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AN APPROACH TO THE IDENTIFICATION OF PERSONALITY TYPES. (U)
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Research Memorandum 66-11

(6) AN APPROACH TO THE IDENTIFICATION OF PERSONALITY TYPES

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FOREWORD

In-House Laboratory Independent Research (ILIR) provides for the application of U. S. APRO scientific talent in the exploration of new developments in experimental psychology, psychometrics, and statistical-mathematical models. Its objective is to extend laboratory capability in terms of knowledge and techniques from which applications can ultimately be made to a wide range of Army operations.

The present study was conducted by the Chief of the Behavioral Evaluation Research Laboratory. The research was part of an effort to identify value constructs significant to military adjustment and effectiveness in specialized and atypical assignments. The product is potentially applicable in such personnel management activities as assembling individuals in teams and work groups and in development of occupational groupings in which patternings of personal characteristics are relevant.

J. E. UHLANER
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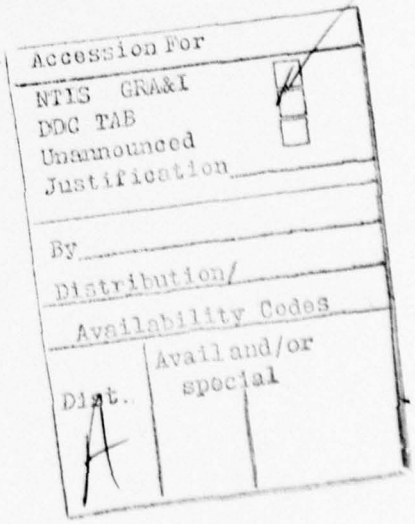

Q-TYPING: AN APPROACH TO THE IDENTIFICATION OF PERSONALITY TYPES

BACKGROUND

In the measurement of personality structure, many present-day theorists employ some variation of the four-level hierarchical model originally formulated by Burt (1949) to describe the components obtained from factor analysis. In its general conceptualization, the unit of description at the lowest level of generality comprises the specific actions engaged in at a particular time by the individual. At the second level are the more general habits encompassing highly related acts within a limited range of situations. At the third level, are the primary traits, which incorporate a broader spectrum of related behaviors, while at the fourth level are found "types" which encompass sets of related traits.

Correlational and factor analytic methods have been commonly used for the identification of traits and types. Traits have been identified through the factor analysis of items, or subsets of items, which reflect behavior at the habit level, while types generally have emerged from correlational or higher-order factorial analysis of trait level data. Typological data based on higher order factor analysis have not proved to be of practical utility for predictive purposes and are of questionable value for descriptive purposes. As one ascends the hierarchical ladder, the range of phenomena considered increases, but the accuracy of prediction is correspondingly reduced (Guilford, 1959). For example, descriptions based on habit-level information tend to be precise and predictions accurate, but the range of behavior involved is very narrow. At the type level, a relatively wide array of behavior is associated with each descriptor. However, descriptions at this level, lack precision, and predictions have a low degree of validity. As a matter of trade-off, personality measurement is generally performed at the trait level, where description is relatively precise and a moderate array of phenomena may be predicted with a reasonable degree of success.

PURPOSE OF THE PRESENT STUDY

Within the framework of the hierarchical model, an interesting distinction between traits and types has been proposed by Burt (1943). In his conceptualization, traits emerge from the correlation of tests (or items), while types result from the correlation of persons. This particular notion of type has not been systematically explored. As Notcutt (1953) has pointed out, "while the concept has been clearly enough formulated, the data do not usually exist in sufficient elaboration to enable the necessary calculations to be made."

This report

~~The present paper~~ presents a methodological exploration in typology which used Burt's conceptualization as a point of departure. In this approach, trait-level data, factorially derived, are obtained for groups of persons where each group has socially meaningful distinguishing characteristics (e.g., prisoners, psychiatric patients, auto salemen). These groups of persons then are interrelated on the basis of their mean trait scores. The resultant correlation matrix cont'

CONT → is factor analyzed in order to identify groups which form distinct and meaningful clusters on the basis of similarity of trait patterns.

METHOD

Personality characteristics are so varied and complexly interrelated that it is questionable whether clearly interpretable types can be identified on the basis of data derived from a number of domains, such as interests, values, temperaments, abilities, etc. While types can be generated mechanically, using such an array of data, given our present state of knowledge regarding personality structure at the trait level, typing would appear to be most meaningful if performed separately for each personality domain. Exploration in cross-domain typing might be best delayed until interrelationships among trait-level dimensions are more fully understood.

