A representational assessment of meaningfulness¹

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Abstract

The present investigation has demonstrated that significant agreement occurs among Ss directed to judge which referents are best represented by CVCs. This agreement occurs independent of rated meaningfulness (m'). These results suggest that consideration of specific representational qualities rather than rated association, alone, may result in greater precision in verbal learning studies.

Problem

In order to provide a pool of homogeneous CVCs with minimal prelaboratory associations, Noble (1961) published a table of the rated meaningfulness (m') of 2100 CVC combinations in terms of association values. Meaningfulness has elsewhere been defined in terms of representational value (Werner & Kaplan, 1963). In two previous studies, it was found that Ss readily utilized non-verbal sound and postural patterns to represent several referent dimensions (Langer & Rosenberg, 1964; Rosenberg & Langer, 1964). Ss evidenced consistent agreement among themselves in their matchings. In order to examine the relationship between associational and representational definitions of meaningfulness, the present study assessed the degree to which high and low m' CVCs may be utilized to represent a number of referent dimensions. It was hypothesized that both high and low m' CVCs may be used to represent several referent dimensions, and secondly, no significant differences in ability to represent would occur between them.

Method

Fifty low m' CVCs (rated 1.00 to 1.50) and 50 high m' CVCs (rated 2.50 to 3.00) were randomly selected. The Ss were instructed to use the CVCs to represent an idea (one of the referents). For each CVC, the Ss checked one of the following in the order presented: chromatic color (red, green, yellow, blue); affect (positive, neutral, negative); direction (up, down); simple space (tall, short, narrow, wide); and complex space (tall and wide, tall and narrow, short and wide, short and narrow). Sixty-five undergraduate Ss at Bowling Green State University were tested in three sessions in order to minimize fatigue. The material was presented in script with 15 second spacing. Chi-square analysis for "goodness of fit" was utilized for each CVC by referent. The theoretical frequency for each cell was obtained by examining the total frequency with which it had been chosen, rather than by the less stringent assumption of the null hypothesis, i. e., equi-proportionality.

Results

Table 1 presents the number of CVCs matched with referents in significant agreement by the sample ($p < .05$, or less). As many low m' as high m' were con-

Table 1. Number of CVCs Significantly Matched With Referent Dimensions ($p = .05$, or less)

	Color	Affect	Direction	Simple Space	Complex Space	Total
High m'	17	27	26	22	17	109
Low m'	23	21	21	23	23	111
Total	40	48	47	45	40	220

sistently matched with referents, 111 to 109, respectively. Though more low m' CVCs were consistently matched with color and complex space and more high m' CVCs were consistently matched with feeling and direction, no significant differences obtained. It should be noted that irrespective of m' , highest matchings obtained for feeling, direction, and simple spatial referents. A lesser degree of matching obtained for the color and complex spatial referents.

The results of Table 2 indicate that the CVCs vary considerably in the number of referent dimensions which they may represent. For example, in row one, column one of Table 2, five of the high m' CVCs were matched across all five referent dimensions, whereas in row 2, column 1, only one low m' CVC was matched on all five dimensions. Almost all of the CVCs, (85%) whether high or low m' , were judged as representing one or more stimulus dimensions. Using Chi-square analysis, no statistically significant differences obtained among the number of referents consistently matched with high and low m' CVCs.

Discussion

The results confirm the hypotheses that CVCs, whether high or low m' , may be used to represent a variety of referents, and that high agreement obtains among Ss' matchings. Apparently, dimensions not measured by number of associations give rise to significant matchings. Considering these results together with those of the representational value of sound and postural patterns, a question arises concerning verbal learning studies employing CVCs and a definition of meaningfulness in terms of association, alone. In addition to association values, the identification of the dimensions which result in significant matchings, and partialing out the variance contributed by them may well increase the precision of verbal learning studies employing CVCs.

Table 2. Number of CVCs Significantly Matched Across Referent Dimensions ($p = .05$, or less)

	Number of Referent Dimensions					
	5	4	3	2	1	0
High m'	5	7	11	12	6	9
Low m'	1	8	13	8	14	6
Total	6	15	24	20	20	15

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Notes

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A methodological note on the Palmar Sweat Index (PSI)¹

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Abstract

Commercial PSI apparatus was found to be convenient and practical; however, requiring clarification of methodology: (a) Change scores based on the same finger appear to be the only meaningful data; (b) Re-calibration of the densitometer is necessary with each print; (c) Dial readings should be made only after complete stabilization of the indicator, and; (d) all readings should be taken at the same time from printing, preferably 28 days or more.

The PSI, developed by Kuno (1956), used by Mowrer (1953) and colleagues, Haywood & Hunt (1963) and students, and others (see Winter et al., 1963), has become a more standardized and practical photometric measure of "emotional" perspiration due to the introduction of commercial apparatus. Film and printer (#6000) of Lab-Line Instruments, Inc., Chicago, makes possible the obtaining of "instantaneous" records of palmar sweat in approximately 90 seconds with no discomfort to Ss. Only 30 seconds drying time is required after painting the volar surface of S's finger with solution (3 drops of hydrochloric acid added to 13 g anhydrous ferric chloride in 400 cc chemically pure acetone) before insertion into the printer, which presses the film against S's finger for 30 seconds with a constant pressure of 1 pound, yielding a "permanent" record of sweat production. Lab-Line densitometer (#6010) then provides direct PSI dial readings, corresponding to the density of a print, through comparison of the amount of light allowed through a set area at the center of a print with that of clear film via photoelectric cells.

During the course of a recent investigation of outcome effects of psychotherapy, to be published elsewhere,² in which the above apparatus was provided by Dr. J. McV. Hunt, and Lab-Line Instruments Inc., several methodological points became evident, in addition to those previously mentioned in the literature. (a) Since densitometer readings are based on the amount of light let through the print, not only amount of sweat influences the absolute level of PSI, but also, distance between print swirls. Therefore, change scores based on the same finger appear to be the only meaningful data, un-

less a means of partialling out swirl size is included. (b) A number of factors necessitate re-calibration of the densitometer before and after each reading to insure comparability, in addition to allowing a 20 minute "warmup" period. (c) Dial readings should be taken only after the needle has stabilized to the degree that extraneous noises and jars do not cause "drift" (approximately 45 minutes). (d) Most important, prints continue to darken over time from printing. A trend analysis performed on PSI readings taken from the same prints of 40 unselected S's at 1 day, 1 week, 3 weeks, and 4 weeks from printing found a highly significant effect for time ($F, 101.14; df, 3/117; p < .001$). Means presented in Table 1 demonstrate a significant increase in readings from 1 day through 3 weeks (linear component $F, 249.62; df, 1/117; p < .001$), with leveling from 3 to 4 weeks (quadratic component $F, 50.49; df, 1/117; p < .001$). The average r between any pair of reading times ($r = .992$) indicates a highly consistent increase across all PSI levels. Therefore, lest group differences be introduced after-the-fact by E error, all PSI readings should be taken at the same point in time from printing, preferably 28 days or more.

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Note

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2. Paul, G. L. Effect of insight, desensitization and attention-placebo treatment of anxiety: An approach to outcome research in psychotherapy.

Table 1. Mean PSI Readings Over Time

	Time From Printing			
	1 day	1 week	3 weeks	4 weeks
Mean	13.3	16.3	17.6	17.6
SD	16.45	13.49	14.48	14.72