ON THE RELATION OF MANIFEST NEEDS TO PERSONAL VALUES

A Factor Analytic Study Involving R and Q Techniques

A DISSERTATION

SUBMITTED TO THE GRADUATE COUNCIL OF WAYNE STATE UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF EDUCATION
IN THE DEPARTMENT OF EDUCATION
WITH A SPECIALIZATION IN EVALUATION AND RESEARCH

---

by

Earl David Sumner

Detroit, Michigan
1957

APPROVED BY DATE

Adviser 12/18/1957

James B. Brink

Harold F. Powell

Mildred Peters

ACKNOWLEDGEMENTS

A list of all the people to whom the author is indebted, in one way or another, for assistance in the completion of this research would prove prohibitive in length.

The author is grateful to Dr. William Reitz, his Adviser, for patience, consideration, and helpful guidance, as well as for the devising of an appropriate methodology, and to Dr. Mildred Peters, whose insights into the dynamics of human behavior have long been a source of knowledge and inspiration for the author. To other committee members, Dr. Harold Powell, of the Department of Clinical Psychology, and Dean Charles Brink, School of Social Work, the writer wishes to express his appreciation for their valued services.

The author also wishes to acknowledge the valuable advice and welcome criticism of Dr. Jacob Kounin in the early stages of the investigation. His withdrawal from the committee as a result of a leave of absence from the University is regretted.

This expression of gratitude would not be complete without special mention of Dr. Joseph Hill who rendered material assistance with the statistical techniques and

of my wife, Helen W. Sumner, for her endless patience during this investigation and for her assistance in proof-reading and correction of the manuscript.

It is impossible adequately to acknowledge the services of Dr. Raymond B. Cattell, of the Institute for Personality Testing, University of Illinois, who extracted and rotated the factors. The fact that he does not perform these services on a commercial basis makes them all the more valuable.

TABLE OF CONTENTS

TABLE OF CONTENTS--Continued

LIST OF TABLES

LIST OF TABLES--Continued

CHAPTER I

BACKGROUND AND PURPOSE OF STUDY

The terms "need" and "value" are by no means new to the vocabulary of the psychologist. One hears them daily and reads of them frequently in psychological literature. Presumably the entities referred to operate at different levels in the motivational hierarchy and are used to help explain the persistence of directionality in behavior. If it is conceded that some explanation of the directionality of human behavior is vital to the building of a coherent science of personality, then the investigation of the dynamics of the motivational hierarchy is timely.

Unfortunately, the means of investigating dynamic structures are for the most part restricted to intensive interviews prolonged over a long period of time and to projective techniques. Such methods, clinically useful and heuristic though they are, possess certain limitations as research tools. Methods of interviewing which probe the depths of motivation are unstandardized, seldom rendered explicit, and frequently difficult to replicate. Projective techniques, while not so likely to suffer from the limitations of the interview, yield but little sta-

tistically useful quantified data. Efforts to manipulate quantified projective data have too often consistently yielded fragmentary atomistic results in which the dynamics of the living organism are lost and the results spurious. Objective methods also have their limitations. While a high degree of precision is often reached, either the original data are trivial in their relationship to the subject under investigation, or the individual organism is lost in group or sample norms. Ultimately, appropriate instruments and methods for the investigation of these more central aspects of behavior will be developed. In the meantime it is not necessarily the better part of valor to await the perfect instrument. To do that is to do nothing. The alternative is to proceed as best we can with the instruments and methods at hand.

The Definition of Need

H. A. Murray, whose influence dominates the present study, considers need to be a psychological construct based on physico-chemical change which gives direction to behavior.[1] If the implications of this conception of need are considered in the context of Murray's total writings, it will be seen that Murray supports a dynamic theory of motivation. In the dynamic psychologies of motivation,

---

[1]Henry A. Murray, Explorations in Personality (New York: Oxford University Press, 1938), pp. 123-24.

particularly psychoanalytic psychology, a homeostatic point of departure is assumed and it is asserted that behavior stems from an unconscious tension producing state of organismic disequilibrium which gives rise to impulses seeking discharge (gratification) by cathexis with external objects (things, persons, or ideologies) through the ego. Cathexis occurs, according to this view, in the discharge (gratification) of the impulse, the reduction of tension, and the temporary restoration of relative equilibrium.[1]

If this be the case, then it would be proper to speak of impulses as having a history, that is, a genetic course of development from physico-chemical tissue changes to cathexes with external objects. Throughout this history various stages of motivational organization are identified, by inference at least, and the reader will be familiar with such terms as impulse, drive, need, wish, and even value, as they are applied to these various stages. Murray distinguishes further between latent and manifest needs, a manifest need being one that is overt, objectified, or expressed in action.[2] Elsewhere and later, Murray equates need with tendency. Thus he says that a need is "...characterized by the tendency to actions of a certain

---

[1]This is a brief statement of the present writer's own interpretation of the psychoanalytic view of motivation. A detailed account of this may be found in any standard text on the subject.

[2]Ibid., p. 111.

kind."[1] In either case he uses the term need synonymously with drive throughout his writings and thus suggests that it occurs relatively late in the history of the impulse. Tolman, on the other hand, separates need and drive, reserving drive for physiological motivation, or what Murray calls viscerogenic need.[2] This seems, however, to be merely a matter of choice of words and not an essentially different view of needs.

For the purpose of this investigation, Murray's general definition of need is used. A more detailed discussion of his work with needs is presented later.

The Definition of Value

Northrop, in speaking of the relationship of science to human value, says: "One of the first mistakes in talking about human values is to assume that we know what they are. Nothing is more obvious than that this thesis is false."[3]

The concept "value" has been considered from the standpoint of both theology and philosophy for hundreds

---

[1]Henry A. Murray, "Toward a Classification of Interactions," Toward a General Theory of Action, ed. Talcott Parsons and Edward A. Shils (Cambridge: Harvard University Press, 1952), p. 435.

[2]Edward C. Tolman, "A Psychological Model," Toward a Theory of Action, ed. Talcott Parsons and Edward A. Shils (Cambridge: Harvard University Press, 1952), p. 288.

[3]F. S. S. Northrop, The Logic of the Sciences and the Humanities (New York: The Macmillan Company, 1949), p. 348.

of years. In more recent times, as one means of differentiating between cultural patterns, it has also been dealt with as a descriptive sociological and anthropological concept. With but few exceptions, however, the problem of the place of value in the motivational hierarchy has been neglected. Some of this neglect, in America at least, has been the result of the insistence of the logical positivist group and psychological behaviorists upon a strict and unbending operationism, with emphasis upon precise measurement.

