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An Investigation of the Role of Directional Dynamics in the Production of Rorschach Movement Responses

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AN INVESTIGATION OF THE ROLE OF DIRECTIONAL DYNAMICS IN THE PRODUCTION OF MOVEMENT RESPONSES ON THE RORSCHACH TEST

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REVIEW OF LITERATURE

Indications of a relation between movement responses on the Rorschach (hereafter referred to as "M") and inhibition of motor activity come from numerous sources, not the least of which is Herman Rorschach (1942) who in his original discussion of M gave this interpretation:

> "The motility generally observed in a subject is not a measure of the kinaesthetic sensations which arise in him by interpreting a figure. On the contrary, the individual who is influenced by kinaesthetic factors in the test is stable in his general motility, the agile (i.e. motorically less stable) person is the one who is lacking in [M responses] to the figures. These are clinical findings of the test which, though varifiable at any time, are still in need of theoretical explanation."

Experimental support for this relation of motor inhibition and M is found in a series of studies. Singer, Meltzoff, and Goldman (1952) found that induced motor inhibition (Ss required to maintain a rigid posture) results in more M responses on a subsequent Rorschach than occurs under normal conditions. In a study by Meltzoff, Singer, and Korchin (1952), Ss were divided into 2 groups on the basis of M productivity and were instructed to write a phrase as slowly as possible. With the time taken to write the phrase used as a measure of motor inhibition, the experimenters reported that "the number of M initially produced by the Ss was positively correlated with their subsequent ability to inhibit the motor response." The measure of motor inhibition used by Singer and Spoon (1954) was in conjunction with gross motor activity. Here, the Ss were divided into high and low M respondents and were rated according to the activity they displayed in the waiting room prior to the phrase-writing, motor-inhibition task. The results showed a significantly longer motor-inhibition time, while phrase writing, for the high M group, as well as significantly lower scores in waiting room activity, compared to the low M group. Similarly, Ss reflecting introversive experience types in their Rorschach protocols differed in parallel fashion from extratensive Ss. Essentially these same findings were replicated in a study by Singer and Herman (1954), once more demonstrating that individuals chosen on the basis of contrasting tendencies to perceive M, differ in their capacity to inhibit a motor response as well as to move about in a waiting room. An older study (Werner, 1945) also indicates that motor inhibition and Rorschach M are related. Here, two different types of retarded children, "exogenous" and "endogenous", in motor behavior, were given the Rorschach. When responding to this test, the exogenous, hyperactive Ss distinguished themselves from the inhibited, endogenous Ss by infrequently projecting movement into the inkblots, a characteristic opposite of the endogenous Ss whose responses were marked mainly by M.

The research evidence so far has been presented in order to point out a relation between motor inhibition and Rorschach M. There is however evidence available to indicate a relation between motor inhibition and other perceptual phenomena, e.g., the perception of illusory movement. An example, corollary to Werner's study above, is an experiment by Werner and Thuma (1942) which extends the previously demonstrated Rorschach M - motor inhibition relation to include perception of illusory movement. Both types of retarded children were again used as Ss, but here they were tested for their ability to perceive illusory movement. It was found that the endogenous Ss, previously characterized by a high production of M, were this time distinguished from the exogenous group by their greater ability to perceive illusory movement. Thus, these findings not only indicate that the perception of illusory movement is related to motor inhibition, but also indicates that both types of movement share the inhibition of motor activity as a common underlying source.

That motor inhibition is not restricted to the production of M, but is also reflected in illusory movement is brought out in a study by Krus, Werner, and Wapner (1953). Ss who were required to push vigorously on a push-board apparatus, subsequently gave significantly fewer reports of perceptual movement in tachistoscopically presented pictures. Using the same apparatus and procedure, the relation of motor activity to illusory movement was shown by Goldman (1953) to extend to perceptual movement in the form of the autokinetic phenomenon. Perceptual sensitivity and motor involvement were investigated by Krus, Wapner, and Werner (1958) where it was found that a greater degree of muscular involvement is paralleled by a rise in the perceptual threshold to a variety of stimuli.

To restate the position presented thus far, a review of several studies has pointed to the role of motor factors in the perception of Rorschach M, as well as two types of illusory movement. Implicit here, is the notion that the tendency to perceive Rorschach M is related to a tendency to perceive an even wider variety of perceptual phenomenon in the form of illusory movement. Evidence for this relationship was reported by Werner and Thuma (1942) above, but is not restricted to this alone. For instance, Klein and Schlesinger (1950) found that those who scored high in Rorschach M also experience apparent movement more easily. Rickers-Ovsiankina (1960), citing an unpublished study by Schumer, reported a tendency for Ss with numerous M to show less variability in the perception of apparent movement, while this author, reviewing another unpublished study by Murawski found that immobilized Ss showed a positive correlation between Rorschach M and the perception of illusory movement. Another unpublished study, by Leiman, is referred to by Rickers-Ovsiankina where it was found that high M Ss showed a trend toward reporting motion in tachistoscopically presented material sooner than did low M Ss. In a unique study by Matarazzo, et. al. (1952) the experimenters discovered that reports of sensations to an intermittent flickering light, scored by means of Rorschach determinants, produced M in amount corresponding to the quantity of M produced by the same Ss in a Rorschach test. Finally, Rickers-Ovsiankina (1960), summarizing much of the above data, agrees with the point being emphasized here. Perceptual data seems in general then to support the notion that a tendency to structure inkblots with movement corresponds with a more general tendency to perceive illusory movement.