PERSONALITY MEASURES USED

The Survey of Interpersonal Values (Gordon, 1960) was used as the research instrument.[1] The Survey of Interpersonal Values (SIV) is designed to measure six interpersonal value dimensions. It consists of 30 triads each of which include statements representing three different values. The respondent is to specify which statement represents something that is most important to him, which one represents something that is least important to him and to leave the third unmarked.

The values measured by the SIV are defined as follows: Support (S)--being treated with understanding, receiving encouragement from other people, being treated with kindness and consideration; Conformity (C)--doing what is socially correct, following regulations closely, doing what is accepted and proper, being a conformist; Recognition (R)--being looked up to and admired, being considered important, attracting favorable notice, achieving recognition; Independence (I)--having the right to do whatever one wants to do, being free to make one's own decision, being able to do things in one's own way; Benevolence (B)--doing things for other people, sharing with others, helping the unfortunate, being generous; and Leadership (L)--being in charge of other people, having authority over others, being in a position of leadership or power.

The Survey of Interpersonal Values was particularly well suited for the development and testing of the present model. Composed of orthogonally factored scales, it permits maximal pattern differentiation on the basis of the dimensions

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[1] In fact, it was only the large variety of descriptive statistics provided to the author by a number of investigators that made possible the required analysis.

measured. The scores obtained are at the trait level, where measurement is of optimal utility. The instrument is ipsative, eliminating problems concerned with the comparison of patterns at different overall score levels which occur in normative measurement (Guertin, 1966). The scale themselves have been found to be construct valid. The elements used for type identification represent points on standardized scales, and thus yield normatively interpretable data in their own right. These data are accessible both for independent evaluation and to define the nature of the typological results.

Implications of the present research are not limited to the particular instrument used. The SIV may be thought of as a structured Q-sort (Stephenson, 1953) employing three categories (most, intermediate and least) and forcing a rectangular item distribution with 30 items in each category. Except for the constraint that no two items in a triad may be placed in the same category, the Q-sort model applies exactly to the SIV. In a structured Q-sort, hypothesized constructs are built into sets of items. The validity of the sets may be tested by administering the sort to groups for whom the constructs are known to have high and low degrees of relevance (Kerlinger, 1965). In the present instances, valid constructs constitute the "Q-sort," which may then be used to cluster groups in terms of similarity of relevance of the constructs.[a]

SAMPLES

The first testing of the model included as variables all groups listed in the descriptive statistics section of the Manual Supplement to the Survey of Interpersonal Values (Gordon 1963), together with eight additional samples presented in the body of the Supplement. In all, 59 U. S. groups were included in this exploratory study, of which 47 (1 to 47) were male and 12 (48 to 59) female. Following is a brief description of the groups:

Prisoners and delinquents. Groups 1 through 14 consisted of prisoners who were incarcerated at the time of testing; (1-8) First offender prisoners at the Marion (Ohio) Correctional Institution, selected so as to be homogeneous as to offense; (9) recidivists and (10) guards from the same institution; (11) newly arrived prisoners at a reception center at Vacaville, California; (12) criminally insane prisoners in a Wisconsin state hospital; (13) Navy prisoners incarcerated for offenses ranging in severity from absence without leave to armed robbery; and (14) young boys in a juvenile detention home in San Diego.

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[a] Because of the parallel between the present approach and Q-methodology, types identified through this procedure are referred to as "Q-types," and the process of identifying types or of relating individual or group patterns to established reference groups or types is termed "Q-typing." See Stephenson (1953) for other possible uses of Q-technique for typing. Acknowledgements regarding sources of the data, and means and standard deviations for each sample will be found in the Manual Supplement to the SIV.

Military personnel. Groups 15 through 22 comprised military personnel: (15) Army volunteer enlisted men in their fifth week in basic training at Fort Ord, California; (16) Navy enlisted men, mostly in the higher pay grades, in New Zealand, about to depart for an 8-month Antarctic tour; (17) senior ROTC students at Ohio State University; (18) newly arrived first-year cadets (plebes) at the U. S. Military Academy, and (19) at the U. S. Air Force Academy; (20) Naval Aviation cadets at the beginning of training at Pensacola; (21) Army Infantry officers in the lower grades about to enter Special Forces training; and (22) Army Infantry first lieutenants in an advanced training course.

