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COMPUTER MODEL OF SCORING OF RORSCHACH RESPONSES.

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The manual, scoring of Rorchach protocol, is complex, subjective and time consuming. Computarised Rorschach protocol is a system of automated scoring of coded visual-motor responses elicited by the Rorschach inkblots. Psychologists code the responses for computer processing. In order to make it simplified, objective and minimise the labour, the present study aims to draw a computer model of scoring of Rorschach responses through a standardised programming with the aid of modern computer system. The present system is detailed and yields sufficiently accurate coding of the original verbal responses

Rorschach is essentially a sampling method, analogous to those familiar in various fields of science and equally dependent upon expert estimation. Percepts are the images projected upon the blot areas. A sharp distinction is made between visual images that are meaningful explanations of actual shapes and colours, seen in the inkblots and visual images that have no graphic correlates on the stimulus blot. The former are primary associations, the later are secondary. There is a definite and important difference in meaning between these two types. Primary associations reveal the more lasting personality traits and by far the more significant motives of the individual.

Computarised Rorschach psychogram is a system of automated scoring and interpretation of coded visual-motor responses elicited by the ten Rorschach inkblots. Psychologists code the responses for computer processing. No study has sponsored to computarised Rorschach protocol in India. In other countries also, only a few attempts have been made in this field. The most significant of these were Z. A. Piotrowski's CPR (1980) and John E. Exner's 'comprehensive system' (1974).

It must be initially pointed out that the term 'Score' is not really an appropriate one for Roschach. To the psychometrician, scoring means that a subject's responses are compared nomothetically against normative data. This is often done in terms of standard scores and results in an overall value such as an I. Q. or a percentile rank. Rather than being a psychometric, process Rorschach scoring more resembles data coding, as it involves translating the words used into symbols, each of which contains a certain amount of information but which must be considered in context in order to make sense. The Rorschach is basically an open ended test; while one protocol might consist of 35 responses another subject may give only 14. There is no right or wrong answer; rather answers range on a continum from good to poor depending on several scoring variables. Scoring is only an intermediate step in the process of rendering down the qualitative material of a Rorschach protocol into a meaningful dynamic picture of a functioning personality. The responses are classified in certain ways to make the material more manipulable, but all methods of classification are not equally satis-

factory The particular scoring categories used in the Rorschach technique have emerged because of interpretative hypotheses are attached to them.

The existing method of scoring and interpretation of Rorschach responses manually is very much complicated, subjective and time consuming process Only experts in the field of Projective techniques can do this. But the scoring guide and interpretation devised with the aid of modern computer can replace this system and also minimise the labour and further increases the objectivity by reducing interscorer differences, which the present study aims to draw. Over the last sixty years, five major systems of Rorschach administration, scoring and interpretation have arisen. But, in this study the basic system chosen was Beck's, since it seemed the best devised and least ambiguous.

The present system is very detailed and tries sufficiently accurate coding of the original verbal test responses by the computer. It contains more than 400 parameters.

METHOD

Procedure

Rorschach inkblot test was administered fo 30 randomly selected normal individuals consisting of 20 males and 10 females between the age range of 24 - 50 years from among the staff members of I. S. Institute. Responses were then coded and scored manually as per Beck's method. Then for the machine scoring a computer programme was developed in Fortran language: The entire programme for the Rorschach scoring was developed in three stages. The first stage consisted of preparation of a 'dictionary' of words and the storage of those within the computer memory. From our experience and also from the literature we hade come to the conclusion that nearly 400 words repeatedly occur in the verbative Rorschach responses. Then this dictionary of 400 words were stored within the computer memory and their corresponding scores. Among these 400 words the maximum number of alphabetic characters was ten. To minimise the intricacy of the programme those alphabetic characters were represented in numerical form. Each word would thus occupy 20 binary coded decimal spaces within the memory and would take more computer time to recognise the word. In the second stage of the programme the computer, reading the responses of the respondent from the card, compared each individual word of the responses with the dictionary and collected all possible scores corresponding to that word from the memory. The third stage of the programme consisting of calculation of the frequencies of the scores, their percentages, reaction time, CR percentages and other useful ratios.

RESULTS

According to the method of programming, the results also were obtained in three stages. In the first stage, the full dictionary of 400 vocabulary words along with their computer scores were obtained a part of it is shown in Table - 1.

Table 1

Sample copy of the computer printout of vocabulary (responses) dictionary, their code numbers and corresponding numericals as stored in the computer memory.

Code Nos.	Corresponding numericals	Responses	Code Nos.	Corresponding numericals	Responses
43	44605	ANTENA	40	738055	X-RAY
42	81620	BUTTERFLY	46	72465	BLOOD
10,11	121423	DANCING	42	189578	FISH
45	581284	SKIN	40,44	581642	SKULL
42	225549	GORILA	49	481284	PAINTIN
42	61600	BAT	40,44	608468	THORAXG

The second stage was the actual scoring of the individual Rorschach responses, consisting of 'l c tion' score, 'determinant' score, 'content' score and 'popularity' / 'originality' score. Here the programme was so developed that only the 'location' scores and a few 'determinant' scores *eg.*, 'colour' or 'form', were done manually on enquiry from the subject at the time of testing. While the rest of the scoring and calculations were done completely by the computer itself. A sample case of manual scoring and the simultaneous printout of the machine scoring is shown in Table 2.