Admittedly, the study of values is vague, ill-defined, and often confused with the study of attitudes and interests or mistakenly reduced to nothing more than morality. Undoubtedly, there are also those who would say that valuation is not a subject worthy of scientific study. But perhaps this is all the more reason to explore this area and to seek order among the central elements in motivation. Thurstone has said: "The faith of science that nature can be comprehended in terms of an order acknowledges no limitation whatever as regards classes of phenomena."[1] Detailed consideration of the many and varied philosophical definitions of "value" would lead the discussion far afield from the objectives of the present study. It is, nevertheless, necessary that some kind of limits be set and some criteria

---

[1]L. L. Thurstone, Multiple Factor Analysis (Chicago: University of Chicago Press, 1947), p. 53.

established for what is to be subsumed under the terms "value" and "need," other than the mere operational definition that the concepts consist of whatever it is the instruments employed measure. To beg the question in such manner would neither yield new knowledge nor reformulate old knowledge.

It is always tempting to adopt a reductionistic point of view, as has often been done in psychological theory, and dispose of values in the convenient manner of relegating them to the realm of the superego, or else subsume them under the more general concepts of attitude and interest. But these views must be rejected. In psychoanalytic theory the superego is the domain of "conscience" and morality (internalized socially approved standards of conduct). Value is more than morality because it also consists of aesthetic taste and cognitive (ego) judgments between correct and incorrect, and it would therefore be inappropriate to equate all value with superego functions. In general psychology, attitude is usually considered to be a "readiness to act" but value is more than a "readiness to act" because the process of valuation is itself an act or a statement about an act, as Kluckhohn has ably pointed out.[1]

As for the concept of interest, the writer feels that

---

[1]Clyde Kluckhohn et al., "Values and Value Orientations in the Theory of Action," Toward a General Theory of Action, ed. Talcott Parsons and Edward A. Shils (Cambridge: Harvard University Press, 1952), pp. 388-433.

it too fails to define value adequately inasmuch as interest is much more transient in nature and is more of a surface phenomenon than is value.

We saw earlier, in the effort to define need, that the overt act has its genesis in physico-chemical tissue change. We know also that much behavior is responsive or reactive in character, that it occurs partially in response to stimuli external to the organism. In the normal personality, internally initiated impulsivity must be brought to terms with internalized social norms and the demands of external reality before an act can be consummated. This is but another way of saying that if the homeostatic conception of motivation previously discussed is indeed the case, then any act requires, in addition to an available object and a conducive milieu, a concurring (approving) superego and an able and facilitating ego.

Many of the normative standards of society, the social "givens" as it were, are internalized by the child in the development of the superego; thus moral values gain a foothold in the personality. As the child matures, this is reinforced by social role expectancy and as the secondary process (reality principle) is learned, cognitive (ego) judgments and thinking come into play, and decisions are made on the basis of reality consequences. In this way, cognitive valuations are accounted for. Less is known about the third dimension of value, aesthetic judgment,

but it is possible that impulse may be given freer rein in this area and be less subject to superego demands and the demands of reality than is the case with moral and cognitive value. The extent to which aesthetic valuation is possible may well depend upon the strength of the ego, its tolerance for impulsivity, and the strength and character of the superego.[1] Certainly, social norms play a part in the formation of all three dimensions of value.

It should not be assumed from this discussion that values are merely diluted id impulses, for socially derived value standards carry the "ought" command as well as the "ought not," and external reality can be a facilitator of impulsivity as well as an inhibitor.

Thus far, for the purpose of arriving at as discrete a definition as possible, emphasis has been placed upon what value is not, rather than on what it is. Charles Morris conceives of the valuation process as <u>preferential behavior</u>.[2] This view offers many advantages over those

---

[1]It is fairly obvious that in the psychoanalytic frame of reference the defense mechanisms play a major role in the modification of impulses, but the means used by the psychic institutions to control and adapt impulsivity is beyond the scope of this discussion. A detailed and applicable discussion of this may be found in Anna Freud, <u>The Ego and the Mechanisms of Defense</u> (New York: International Universities Press, 1946), and in Kurt Lewin, "Intention, Will and Need," <u>Organization and Pathology of Thought</u>, ed. David Rapaport (New York: Columbia University Press, 1951), p. 95.

[2]Charles Morris, <u>Varieties of Human Value</u> (Chicago: The University of Chicago Press, 1956), p. 12.

discussed previously. It treats valuation as a distinct behavioral process not confused with such other processes as attitude and interest. It acknowledges the importance of preference which is applicable to all aspects of value regardless of how value may be subdivided and regardless of the source of the preference. It is sufficiently operational to permit measurement, and since it regards value as behavior, it places value late enough in the history of the impulse to allow for cultural influence. There is nothing contradictory between this conception of value and the psychoanalytic theory of motivation discussed earlier.

The definition of value as preferential behavior is accepted for the purposes of this investigation with two qualifications. First, it must be remembered that value implies duration in time, that it is more than a series of isolated instances of object cathexes, but is, for a given value, a series of consistent instances of object choice. For this reason, it seems desirable to conceive of value as sustained preferential behavior. Secondly, one should not be disarmed by the apparent simplicity of this definition since the consistent choice of objects involved in the development of sustained preferential behavior presumes an impulse history of great complexity in its course from physico-chemical changes to an overt act.

This conception of the genesis of value is, according

to Rapaport, supported by Piaget.

> Piaget indicates that though values and ideals may appear in subjective experience to be the determining goal of actions, the actual determining cause is the disrupted equilibrium which (like all energy distributions) tends toward a reestablishment of the equilibrium.[1]

Summary

In the foregoing discussion value has been differentiated from attitude and interest and from its restricted definition as solely a superego function. The three dimensions of value, aesthetic, cognitive, and moral, were seen to correspond roughly with the psychoanalytic concepts of id, ego, and superego, but by no means in a one to one relationship. A definition of value as sustained preferential behavior (adapted from Morris, cf.) was accepted for use in the present study with the proviso that such behavior be regarded as stemming initially from the organism's effort to maintain a condition of minimal tension.

Need-Value Relationships

Given these conceptions of need and value, what can be said regarding their possible relationship? Except for those who hold with the extremes of cultural relativism, most investigators assume the existence of some kind of basic list of needs, either innate or learned in the early

---

[1]David Rapaport, Organization and Pathology of Thought (New York: Columbia University Press, 1951), p. 190.

stages of development of the organism. Values are held to be learned at a later stage of development from the organism's cultural milieu and through the medium of social institutions. Individual differences in value may be accounted for by differences in culture and by differences in the psychological make-up of the individual exposed to the culture. Thus, Morris points out that "the favor accorded to the various value dimensions is in part a function of individual psychological differences."[1] He is, however, referring to temperamental differences rather than to differences in basic need structure.

