PRECISE MEASURES OF PUBLIC IDEOLOGIES*

Kim B. Serota
Communication Research
  Services, Inc.

Edward L. Fink
Michigan State University
            and
Communication Research
  Services, Inc.

James J. Noell
National Center for
  Education Statistics

Joseph Woelfel
Michigan State University
            and
Communication Research
  Services, Inc.

October 15, 1976

PRECISE MEASURES OF PUBLIC IDEOLOGIES

By now measurements of public opinion have become a standard feature in
American life, and steady improvements in sampling plans, analysis within
demographic subgroups, and the increasing use of time-series and trend
analysis have made such measurements precise and reliable tools. In some
respects, however, progress has not been rapid. Among these slow-developing
areas, two are crucial: first, little improvement has been made in the ac-
tual scales typically used, which are predominantly the same five-to-seven
step ordinal scales commonly used thirty years ago. Secondly, while proce-
dures for measuring specific opinions or attitudes have been well developed,
techniques which measure complex patterns of interrelated beliefs in a
holistic fashion have not yet emerged. Thus, while we can measure precisely
and usefully the proportion of persons favoring a candidate, or the attitude
a public expresses toward a series of issues, we still lack the capacity to
make precise measures of generalized belief structures, cultural patterns or
ideologies. As Lasswell suggested in the 1950s,

> Certainly the methods of quantitative measurement are
> not altogether valueless in, for instance, the analysis
> of voting behavior in our mass society. But for the
> field of ideologies the as yet mysterious condensation
> of complex thought processes is too subtle to be acces-
> sible to even the most refined methods of statistical
> mechanics.[1]

Fortunately, the procedures proposed in this paper promise to outdate such
criticism. To appreciate their significance, however, a brief review of
earlier approaches to measuring ideology is needed.

In the past, probably the most common approach to measuring ideology
was to develop a scale of one or more items in terms of which the respondent
would indicate his or her own position on the ideological item in question.
Most such "ideology scales" are essentially the same as such standard

attitude scales as the Likert or Guttman scales.[2] A more general rationale

for the use of such scales can be found in the work of Milton Rokeach.[3]

Rokeach distinguishes between general "belief systems" and those more speci-

fic and focused "organizations of beliefs and attitudes" that he calls

"ideologies." Since in this perspective ideology is considered similar to

attitudes, a scale essentially like an attitude scale would seem to be appro-

priate.

There are two fundamental problems involved in attempting to "build up"

an overall picture of ideology from a set of measures of attitudes. First,

such a procedure requires that the attitudes included in the ideology (or

more precisely, the attributes along which the conceptual elements of the

ideology are arrayed by the respondents) be known in advance of the research.

No inductive technique is known whereby data can be made to reveal the extent

to which the researcher has correctly identified the relevant set of such

attitudes.

Second, even if a true enumeration of all relevant attributes were

available, the interrelationships among the attributes remains obscure.

Pairwise correlations among the measured attributes yield data about the co-

variances of these attributes, but do not allow a determination of the extent

to which each attribute contributes to the overall ideological structure.

Given that the attributes do exhibit some intercorrelations (which is almost

always certain), changes in the way ideological elements are perceived along

any subset of the attributes will imply changes in the way they are perceived

along others, but the determination of how this takes place is so complicated

it is never actually done. A practical consequence of this complexity is

the frequent discovery by a political candidate that he or she has improved

his/her position on one issue only to worsen it on one or more others.

The proper way to analyze ideology, then, is to measure the "whole out-
look" of a social group at once. The problem is how can this be done. Up
to now, in fact, it has not been done very systematically or precisely.
Some investigators[4] have attempted to delineate the structure of an ideology
of a social group as a whole, but they have done this either informally or
impressionistically, confirming Lasswell's pessimism concerning the pros-
pects of quantitatively studying ideology. Perhaps the most ambitious and
most nearly successful attempt was made by Scott.[5] Conceiving of ideology as
an aspect of culture, Scott anticipated Geertz'[6] approach to ideology. Scott
tried to empirically delineate ideologies as "clusters" of related cultural
themes as revealed in a correlation-like matrix. Since he measured the
variables that he used in constructing the correlation-like matrix by doing
content analyses of open-ended questions, he could not systematically and
quantitatively analyze them. Nevertheless, constructing a correlation-like
matrix for each of three groups, he was able to point to different clusters
of ideological elements or dimensions of ideology in the different groups.
Although Scott collected information from individuals in each group, the way
he analyzed the information clearly attempted to get at the structures of
the total conception of ideology of each group.