Table 2

Sample copy of the computer printout of Rorachach protocol and its comparison with the manual sequence of scores.

NAME - SRI A.B. (MALE) AGE - 28 YRS.			SEQUENCE OF SCORES	
			MACHINE	MANUAL
		CARD-1		
AVA>A	90.0	1. A BAT	W F A P	W F A P
		2. VAGINA	D F SEX	D F Sex
		CARD-2		
A	43.0	1. UTERUS OF A FEMALE	S F SEX	S F Sex
		CARD-3		
AV>A>V	80.0	1. HUMAN FIGURE	CW F+ H P	W F+ H P
		2. TWO HUMAN	D F+ H P	D F+ H P
		CARD-4		
A>V<A	110.0	1. HEADS OF TWO SNAKES	D F AD	D F Ad
		CARD-5		
A	17.0	1. A BAT IS HANGING	W FM A P	W FM A P
		CARD-6		
A>V>A	138.0	1. SOME ANIMAL	W FY A P	W FY A P
		CARD-7		
A	25	1. TWO CACTUS TREES	D F- VEGET	D F- Veget
		2. TWO ANIMALS LOOKING EACH OTHER	D FM A	D FM A
		CARD-8		
A	10.0	1. TWO ANIMALS	D FC A	D FC A
		2. A TREE	D CF VEGET	D CF Veget
		CARD-9		
A>V<A	165.0	1. HUMAN LUNGS	D F H AT	D F H At
		CARD-10		
A>V>A	125.0	1. TWO AMOBAE	D F+ A	D F+ A
		2. TWO ANIMALS HANGING	SD FM A	d FM A
		3. TWO DEER	SD F A	d F A
		4 TWO ANIMALS	SD F A	d F A
		5. HEAD OF AN ANIMAL	SD F AD	d F Ad

The third stage of the results obtained, consisting of frequencies, percentages, ratios, *etc.* is shown in Table 3.

DISCUSSION & CONCLUSION

For obtaining these results some modifications were to be made. For a computer, numerical part of the test is not a problem but it is rather difficult to manipulate the verbative part of the test. For these reasons, in preparation of the response dictionary the alphabetical characters were represented in numerical form

Table - 3

Computer printout of the frequencies, percentages, ratios and derivations of the scores of the subject shown in Table - 2.

Sequence of Scores	Frequencies.	Percentages.	Sequence of Scores	Frequencies.	Percentages.	Sequence of Scores	Frequencies.	Percentages.
R	18.00	-	RT	80.30	-	CR%		44 44
W	3.0	5.1	F+	4.0	6.8	SUM Y	1.0	1.7
CW	1.0	1.7	F	8.0	13.6	H	2.0	3.4
SUM W	3.5	5.9	F—	1.0	1.7	H AT	1.0	1.7
D	9.0	15.3	SUM F	13.0	22.0	A	9.0	15.3
SD	4.0	6.8	CF	1.0	1.7	AD	2.0	3.4
S	1 0	1.7	FC	1.0	1.7	SEX	2.0	3.4
FM	3 0	5.1	SUM C	1.5	2.5	VEGET	2.0	3.4
SUM M	3.0	5.1	FY	1.0	1.7	P	5.0	8.5

Ratios

M : SUM C = 0.0: 1.5
M : (FM+SM) =0.0: 3.0
(FM+SM) : SUM V = 3.0 : 0. 0
SUM W : M=3.5 : 0.0

SUM M : SUM C = 3.0 : 1.5
(FM+SM) : (SUM T + SUM Y) = 3.0 : 4.0
(H+A) (HD+AD) = 11.0 :2.0
SUM W : (SUM M + V) =3.5 : 3.0

so that they could be stored in the computer memory.

Since the Rorschach is an open ended test, descriptive tendencies are observed in giving the responses among some subjects. But, for most subjects this is easy, discrete responses being readily distinguishable. Descriptive tendencies are generally not scored. Hence, in the present study the programme was so developed that it could recognise only the relevant part of the responses given by the subjects and reject descriptive parts.

For convenience of machine scoring the following modifications in the original pattern of Rorschach scoring were made without changing its original idea.

( ) As there was no system of any arrow (↑) marking in the computer printout, the turning of the card were marked in the form AV >< instead of arrows (↑ ↓ → ←) as shown in Table- 2.

(2) Reaction time was noted only in seconds.

(3) As there was no provision of any small letters in this computer system, the following changes in the location scores were made without disturbing their original idea.

Original location scores	*Modified for machine scoring*
1) w	CW
2) d	SD
3) s	SS
4) m	SM

(4) All possible 'popular' /'original' responses were carefully marked and stored in the computer memory so that this could readily be marked from the responses.

(5) All possible contents were also classified and stored in the computer memory for its ready recognition.

In this method only the 'location' and a few 'determinants' are to be got on enquiry from the subject during the test administration and the rest of the scoring *i. e.*, all the other 'determinants', 'content',

'popularity' / 'originality', scores and all the necessary calculations are done by the computer from the responses given by the subject. This Rorschach scoring system is not only a time saving but also increases the objectivity of this 'projective technique' by making interscorer differences negligible.

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