Originally, Murray felt that his list of needs was "not in accord" with social values, but he offered an hypothesis regarding the relationship which will be discussed later.[2] In later writings, however, he suggests that at least some of his psychogenic needs are "in the service of values."[3] Other than for this passing comment, Murray does not address himself to the question of need primacy and thus his position is not clear. If needs are "in the service of value," it would seem that the needs of the organism must be altered to conform to socially derived

---

[1]Morris, op. cit., p. 111.

[2]Murray, Explorations in Personality, op. cit., pp. 726-27.

[3]Murray, "Toward a Classification of Interactions," op. cit., p. 454.

values. While this would seem contrary to clinical experience, there is a certain sociological justification for this point of view since social value standards are already in existence in the culture at the birth of the individual organism. In this sense, it may be said that individual organismic needs in varying degrees serve the social norm. Viewed ontogenetically, however, with respect to the individual organism, it would certainly seem that in the history of the impulse the need occurs prior to the valuation function in point of time.

Tolman postulates a specific need for "cognitive placing," that is, a need to bring a state of order into the individual's world or behavioral space, and suggests that this need becomes subdivided in the three dimensions of value: cognitive, appreciative, and moral.[1] This places the major burden for establishing values upon the individual organism, and thus may stand opposed to Murray's position. But however the problem is to be seen, it is evident from the outset that if indeed two entities exist, need and value, which can be conceptually differentiated from each other, they exist in some relationship. Before discussing this relationship further, it is important to consider the work of Eduard Spranger.

---

[1]Tolman, "Value Standards," ibid., pp. 343-44.

Spranger's Types

In the recent history of axiology the work of Eduard Spranger stands as a monumental landmark.[1] A student of the German philosopher, Dilthey, Spranger followed in Dilthey's Leibnizian footsteps in an effort to establish a psychology of understanding (verstehen).[2] This entire movement, formulated by Dilthey in Germany and William James in America, was a reaction against the elementalism of Wundt, the strict empiricism of Locke and Hume, and nineteenth century German characterology. Spranger attempted to classify the intentions of men on the basis of the direction of their dominant strivings, their experience type (erlebnistypus).[3] He saw these strivings, or readiness to perceive, occuring in a six dimensional pattern: Theoretic, Economic (utility), Aesthetic (beauty), Social, Political (power), and Religious.[4] It should be noted that this is not the simple kind of rigid typology usually associated with the European typologies, but a broad flexible

---

[1]Eduard Spranger, Types of Men, trans. Paul J. W. Pigors (Halle: Max Niemeyer Verlag, 1928).

[2]Understanding is a poor translation of the German verstehen in the sense in which Spranger used the term, but it is the nearest English equivalent.

[3]It is interesting to note in this connection that in the formal analysis of a Rorschach protocol clinicians still refer to erlebnistypus in describing the introversion-extratensive continuum.

[4]Ibid., pp. 109-210.

descriptive taxonomy determined by the degree of emphasis the individual places on one or more of the six possible value orientations. For this reason, it is far more applicable to the study of personality as it is conceived today than are the traditional typologies.

It can be seen readily that Spranger's work, important though it is in the history of axiology, in no way alters the definition of value as "sustained preferential behavior," but rather adds substance to what might otherwise be only a naked score on a questionnaire. It is not necessary that Spranger's entire theoretical structure be adopted, or even known, in order to appreciate his classification of values. Indeed, Allport and Vernon, while they adopted his value categories, feel little kinship with the rest of Spranger's views.[1]

Murray's Hypothesis

Because the present investigation, as indicated earlier, has been heavily influenced by Murray's thinking, it is appropriate to consider his frame of reference in somewhat greater detail at this point. It is here that the discussion of need-value relationship will be resumed.

Stimulated by Hans Sachs, Franz Alexander, and C. G. Jung, Murray adopted a Freudian-Lewinian point of departure,

---

[1]Philip E. Vernon and Gordon W. Allport, "A Test for Personal Values," The Journal of Abnormal and Social Psychology, XXVI (1931), 232.

out of which he developed the belief that if a psychology of personality, or "personology" as he called it, was to be built, it would be necessary to provide, if possible, a scientific base for the clinical-intuitive hypotheses of psychoanalysis. Freud and Lewin, like all the other great system builders in psychology, had postulated the existence of a set of basic physiological and psychological needs or drives. The task of personology, as Murray saw it, was to identify and demonstrate these basic psychological needs. While Murray has contributed a great many things to psychology, he is best known, perhaps unfortunately, for his list of forty-one physiogenic and psychogenic needs.

What other investigators were calling behavioral space or ego-world, Murray described as the "need-press" relationship, the press being the environmental forces which impinge upon the individual, with which the individual personality interacts, and which contain the social norms. Murray developed with Morgan the now well known Thematic Apperception Test and administered it, together with interviews and a series of schedules designed to probe deeply into personality, to a group of fifty Harvard undergraduate men.[1] It was primarily from this experience that he developed and published his list of needs. It must be remembered that while Murray's procedures are in the best

---

[1]Murray, Explorations in Personality, op. cit., p. 11.

tradition of the history of science, he is not a member of the American behaviorist group in psychology. Because of this, he is not concerned with a normative statistical measurement approach to personality variables, but rather prefers to work intensively with the individual personality. His concern is not with the characteristics of populations or samples of populations, or with trends, or group differences, but with individual behavior, which he describes as a need-press entity.[1] More recently Murray has explicitly stated that it is this entity that should be the true object of study, and not the needs or the press considered separately, even though an orderly relationship might be sought in either one or the other.[2]

Murray saw the possibility of a relationship between his psychogenic needs and Spranger's values. While he did not investigate this possible relationship, he did suggest certain parallels which might be summarized at this point.

Spranger's Theoretic Value, which consists of an interest in making logical formulations, classifying, relating, making explicit, defining, and related functions, could be related to the need Murray identified as understanding. The Social Value may be related to Affiliation, Deference, and Nurturance. The Aesthetic Value, a broad appreciative

---

[1] Ibid., pp. 40-41.

[2] Murray, "Toward a Classification of Interactions," op. cit., pp. 438-39.

category, might be related to the needs Sex, Sentience, Play, Exhibition, and Change. Spranger's Economic and Political Values, representing utility and power, could be related to the needs Achievement, Dominance, Acquisition, and Aggression.

On the basis of these possible relationships, Murray suggested the existence of four types of people, the theorist, the humanitarian, the sensationist, and the practical man of action (actionist).