Employees in industry. Groups 23 through 31 were industrial employees from different companies except where otherwise specified; (23) project administrators in an electronics company; (24) engineers in supervisory positions; (25 and 26) foremen and managers in a soap manufacturing company; (27) inventorymen who served in both operating and sales capacity; (28) experienced wholesale salesmen from three different companies; (29) a national sampling of auto salesmen applicants; (30) a national sampling of auto salesmen for a company competitive with (29); and (31) salesclerks in a large Chicago department store.

Student groups. Groups 32 through 39 consisted of students; (32) a national sampling of college students, mostly liberal arts freshmen and sophomores; (33) high school seniors from Southern California; (34) gifted high school seniors from Beverly Hills who were enrolled at the University of California for half the school week; (35) a national sampling of engineers who graduated in the upper ten percent of their classes and who, as scholarship recipients, were studying at the University of New Mexico half time for advanced degrees and were employed half-time; (36) and (37) Denver University engineering freshmen and seniors, who volunteered to be tested by U. S. Air Force Academy personnel for research purposes; (38) and (39) University of California medical school freshmen and seniors.

Miscellaneous groups. Groups 40 through 47 were miscellaneous: (40) psychiatric residents at the University of California Medical School and (41) their psychiatric out-patients; (42) high school teachers in New England; (43) conscientious objectors at Ohio State University; (44) and (45) Peace Corps volunteers tested at Cornell University at the beginning of training, and at Tucson and Princeton in an assessment program prior to training; (46) scientists tested in New Zealand prior to departing for an 8-month Antarctic tour; (47) male adults tested off-the-job in Alburquerque and in the Midwest in conjunction with the university research projects.

Female groups. Groups (48) through (59) consisted of female subjects; (48), (49) and (50) college, high school, and gifted high school students counterparts of male groups (32), (33), and (34); (51) psychiatric out-patients at the University of California Medical School comparable to groups (41), (52) and (53) Peace Corps volunteers tested at the same time and place as groups (44) and (45), respectively; (54) University of California Medical School freshmen; (55) student nurses from institutions in California and Texas; (56) registered nurses from California; (57) high school teachers comparable to (42); (58) salesclerks in the same department store as (31) and (59) primarily non-employed housewives tested in conjunction with three research projects, including those involving (47).

PROCEDURE

The procedure consisted of first obtaining interrecorrelations among groups, based on their means on the six SIV scales, followed by a factor analysis of the resultant matrix of groups. However, since the six scales of the SIV do not have the same number of items, an element of positive correlation would be introduced into the resultant correlation coefficient by differences in number of items.[3] Imagine the effect on the correlation of introducing a seventh and eighth scale containing only two items each. As a corrective measure, all R means were multiplied by 15/13 and all I and L means by 15/16. This adjustment was based on the assumption that if an individual made a score of 13 on the 13-item R scale, and responded similarly to a 15-item R scale, he would obtain a resultant score of 15, and that his indorsement of items on the longer scale would be proportionate to his indorsement of items on the original scale. The same logic would apply to the I and L scales. In this manner, an estimate was obtained as to what the means would have been if all scales had had 15 items each.

A correlation matrix based on the adjusted means was computed and factor analyzed by the principal components method. Five factors emerged with zero eigenvalues occurring beyond the fifth factor[4]. The first four factors, which accounted for 98.5 percent of the variance, were subjected to Varimax rotation. Factor loadings are presented in Table 1[5].

RESULTS

For each factor, the nature of the groups that have the more extreme loadings and the means which uniquely characterize these groups are noted below. The average of the means of the three or four groups that define each factor is presented in Table 2.

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[3] Recognition consisted of 13 items, Independence and Leadership of 16 items each, and the remaining scales of 15 items.

[4] Since six SIV means served as the correlational elements, and one degree of freedom was lost due to the ipsative nature of the instrument, five factors necessarily accounted for all the intercorrelations.

[5] In several preliminary factor analyses involving the present type of data and smaller matrices, use of communalities and unities in the diagonals was found to yield highly similar results. Thus, unities were used in the present analysis. Also, for the present samples, factor analyses based on unadjusted means and on means that had been adjusted by more statistically elegant procedures resulted in structures identical with that reported in the present report. However, correlation coefficients based on unadjusted means were somewhat higher than those based on adjusted means.

