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An application of the policy-capturing method to the analysis of value systems

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Measurement of value systems has been largely limited to the method of rank ordering. Some weaknesses of this method are suggested and a more powerful approach, policy capturing, is used to analyze value judgments. Subjects in four religious categories (including no religion) were found to possess value systems to the same average degree, with ranges from low to high. There was a high degree of similarity of value system structure revealed by the policy capturing method. At the same time, there were differences in value systems that also were depicted.

Rokeach reports effective experimental modification of values (1971a, b) as well as some findings that churchgoers are self-centered, indifferent toward social inequality and injustice, and bigoted (1970). His data are based primarily on the method of rank ordering. The usual design requires the subject to arrange a set of values in order of importance to him as guiding principles in his life. Thus, if there are 18 values in the set, it is assumed that all 18 have *some* importance to the subject, since he cannot indicate that a given value is not included in his value system. This assumption may constitute a salient weakness in the ranking method as developed below. In other words, it is conceivable that a subject may assign a rank to a value even though it is not included in his own personal value system. I may be an atheist, for instance, but when asked to rank the value *salvation*, I may not put it at the bottom of my list because I feel that it influences favorably the social behavior of many people. But *salvation* would not be operative as an influence on my own judgments or behavior. It would not be a part of my value system. However, if I rank it 15th out of 18 values, the experimenter must assume that it is more important to me than three other values and that it is a part of my value system.

This weakness of the ranking method, or any other forced-choice strategy, has been highlighted many times before. It has led to some caution in the use of ranking and care in making inferences from ranked data. One of the purposes of this paper is to demonstrate that, even though a subject may rank order 18 values as instructed, it should not be concluded that the 18 values all form a basis for his behavior in the form of making judgments. A large number of studies have shown, in fact, that human judgments are based on a rather small number of variables, rarely exceeding nine (Miller, 1956) and most often much less.

A further consideration in the making of inferences based on the rank ordering of values is related to the degree of development of the subject's value system. A subject may rank 18 values but still not make value judgments consistently. His value system may not yet be well formed. If such is the case, incidentally, obtaining a change in his rank ordering may be a trivial event and not reflective of a change in a value system, since the value system does not exist. A second purpose of this paper is to demonstrate that, in a sample of college students, reliable ranking of 18 values can be obtained even though the establishment of a consistent value system ranges from low to high among individuals in the sample.

The third purpose of this paper is to present a model for making comparisons of value systems across samples with different attributes, in this case religious orientation. The model is basic multiple regression and this application has been termed "policy capturing." Christal (1968) gives a simplified description of this method. An excellent description and literature review is provided by Slovic and Lichtenstein (1971). Essentially, appropriate data are collected which permit the calculation of a regression equation for each individual or group. The resulting R squared then indicates the consistency with which the subject makes judgments based on the predictors employed. Thus, if the set of predictors includes all of those used by the subject in making judgments, R squared indicates the degree to which he possesses a policy regarding those predictors. The predictors with nonzero weights provide a description of the policy structure and the beta weights give an indication of the relative importance of those predictors. The method has been applied to a wide variety of problems ranging from job evaluation (Madden, 1964) to depicting the conflicts surrounding the increased use of nuclear fuels during the energy crisis (Brady & Rappoport, 1973).

For analyzing value systems, policy capturing offers the potential of a powerful analysis on an individual basis which will permit a precise comparison across categories of subjects.

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METHOD

Subjects were male students in an introductory psychology class consisting primarily of freshmen and sophomores. In the first experimental session, each subject provided demographic information and rank ordered 18 terminal values in terms of importance. A terminal value is defined as an *end state of existence* by Rokeach, and the set of 18 was taken from his 1971 paper. In the second experimental session, occurring 6 weeks after the first, subjects again ranked the same set of 18 terminal values.

A set of 50 value profiles, each profile being one subject's rank ordering of the 18 terminal values from the second session, was then randomly sampled from the 129 subjects participating in both experimental sessions. During the third experimental session, occurring 6 weeks after the second, 104 subjects rated all 50 value profiles. The ratings were based on the degree to which each value profile matched the subject's own value system. A rating of 9 was given to a perfect match, 7 for an excellent match, 5 for a good match, 3 for a fair match, and 1 for a poor match. Of the 104 subjects, 19 were Jewish, 32 Protestant, 30 Catholic, 19 claimed no religion, and 4 checked an "other" category. Due to the small number in the "other" category, it was not included in the analysis.

RESULTS

The rank-order correlation between the mean ranks obtained in the first and second session was .95, suggesting that the ranking task was reliably accomplished.

A multiple regression equation was calculated for each individual using his 50 ratings as the criterion and the 50 profiles as the predictor matrix. The average multiple correlation was computed using the r to z transformation. For each religious category, Table 1 gives the average multiple r and its range. The ranges in the table indicate that the degree to which subjects made consistent value judgments ranged from low to high for all religious categories and that the average multiple correlations were about the same.

Table 2 gives the number of times each value entered a regression equation for each religious category. The average number of values included in a regression equation was 2.87.

The data in Table 2 were converted to the proportions of subjects in each religious category for whom each value entered equations. An analysis of variance, using the arc-sine transformation, resulted in an F with an associated probability of .78, indicating no difference among religious categories in the mean number of values utilized. The correlation coefficients for the proportions were also computed and the results are given in Table 3. The only coefficients not significant at the .05 level or less were between none and Protestant and none and Catholic.