Thus it can be seen, to follow Murray's exposition further, that need-value patterns might be expected to be found in the following outlined relationships:

Function --------- Thinking
Spranger Value --- Theoretic
Murray Need ------ Understanding
Characteristics -- Interest in:
- Explicit Discrimination
- Naming
- Defining
- Classifying
- Relating
- Constructing Logical Formulations

Function --------- Feeling
Spranger Value --- Social
Murray Needs ----- Affiliation, Deference, Nurturance
Characteristics -- Interest in:
- Good Will
- Sociability
- Friendliness
- Affection
- Sympathy
- Tenderness
- Love
- "Togetherness"

Function --------- Sensation
Spranger Value --- Aesthetic
Murray Needs ----- Sex, Sentience, Play Exhibition and Change
Characteristics -- Interest in:
- Sensuous Impression
- Bodily Excitement
- Emotional Excitement
- Novelty
- Thrills
- Dramatic Events
- Aesthetic Delights

Function --------- Action
Spranger Value --- Economic and Political
Murray Needs ----- Achievement, Acquisition, Dominance, and Aggression
Characteristics -- Interest in:
- Practical and Effective Manipulation
- Tangible Achievement
- Power
- Possession[1]

It is important to note that neither Murray, Tolman nor Spranger have ever in their writings suggested that values and needs enjoyed an objective literal existence as objects in space. Indeed quite the opposite is true. Recent investigators have treated these concepts as <u>hypothetical constructs</u>, the referent of which is the theorist and not the organism. That the entire normal personality is at all times interacting with a total milieu, or with, as Murray would say, a "press," does not prevent a search for orderly relationships within the personality.

---

[1]Murray, <u>Explorations in Personality</u>, <u>op. cit.</u>, pp. 726-28.

Importance of the Problem

A brief reflection upon the historical contexts in which values have commonly been discussed will readily bring to mind the vast quantity of writings available in theology and philosophy, and more recently in the social sciences. How often in recent years has it been decried that Western Democracy is without an adequate set of positive democratic values. During the last decade newspaper columnists, writers of popular philosophy, and even clergymen have won wide public reception in their efforts to sell their value prescriptions for living. The reader will recall the interest of the federal government and the public at large in the value standards of nuclear physicists. Freud, in his later writings, entered directly into the field of values.[1] The publication of Albert Einstein's Out of My Later Years, a few years before his death, represents the most recent occasion when an eminent scientist has felt constrained to make public evaluative statements toward the termination of his career.[2]

Not all of the interest in values is confined to those whose profession requires them to work with value concepts, or to scientists who turn to social and moral problems late

---

[1]Sigmund Freud, Civilization and Its Discontents, trans. Joan Riviere (London: The Hogarth Press, Ltd., 1953).

[2]Albert Einstein, Out of My Later Years (New York: Philosophical Library, 1950).

in their careers. Values are also weighed by the clinical psychologist in his daily practice. It has long been felt, for example, that the Human Movement (M) response to Rorschach inkblots was related to the subject's value system. Ainsworth and Klopfer, in discussing the various interpretive hypotheses related to the quantitative analysis of a Rorschach protocol, state in part:

> HYPOTHESIS: M responses indicate an inner system of conscious values of one kind or another, in terms of which the person tends to control his behavior, to guide his satisfactions, and to postpone his gratifications.
>
> In this sense M's in reasonable quantity and of good form quality indicate a long range orientation, with goals in terms of which the individual can deny immediate satisfactions without feeling too much frustration. The implication is again that a system of conscious values serving such a function is a product of well developed imaginal activity....What the value system is cannot usually be determined from the Rorschach protocol....It is nevertheless important to ascertain the basis upon which the value system rests, for this may be crucial in interpreting other aspects of the Rorschach record. For example, sometimes the value system of the individual seems to be built around a drive for achievement....[1]

In a later discussion of the subject's creative potentials, Ainsworth and Klopfer stress the importance of the individual being able to develop a value orientation that will permit creative activity without the sacrifice of basic need satisfactions.[2] The congruence of the line

---

[1]Mary D. Ainsworth and Bruno Klopfer, "Quantitative Analysis," Developments in the Rorschach Technique, ed. Bruno Klopfer et al. (New York: World Book Company, 1954), I, 262-63.

[2]Ibid., p. 367.

of reasoning followed by Ainsworth and Klopfer with the entire foregoing discussion seems self-evident. They both stress not only values and needs as separate entities or systems, but also the relationship and interdependence between them.

Review of Previous Work

Nearly all of the past work with needs and values falls into one of five categories: (1) philosophic, non-empirical deductive reasoning about needs or values; (2) empirical work with either needs or values in relation to observed behavior; (3) empirical work which studies the relationship between values or needs and various other aspects of personality functioning; (4) intensive research with either needs or values considered separately; and (5) one study that actually relates the two concepts. Most of the work has little bearing on the present investigation, but selected pieces of work are briefly reviewed for the purpose of clarifying the value concept and because one of them (Brogden) employs a statistical treatment similar to that used in the present study.

The first category mentioned above consists of all the philosophic and religious treatises that have been written throughout the ages on value. The second category, the work with observed behavior in relation to need, includes such experiments as the well-known work of Bruner

and Goodman in which children from low income and high income homes were asked to match the diameter of a shaft of light with that of common coins by adjusting a diaphragm. They were later asked to compare the size of cardboard disks with previously observed coins. In both cases, the children from low income homes tended to overestimate the size of the coins significantly more than did the children from high income homes.[1]

The reader who is familiar with experimental work in perception will recall that a clear interpretation of the Bruner-Goodman experiment has never been agreed upon, and that it has not yet been possible to replicate their work.

This study, although it deals with both value and need, can be considered only partially related to the present investigation, for Bruner and Goodman were studying both value and need as they relate to a third function, perception, and not the relationship between value and need. A further distinction between the two approaches lies in the fact that in the very well controlled Bruner and Goodman experiment, it was not possible to offer the subjects a free range of choice without weakening the controls. As a result, neither the needs nor the values competed with each other. In the present investigation, the

---

[1]J. S. Bruner and C. C. Goodman, "Value and Need as Organizing Factors in Perception," Journal of Abnormal Social Psychology, XLII (1947), 33-44.

finer control has been deliberately sacrificed in order that needs and values may, as it were, compete among themselves for recognition.