In retrospect, the present paper has, by way of experimental data, related the M percept to the perception of movement in general. This relationship is directly demonstrated by experimental evidence and indirectly inferred by pointing to the common effect of the variable of motor-inhibition on both perceptions of movement. In view of this, it should be noted that a current theory (the sensory-tonic field theory) relates motor states to perceptual phenomenon. Thus the theoretical gap which Rorschach (1942) noted earlier has been partly closed. The major proponents of this theory (Werner and Wapner, 1949, 1952b) consider the notion of tonicity, and its vicarious relation to perception, to be of central importance in interpreting data such as those reviewed here. As emphasized by its authors, the essential feature of this theory is that perception is the result of an interaction between sensory and motor factors. Furthermore, in order to be <u>interacting</u> factors, these theorists require the sensory and motor components to be functionally equivalent in respect to the contribution they make in the final perceptual outcome. That this functional equivalence is necessary was demonstrated in studies by Wapner, Werner, and Chandler (1951), Werner, Wapner, and Chandler (1951), Wapner, Werner, and Morant (1951), and Wapner and Werner (1952). In general, these studies support the notion of functional equivalence by demonstrating that visual and kinesthetic perception of vertical was affected equivalently (in direction and amount) by auditory stimulation, concentric rotation, and direct muscular change.

Of primary importance are the implications that follow from an equivalence of muscular and sensory factors. For example, it may be assumed that if these factors are equivalent, they may substitute for one another in a vicarious manner. This leads to the notion of a vicariousness of functions and the related construct of "vicarious channelization." This construct is more explicity described in a review by Werner and Wapner (1956), and means simply that available tonicity may be released through different channels. It is postulated here that sensory-tonic processes may come to expression in terms of muscular (tonic) movement, or through perceptual activity (i.e. perceptual movement). They explain, "one should, for instance, expect that if one response mode is blocked, activity may be channelized into another response mode." More specifically, if tonicity "is blocked from being released through bodily motor channels, it should find expression in heightened perceptual motion." Conversely, if this tonicity "is released through greater motor activity, the degree of perceptual motion should be reduced." The relation originally formulated by Rorschach, and the research evidence corroborating it, seems to be well accounted for by this theory and its supporting tenets of tonicity and vicarious channelization. Thus, the statement if tonicity "is blocked from being released through bodily motor channels, it should come to find expression in heightened perceptual motion" is in accord with the study of Rorschach _M_ and motor inhibition by Meltzoff, Singer, and Goldman (1952) where motor inhibition was operationally induced, as well as by Meltzoff, Singer, and Korchin (1952), Singer and Spoon (1954), and Singer and Herman (1954) where motor inhibition was not operationally induced but seemed to reflect natural tendencies. The converse statement, if this tonicity "is released through greater motor activity, the degree of perceptual motion should be reduced," is not only in accord with these studies, but is more specifically the case in Werner and Thuma (1942) studying illusory movement, in Krus, Werner and Wapner (1953) studying tachistosopically presented material, in Goldman (1953) investigating the autokinetic phenomenon, and in Krus, Wapner, and Werner (1958) investigating perceptual thresholds.

To summarize, the occurrance of M and illusory movement together with motor inhibition is interpreted as tonicity finding expression in heightened perceptual activity. This interpretation, however, does not account for the fact that some of the Rorschach cards are more effective in eliciting M responses, nor does it interpret the finding that some stimulus configurations are more effective in inducing illusory movement. A study by Ranzoni, Grant, and Ives (1950) brings forth the first notion, while Comalli, Werner and Wapner (1957) have varified the latter. The position, then, seems to be that while motor inhibition is a necessary condition, it alone is not a sufficient explanation of the phenomenon.

Some further research has been reported which bears on the problem.

When testing for the extent of functional equivalence in the studies already mentioned, the procedure consisted largely of applying "extraneous stimulation" (stimulation from a source other than the object attend to) to the body of the perceiver to see how it would affect the subsequent adjustment of a rod to a vertical position. Witkin and Asch (1948), however, found that in experiments like this, the initial non-vertical position of a rod systematically affects the final position to which the rod is adjusted as apparently vertical. When investigating this same phenomenon, Werner and Wapner (1952a) confirmed these results and concluded that this outcome obligated them to expand and specify their formulations to account for this significant effect. Part of this revision is reflected in the term "physiognomic perception" which characterized a further refinement of the basic sensory-tonic theory (Werner and

Wapner, 1952b). While still adhering to the notion of vicarious channelization of tonicity, this new construct of the theory recognizes that the salient features of a stimulus object may affect the tonic status of the organism. Thus, the notion is advanced that the stimulus object may affect the physiognomic state of the organism in such a way that it influences the subsequent perception. Those stimulus features which display greatest efficiency in affecting the status of the organism, to the extent that it is reflected perceptually, were found to be configurations in the form of "directional dynamics" (Werner and Wapner, 1954) (Werner, Wapner, and Comalli, 1957). Directional dynamics may be defined as the dynamic attributes of objects which suggest an emi- nent direction through a perceived vectorial quality. In experiments they have been found to be the major determinants in localizing an object in space (Werner and Wapner, 1959) as well as a major factor inducing the autokinetic phenomenon (Werner, Wapner, and Comalli, 1957).

Since directional dynamics have been found to affect space locali- zation and the autokinetic phenomenon, it seems reasonable to assume that they will also be a major determinant in producing Rorschach _M_. If so, this would account for the fact that some cards are more effective in producing _M_ responses. This would theoretically be due to the different directional dynamics inherent in the configurations of the inkblots. If this is the case, one can expect the configurations to affect the tonicity of an individual who would vicariously reflect this in perceptual activity, in this case an _M_ response.

The purpose here is to investigate the Rorschach cards for the directional dynamics inherent in the inkblot formations and determine their relation to the production of *M*.