Factor I, labelled Institutional Restraint, is defined by the groups of incarcerated prisoners, all of whom have very high loadings on it. Prison guards, registered nurses, Antarctic Navy enlisted men and three female samples, general adults, teachers and salesclerks have high loadings on this factor as well. Very high Conformity scores and very low Leadership scores characterize groups with very high loadings [a] (Table 2). Members of these groups place a very high value, for intrinsic or extrinsic reasons, on following rules and regulations and doing the approved thing, and a very low value on controlling or influencing other people. This factor has been called Institutional Restraint since it reflect the importance to the individual of accepting the restraints imposed by an institution, in the narrow use of the term, such as penal, medical, educational, or training, or possibly in the broader sociological meaning.

Factor II, called Control of Others, is clearly bi-polar. Groups that have the higher positive loadings were, at the time of testing, in supervisory or leadership positions. Here, we find Infantry and Special Forces Army officers, department managers, supervisory engineers, and project administrators. Those who aspire to control or influence other people, such as Army, Air Force, and Naval Aviation Cadets and salesmen, also have very high loadings on this factor. The aforementioned groups are characterized by very high means on Leadership and low means on Support (Table 2). Typical members of these groups place a high value on being in a position of power and influence and little value on being treated with understanding or receiving encouragement from other people. Additionally, on the whole, they tend to value being independent to a lesser degree than do members of groups defining the other factors.

At the negative pole of Factor II, female psychiatric patients, gifted high school students, and college students have high loadings. Besides having lower Leadership scores--typical of most female subjects--these groups are distinguished by very high Support scores coupled with moderately high Benevolence scores. Individuals who represent these groups tend to be interested in engaging in benevolent or supportive behavior toward others but at the same time also value or perhaps expect reciprocal supportive attention. Since the trait pattern of groups defining the negative pole of Factor II represents an interpretively distinct motivational orientation, this pole will be called Reciprocal Support.

Factor III is described as Service to Others. Peace Corps volunteers of both sexes, male teachers, conscientious objectors, freshmen medical school students and scientists serving in the Antarctic have very high loadings on this

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[a] Both normative and ipsative interpretations are involved in assessing means of groups which define Q-types. Data from a very large number of samples serve as one frame of reference for describing particular means as being high or low. However, since patterns of means are correlated, certain means that appear to be very high or low in a normative sense may be less extreme within a given pattern.

factor. The general male adult sample and female freshmen medical students have moderately high loadings. This factor is most strongly characterized by high Benevolence scores, reflecting a desire to help other people and to do things for their welfare, coupled with moderately high Leadership scores representing some desire to influence other people as well. Conformity is relatively unimportant to members of this group.

Factor IV is labelled Self-Determination. Here, high loadings are characteristic of male college students, senior medical school students, psychiatric residents, gifted high school students, scholarship engineers and psychiatric patients. Members of these groups, on the average, place a great value on Independence, that is, on being able to lead their own lives and to make their own decisions. They tend to score very low on Conformity, placing little value on following rules and regulations or social customs. This group also tends to be lower than most of the others on Benevolence. Certain groups that had moderate positive loadings on Conformity have negative loadings on this factor. While this factor appears to be bi-polar, the negative loadings are not sufficiently large to clearly identify a separate type [1].

Certain groups have moderate or high loadings on more than one factor. (Table 3). Both Army and Navy enlisted personnel are characterized by positive loadings on both Institutional Restraint and Control of Others and negative loadings on Self-Determination. The high Conformity means reflect the importance to these individuals of conforming to the rules and regulations to which they are continually subjected. The Navy Antarctic enlisted personnel were mostly in the upper ranks, and at least half the Army recruits knew they were eligible for selection for noncommissioned officer training at time of testing, and many undoubtedly aspired to this position. Within the military framework, self-determination as measured by the SIV was out of the question for members of both groups.

Female nurses and teachers working under institutional restraint are motivated by service to others, the latter being the primary characteristic of their respective professions. This group is differentiated from those defining Reciprocal Support, also comprising female samples, in being higher in Conformity and Benevolence and lower in Support and Independence.

High school senior males reflect the "Sturm and Drang" of adolescence by their positive loading on both Institutional Restraint and Self-Determination. They are living under a certain degree of school and home discipline while at the same time preparing for their own future.

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[1] The negative pole was clearly defined, subsequently, in a cross-cultural analysis, by samples of Samoan high school students (Gordon, 1967) and (in a domestic analysis) by first-year student nurses and by female education majors.