The recent work of Charles Morris stands out as a significant example of work in the third category, the relation of values to other personality variables, and the fourth category, that of intensive research with values. Morris devised a broad measure of values and categorized the results of his sampling of many different national groups. His principle interest was in determining the categories of value responses, and only partially in comparing value systems with other personality variables. He compared his thirteen "ways of life" and the factors derived from them with the Thurstone Temperament Schedule and with the Cattell Sixteen Factor Personality Test. He found thirty-two low correlations (N = 115 men) significant at the .05 level or better between his thirteen "ways of life" and Thurstone's seven temperament variables. He found eleven correlations significant at the .05 level or better between his five value factors and Thurstone's temperaments. Morris concludes: "Since none of the correlations are very high, the value dimensions cannot be identified with any of the temperament factors."[1] In relating his "ways" to fifteen of Cattell's sixteen personality

---

[1]Morris, op. cit., p. 99.

factors, Morris found sixty interrelationships, suggesting what he calls a "general congruence."[1] It must be remembered, however, that both the Thurstone temperaments and the Cattell factors are rather general personality characteristics, as against needs which are usually considered to be more basic. The results of these studies suggest that values may be related, with small but highly significant correlations, to a larger number of personality variables.

The work of Hubert Brogden is another example of a study of values as distinct variables. Using 200 male students and the old form of the Allport-Vernon Study of Values, Brogden studied the items subsumed under the six values. Employing tetrachoric correlation coefficients and rotating to oblique simple structure, he found and tentatively identified, with varying degrees of confidence, eleven factors. He arbitrarily regarded all loadings of .30 and higher as clearly significant. The value factors are as follows:

Factor I ----- General Aesthetic Interest

Factor II ---- Interest in Fine Arts

Factor III --- Belief in "Culture"

Factor IV ---- Antireligious Tendency

Factor V ----- Antiaggression

Factor VI ---- Humanitarian Tendency

Factor VII --- Interest in Science

---

[1] Ibid., p. 103.

Factor VIII --- Tendency toward Liberalism

Factor IX ----- Theoretic Interest

Factor X ------ Rugged Individualism

Factor XI ----- (Residual Factor)[1]

There remains only the fifth category, the category into which the present work falls. The single study previously made in this area, the relation of needs to values, is that of Schlag at the University of Washington.[2] She administered the Edwards Personal Preference Schedule and the Allport, Vernon, and Lindzey Study of Values, the same measures as are used in the present investigation, to seventy-three male medical students at the University of Washington. Her intent was twofold: to study certain personality characteristics of medical students as compared with students in the Liberal Arts, and to compare the relationship between the Edwards Personal Preference Schedule and the Study of Values. A Pearson product moment coefficient of correlation was obtained between the fifteen needs and six values. Twenty-six correlations, significant at the .05 level or better, ranging between -.56 (Nurturance

---

[1]Hubert E. Brogden, "The Primary Personal Value Measures of the Allport-Vernon Test, 'A Study of Values,'" Psychological Monograph, LXVI, No. 16 (1952).

[2]Madeleine Schlag, "The Relationship Between the Personal Preference Schedule and the Allport, Vernon, and Lindzey Study of Values: A Personality Study of a Group of Medical Students" (unpublished Master's thesis, Department of Psychology, University of Washington, 1954).

need and Theoretical value) to .52 (Nurturance need and Social value) were found. Thirteen of these twenty-six correlations were significant at the .01 level or better, including the two extremes mentioned above. While some of her correlations were difficult to account for, as might be expected, a degree of concomitant variation between the variables measured by the two instruments was clearly demonstrated.[1] Five correlations higher than .50 were found, and no needs were totally uncorrelated with the values, suggesting that the Edwards Personal Preference Schedule and the Study of Values were measuring "...common dimensions of personality."[2] Because the statistical treatment was by correlation, however, the source of the variation was not demonstrated.

Comparing the relationship of the needs and values, Schlag found the Theoretic value to be positively related to the needs for Achievement, Order, and Endurance, and negatively related to Affiliation and Nurturance. The Economic value related positively to Deference, Exhibition, and Succorance (as compared with Murray's suggestion of Achievement, Dominance and Aggression). Aesthetic value was related positively to Autonomy and Change and negatively related to Exhibition, Affiliation, and Nurturance.

---

[1] Ibid., p. 17.

[2] Ibid., p. 14.

Murray predicted the positive relation between Aesthetic value and the need for Change, but added the needs for Exhibition and Sex, the former of which Schlag found to be negatively related (r -.26). Social value correlated positively with Intraception and Nurturance (.32), and negatively with Exhibition. Murray predicted the association of Social value with Nurturance, but added Deference and Affiliation. The Political value related positively to Exhibition, Dominance (.24), Heterosexuality, and Aggression, but negatively with Abasement and Nurturance. Murray had felt that this value would be related to Dominance and Aggression, as it proved to be, and also to Achievement. Religious value Schlag found to be positively related to Affiliation and Nurturance and negatively to Endurance and Heterosexuality.[1]

It can readily be seen that Schlag's findings support Murray's suggestion only to a very limited extent. Four out of twenty-six correlations fell in the expected direction, and one case, Aesthetic value and Exhibition, was contrary to Murray's prediction.

Purpose of Present Study

The foregoing discussion has been intended to point up the major approaches to the study of values and needs for the purpose of providing the reader with a general back-

---

[1] Ibid., p. 16.

ground of information against which the present investigation might be seen. Some of the uncertainties and speculations with which the need-value relationship problem is encumbered have also been discussed. The existence of uncertainties and divergencies of opinion are important to note since they reflect the general lack of agreement among investigators regarding the structure of the motivational hierarchy. The investigator in this area is plagued by the total absence of any agreed upon standard nomenclature. For this reason it has been necessary to become somewhat arbitrary in the selection of terms and the application of definitions.

If it is reasonable to conceive of manifest psychogenic needs and internalized personal value standards as separate entities, and the investigators cited above seem to think so, then objective measures of the two variables, need and value, should yield some kind of patterns for each. If the needs and values operate in some relationship to each other, and the citations from Murray postulate just that, then the appropriate statistical treatment of the data yielded by appropriate instruments should give some information as to the extent and nature of that relationship.

The present investigation is frankly exploratory. While it is recognized that the understanding of a total normal human organism is dependent upon a knowledge of the

underlying dynamic organization of personality, it is also felt that the measurement of static personality characteristics has its place in the building of a science of personology. For that reason, the present study is limited to the exploration of the need-value relationship by objective means and at a given point in the history of the organism.

Two principle instruments, the Edwards Personal Preference Schedule, purporting to yield a measure of fifteen of Murray's manifest psychogenic needs, and the Allport-Vernon-Lindzey Study of Values, a commonly used measure of values, were administered to 119 students in the College of Education at Wayne State University. The statistical treatment of the data was by factor analysis. Three of the nine factors extracted, involving nine cases, were subjected to Q analysis for the determination of need-value types.