So far, the findings suggest a high degree of similarity of value systems among religious categories in terms of consistency of judgment, degree to which individuals possess a value system, and value system structure. In order to investigate possible uniqueness not revealed so far, at least crudely, Table 4 was constructed. The values are ordered in Table 4 by the mean rank based on the number of equations entered for the total sample. Also included in Table 4 is the mean rank for each value for each religious category. We can now look at the deviation of religious category mean ranks from the total sample mean rank in an attempt to discover large deviations characteristic of a religious category. The determination of the size of a deviation to be considered large is, of course, arbitrary. If we use a deviation of four ranks, the results are indicated in Table 4 by an "L" to indicate that the associated religious category placed relatively lower importance on the value, and an "H" to indicate a relatively higher value. Using this approach we find no disagreement on salvation, self-respect, mature love, happiness, true friendship, a sense of accomplishment, an exciting life, and freedom. Of the

Table 1
Number of Subjects, Average Multiple Correlation Coefficient, and Range of the Latter for Each Religious Category

Religion	n	$\bar{r}$	Range
Catholic	30	.67	.14-.80
Jewish	19	.66	.19-.66
None	19	.71	.10-.78
Protestant	32	.71	.19-.86

Table 2
The Number of Times Each Value Entered an Equation for Each Religious Category

Value	C	J	N	P
1. A comfortable life	3	2	2	7
2. An exciting life	2	4	3	1
3. A sense of accomplishment	3	2	3	7
4. A world of peace	2	3	3	6
5. A world of beauty	2	2	1	2
6. Equality	4	3	1	5
7. Family security	4	3	6	3
8. Freedom	2	2	2	4
9. Happiness	5	4	5	6
10. Inner harmony	6	2	5	2
11. Mature love	9	4	3	15
12. National security	7	2	1	5
13. Pleasure	1	0	3	0
14. Salvation	9	7	9	15
15. Social recognition	1	0	4	2
16. Self-respect	12	6	5	12
17. True friendship	4	3	4	6
18. Wisdom	7	3	2	3

Note–C = Catholic, J = Jewish, N = none, and P = Protestant.

Table 3
Intercorrelations of the Proportions of Subjects in Each Religious Category for Whom Each Value Entered Equations

	Jewish	Protestant	Catholic
None	.56**	.41	.39
Jewish		.74*	.73*
Protestant			.76*

*$p < .01$ **$p < .05$

Table 4
Rank Orderings Based on the Proportion of Subjects Using Each Value for Each Religious Category and the Total Sample

Value	Catholic	Jewish	None	Protestant	Total
Salvation	2.5	1.0	1.0	1.5	1.0
Self-respect	1.0	2.0	4.0	3.0	2.0
Mature love	2.5	4.0	10.0L	1.5	3.0
Happiness	7.0	4.0	4.0	7.0	4.0
True friendship	9.0	7.0	6.5	7.0	5.5
Wisdom	4.5	7.0	14.0L	10.0L	5.5
Family security	9.0	7.0	2.0H	13.0L	7.0
A sense of accomplishment	11.5	12.5	10.0	4.5	9.0
Inner harmony	6.0	12.5	4.0H	15.0L	9.0
National security	4.5H	10.5	17.0L	10.0	9.0
A comfortable life	11.5	12.5	14.0	4.5H	11.5
A world at peace	13.5	7.0H	10.0	7.0H	11.5
Equality	9.0H	7.0H	17.0L	10.0	13.0
An exciting life	13.5	4.0H	10.0H	17.0	14.5
Freedom	13.5	12.5	14.0	12.0	14.5
A world of beauty	17.0	12.5H	15.0	13.5	16.5
Social recognition	17.5	17.5	6.5H	15.0	16.5
Pleasure	17.5	17.5	10.0H	18.0	18.0

Note–See text for explanation of H and L.

72 entries in the table for religious categories, 20 are four ranks higher or lower than the mean rank. Nine of the 20 are associated with the none category, 5 with Protestant, 4 with Jewish, and 2 with Catholic. All of the low deviations are associated with none and Protestant and all of the deviations associated with Catholic and Jewish are high.

DISCUSSION AND CONCLUSIONS

The method of policy capturing has been useful in revealing that, on the average, all four religious categories possess a value system to about the same degree. In all four categories this degree varies from low to high. From the findings reported here, it cannot be said that any religious category has a more well-established value system than any other, nor that the individuals associated with any category are homogeneously lower or higher in judgmental consistency than any other. Thus, subjects who do not claim any religion do not differ from those who do in terms of the degree to which a value system is operative in their judgments.

The structure of value systems, defined as the values used in actually making value judgments, was also found to be similar among the categories, with the exception of the none category when compared with both Catholic and Protestant. Thus, although the none category does have a value system to the same degree as the other categories, it is similar only to the Jewish category and different from both the Catholic and Protestant value systems.

Based on a crude analysis, the structural differences in value systems among religious categories has been depicted. The none category was relatively low on mature love, wisdom, national security, and equality; and relatively high on family security, inner harmony, an exciting life, social recognition, and pleasure. Protestants were also low on wisdom as well as family security and inner harmony, and were high on a comfortable life and a world at peace. The Jewish category was high on a world at peace, equality, an exciting life, and a world of beauty; and were not low on any value. Catholics were high on national security and equality and also were not low on any value. It is interesting to note the high level of agreement on salvation and the rank of this value, in terms of number of equations entered, of one for the none religious category. Apparently, these individuals do not regard organized religion as a facilitator of achieving salvation, although salvation is their most important value.

The results reported above could not have been obtained by use of the ranking method. Further, comparisons across rank orderings would have included values not operative in the making of judgments, in that such comparisons would include all 18 values. Thus, comparisons of rankings of 18 values would have been made by considering 13 or 14 that were not a part of the subjects' value systems. The regression model has the distinct advantage of identifying only those values that are a part of a value system before proceeding with making comparisons.

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