Antarctic scientists had previously been in supervisory roles and were acting as supervisors in their present polar assignment. This is reflected by their positive loadings on the Control of Others factor. Their personal sacrifice in spending eight months in isolation in the interest of scientific discovery is shown in the Service to Others factor. Air Force plebes, while apparently aspiring to a position of command, also appear to be motivated to some extent by the desire to serve their fellowmen.

Wholesale salesmen prefer to determine their own lives, as their job pretty well permits them to do. Their need to influence their customers appears in the loadings on the Control of Others factor.

Female freshmen medical students are motivated both by a desire to serve others and by self-determination. By the time they graduate, the relative weight of these two factors will be reversed if their motivational pattern follows the same course of development as in their male counterparts.

DISCUSSION

The outcome of the present analysis was most encouraging. Each of the four factors was clearly defined by groups with very high loadings, and the nature of each factor was readily describable at the trait level in terms of the interpersonal value patterns these groups had in common. In addition, the groups that had significant loadings on more than one factor were described by these factor definitions in a manner congruent with known characteristics of the groups. Thus, the present methodology appears to be appropriate for type identification, at least in terms of the particular sub-domain investigated and instrumentation employed.

Most groups that serve to define potential types tend to be exceptional in some respect, and particular values in the present groups might well have been held in the extreme. For example, incarcerated prisoners place a very high value on conforming behavior. To what extent this reflects their immediate circumstances is not known, although members of delinquent groups have been found to be highly conforming to their own subgroup norms. Similarly, female psychiatric out-patients receiving supportive attention in their therapeutic sessions, presumably placed a significant value on this relationship or they would not have continued. Army officers and supervisory personnel were in a position to control or influence other persons by the very nature of their jobs, and presumably these positions had been sought after by them and consequently were valued.

Groups that correlate substantially with the particular reference groups that define factors cannot be assumed to resemble the latter groups in all respects. Rather, these groups share interpersonal value patterns described by the instrumentation used and within the framework of their own particular circumstances. Thus, the average nurse and the career enlisted man may share with the typical prisoner the need to conform to institutional rules and regulations and

to submit to authority, but the similarity between the groups ends there. Likewise, the male psychiatric out-patient and his therapist may share the same need for supportive attention and self-determination. However, the therapist is in a position to satisfy these needs occupationally--the patient usually is not. Thus, it is important to recognize that only interpersonal value patterns were considered in the process of typing within this particular personality domain. Satisfaction or frustration, the circumstances in which the individual operated, as well as other characteristics of the individual such as temperaments, interests and abilities, were not considered.

Unfortunately, no statistical formulae have been devised which will permit determination of the reliability of the mean trait patterns on which this particular typological approach is based. However, correlation coefficients based on group means can be expected to have substantially greater stability than those based on individual scores [8]. Empirical evidence indicates that coefficients based on mean trait patterns, even where relatively small samples are employed, are remarkably reliable. For example, coefficients of correlation between groups ranged from .89 to 1.00 (median .96) for the eight Ohio prison samples, from .88 to .99 (median .93) for five annual input samples of medical school students; from .94 to .99 (median .97) for three freshmen student nurse samples from different institutions. Since the samples that were correlated were neither randomly selected nor from the same universe, these results underestimate the pattern reliabilities. The correlations between successive samples of enlisted men and scientists embarking for duty in the Antarctic and of Special Forces officer trainees were .96, .97 and 1.00 respectively [9].

The emergence of a strongly bi-polar factor in the present analysis is of some interest, particularly since in the factor analysis on which the development of the SIV was based all factors were unipolar after orthogonal rotation, and very few items had significant negative loadings. In intercorrelating sets of group means, the similarity between the patterning of the means is being determined. Thus, it is entirely reasonable to assume that pairs of groups will be found which are quite opposite in this regard--where a particular interpersonal relationship valued the most highly by one will be valued the least highly by the other. The patterning of means of groups at the opposite poles of a factor of course would be interpreted in different ways.

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[8] The standard error of the mean is $1\sqrt{N}$th as large as the standard deviation of a single score.

[9] Reliabilities of the patterns of means and standard error of correlations and differences between correlations are being estimated through random sampling methods, using real data. Preliminary results indicate that patterns based on samples of 10 cases yield reliabilities in the mid .90's.