Hypotheses

This investigation is designed to study the pattern of need-value relationships as they relate to Murray's hypothesis. An effort will be made not only to ascertain whether Murray's suggestion that certain patterns of his needs can be identified with certain of Spranger's values is, in fact, the case and can be demonstrated, but also to determine which needs appear to cluster together, and whether any types of need-value patterns emerge. The investigation,

it should be noted, is not of the normative or survey type. No attempt has been made to sample a population for the purpose of determining the characteristics of the sample and generalizing them to a parent population. Nor is the study concerned with the characteristics of need-value patterns of the study population as necessarily a representative population. It would be incorrect to generalize from the findings to be reported here to any larger population. The concern in this study is with the need-value patterns as they emerge in the investigation of the single individual person. More than one person is studied, however, in order to allow for individual differences and to assist in the elimination of bias.

The general hypotheses to be tested are as follows:

Hypothesis One: Needs tend to cluster together in such a manner as to form identifiable patterns or "traits."

Hypothesis Two: Needs tend to be identified with specific values.

Hypothesis Three: A list of needs and a list of values, when measured by separate appropriate instruments, may be reduced to a smaller number of combined variables.

Hypothesis Four: Need-value patterns are such that they identify types of people.

CHAPTER II

COLLECTION AND TREATMENT OF DATA

The Study Group and Data Collected

The group studied consisted of 119 students of both sexes in the College of Education at Wayne State University during the fall and spring semesters of 1956-57 and ranged from pre-education sophomores to education doctoral candidates. A breakdown showing the number of subjects in each level will be found in Appendix A. Measures of the variables to be studied were administered to classes in the College of Education on the basis of their availability and the willingness of the instructor to cooperate. Because the two principle measures used were self-administering, the subjects were asked to take them home and return them to the experimenter at the next class meeting.[1] Students who did not have the material with them at the time it was to be collected were permitted to return it later

[1]Since the completion of both measures required approximately one and one-half hours, it was not feasible to administer them in class, so the willingness of the instructor to reduce his assignment for that day was necessary. Approximately fifteen minutes of class time was required to distribute the measures and to give instructions, and about ten minutes was required to collect them at the next class meeting.

in the manner most convenient to them. While an effort was made to "sell" the measures to students, no student was required to furnish data. Pressure from the instructor was not permitted. All subjects were given the same instructions. A printed sheet, stating the purpose of the investigation and giving general instructions, was distributed to the subjects, who were asked to read it silently while the experimenter read aloud. Any questions regarding the instructions were answered. There were no instances of a student refusing to take the material home with him. There were, however, several instances where students, who had been absent when the measures were given out but present when they were collected, asked if they could still get them. This was always permitted. Students who did not receive the measures when they were first distributed frequently behaved as if they felt "left out." At the time the material was collected, many students asked questions about what the "tests" measured or what could be learned from them. During the time the measures were being distributed every effort was made to relieve the students of any feeling of pressure or anxiety about the material or what would be done with the information. Subjects were assured that all information was confidential. Some students, of course, did not return the measures.

Because certain data other than that yielded by the two instruments was desired, a brief Personal Data Sheet,

to be filled out concurrently with the measures, was designed to give such identifying information as Name, Age, Address, Sex, Major, Academic Level, Highest Degree Expected (a rough indication of the subject's level of aspiration), and some other educational information that was considered at the time to be of possible significance, but was later dropped in the interest of a more intensive investigation.[1]

The Measure of Need

Because of its objectivity and the other advantages it offered, it was decided to use the Edwards Personal Preference Schedule, developed in 1953 by Allen L. Edwards of the University of Washington as a measure of manifest needs.[2]

This Schedule is an inventory of a forced choice type consisting of 225 pairs of items purporting to yield a measure of fifteen of Murray's twenty psychogenic needs.[3] Each item in each of the 225 pairs is designed to measure a single manifest need. The needs measured and their customary abbreviations are as follows:

---

[1]The Personal Data Sheet is reproduced in Appendix A.

[2]Allen L. Edwards, Edwards Personal Preference Schedule (New York: Psychological Corporation, 1953).

[3]Hereinafter the Edwards Personal Preference Schedule will be designated by the initials EPPS, in line with customary practice.

Ach	Achievement	Dom	Dominance
Def	Deference	Aba	Abasement
Ord	Order	Nur	Nurturance
Exh	Exhibition	Chg	Change
Aut	Autonomy	End	Endurance
Aff	Affiliation	Het	Heterosexuality
Int	Intraception	Agg	Aggression[1]
Suc	Succorance		

A measure of need-consistency is also obtained. Each of the fifteen needs is compared twice with each other need, so it is possible to determine how consistently the subject answers items referring to a given need. High consistency scores indicate, according to Edwards, that something other than chance must be assumed to account for a given set of variable scores.[2] All of the fifteen needs are defined operationally in terms of the items used to measure the needs.[3] In order to avoid social bias, all of the items used were scaled by Edwards for social desir-

---

[1]For the convenience of the reader these abbreviations, as well as the following, are used throughout the study when clarity and context permit:

Theo	Theoretic value	Pol	Political value
Econ	Economic value	Rel	Religious value
Aes	Aesthetic value	Rank	Academic Level
Soc	Social value	L/A	Level of Aspiration

[2]Allen L. Edwards, Edwards Personal Preference Schedule Manual (New York: Psychological Corporation, 1953), p. 7.

[3]Ibid., p. 3.

ability. The influence of social standards or socially approved values is thus minimized, since each item in a pair is of relatively equal social desirability.[1] A sample of the types of items used to measure the needs indicated follows:[2]

Need Achievement: I like to be able to say that I have done a difficult job well.

Need Endurance: I like to put in long hours of work without being distracted.

Need Heterosexuality: I like to kiss attractive persons of the opposite sex.

The reliability (split-half) for the fifteen measures was determined for 1,509 subjects, yielding internal consistency coefficients ranging from .60 to .87 (Heterosexuality).[3] Intercorrelations between each of the variables measured were, according to Edwards, "in general, quite low." The highest obtained was .46 (Affiliation and Nurturance).[4] The relatively high reliability indicates that whatever the instrument measures, it measures with consid-

---

[1]Allen L. Edwards, "The Relationship Between the Judged Desirability of a Trait and the Probability That It Will Be Endorsed," Journal of Applied Psychology, XXXVII (1953), 90-93.

[2]Edwards, Edwards Personal Preference Schedule Manual, op. cit., p. 5. A complete list of needs and associated variables will be found in Appendix A.