STATEMENT OF THE PROBLEM

This study was conducted to determine the role played by directional dynamics in the production of movement responses (M) in the Rorschach Test. Directional dynamics inherent in a stimulus figure have been found to be behaviorally measurable in terms of their effect in displacing an object from its objective median plane (Werner and Wapner, 1954) as well as its objective horizontal plane (Werner, Wapner and Kaden, 1955), where displacement is measured by having an S locate an object with directional characteristics in a position that appears to be at eye level and directly in front of the S. This position (the apparent horizontal and median plane) is then compared to the actual position which corresponds to the S's eye level and position directly in front of S (the objective horizontal and median plane). Directional dynamics have also been measured behaviorally in terms of the autokinetic effect and the direction this illusory movement takes (Werner, Wapner and Comalli, 1957).

In investigating the role played by directional dynamics in producing M, it seemed, from the above, that the best method to employ was one which tested the inkblot configurations on the Rorschach cards to determine if they are capable of inducing spatial displacement and the autokinetic effect.

It was felt that if the stimulus configurations on the Rorschach cards most effective in producing M are found to be the same stimulus configurations which most effectively induce spatial displacement and the autokinetic effect, there is reason to believe that directional dynamics are operating as a common agent in producing the effects in all three situations. A correlation of the measures used in the three situations was computed to reveal whether or not this was so.

PROCEDURE

Twenty Ss and three experimental situations were employed to test for the effects of directional dynamics. The purpose of the first experimental situation was to sample the number of movement responses normally given to the Rorschach cards, and was done by a Rorschach test, administered to each of the 20 Ss by the experimenter with the aid of a Rorschach multiple choice test. The second experimental situation was an autokinetic session, using Rorschach ink-blot slides as the stimulus objects. In miniature form, these inkblots were available in slides which are about the desired size for an autokinetic stimulus object when illuminated from behind. The third experimental situation was a spatial displacement session and consisted of having the 20 Ss locate each of the 10 Rorschach ink-blots in the central position corresponding to their eye level (horizontal plane) and fronto-parallel axis (median plane).

APPARATUS AND METHOD

THE RORSCHACH TEST:

Since the only variable being considered in response to the Rorschach cards was the M response, a detailed analysis of the individual's personality was not needed from each Rorschach test. For this reason, the standard Rorschach procedure was modified to collect only the major Rorschach determinents, and from these, extract the M responses. For this purpose, the amplified form of the Harrower Multiple Choice Rorschach Test was used. This test, intended mainly for use as a screening device, consisted of a printed form of 30 alternative choices, in three groups of 10 questions, for each of the Rorschach cards. One choice was made by S in each of the three groups of 10 items by underlining the desired choice. After this was done for a particular card, the S was also permitted any additional response he wished to choose by marking the additional choice with a check mark.

The following instructions were printed on each blank, and were read aloud by the experimenter while the S read the instructions silently to himself.

INSTRUCTIONS

You are going to see ten inkblot pictures one after another.

Begin by taking a good look at Inkblot I and see if it, or any part of it, reminds you of anything or resembles something you have seen.

Then read through each of the three groups of answers for Inkblot I (A,B,C).

Now underline the one answer in Group A, the one answer in Group B, the one answer in Group C, which you think is the best description of that inkblot or any of its parts. You, therefore, underline three answers for inkblot I.

When you have done this, if you wish, you may put a check beside any other answer in any of the three groups which you also feel is a good description of the inkblots or any of its parts.

Then do exactly the same thing for each of the other inkblots.

The experimenter then added that if none of the choices suited S exactly, he was free to write in his own choice at the bottom of each list.

The alternatives the individual was faced with on this test included the major Rorschach determinants (Color, Form, Texture, Vista, Shading and Movement - human, animal, and inanimate objects) normally given by individuals to each of the cards. Harrower (1945) feels that individuals who are most likely to give certain types of responses when responding freely in the Rorschach method will pick such responses when confronted with them in a multiple choice situation.

The type of response for which the individual indicated preference was interpreted by referring to a key provided by Harrower (1945), where each of the 300 alternatives have a number assigned to them. This number corresponds to a number in a list of determinants at the end of the key and consequently all one need to do is translate the number corresponding to the individual's choice to its appropriate determinant at the end of the key. As mentioned, the test is a screening device, with some of the numbers referring to "good" answers and some referring to "poor" answers, and, as such, has its greatest value in comparing the ratio of "good" answers to "poor" answers for large scale screening purposes. But it did permit a convenient method for arriving at an index of movement responses for each card and S.

As the degree of kinaesthetic involvement is generally assumed to be greater for movement in human form then for animal or inanimate movement, for this study, all human movement choices were arbitrarily assigned three points, while animal movement and the movement of inanimate objects were assigned one-and-a-half points. The sum of these movement points was then computed for each individual on each of the cards.

THE AUTOKINETIC SITUATION:

The materials used during this session consisted of the Harrower-Rorschach Kodaslides. These 10 slides are reproductions of the Rorschach cards and are enclosed in a cardboard frame that measures two inches square. These slides are ordinarily meant to be used with a 35 m.m. slide projector in adapting the Rorschach technique to group testing. But for this study, since each slide is an accurate, detailed reproduction of a Rorschach card, in the form of a miniature Rorschach ink-blot, they were used as the stimulus figures for the autokinetic phenomenon. This was done by placing them in front of a box containing a light of sufficient intensity to illuminate the slides. As in other autokinetic situations, the room was kept as dark as possible and the box containing the light was tightly sealed except for the opening before which the slide was placed. This was such, that to the perceiver, the illusion was of a miniature, illuminated Rorschach ink-blot suspended in darkness. There are 10 slides in all, each corresponding to a Rorschach card and they were presented one at a time, in the order of presentation ordinarily used for the Rorschach cards.