In the present study, using metric multidimensional scaling techniques
that have only recently been developed, an approach somewhat similar to
Scott's will be taken. Because it is now possible to measure and evaluate
culture as symbols and symbol-systems quite precisely, the present analysis
will empirically derive the structural patterns of the ideologies of "upper"
and "lower" social groups so that they can be compared, and the impact of com-
munication patterns on them evaluated. More precisely, this paper will em-
pirically evaluate, first, the extent to which ideologies of upper and lower

social groups differ in structure and focus, and secondly, the ways the media and interpersonal communication are associated with those ideologies.

METHOD

Analytical Method

Metric multidimensional scaling provides a particularly appropriate scheme for the assessment of ideological structure because of its holistic approach. As Geertz[7] asserts, ideology can be treated as a "map of problematic social reality." A multidimensional analysis allows us to array a set of social elements using a spatial analogy or "map" to represent the inter-relationships or structure of that set. Further, the multidimensional approach to be described can be argued to satisfy the conditions for quantitative measurement of ideology set forth by Mannheim.[8]

The scaling technique suggested here is a particularly rigorous application of the procedures grouped under the rubric of multidimensional scaling.[9] Multidimensional scaling, like factor analysis, attempts to array a set of variables in a configuration across a number of axes. Unlike factor analysis, the multidimensional techniques rely on measures of distance rather than cor-relation to derive relationships[10]; thus, they maintain the data in a form more closely related to the original measurements allowing the researcher to observe the implicit structure of results. As Gulliksen[11] suggests in his seminal treatment of multiple-dimension measurement, the procedure is similar to that of the surveyor who finds the location of a particular point by know-ing its distance from all other objects around it.

Two major varieties of multidimensional scaling exist. The most preva-lent is the nonmetric approach developed by Shepard[12] and Kruskal.[13] However, this version suffers severe limitations for comparison because of its reliance

on monotonic transformations. The classical variety, developed by Torgerson,
is based on ratio level operations and linear transformations. For many
years this approach has not been widely used because of the difficulty of
achieving the high level of scaling necessary to perform its operations.
However, recent adaptations such as three-mode factor analysis[14] and matrix
aggregation (presented here) have shown strong signs of reviving this power-
ful analytic technique.

Metric multidimensional scaling transforms a set of ratio pair-compari-
sons of the ideological (or other) concepts under study to a configuration
of points with projections on orthogonal axes. Judgments are made about the
dissimilarity or discrepancy of elements in the set and grouped to form a
matrix of all judgment pairs. This matrix is aggregated (by simple arith-
metic averaging) across the sample to derive a mean distance matrix repre-
senting the average dissimilarity for all concepts in the set. The result-
ant matrix is then transformed to a centroid scalar products matrix which
is subsequently factored to provide loadings, or projections, on the ortho-
gonal dimensions spanning the space.[15] The result of these transformations
is a configuration of the stimuli set which represents the ideological struc-
ture treated as a complete configuration of elements of social reality in
continuous, metric space.[16]

It should be emphasized that we are dealing with the aggregated set of
cultural interrelationships. Unreliability in the individual case is compen-
sated for by selecting an appropriate sample to describe the aggregate con-
figuration. For this reason, averaging judgments across the sample to
achieve an aggregate configuration of discrepancies provides a reliable rep-
resentation of a social group's ideological structure.

Concept Selection and Instrumentation

The present research effort, which focuses upon developing a clear strategy for measuring ideology, was carried out in two parts. The first step in this effort consisted of generating and selecting concepts for the scaling instrument which reflect salient and integrated aspects of political ideology. The second step was to measure the interrelationships among these concepts as perceived by two social groups.

Concepts were selected by the careful review of responses to a set of theoretically derived open-ended questions on the components of social change and social structure (see Appendix A). A careful procedure for the selection of salient components of current social reality was devised. Initially, a set of questions on the Weberian notions of political, economic, and social power, and on the influences and outcomes of social change were developed. Thsse items were divided and administered to two simple random samples of households in Lansing, Michigan (N = 41) and Oakland County, Michigan (N = 40) by telephone interview. The respondents were encouraged to provide as many responses as they felt necessary for any particular question.

This process yielded a list of over two hundred concepts pertaining to structure and change in the American social system. From this list, eleven main categories of high frequency responses were derived. Responses were grouped into the categories on the basis of similarity to the category heading or minor variation in response from the heading (e.g., "rich people" and "the wealthy" were placed into the category "the rich"). In several cases, the categories could be reduced to a single common response ("media"), while other categories needed further refinement (e.g., politics divided into "government," "Democrats," and "Republicans"). The final outcome of the

sorting task was a list of thirteen key concepts used by the respondents,
which represent those elements most often viewed as relevant to the domain
of political ideology. Political ideology is conceived as those aspects of
the culture relevant to defining, describing, evaluating, and explaining
the socio-political structure, and changes or events within this structure.
The derived list of concepts follows:

> (1) Big business
> (2) Unions
> (3) The rich
> (4) The middle class
> (5) The poor
> (6) Republicans
> (7) Democrats
> (8) The average person
> (9) Government
> (10) The media
> (11) Revolution
> (12) Protest
> (13) Apathy

In addition, the concepts "socialism" and "me" were added for theoretical
reasons. The concept "me" allows the respondent to provide a report of dis-
similarity between the self-concept (represented by "me") and all other con-
cepts in the set. When "me" is aggregated it provides a measure of the so-
cial balance point or perspective from which all other concepts can be viewed.
Previous research[17] has shown this to be an extremely useful concept for
understanding attitudinal orientation and making behavioral predictions.
"Socialism" was added because it is relatively central in defining kinds of
societal change in theory, in the American context, and cross-nationally.