[3]Ibid., p. 11.

[4]Ibid., p. 12.

erable consistency, while the low intercorrelations between sub-tests indicate little overlap and that the items discriminate between the variables.

To make a strong statement about the validity of an instrument of this nature is to open a rather moot question. Edwards discussed the matter at some length in his Manual, pointing to the difficulty in establishing adequate outside criteria for determining whether the instrument measures what it purports to measure or not. The items in the EPPS all have a remarkably convincing "face validity" to the psychologically sophisticated reader, but, as with any such instrument, validity must be assumed.

In general, the EPPS offers several distinct advantages for this type research. Its high reliability and low intercorrelation between variables, the forced choice nature of the items, the scaling for equality of social desirability, and the fact that it yields scores which lend themselves to statistical manipulation, all serve to make the instrument extremely useful. The EPPS is a relatively new instrument (1953) so it is of considerable psychometric interest to explore its relationship to older more established measures.

The Measure of Value

For the purpose of measuring the value dimensions in the present study, the Allport-Vernon-Lindzey Study of

Values was selected. Originally published in 1931 by Gordon Allport and Philip E. Vernon as a means of studying Spranger's value types, the scale was revised in 1951 by Allport, Vernon and Lindzey.[1] While many changes were introduced in the new version, the instrument remains essentially the same as the original except that new norms were used, and the definition of the "Social" category made more explicit. Except for the "Social" value, the results of this instrument are considered by the authors as generally comparable with the older edition.

The Study of Values is based directly upon the value types devised by Eduard Spranger as discussed in Chapter I. This instrument, like the EPPS, is of the forced choice variety and consists of forty-five items involving a forced rating of either two or four value statements per item. The measure yields a set of scores for the following value types:

Theoretic

Economic

Aesthetic

Social

Political

Religious

---

[1]Gordon W. Allport, Philip E. Vernon, and Gardner Lindzey, The Study of Values Manual of Directions (Cambridge: The Riverside Press, 1951).

It is important to note that these value types cannot be taken entirely at their face value, but must be interpreted in the light of Spranger's earlier discussed classification. It will be recalled that Spranger considered his types not as clear, single-interest personalities, but rather as people with tendencies or intentions in certain value directions. Some of Spranger's definitions of the value labels may seem arbitrary to the reader at first glance, but they are essential to an understanding of the Allport-Vernon-Lindzey measures. Allport and Vernon summarize Spranger's definitions in the following way:

Theoretic	Truth for its own sake
Economic	Utility
Aesthetic	Beauty, harmony
Social	Love, interpersonal relations
Political	Power
Religious	Unity of all experience[1]

Even a superficial comparison of these definitions of values with Edwards' definitions of needs as measured by the EPPS gives the impression that the EPPS variables possess a specificity not suggested by the value scale variables which appear to be more general or more socially derived. It is presumed that the value scale taps a more highly organized and integrated level of personality than the EPPS. Vernon and Allport, commenting on the theoretical postulates underlying the Study of Values, state: "It

---

[1]Gordon W. Allport and Philip E. Vernon, A Study of Values (Boston: Houghton Mifflin Company, 1931), pp. 8-11.

is evident that in some fashion, though we do not know how, the significance of these single factors is dependent upon the total personality in which they are set."[1]

Allport, Vernon, and Lindzey report in their Manual split-half reliability coefficients ranging from .73 (Theoretical) to .90 (Religious), and an item analysis for 780 subjects producing "...a positive correlation for each item with the total score for its value, significant at the .01 level of confidence."[2] They report a repeat reliability ranging from .77 (Social) to .92 (Economic), as well as value intercorrelations not higher than -.48 (Theoretical and Religious).[3] Allport, Vernon, and Lindzey further report that their efforts to determine the validity of their instrument by means of external comparisons resulted in scores for various occupational groups with known characteristics falling in the expected direction.[4]

It can thus be seen that this measure of values offers several advantages for use with the previously described measure of needs. Both instruments employ the forced choice method, both possess a comparable degree of objec-

---

[1] Philip E. Vernon and Gordon W. Allport, "A Test for Personal Values," The Journal of Abnormal and Social Psychology, XXVI, No. 3 (October-December, 1931), 231-48.

[2] Allport, Vernon, and Lindzey, The Study of Values Manual of Directions, op. cit., p. 7.

[3] Ibid., pp. 7-8.

[4] Ibid., p. 10.

tivity, yield scores that can be handled statistically, and are self-administering. The average time required to complete both measures is approximately seventy minutes. The fact that the EPPS was scaled for social desirability, while the value scale was not, suggests that the latter instrument may yield data closer to the value level, since responses could be expected to be more influenced by socially derived values. The two instruments would appear to be organized at different conceptual levels. The EPPS asks the subject what it is that he likes to do, while the value scale asks him specifically to respond in terms of social norms, frequently putting the question in the third person.

Statistical Treatment for R Analysis

The methodology employed throughout this study is that of factor analysis. Factor analysis is a statistical technique, based on intercorrelations, designed to reduce a large number of measures to a smaller number of common measures. Writing on the nature of factor analysis, Fruchter describes the process as follows:

> Factor analysis starts with a set of observations obtained from a given sample by means of...a priori measures. It is a method of analyzing this set of observations from their intercorrelations to determine whether the variations represented can be accounted for by a number of basic categories smaller than that with which the investigation was started.[1]

---

[1]Benjamin Fruchter, Introduction to Factor Analysis (New York: D. Van Nostrand Company, Inc., 1954), p. 1.

Factor analysis goes beyond correlation because correlation indicates only the extent to which the instruments measure common variables, while factor analysis yields the underlying common sources of variance. Because all of the variance must be accounted for, factor analysis provides a highly efficient way of examining systematically and in detail the patterns in which the combined need and value variables fall. For these reasons, it was selected as the most appropriate means of studying the interrelationship of the needs and values in addition to the relevant personal data. Examination of the extent and manner in which the twenty-seven variables load on a smaller number of factors will yield a pattern from which more basic underlying psychological processes may be inferred.