A detailed description of the apparatus and procedure is as follows. The apparatus was a cardboard box, 6 1/2 in. long, 6 1/2 in. wide and 4 1/2 in. deep. The inside of this box was lined with 1/16 in. glossed aluminum paneling and contained a 25 watt light bulb. This entire apparatus was mounted on an adjustable pole stand which could be varied in height and was held in any one position by means of an adjustable screw. The front opening in this box was an aperture, 1 3/4 in. sq., and it contained a plexiglass window which was sanded to provide a transluscent surface to diffuse the escaping light. The slides were held in place before this aperture by an aluminum plate attached to the front of the box. This plate was designed to fit around the bottom and the two sides of the aperture and this boundary was curved to permit the slides to be easily inserted and removed.

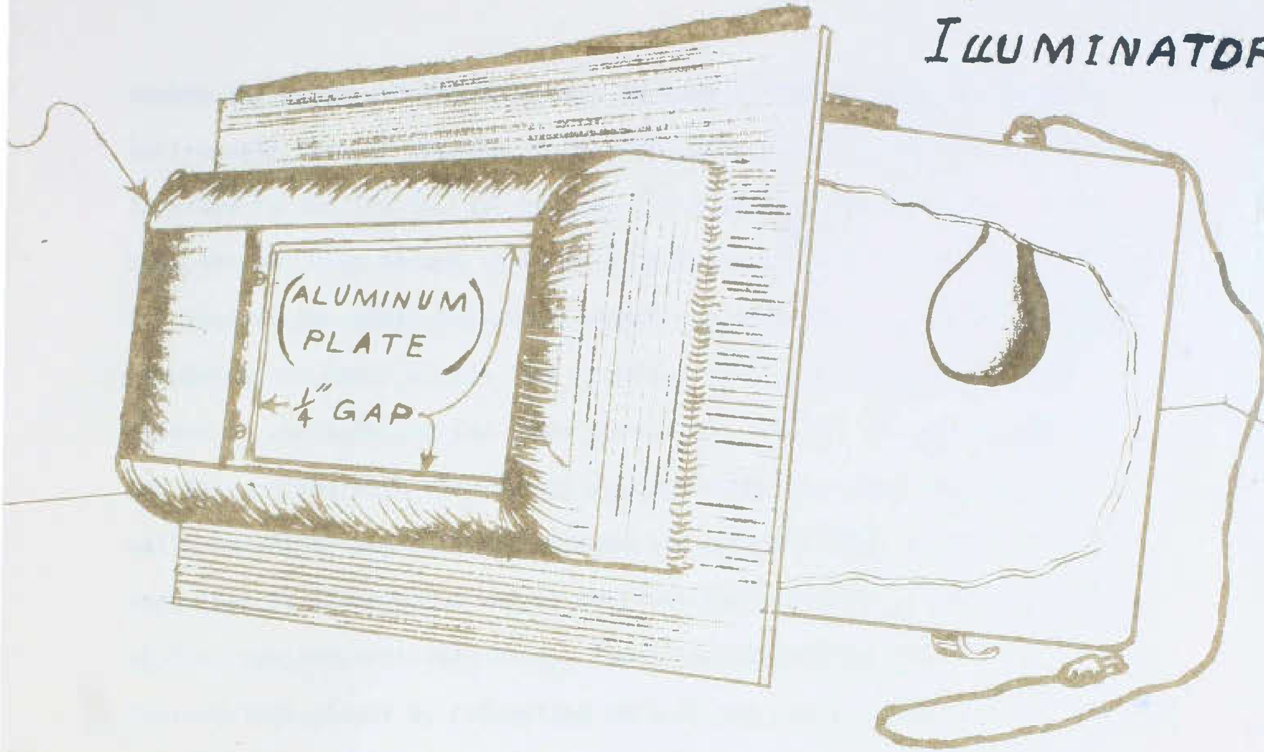
Ss were seated 10 feet from the stimulus figure. The chair was provided with arm rests and an adjustable head rest so that the position of the S's head and trunk remained constant throughout. Distance from S's eye level to the floor was measured and the apparatus was adjusted so that the middle of the stimulus figure corresponded to the S's objective horizon (i.e., S's eye level). The chair was placed so that the middle point of the stimulus figure was directly in front of S (i.e., at the objective median plane.) Ss were led into the room blindfolded, and were seated while the equipment was adjusted to them. They were then told that after the blindfold was removed they would see an illuminated, miniature Rorschach inkblot in front of them, and they were instructed to report to the experimenter any movement they may see in terms of its direction and estimated distance of movement. To simplify their role, they were asked to report this in relation to the position of the numbers on the face of a clock. That is, a 3 in. movement directly upward was to be reported as "12 o'clock-three inches" or some similar statement. Every slide was viewed for two minutes in this manner and the direction of greatest movement in inches was used as a behavioral measurement of that stimulus figure's directional dynamics.

