw-A-Person.

* $p < .05$.

** $p < .01$.

Because the normal group scored significantly higher on the Vocabulary subtest, it was necessary to determine whether fluency and/or intellectual differences as represented by this test might have accounted for any part of the findings. Correlations were computed, therefore, between Vocabulary and pathology and Vocabulary and projection for each test across all 20 Ss in a group. Not one of the 10 correlations approached significance ($r = .37$ needed for significance at .05 level) for a one-tailed test even after correction for coarse grouping (Guilford, 1950, p. 360). It may be concluded, therefore, that intelligence and vocabulary do not account for the results.

After the data had been collected, it was decided to investigate whether either the normal or psychiatric group exhibited any degree of consistency in the manifesting of pathology across tests. Winer (1962, p. 128) has proposed an analysis of variance model for the prediction of average estimate of reliability for several judges, each rating the same S. This model was used, substituting the

TABLE 1

MEANS, STANDARD DEVIATIONS, AND SIGNIFICANCE OF DIFFERENCES BETWEEN NORMAL AND PSYCHIATRIC GROUPS FOR PROJECTION AND PATHOLOGY

Test	Normal Ss		Psychiatric Ss		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Pathology ^a					
Bender-Gestalt	77.60	15.83	62.40	18.25	2.74**
ISB	78.20	16.43	55.25	18.09	4.09**
TAT	75.60	16.47	57.05	20.60	3.06**
Rorschach	68.70	14.65	52.00	25.07	2.50**
Draw-A-Person	62.80	20.95	55.90	24.28	.94
Projection ^b					
Bender-Gestalt	2.70	.90	3.65	.79	3.45**
ISB	3.00	1.10	3.30	1.15	.83
TAT	3.30	.56	3.85	.73	2.61**
Rorschach	3.10	.77	3.60	.86	1.89*
Draw-A-Person	3.20	1.25	3.35	1.11	.39

Note.—ISB = Incomplete Sentence Blank.

^a The higher the pathology score, the less the pathology.

^b The higher the projection score, the greater the projection.

* $p < .05$.

** $p < .01$.

groups, and inspection of Table 1 shows clearly that no semblance of levels effect is evident for projection.

The correlations between projection and pathology for each projective test⁵ are shown for both the normal and psychiatric groups in Table 3. Every correlation was significant beyond the .01 level except for B-G which was significant only beyond the .05 level for the psychiatric group. Thus, Hypothesis 3 was clearly supported.

⁵ These correlations were corrected for coarse grouping due to the small number of categories (five) in projection. The effect was minimal and affected only the interpretation regarding the Bender-Gestalt variable which moved from .37 to .39 just reaching the .05 level after correction.

TABLE 3

CORRELATIONS BETWEEN PATHOLOGY AND PROJECTION FOR BOTH NORMAL AND PSYCHIATRIC GROUPS FOR EACH OF THE PROJECTIVE TESTS

Ss	B-G	ISB	TAT	Rorschach	DAP
Normal	.79**	.70**	.48**	.63**	.51**
Psychiatric	.39*	.58**	.58**	.50**	.55**

Note.—The signs of the correlations have been changed for ease of understanding as the scores measure lack of pathology. See Table 2 for explanation of abbreviations.

* $p < .05$.

** $p < .01$.

five tests for judges. This action is believed justified since no judge knew which protocols he scored came from the same *S*. The mean pathology score ascribed to an *S* thus constituted his "judged" score. The estimate of reliability found for psychiatric *Ss* was .70 ($p < .01$). For normals the reliability value of $-.05$ was clearly nonsignificant. The difference between the two values was highly significant ($p < .001$).

Last, the authors wished to determine whether the obtained positive correlation between projection and pathology existed only because the two variables were scored by the same person for each *S*. Accordingly, one of the judges was given the complete protocols of five normals and five psychiatric *Ss* randomly drawn from the total pool of *Ss* with the only stipulation being that they could not be the same *Ss* that she had scored earlier. Knowing only that she had both normal and psychiatric protocols, she scored all tests for projection. The correlations (corrected for coarse grouping) between projection, as assessed by the current judge, and pathology, as scored by one or two other judges over the 10 protocols, for each test were DAP .84, Rorschach .60, TAT .45, ISB $-.09$, B-G .61 ($r .52 = p < .05$). Except for the ISB, the correlations offer considerable support for the conclusion that the correlation between projection and pathology is not due to any kind of "halo" effect on the part of each of the judges toward *Ss*.