PRESENT STATUS AND FUTURE RESEARCH

Because of the very striking findings obtained in the present study, further testing of the methodology was performed using several sets of samples which included marker variables from the present analysis as well as new groups, and a set of student samples from six different cultures (Gordon, 1967). Equally clear and interpretable results were obtained. Thus, the present methodological approach is considered to be worthy of serious investigation. A program of research, involving enlarged sampling with the present instrumentation and a testing of the methodology with different instrumentation is under development.

The utility of the present methodology goes well beyond type identification. At the descriptive level, groups or individuals may be related correlationally to established types or to one another. For example, the male gifted high school student correlated .93 with the male college student, -.01 with the Peace Corps Volunteer, and -.91 with the Army enlisted man. The senior ROTC student correlated .33 with his fellow college student but .74 with the Army Infantry officers and -.38 with the conscientious objector at his particular institution. The male psychiatric out-patient correlated .88 with the psychiatric resident at his clinic, .04 with other male adults of his age level, and -.48 with project administrators in industry. Information based on a comprehensive and standard set of typological or reference groups, would further enhance interpretations for particular groups or individuals.

Other applications might include (1) assembling individuals into teams or work groups, or selecting counterparts to provide for greater compatibility or work effectiveness; (2) studying changes in an individual or group as a result of a change agent; (3) developing occupational groupings on the basis of patterning of subdomain characteristics; and (4) determining the relationship between supervisor-employee patterns and supervisory evaluation. Exploratory research in these and other problem areas would seem to be worth pursuing.

Table 1

ORTHOGONAL (VARIMAX) FACTOR LOADINGS

	Groups	N	Factors I	II	III	IV
1.	Prisoners (Ohio) Murder	50	.97	-.25	.03	-.08
2.	Prisoners (Ohio) Sex Offenses	50	.95	-.13	.00	-.27
3.	Prisoners (Ohio) Auto Theft	50	.98	-.08	.02	-.20
4.	Prisoners (Ohio) Burglary	50	.99	.03	.15	.00
5.	Prisoners (Ohio) Narcotics	50	.94	-.12	.31	.06
6.	Prisoners (Ohio) Forgery	50	.98	.17	.00	.07
7.	Prisoners (Ohio) Armed Robbery	50	.99	-.02	.14	-.01
8.	Prisoners (Ohio) Assault	50	.99	-.08	.11	-.01
9.	Prisoners (Ohio) Recidivists	50	.93	-.18	-.03	-.28
10.	Prison Guards (Ohio)	50	.83	.29	-.05	-.48
11.	Prisoners (California)	47	.93	-.28	-.07	-.19
12.	Criminally Insane (Wisconsin)	30	.87	-.08	-.06	-.48
13.	Naval Prisoners	100	.96	-.04	.02	-.26
14.	Juvenile Delinquents (California)	67	.92	.03	.13	-.37
15.	Army Enlisted Men	214	.58	.53	.01	-.60
16.	Navy Enlisted Men - - Antarctic	83	.75	.42	.25	-.44
17.	ROTC Seniors (Ohio State U)	19	-.49	.80	-.20	.27
18.	Air Force Academy Plebes	706	.26	.86	.41	-.17
19.	Military Academy Plebes	757	.27	.87	.12	-.38
20.	Naval Aviation Cadets	174	.04	.88	.07	-.47
21.	Army Officers (Special Forces)	72	-.09	.95	.26	.13
22.	Army Officers (Infantry)	60	-.05	.98	.16	-.12
23.	Project Administrators	80	.34	.91	.05	.21
24.	Supervisors (Engineers)	71	-.17	.97	.09	-.08
25.	Foreman (Manufacturing)	16	.16	.64	-.61	-.15
26.	Managers (Manufacturing)	25	-.14	.95	-.17	.01
27.	Inventorymen	16	.21	.93	-.03	.23
28.	Salesmen - Wholesale	371	-.56	.70	.10	.43
29.	Salesmen - Auto (Applicants)	108	-.43	.86	.07	-.27
30.	Salesmen - Auto	823	-.27	.88	-.26	-.26
31.	Sales Clerk (M) (Dept Store)	48	.34	.04	.50	-.78
32.	College (M) Students	1075	-.33	-.02	.23	.92
33.	High School (M) Students	782	.52	-.54	.07	.66
34.	High School (M) Students - Gifted	51	-.51	-.29	.26	.76
35.	Engineers - Scholarship	80	-.46	.35	.39	.72
36.	Engineering Students (1st Year)	44	.48	.37	.63	.49
37.	Engineering Students (4th Year)	30	.37	.37	.77	.36
38.	Medical (M) Students (1st Year)	120	.12	-.11	.92	.29
39.	Medical (M) Students (4th Year)	84	-.25	-.49	.21	.81
40.	Psychiatric (M) Residents	10	-.54	-.05	.20	.82
41.	Psychiatric (M) Out-Patients	61	-.50	-.49	.10	.70