Following this concept generation procedure, instrumentation for the
main thrust of the study was developed. Our questionnaire includes pair-wise
comparisons for all possible combinations of concepts. Respondents were
asked to make judgments of dissimilarity using the form:

> If x and y are u units apart, how far apart are concept
> a and concept b?

This item wording requests a ratio distance judgment by asking, "how far apart are $\underline{a}$ and $\underline{b}$," as a proportion of the standard distance provided by the researchers ("if $\underline{x}$ and $\underline{y}$ are $\underline{u}$ units apart . . ."). This format allows the respondent to report any positive integer value, thus producing an unbounded, continuous scale of differences. In this study, the criterion or standard pair selected was John F. Kennedy and Dwight D. Eisenhower (a pair used in previous studies) and the value of the dissimilarity given this pair was 100 units. Note especially that this procedure does not require respondents to discriminate the concepts along pre-selected attributes, but rather allows them to discriminate them along any attributes they choose.

Further, measures of frequency of exposure to interpersonal and media messages, and of similarity of interpersonal and media information to one's own view were incorporated. Finally, demographic data, frequencies of various behaviors, and perceptions of one's social position were included. With the exception of some demographic items, all questions were presented as ratio judgment scales. These additional items provide some useful checks on the validity of the main measurement device.

Sample

The sample for this preliminary examination was drawn from students in communication at Michigan State University and in sociology at Lansing Community College. A total sample of 55 cases was used, analytically divided into two groups; the first group represents a lower social stratum (N = 16), and the second group represents an upper social stratum (N = 39). The sample excludes respondents who provided grossly incomplete responses. Respondents were asked to indicate whether they considered themselves "upper class," "middle class," "working class," or "lower class." Those falling into the

first two categories comprised the upper stratum sample while those in the second group formed the lower stratum sample. A check on the consistency of these perceptions with SES indicators was made; those subjects with gross inconsistencies were deleted from the study. In this study, consistency between status as perceived and from objective indicators was sought so that a clear evaluation of the ideological assessment technique could be made.

With the exception of the common experience of some college education, the two strata represent disparate populations, and this allows us to assess ideological differences if they are indeed present. Consistency within the samples was high and the results to be presented represent a good test of the theoretical and methodological issues raised above.[18]

RESULTS

Ideological Configurations

While the reader may appreciate that only fragments of the massive data generated by these procedures can be presented here, several striking findings are immediately apparent. First of all, for both upper stratum and lower stratum samples, the complexity of the ideological structures is far greater than has heretofore been suspected. In each of the samples, fourteen orthogonal dimensions are required to array the fifteen ideological concepts without distortion (see Tables 1 and 2). Clearly, one primary dimension to describe the ideological superstructure, as some Marxists suggest, two dimensions, as suggested by Ladd[19], and Eysenck[20], or three dimensions, as suggested by Weber[21], cannot alone or together account for a substantial proportion of the total variance exhibited in the configurations of either social group.

- - - - - - - - - - - - - - - - -

Tables 1 and 2 about here

- - - - - - - - - - - - - - - - -

Moreover, since only fifteen of the most important ideological concepts are included in this analysis, these configurations may underestimate the actual complexity of the ideological structures of each social group.

A second finding of significance is the non-Euclidean character of the ideological structure of both samples. For both groups, six of the 14 characteristic roots (eigenvalues) are negative and large, indicating substantial departures from a linear Euclidean structure. A plausible interpretation for this finding may well be the effects of context on the perceptions of concepts. Thus, for example, combining both samples, individuals report the following dissimilarities among the concepts "the rich," "big business," and "me":

	"me"	"the rich"	"big business"
"me"	0	313	237
"the rich"		0	23
"big business"			0

No Euclidean triangle can be generated from these figures. Apparently, respondents attend to different aspects of big business and the rich when comparing either to themselves. While this outcome is anticipated by most socio-psychological theory, the perhaps overly-rationalistic views of ideology by major ideological theorists generally fail to consider such discrepancies.

A third finding of interest is that the upper stratum group see their aggregate self ("me") as 44 percent further from the remaining concept set as compared to the lower stratum group. The average dissimilarity of "me" from all other concepts was 164 units for the upper stratum group and 114 units for the lower stratum group. Of the 14 concepts paired with "me," only "the rich" and "government" are closer to the upper stratum "me" than the lower stratum "me."