DISCUSSION

By and large, the levels effect appears to be manifest for the normal *Ss*. The only discordant note lies in the fact that the ISB and B-G received essentially identical pathology scores though the B-G as the more structured test should have been higher. Whether this similarity was due to the fact that a functional ceiling for "health" (lack of pathology) has been reached for both tests, whether it lies in the kind of health criterion used by the judges, or whether the greater stimulus structure of the B-G was cancelled out by its greater response analysis variability can only be resolved by future research.

The failure of the levels effect to occur for the psychiatric group, however, is contrary to

the earlier finding of Stone and Dellis. A possible explanation for the divergence of results might be that the pseudoneurotic and pseudo-characterological *Ss* of Dellis and Stone might have been healthier than those in the present study, thus mimicking the performance of the normal *Ss*. Inspection of their reported data, however, indicates that their *Ss*' Menninger scale scores were far lower (more pathological) than those of the present authors' psychiatric group. Thus, for example, their *Ss* achieved a mean score range of from 33.45 for the DAP to 56.30 for the Forer Sentence Completion Method. The present authors' range for psychiatric *Ss* for comparable tests was from 52.00 for the Rorschach to 57.05 for the TAT. Clearly, therefore, *Ss* in the present study were not more pathological on the average than theirs.

Were their *Ss* more disturbed than the authors' psychiatric group? This does not seem likely since their group as well as the authors' was able to complete all of the tests satisfactorily. However, Stone and Dellis' procedure is somewhat imprecise regarding safeguards taken to prevent bias in the scoring. Apparently, all of their judges knew they were scoring only psychiatric patients, whereas our judges knew only that they were dealing with both normals and psychiatric patients. The judges in the present study, therefore, would tend to be more cautious in making extreme judgments compared to theirs, thus accounting for the present authors' more limited range and higher mean scores. Further, it is not clear whether their judges knew of their hypothesis and whether in receiving their protocols the judges knew that a given batch of five tests belonged to a given *S*. Thus, from Stone and Dellis' description of their procedure, the possible contamination of the data cannot be ruled out.

The appearance of the levels effect for the normal group and the absence of this effect for the psychiatric *Ss*, it is believed, is explained by the differing sensitivities of these groups to test stimuli. Normal *Ss* are quite sensitive to these *external* cues which vary considerably from test to test in the authors' battery. Further, the closer they follow the stimulus, the less pathology they project. But, since the stimulus ambiguity of the tests

varies considerably, the amount of pathology expressed from test to test also varies (reliability estimate = $-.05$), and this is the phenomenon labeled levels effect.

Psychiatric Ss tended to express an equal degree of pathology across all tests (reliability estimate = $.70$) because, in contrast with the normals, they may be viewed as responding to a larger extent to *internal* stimuli. The ego controls of these Ss have broken down, and their sensitivity and/or desire to respond to the cue properties of the outside world is minimal. They project their problems to all tests, manifesting a supreme indifference to the varying stimulus properties found from test to test unless they are extremely clearly structured.

To illustrate the difference between the normal and psychiatric Ss in projecting pathology as a function of stimulus properties, the theoretical curves as shown in Figure 1 are proposed. Inspection of this figure indicates that differences in amount of projected pathology between normals and psychiatric Ss are minimal for highly unstructured tests (DAP, Rorschach). This is because the normals are unable to find appropriate external cue properties to guide them in giving the "correct" response. They are forced to project themselves, and the finding in the study that projection and pathology are significantly correlated suggests that these projections tend to be scored as pathological.

Moving into the middle range of structure (TAT, ISB), the difference between the groups widens. The normals now have moderately strong cues to respond to in a "normal" fashion, whereas the psychiatric Ss tend to ignore these moderately strong cues to pursue their own internal ones. If one moves to an extremely structured test (B-G), however, the psychiatric Ss show a somewhat healthier response because the cues are so strong that even a considerably disturbed person is compelled by the demands of reality to respond to them. At the same time, the normal person who has already been responding close to maximally should show little or no further progress in the healthiness of his response because he is approaching his ceiling of health.