Table 1 (Con't)

ORTHOGONAL (VARIMAX) FACTOR LOADINGS

	Groups	N	Factors I	II	III	IV
42.	High School (m) Teachers	25	-.11	-.01	.97	.18
43.	Conscientious Objectors	19	.03	-.17	.98	-.09
44.	Peace Corps (M) Volunteers A	34	-.16	.24	.90	-.32
45.	Peace Corps (M) Volunteers B	103	-.04	.00	.98	.14
46.	Scientists - Antarctic	71	.19	.40	.87	-.16
47.	General (M) Adult	213	.38	-.12	.82	.24
48.	College (F) Students	746	.35	-.80	.36	.27
49.	High School (F) Students	666	.46	-.67	.18	-.54
50.	High School (F) Students - Gifted	50	.03	-.86	.41	.30
51.	Psychiatric (F) Out-Patients	60	.27	-.93	.10	.06
52.	Peace Corps (F) Volunteers	24	.20	-.05	.90	-.34
53.	Peace Corps (F) Volunteers	51	.04	-.35	.92	.12
54.	Medical (F) Students	14	.00	-.45	.76	.45
55.	Student (F) Nurses	273	.56	-.48	.47	-.48
56.	Registered (F) Nurses	50	.80	-.17	.43	-.31
57.	High School (F) Teachers	28	.65	-.41	.47	-.40
58.	General (F) Adult	212	.69	-.52	.29	-.37
59.	Sales Clerk (F) (Dept Store)	174	.65	-.29	.14	-.69

Table 2

OVERALL SIV MEANS FOR THE SET OF GROUPS DEFINING EACH Q-TYPE

Groups[a]	Q-Type	Means					
		S	C	R	I	B	L
1, 11, 13, 14	Institutional Restraint	14.8	20.1	10.4	16.8	16.5	11.1
21, 22, 24, 26	Control of Others	11.3	17.1	10.6	14.7	14.0	22.3
38, 43, 45	Service to Others	13.7	11.4	9.4	18.5	20.6	16.3
32, 34, 35, 39	Self-Determination	15.1	10.3	12.7	20.4	13.8	17.6
48, 50, 51	Reciprocal Support	18.6	12.6	12.6	17.9	17.6	10.7

[a]Groups on which the overall Means were computed. (1 comprises all Ohio Prisoners.)

Table 3

MEANS AND FACTOR LOADINGS OF SELECTED SAMPLES WITH SIGNIFICANT LOADINGS ON MORE THAN ONE FACTOR

	Group	Factors[a] I	II	III	IV	Means S	C	R	I	B	L
A.	Army Enlisted Men	.58	.53	.01	-.60	13.6	20-0	10.3	12.5	16.4	16.2
	Navy Enlisted Men (Antarctic)	.75	.42	.25	-.44	13.5	19.3	10.2	14.8	17.0	15.2
B.	Student (F) Nurses	.56	-.48	.47	-.48	16.8	16.4	10.5	15.0	20.8	10.1
	High School (F) Teachers	.65	-.40	.47	-.40	15.0	16.6	11.2	16.1	20.0	11.1
C.	High School (M) Students	.52	-.54	.07	.66	15.4	14.8	12.6	18.3	14.7	14.2
D.	Scientists-Antarctic	.19	.40	.87	-.16	12.9	15.1	10.1	16.2	18.4	17.3
	Air Force Academy Plebes	.26	.86	.41	-.17	11.3	17.8	9.2	15.0	16.3	19.3
E.	Salesmen Wholesale	-.56	.70	.10	.43	12.7	13.3	12.5	17.0	13.0	21.8
F.	Medical (F) Student	.00	-.45	.76	.45	16.9	9.6	9.1	20.9	18.3	14.4

[a]FACTORS: I - Institutional Restraint
II - Control of Others
III - Service to Others
IV - Self-Determination

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