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STRUCTURE OF SOCIAL ATTITUDES AFTER TWENTY-FIVE YEARS: A REPLICATION[1]

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Summary.—Scores from 1492 adult subjects on the Public Opinion Inventory were subjected to principal components and factor analyses. The adequacy of a two-factor hypothesis and the factors' correspondence to the dimensions of Radicalism and Toughmindedness previously defined were confirmed.

Attitudes may be viewed in terms of a structured system, hierarchical in nature. Near the bottom of the system are opinions on single issues, and these opinions coalesce at a higher level into attitudes on specific topics (feminism, ethnocentrism, religion, permissiveness). At the highest level we have two major ideological factors which have been given various names but which we shall refer to as R (radicalism-conservatism) and T (toughmindedness-tendermindedness). Since this hypothesis was first put forward (Eysenck, 1944, 1947), much evidence has been adduced to show that this systematic view was in line with reality, at least in the United Kingdom (Eysenck, 1954, 1975, 1976a, 1976b), and in the countries of the Western world (Bruni & Eysenck, 1976; Dator, 1969; Eysenck, 1953). From other sources, including the use of a variety of different types of question and question formats, evidence has also accumulated in support of the general theory (e.g., Rokeach, 1973; Schubert, 1975; Wilson, 1973). There is also evidence to suggest that differences between individuals on these two major factors (R and T) have some genetic basis and that Toughmindedness is related to Extraversion and Psychoticism (Eaves & Eysenck, 1974).

There were some early criticisms of the theory, particularly in relation to the finding that fascists and communists respectively were characterized by low and high Radicalism-conservatism scores, but that both shared high Toughmindedness-tendermindedness scores (Christie, 1956a, 1956b; Rokeach & Hanley, 1956; answered by Eysenck, 1956a, 1956b). The data on which this particular result was based have been published in detail (Eysenck & Coulter, 1972) and have not encountered any criticism. Christie and Rokeach also criticized certain statistical features of the analyses relating to the general theory of social attitudes, but these criticisms reflected a difference of approach to factor analysis; the paper

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by Cattell and Tsujioka (1964) makes clear the important features of these different approaches and we shall not attempt to deal with them here.

The present study is concerned with three points which need clarification. The first relates to changes in attitude structure that may take place over time. The original work on R and T was done 25 to 35 yr. ago, and much has happened since; it is quite possible that the principles of structuring nowadays might by quite different from those obtained then. The second point relates to statistical analysis; the early students assumed the orthogonality of factors whereas, nowadays, we would examine oblique rotated solutions. The third point relates to the sample studied; in the original experiments these were far from representative, and this might have biased the results. On these three points it seemed worthwhile to repeat the experiment, using the original questionnaire on a new sample, employing more up-to-date methods of analysis.

METHOD

Subjects

The subjects were 1492 adults (70% females) identified, from a volunteer twin sample being used for a genetic study, as those who had responded to all the items on the questionnaire. The mean age of the twin sample was 28.7 $\pm$ 12.34 yr. (this figure is calculated from 1460 individuals whose age data were readily accessible). Although no attempt was made to obtain a truly representative sample, the present one does parallel population norms for such measures as Extraversion, Neuroticism and Psychoticism (Eaves & Eysenck, 1974) and we may be satisfied that it is more representative than earlier samples.

Questionnaire and Scoring

The questionnaire, called the Public Opinion Inventory, was originally constructed by Melvin (1955) and since it has been fully listed in *The Psychology of Politics* (Eysenck, 1954, p. 277) it will not be reproduced here. To the 60 attitude statements the subject responded 'strongly agree,' 'agree,' 'don't know or unable to answer,' 'disagree,' or 'strongly disagree.' The five possible responses were scored 1, 2, 3, 4, and 5.

RESULTS AND DISCUSSION

The 60 $\times$ 60 product-moment correlation matrix was obtained and subjected to an iterated principal components analysis to explore its dimensionality. Although over 40 of the 60 components had eigenvalues greater than unity, it is clear from Table 1 that the first two components stand out from all the rest in accounting for the variation; a two-factor hypothesis is reasonable.