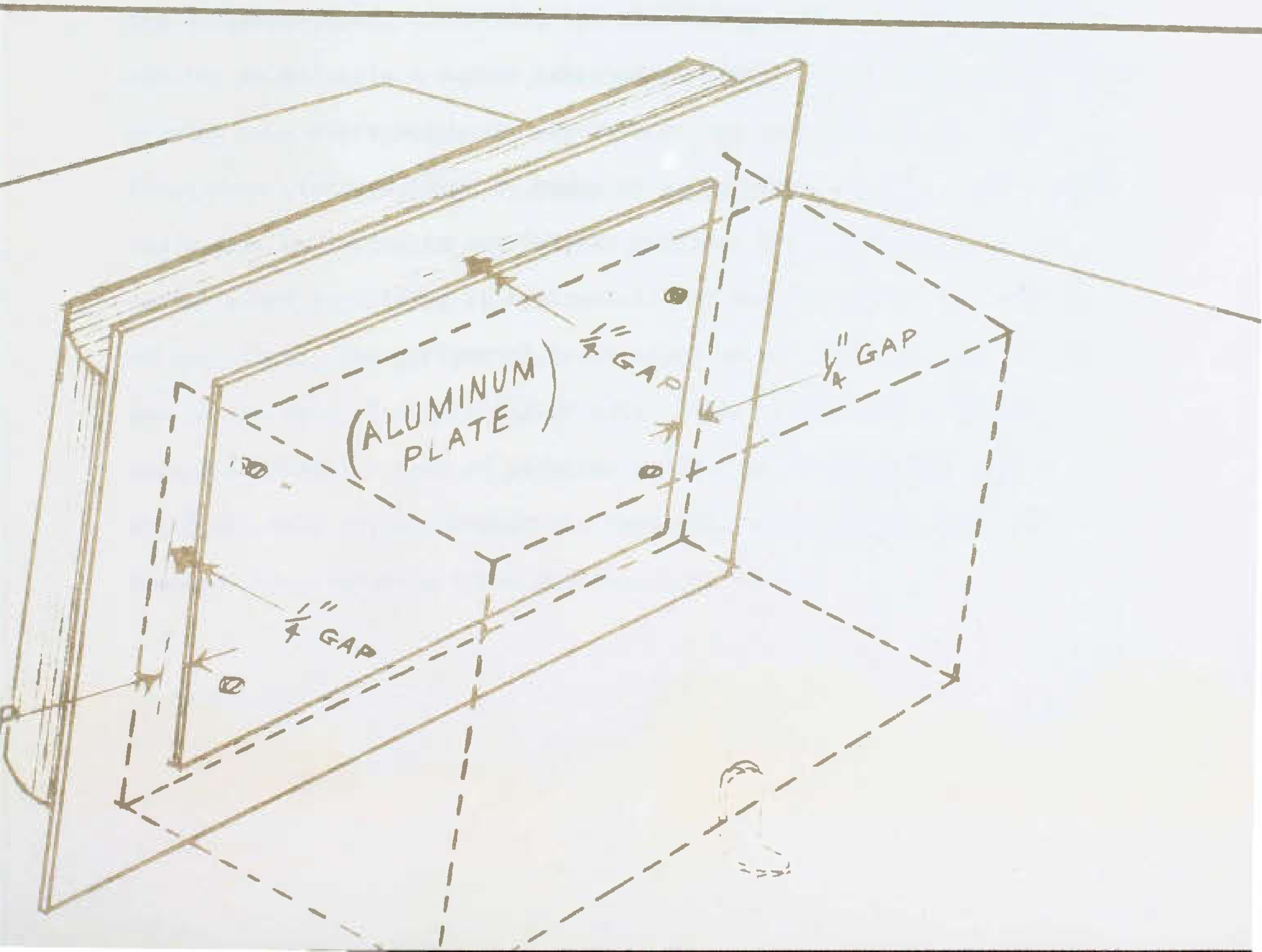
SPATIAL DISPLACEMENT CONDITION:

In this situation the S's task was to spatially locate the Rorschach cards in a position that corresponded to the locus of their median and horizontal plane. Horizontal plane, as used here, refers to the position in front of S that is at eye level. Similarly, the median plane was that position projected in front of S that corresponded to an imaginary line running directly down the middle of S's body. The position where these two lines crossed was, then, the location in space S was expected to find with reference to the placement of the stimulus figure. In order to minimize the visual cues that ordinarily aid Ss in this task, the conditions were such that for the Rorschach card to be visible, it was illuminated, while the rest of the room was kept as dark as possible.

The apparatus for use here was the "Canfield Illuminator," (see fig. 1) and its function was to visibly illuminate the Rorschach cards, while, at the same time, keep the light in the rest of the room to a minimum. The physical design of this apparatus was that of a box-type affair, made of 1/16 in. glossed aluminum sheet metal, six in. long, 12 1/2 in. wide, and 10 in. deep. The front face of this box had an opening 10 in. wide, and 6 1/2 in. high. One quarter of an inch behind the open face of this apparatus was an aluminum plate which fit in the interior and was separated on all sides from the main structure of the apparatus by 1/4 in. As mentioned, this plate was 1/4 in. behind the front opening in the face of the box, and it was kept in this position by screws, with washers holding the plate at its proper 1/4 in. behind the open face. Midway between this plate and the rear wall of the box was a 150 watt bulb fastened to the top of the apparatus. Surrounding the opening in the exterior face of the apparatus was a light, metal protrusion which extended out from the box eight in. and was curved inward,

FIG. 1 CANFIELD ILLUMINATOR





toward the center of the apparatus in such a fashion that it framed the entire open face of the box, 8 in. from this face. A Rorschach card was inserted in the 1/4 in. gap between the plate and the open face of the box, and was kept secure there by a thin, flexible metal lining which fit against the plate and whose bottom and side formed a frame the same dimensions as those of the face opening. When a Rorschach card was placed in position and the light turned on, the 1/4 in. gap between plate and face, along with the 1/4 in. space between the plate and the two walls and floor and ceiling, allowed the emitted light to be directed such that it illuminated mainly the Rorschach card while keeping the rest of the room comparatively dark. The 8 in. protruding metal frame increased this effect by reflecting more of the escaping light back toward the Rorschach card, increasing its visibility while at the same time serving to maintain a darker surrounding room. This entire apparatus was mounted on a stand which was variable to any specific height and was fixed to a given position by means of an adjustable screw. The apparatus could also be varied to any lateral position designated by S as his median plane by sliding it horizontally on the base which was attached to the stand. The horizontal track along which the apparatus was moved was in the form of a curvilinear path. This feature was intended to reduce any binocular cues of parallax to the "straight ahead" position which may have arisen through the fact that there was an 8 in. distance between the protruding frame and the card itself.