General empirical confirmation of these two

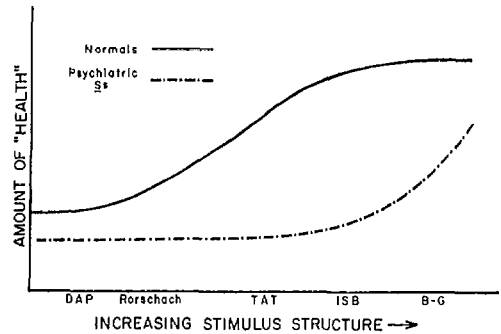


FIG. 1. The hypothetical curve proposed to account for amounts of "health" projected by normal and psychiatric Ss as a function of the degree of stimulus structure in the tests.

theoretical curves is found by inspection of Table 1. The groups of Ss showed least discrepancy in the manifestation of pathology to both the least (DAP) and most (B-G) structured tests. The tests in between evoked an increasing divergence between groups in accordance with the theory.

The two curves are the same as those hypothesized by Murstein (1963, p. 362) to exist in the behavior of high and low need achievers when he reviewed the literature of McClelland's *n* Achievement Test (*n* Ach) model in conjunction with the stimulus pull of the cards for *n* Ach. Whether this pair of curves applies for other areas of projection apart from *n* Ach and pathology is a subject for future research.

Some earlier work, however, is consistent with the position taken here regarding the response "sets" of normal and psychiatric Ss. Davids (1955) gave college students paper-and-pencil tests measuring adjustment and some projective techniques under differing instructions. One group received instructions which were exceedingly permissive and impersonal; the other received highly ego-involving instructions. The results showed considerable intercorrelation among tests in the low ego-involving situation and much less intercorrelation in the high ego-involving situation.

The interpretation of these results is that, in an ego-involving situation, Ss tended to more closely follow the stimulus requirements of the tests. Since these varied considerably from test to test, the effect was to lower the

correlation between tests. Under the "relaxed" condition, the basic set to relax becomes more important than the stimulus properties of the tests and a higher intercorrelation among tests occurs.

Support for this interpretation is found in an experiment by Murstein (1968) in which college students instructed to "look your best" on the TAT departed significantly less in their stories from the scaled hostility values of the cards than Ss in an "impersonal" condition. Davids (1955) also reached a similar conclusion when, in refuting Allport's (1953) statement that normal Ss show greater consistency of response than disturbed Ss, he stated that "In the present sample it is *not* the most healthy Ss who show the greatest consistency in response to the different assessment methods, but rather it is the most neurotic Ss [p. 431]."

The consistent correlation of projection and pathology across tests for both groups also merits some discussion. The basic problem is: Is it not possible to project rich "inner" data without being considered abnormal? Where is the regression in the service of the ego that Kris spoke about (Bellak, 1956) which would allow a rich playful fantasy that nevertheless showed no signs of pathology? If it exists, it is an unusually rare phenomenon that does not seriously manifest itself in the assessment of a group of individuals such as the ones tested.

The normals projected less than the psychiatric Ss and also showed less pathology. This finding suggests that deviating extensively from the stimulus demands of the test in one's response is characteristic of maladjustment. However, another tenable hypothesis is that, to some extent at least, scoring systems are so negatively oriented that the more an individual projects, the more his responses are classified as pathological regardless of his diagnostic status. This thesis is supported by the fact that while the psychiatric Ss produced more projection and more pathology than the normals, the correlation between projection and pathology was significant for *both* groups for all tests, and on the average

higher for the normals than for the psychiatric Ss. However, to reject Bellak's thesis that rich projection is characteristic of a well-integrated ego, it would be necessary to demonstrate in future research that, within the normal group, the individuals who projected more were the more disturbed.

In sum, the findings suggest that a fruitful means of investigating personality adjustment would be the construction of a series of tests or of TAT cards of varying stimulus structure. The expectation would be that personality disturbance under these conditions should be significantly correlated with the consistency of manifestation of pathology across tests.

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