On the basis of this preliminary analysis two orthogonal factors were extracted and subsequently rotated to an oblique simplified structure using a programme supplied in the *Statistical Package for the Social Sciences* (Nie, *et al.*, 1970). However, the correlation between the factors was only .087 in the

TABLE 1
EIGENVALUES AND CORRESPONDING PERCENTAGES OF VARIANCE ACCOUNTED FOR BY FIRST 10 PRINCIPAL COMPONENTS

Component	% of σ^2	Eigenvalue
1	13.8	8.281
2	10.4	6.257
3	4.1	2.434
4	3.0	1.823
5	2.6	1.581
6	2.5	1.518
7	2.3	1.390
8	2.1	1.254
9	2.1	1.240
10	1.9	1.141

rotated solution which suggests that we can after all join the earlier students in conceptualizing the two factors as uncorrelated, and in all that follows results for the orthogonal solution are given.

To interpret the factors the item loadings were compared with the key given by Melvin (1955) for the 41 items contributing to the Radicalism and Toughmindedness scales. From Table 2a we see that the perfect correspondence between the direction of the loadings and the scoring key for each item allows these two factors to be identified with Radicalism and Toughmindedness. The loadings for the items not used by Melvin's R or T scales are given in Table 2b.

These results suggest that the structure of the sampled attitudes must have remained fairly stable since the questionnaire's inception. Unfortunately, in the absence of high speed computing facilities, Melvin was unable to work with a 60 $\times$ 60 correlation matrix and we do not, therefore, have available an early factor analysis of the present inventory. However, Eysenck (1947) administered to 750 middle-class subjects a comparable 40-item questionnaire in which 19 of the items were the same as those used in the present study. Eysenck (1954) gives the factor saturations on the two dimensions which formed the basis of the original Radicalism and Toughmindedness scales and in Table 3 the loadings for the 19 common items are given for the two factors of the original and present analyses. The direction of Eysenck's (1947) Factor I is reversed for ease of comparison. The correspondence between the two sets of loadings in Table 3 is striking, and when we consider that they were obtained against different backgrounds of items on tests of different length with different subjects and after an interval of 25 yr., we can safely conclude that the structure revealed by the factors is relatively stable.

Thus, to recapitulate, we have found that the attitudes sampled by the Public Opinion Inventory can reasonably be summarized by two orthogonal dimensions. Furthermore, these dimensions clearly correspond to Radicalism and

TABLE 2

a. LOADINGS OF ITEMS SCORED FOR RADICALISM (R) AND TOUGHMINDEDNESS (T) SCALE

Item	R scale weight	Loading Factor I	T scale weight	Loading Factor II
4	+	35		
7	−	−33		
8			+	27
9			+	31
10	−	−55	+	38
11	−	−32		
12	+	51	+	31
13	−	−45		
14			+	54
17			+	49
18	+	49	−	−35
19			+	32
20			−	−17
21			−	−01
22			+	43
24	+	13		
25	−	−49		
26			+	34
27	+	35	+	34
28			+	24
29	−	−59		
30			+	23
31			+	46
33			−	−53
36			+	44
37	−	−52	−	−26
38			+	40
40	+	16		
41			+	31
42	−	−47		
43			+	25
46			−	−28
47	+	49	−	−35
48			−	−25
49			+	29
51			+	43
52	+	14	−	−07
53			−	−45
56			−	−48
57			−	−03
58			+	06

Note.—Decimal points omitted.

TABLE 2

b. LOADINGS OF ITEMS NOT SCORED FOR R OR T SCALE

Item	Loading	
	Factor I	Factor II
1	21	−10
2	−37	35
3	−16	18
5	−17	29
6	37	−16
15	−37	−30
16	−37	11
23	37	44
32	06	−07
34	−43	33
35	24	20
39	−46	−49
44	16	−21
45	−53	−28
50	−35	24
54	−41	35
55	−37	22
59	−43	−18
60	−26	26

Note.—Decimal points omitted.

TABLE 3

COMPARISON OF LOADINGS OBTAINED BY EYSENCK (1947) WITH THOSE OF PRESENT STUDY

Item	Factor I		Factor II	
	Eysenck (1947)	Present	Eysenck (1947)	Present
2	−47	−37	32	35
3	−51	−16	32	18
4	68	35	01	−03
5	−20	−17	28	29
6	62	37	−23	−16
8	46	30	47	27
10	−65	−55	28	38
11	−72	−32	11	12
12	53	51	56	31
18	60	49	−20	−35
21	−36	−26	−42	−01
23	53	34	49	44
32	13	06	−27	−07
34	−45	−44	39	31
35	45	24	33	20
39	−46	−46	−65	−49
45	−57	−53	−34	−28
46	55	26	−14	−28
47	57	49	−22	−35

Note.—Decimal points omitted.

Toughmindedness as defined by Eysenck (1947) and as scored by Melvin (1955).

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