Ss were led into the room blindfolded, and were seated 10 ft. from the apparatus in a chair provided with arm rests and a head rest. After seating S and adjusting the head rest, the experimenter measured the distance from S's eye-level to the floor, and then adjusted the height of the apparatus to conform to this distance. The experimenter then arranged the lateral position of the apparatus so that the center of the Rorschach card corresponded to the center of S's body, at eye level. Thus, with the Rorschach card at a point objectively corresponding to the intersecting locus of S's horizontal and median plane, the S's task was to instruct the experimenter to move the stimulus until it was at a position corresponding to S's subjective, or apparent, horizontal and median plane. This was done for every card, with the order of presentation following the standard Rorschach order of presentation. The starting position of each card was, in every case, the objective locus of the horizontal and median plane as Wapner and Werner (1954) report that this spatial location can also be affected by asymmetrical placement of a test figure. The position at which the stimulus appeared to the S to be located in the horizontal and median plane was measured for the distance it deviated from the starting position and this was recorded in terms of the number of in. it was displaced to the right (or left) along with the number of in. it was displaced down (or up). The combination of these two points was transformed to the amount of displacement in one direction in terms of the position of the numbers on the face of a clock. This was done in order to facilitate a comparison between direction and distance for both autokinetic and spatial displacement conditions. Since autokinetic movement for a particular stimulus figure with inherent directional qualities is in a direction opposite of the direction for spatial displacement of the same stimulus figure (e.g. compare Kaden, Werner and Wapner, 1956 to Comalli, Werner and Wapner, 1957) the direction of autokinetic movement and spatial displacement, while still being behavioral measurements of the same underlying agent, were expected to be of an opposite nature.

STATISTICAL ANALYSIS

To determine if directional dynamics were a common factor, influencing the results of all three conditions, operating in a fashion that is instrumental in inducing Rorschach M, autokinetic movement, and spatial displacement, a Pearson-Product Moment Correlation was computed between the measures used in all three conditions.

A correlation was computed between the measures used on the Rorschach test and the measures of magnitude of autokinetic movement, as well as between the Rorschach measures and amount of spatial displacement.

These correlations were arranged in two different manners. In one case the correlations were computed to determine if there was a common tendency among Ss to be affected by directional dynamics during all three conditions. Here, the measures from individual Ss in each condition were correlated with one another. This was done in order to determine if there was a tendency for individual Ss to respond in a constant manner in each of the three conditions (For instance, if an S perceives movement in a Rorschach figure, this would enable one to predict whether the same S has a tendency to perceive the autokinetic effect and experience spatial displacement). Because this arrangement of the observations for correlation is concerned primarily with the consistency of many Ss to be affected by the stimulus features of the inkblots, this particular analysis of the data may be construed as a test for "vicarious channelization", which was pointed out earlier as a necessary but not sufficient explanation of the reported data.

Another arrangement of the data for analysis was more directly concerned with an investigation of the Rorschach cards for inherent directional dynamics. In this case, for statistical analysis the 10 Rorschach cards were treated as Ss, and the extensiveness to which each card accrued measures of directional dynamics in each experimental condition was correlated. Here, the analysis attempted to determine whether each ink-blot configuration had a constant effect from condition to condition and indicated the degree to which those ink-blots eliciting the most movement responses are also most effective in inducing autokinetic movement and spatial displacement. As such, the results of this analysis enable one to make a judgment on whether the same cards were effective in producing movement in all three conditions. In combination with correlations among the three S measures, correlations here among the three card measures enable one to indicate that the possibility was very unlikely that different Ss contributed to a correlation among cards, and in like fashion, that responses to different cards contributed to a correlation among Ss.

It was mentioned earlier that the direction of autokinetic movement was affected by the directional dynamics of the stimulus figure, and that the direction of spatial displacement is also affected by these dynamics, only in an opposite manner. Unfortunately, a difficulty is encountered in determining the specific direction of movement for some of the Rorschach responses scored as M. Many of these responses do not indicate a specific directionality, but rather are responses indicating forms that are capable of movement, or refer to living things maintaining a certain posture. An example here, would be a response interpreting an inkblot as two people engaged in a tug-of-war, where people are certainly moving but not in any specifiable direction. In view of this obvious limitation of not being able to specify direction in all three experimental conditions, only the last conditions (autokinetic and spatial displacement) took account of directionality for statistical treatment.

Statistical treatment concerned with these two measures of directionality was made possible by comparing the direction of greatest movement in the autokinetic condition with the direction of spatial displacement. This was done in order to determine whether the direction of dynamics in the two situations for each card was consistent. As mentioned earlier, the direction of autokinetic movement is consonant with the direction implied by the dynamics, while in spatial displacement, the direction is opposite of the dynamics. To order the data in a manner that would facilitate comparison of the two measures, an upward displacement was construed as displacement toward six o'clock, displacement downward was construed as a displacement toward 12 o'clock, displacement toward the right as nine o'clock and toward the left as three o'clock. In the cases where displacement necessitated two movements by the experimenter to achieve an apparent horizontal and vertical locus, the distance relative to both movements was combined in such a fashion that the resulting diagonal direction could be specified as pointing toward a number on the face of a clock, inverted as in the above examples where the displacement was in only one direction.

These displacement directions, specifiable in terms of the inverted numbers on the face of a clock were then compared with the reported direction of autokinetic movement, also schematized within the framework of the numbers on the face of a clock (in this case, however, the positions were standard, not inverted). This was done card by card, for all 20 Ss.

The resulting organization of the data was in the form of a frequency count, for each card, the number of times in which the displacement direction agreed with or was consistent with the reported direction of autokinetic movement, along with the number of times these two directions were not consistent, or disagreed.

Consistency, or agreement, of direction between the two conditions was determined in the following manner.