FOOTNOTES

[1] Cited in David Minar, "Ideology and Political Behavior," Midwest Journal of Political Science, Vol. 5, 1961, pp. 317-331.

[2] See, for example, Milton Rosenberg," Misanthropy and Political Ideology," American Sociological Review, Vol. 21, 1956, pp. 690-695; Angus Campbell, Philip Converse, Warren Miller, and Donald Stokes, The American Voter, New York, Wiley, 1964; Alan Arien, "The Role of Ideology in Determining Behavior," Sociological Review, Vol. 15, 1967, pp. 47-57; Gertrude Selznick and Stephen Steinberg, "Social Class, Ideology,and Voting Preference," in Celia Heller (ed.), Structured Social Inequality, New York, Macmillan, 1969, pp. 216-226; and Rolf Schulze, "Some Social-Psychological and Political Functions of Ideology," Sociological Quarterly, Vol. 10, 1969, pp. 72-83.

[3] Milton Rokeach, The Open and Closed Mind, New York, Basic Books, 1960, and Beliefs, Attitudes, and Values, San Francisco, Jossey-Bass, 1968; see also Lester B. Brown, Ideology, Harmondsworth, England, Penguin Books, 1973.

[4] E.g., Robert Lane, Political Ideology, New York, The Free Press, 1962; and Everett Ladd, Ideology in America, Ithaca, New York, Cornell University Press, 1969.

[5] William A. Scott, "Empirical Assessment of Values and Ideologies," American Sociological Review, Vol. 24, 1959, pp. 299-310.

[6] Clifford Geertz, "Ideology as a Cultural System," in David Apter (ed.), Ideology and Discontent, New York, The Free Press, 1964, pp. 47-75.

[7] Ibid.

[8] Karl Mannheim, Ideology and Utopia, New York, Harcourt, Brace, and World, 1936.

[9]Cf. Jum C. Nunnally, Psychometric Theory, New York, McGraw-Hill, 1967; Roger N. Shepard, A. Kimball Romney, and Sara Beth Nerlove (eds.), Multidimensional Scaling: Theory and Applications in the Behavioral Sciences, New York, Seminar Press, 1972.

[10]Warren S. Torgerson, Theory and Methods of Scaling, New York, Wiley, 1958.

[11]Harold Gulliksen, "Paired Comparisons and the Logic of Measurement," Psychological Review, Vol. 53, 1946, pp. 199-213.

[12]Roger N. Shepard, "Representation of Structure in Similarity Data: Problems and Prospects," Psychometrika, Vol. 39, 1974, pp. 373-422.

[13]J.B. Kruskal, "Nonmetric Multidimensional Scaling: A Numerical Method," Psychometrika, Vol. 29, 1964, pp. 115-129.

[14]Ledyard R. Tucker, "Some Mathematical Notes on Three-Mode Factor Analysis," Psychometrika, Vol. 31, 1966, pp. 279-311.

[15]See Joseph Woelfel, "Sociology and Science," unpublished manuscript, East Lansing, Michigan, Michigan State University, 1972; Kim B. Serota, "Metric Multidimensional Scaling and Communication: Theory and Implementation," unpublished M.A. thesis, East Lansing, Michigan, Michigan State University, 1974; and George A. Barnett, Kim B. Serota, and James A. Taylor, "A Method for Political Communication Research," paper presented at the Annual Meeting of the Association for Education in Journalism, San Diego, California, August, 1974, for extensive descriptions of the mathematical and theoretical considerations involved.

[16]For other uses which are similar to the techniques used here, see James R. Gillham, "The Aggregation of Shared Information in a Sociology Department," unpublished Ph.D. dissertation, Urbana, Illinois, University of Illinois, 1972; and Joseph Woelfel, "Procedures for the Precise Measurement of Cultural Processes," unpublished manuscript, East Lansing, Michigan,

Michigan State University, 1974.

[17]George A. Barnett, Kim B. Serota, and James A. Taylor, "Campaign Communication and Attitude Change: A Multidimensional Analysis," Human Communication Research, Vol. 2, 1976, pp. 227-244.

[18]In the actual analysis, dissimilarity scores greater than 4,000 were eliminated. This amounts to eliminating extreme views of discrepancy, and therefore the similarity of ideological configurations across the two social strata may be overstated. Hence, this may be a conversative test of stratum differences.

[19]Ladd, op. cit.

[20]Hans J. Eysenck, Dimensions of Personality, London, Kegan Paul, 1947.

[21]Max Weber, "Class, Status, Party" in Hans Gerth and C. Wright Mills (eds.), From Max Weber: Essays in Sociology, New York, Oxford University Press, 1958, pp. 180-195.