The direction of autokinetic movement was noted in terms of the position which this movement corresponded to in regard to the numbers on the face of a clock. The direction of spatial displacement, also in this clock-number framework, was compared to the autokinetic direction, and if the two directions did not differ by more than 90°, directionality for that particular case was considered to be "consistent." If the two directions differed by more than 90° the S's two responses on that particular card were considered to be "inconsistent."

This was done with all 20 Ss for each of the ten cards so that each card was represented by two numbers, one number indicating the total number of times directionality was consistent, and one number indicating the total number of times directionality was inconsistent in the two experimental conditions.

If more than 50% of the Ss were consistent for any one card, that card was regarded as consistent in directionality. If the Ss were consistent less than 50% of the time for any card, that card was considered as inconsistent in directionality.

The difference between the number of cards consistent and inconsistent in directionality was tested for statistical significance through binomial expansion to determine the probability that the difference between these frequencies could have occurred by chance alone.

RESULTS

The numerical values as well as the two correlation coefficients for all three measures of the 20 Ss are reported in Table 1. The three columns of S measures in this table (M, autokinetic, and spatial displacement) are broken down into two correlations. The first correlation is between the Ss' measures of M and their autokinetic measures, while the second correlation is between the Ss' measures of M and their spatial displacement measures.

A correlation coefficient of −.101 was found between the Ss' measures of M and their autokinetic measures. Where a correlation coefficient of at least .44 was needed for significance at the .05 level, this attained value indicates that little or no relation exists between the Ss' M responses and their reports of autokinetic movement.

The correlation between the Ss measures of M and their spatial displacement measures was found to be .127, where a coefficient of at least .44 was needed here for significance at the .05 level. The attained coefficient indicates that little or no relation exists between the Ss' Rorschach M responses and their behavioral measures of spatial displacement.

The numerical values of all three measures for the 10 Rorschach cards are reported in Table 2. As in the preceeding table, the three columns of Rorschach card measures are broken into two correlations. The first correlation is between the measures of Rorschach M and the measures of autokinetic movement for the 10 cards, and the second correlation is between the measures of Rorschach M and the spatial displacement measures for all 10 cards.

TABLE 1

Ss' measures for all three experimental conditions
(Rorschach M̄ (M) Autokinetic Movement (AM) and Spatial Displacement (SD)

Ss	M	AM	SD
1)	25.50	56.50	10.73
2)	3.00	141.00	13.25
3)	27.00	115.00	10.85
4)	21.00	87.00	12.84
5)	36.00	314.00	15.06
6)	36.00	264.00	18.56
7)	22.50	22.00	0.00
8)	12.00	65.50	10.25
9)	34.50	41.00	6.30
10)	18.00	141.00	18.85
11)	34.50	86.50	17.92
12)	34.50	23.00	17.02
13)	37.50	26.50	12.85
14)	36.00	44.00	21.62
15)	30.00	178.00	12.37
16)	16.50	109.00	10.47
17)	19.50	498.00	33.52
18)	28.50	16.50	12.64
19)	12.00	163.00	7.60
20)	22.50	39.00	20.35

Correlation Coefficients

M & AM = -.101

M̄ & SD = .127

TABLE 2

Rorschach card measures for all three experimental conditions
(Rorschach *M* (M), Autokinetic Movement (AM), and Spatial Displacement (SD)

Cards	*M*	AM	SD
I	37.50	219.00	32.24
II	45.00	326.75	35.50
III	132.00	258.00	29.83
IV	30.00	187.50	25.22
V	97.50	196.00	28.69
VI	7.50	203.00	24.37
VII	75.00	188.00	27.56
VIII	36.00	257.50	29.50
IX	13.50	211.75	26.26
X	33.00	383.00	23.88

Correlation Coefficients
M & AM = -.051
M & SD = .031

The results here show that a correlation of -.051 was found between the measures of M and the reports of autokinetic movement given to all 10 cards. This indicates, again, that there is no relation between the factors operating in these two situations, as a correlation of .765 is needed for significance at the .05 level.

In the second instance, a correlation of .031 was found between measures of Rorschach M and measures of spatial displacement, for all 10 cards. As in the above case, this coefficient is far below the .765 value needed for significance at the .05 level, pointing out a lack of relation between the factors operating in both instances.

Table 3 refers to the frequency count of the number of times the displacement directions agreed or were consistent with the direction of reported autokinetic movement, as well as the number of times these two directions were inconsistent, or disagreed, for all 10 cards. Through binomial expansion the difference between consistency and inconsistency was tested for statistical significance. It was found that the difference between consistency and inconsistency was not statistically significant ($P < .10$), indicating that only this much agreement among directionality could have resulted through chance in one case out of every 10. From this it can be interpreted that directionality was not a factor consistently affected by the directional configurations of the inkblot stimuli common to both test conditions.

TABLE 3

Frequency count, for each card, of the number of times in which displacement and autokinetic direction was consistent or inconsistent for the 20 Ss

	I	II	III	IV	V	VI	VII	VIII	IX	X
Consistent	7	9	13	11	12	12	11	11	9	12
Inconsistent	13	11	7	9	8	8	9	9	11	8

DISCUSSION AND CONCLUSION

To determine the role of directional dynamics in the production of movement responses on the Rorschach test, the best method to employ seemed to be one which would relate those Ss and Rorschach cards most frequently associated with movement responses to those Ss and Rorschach cards most frequently associated with the elicitation of behavioral measures of directional dynamics (i.e., spatial displacement and autokinetic movement). A common factor found here among the production of M and the elicitation of measureable aspects of directional dynamics would possibly have aided the interpretation of Rorschach M, and in doing so, united the personality dimensions of this test to some of the perceptual determinants postulated by the sensory-tonic theory. Thus, the main proposition in this study was that vicarious channelization of tonicity into perceptual events is more probable for those individuals not releasing tonicity thr ugh motor activity, under those conditions where the perceptual stimuli suggest eminent directional characteristics. A significant relationship here would have united the personality of the perceiver in the Rorschach test to the perceptual attributes of the inkblot stimuli.

However, as reflected by the extremely low correlations, a significant relation was not found between the Ss' magnitude of M and their behavioral measures of directional dynamics. Similarly, no consistent relation was found between the magnitude of M produced by the Rorschach cards and their respective accrual of behavioral measures of directional dynamics. Along with this it was discovered that for each card, Ss did not consistently reflect a common direction from spatial displacement to autokinetic conditions.

These results would, then, point toward the notion that those Ss who have a tendency to perceive Rorschach M, are not necessarily those same Ss who have a tendency to perceive autokinetic movement and experience spatial displacement. Likewise, the results indicate that those inkblots drawing the most movement responses are not necessarily the same configurations most effective in inducing autokinetic movement and spatial displacement. From this, it would appear that, in this study, directional dynamics were not instrumental in the production of movement responses.

Before relating these results to the theoretical framework advanced in this study, it seems advisable to mention a few factors which may have contributed to the way in which this data lacked in supporting the theory.

Of question in the autokinetic condition was the possibility that the white background, upon which the inkblots were superimposed, could have contaminated the autokinetic movement, theoretically attributed to the directional characteristics of the inkblots alone. If the autokinetic movement was determined by the highly illuminated white area of the slide surrounding the inkblot, rather than the configuration of the inkblot, it would be conceivable that the pattern of movement for each inkblot would be a random one, rather than a systematic function of the configuration of the inkblot. The movement here would be much like that expected from a white stimulus figure 2 in. square. It seems more likely, however, that if the white area surrounding the inkblot did influence the autokinetic movement, it would have done so by interacting with the configuration of the inkblot, with each factor contributing to the total pattern of movement. Even here though, the control of conditions would not be adequate, and the results of this readily predictable.

Another consideration to be kept in mind is whether the determinants of the M percept were a function of the overall pattern of the inkblot or a function of some of the more minute parts of it. Considering this, a limitation of the present study is the possibility that the Ss could have been concentrating only on a portion of the inkblot when giving an M response, being oblivious to the overall configuration. In the autokinetic condition the stimulus objects were only miniature reproductions of those seen on cards, and at a distance of ten feet, it is likely that the part of the inkblot originally attended to for the M response could have become indistinct and subsumed into a larger pattern that was not directly responsible for the M percept.

This same part vs. whole question can be raised in the case of the spatial displacement results. Although the Ss were allowed to look at any part of the inkblot during the Rorschach test, they were directed to focus exclusively upon that part of the blot they considered to be the center of the card during spatial displacement conditions. In directing their attention to the center of the inkblot it is distinctly possible that the blot took on a different character than under the Rorschach condition where Ss were allowed to attend to virtually any feature they chose.

Barring any explanation of this data such as that offered above, and assuming that these results would be typical of those obtained under more controlled conditions where the above factors are accounted for, we may tentatively accept the results of this study as demonstrating a lack of relation between Rorschach _M_ and the measurable effects attributed to directional dynamics. One may also be inclined to view these results as throwing considerable doubt upon the merits of any notion such as those involved in the operation of directional dynamics. Accepting this data, the greatest extension one can make from these results would be to assert that directional dynamics and the allied constructs are not experimentally demonstrable and therefore amenable to the explanation that they do not, as perceptual determinants, exist. The role of directional dynamics in producing movement responses could, however, be more safely considered if one were willing to presently suspend judgment and entertain this explanation only as a possibility. Meanwhile in order to avoid over-extending these results the most reasonable course would be to accept the reported lack of confirming data as relative to the limits imposed by the procedure and materials used in this study.

Lastly, a question must be raised regarding the adequacy of the sensory-tonic constructs for dealing with what may be a more complex combination of emotional, perceptual, cognitive and recall-for-past-experience determinants for any Rorschach percept. The hypothetical construct of tonicity, while possibly a useful construct at a more general level, is perhaps not at this time refined enough to deal with behavior marked by a variety of emotional and intellectual individual differences.

It may be concluded that while the results of this study did not reveal a common relation between the magnitude of _M_ and the magnitude of either behavioral measure of directional dynamics for cards or _S_s, some of the materials and procedural shortcomings must be considered before allowing these results to reflect upon the adequacy of the theoretical framework advanced here. Also, it must be pointed out that the theoretical framework, while perhaps adequate at a more general level, may not yet be refined enough to point out some of the more complex intricacies operating in a Rorschach percept.

SUMMARY

A review of literature pointed up an observed inverse relation between motor states and the perception of movement in general. The sensory-tonic constructs of "tonicity" and "vicarious channelization" were suggested as adequate models to explain these relations. It was further indicated that the allied concept of the operations of "directional dynamics" within this theoretical framework could account for the occurrence of _M_ percepts.

To test this notion, 20 _Ss_ were administered a multiple-choice form of the Rorschach test, and participated in autokinetic and spatial displacement conditions with Rorschach figures as stimulus objects. Both of these conditions were intended to yield behavioral measures of the effects of directional dynamics inherent in the Rorschach inkblots. It was theoretically anticipated that those _Ss_ and Rorschach cards most closely associated with _M_ percepts would also be those most closely associated with behavioral measures of directional dynamics. Thus, it was predicted that correlations of the three measures would reveal directional dynamics operating as a common agent in the production of all three measures.

The results of all correlations indicated almost no relation among the measures of the _Ss_ and cards for all three experimental conditions.

An attempt was made to account for this data in terms of the procedures, materials and theoretical shortcomings.

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