Research Procedure

The manner in which the data were collected and the nature of the population were described earlier in this chapter. All instruments were scored and checked by the examiner and an assistant. Raw data from the EPPS and the Study of Values were transferred to data sheets designed for that purpose. A sample data sheet is reproduced in Appendix A. Personal data and necessary identifying information were appropriately coded and transferred to the data sheets. The data sheets were then submitted to the Computation Laboratory at Wayne State University for com-

putation of Pearson Product-Moment intercorrelation coefficients.[1]

The data were then translated from the mathematical form produced by the Computation Laboratory into a correlation matrix. The matrix was checked for accuracy and forwarded to Dr. Raymond B. Cattell at the Institute for Personality Testing, University of Illinois, for determination and rotation of the factors. Again, time and efficiency were important considerations. The factorization and rotation of a 27x27 correlation matrix by graphic methods would have been a tremendous and time consuming task.[2] Further, Cattell, an internationally known authority in the field of factor analysis, has warned that the extraction and rotation of factors requires extensive experience. Discussing this point, Cattell has stated:

> Throughout Factor Analysis we have to recognize that we are dealing with an art or craft and that its proper use depends on wise judgments based on experi-

---

[1] Fifteen needs, a need-consistency score, six values, and five items from the Personal Data Sheet constitute twenty-seven variables to be intercorrelated, or 351 (27x13) correlations, to form a 27x27 correlation matrix. It was therefore decided that in the interests of efficiency these computations could best be done with the aid of an electronic calculator.

[2] It is of some interest in passing that four other laboratories, National Analysis, Inc., Philadelphia, Research Tabulating Bureau, Indianapolis, Franklin Institute, Philadelphia, and the Computation Laboratory at Wayne State University, Detroit, were all approached for assistance with the computations, but none was equipped to perform the analysis. Their efforts to be helpful, however, are greatly appreciated by the author.

> ence. But it is in this process of rotation that skills of an aesthetic nature, not communicable by mechanical instruction alone, become paramount. This will cease to be true only when a purely analytical solution is invented.[1]

Cattell, by arrangement, did not know what the variables were. His rotation was, therefore, blind and free of bias. His comments on the results may be of some interest, however. He said, in part:

> Actually, the study seems to me to have all the characteristics of a good factor analytic structure; and I think you must have something! The plot of F_7 on F_8 is typical of what we would call a really clear structure.[2]

Cattell extracted the factors, rotated them to obliquity in order to obtain the best fit. This involved the adjusting of the factor structure, graphically represented by intersecting lines, by altering the angles among the factors in either direction from ninety degrees. This is referred to as an oblique solution, and, since Cattell felt he had obtained maximum loadings, it is referred to as an oblimax solution.[3] The steps are shown in the tables labeled Transformation Matrix for Oblique Solution, Oblimax Output Matrix, and Cosines Among Factors for Oblimax Solution appearing in Appendix B. The complete description of

---

[1]Raymond B. Cattell, Factor Analysis (New York: Harper and Brothers, 1952), p. 253.

[2]Raymond B. Cattell, personal correspondence, May 18, 1957. The reference to F_7 on F_8 is to the relationship of two factors.

[3]Fruchter, op. cit., pp. 132ff.

the factor analytic procedure the investigator asked Cattell to apply is described in Cattell's authoritative text, and for that reason will not be described here.[1]

The method used to proceed directly to an oblique solution without first performing an orthogonal rotation is described by Fruchter.[2]

Personal Data

It will be noted that some of the information on the Personal Data Sheet shown in Appendix A was not included in the study as it finally took shape. Originally, the investigator entertained the possibility of relating some of the findings to certain selected groups of people, but, in the interests of a more intensive study of personality variables, this plan was abandoned. Hence, only the items Sex, Age, Major, Academic Level, and Highest Degree Expected were retained in the study.

Hypothesis Testing

The loadings of variables on factors are sufficient to test all of the hypotheses described in Chapter I except Hypothesis IV, which states that need-value patterns are such that they identify types of people. This was the hypothesis based on Murray's suggestion that there might

---

[1]Cattell, Factor Analysis, op. cit., pp. 210-32.

[2]Fruchter, op. cit., pp. 132-40.

exist four types of people: the theorist, the humanitarian, the sensationist, and the actionist. In order to test this hypothesis, an additional step is required. Rather than to look specifically for the four types Murray suggested, it seemed more prudent to see whether or not any types seemed to exist insofar as the present data are concerned. In all, nine separate and distinct factors resulted from the factor analysis. Of these, three factors seemed particularly distinct.

It was here that Stephenson's Q analysis was applicable. The nine factors obtained in the original analysis may be regarded as categories of "traits" or characteristics more basic (primary) than the original twenty-seven variables. The question now is, in order to test Murray's suggestion and to verify some of the factors obtained, is it possible to invert (transpose) the factor analytic process, factor cases, or people, instead of personality variables, and obtain types of people instead of "traits"?[1]

In the formation of the original correlation matrix (Table 2), scores relating to variables were intercorrelated. Now it became necessary to intercorrelate the same scores relating to people and to factor analyze the resulting correlation matrix in order to determine the reality of the original R factors.[2]

---

[1]Cattell, Factor Analysis, op. cit., pp. 90-107.

[2]Fruchter, op. cit., pp. 176-91.

For each of the three factors, two cases with scores proportionate to the factor loadings were selected from the original scores of 119 subjects and one case for each of the three factors selected at random by means of a table of random numbers.

Selection for Q Analysis

Each one of the original twenty-seven variables had a mean score and a standard deviation for the group of 119 subjects. A factor loading is the correlation between the variable and the factor. Because the values of a correlation coefficient depends upon the extent to which scores vary from the mean, it became necessary to seek cases on the basis of how far the individual's score was above or below the mean score of the group for the value or need under consideration.

Thus case 92 was selected as fitting Factor I because his score on Social value was 51, while the group mean was 39 and the standard deviation 8.3, and at the same time his score on Int was 22 with a group mean of 17 and a standard deviation of 4.7. His Nur score was 19, compared to the group mean of 15 with a standard deviation of 5.1; his Def score was 15, the group mean 13, and the standard deviation 3.8; his score on Econ value was 25, the group mean 38, and the standard deviation 8.8; and finally, his Ach score was 11, group mean 14, and standard deviation

4.8. Thus it is seen that in the case of social value, the score is approximately 1½ standard deviations above the mean which fits proportionately the high factor loading of .74 between Soc value and Factor I. To demonstrate further, the Econ value score of 25 is 1½ standard deviations below the mean of 38, fitting the pattern of the factor loading of -.25. Through a similar process, the other cases were selected to fit the factor loadings. The data used to select six of the nine cases for the Q analysis may be found in Appendix C.

In order to demonstrate a difference between the six selected cases and a purely chance result, the other three cases, one for each of the three factors, were selected by means of a table of random numbers. Since this procedure is described in any modern text on statistics, it will not be covered here.

The abridged table on page 48 shows the three factors and the loadings of the variables on them.

Statistical Treatment for Q Analysis

Pearson product-moment correlation coefficients were obtained for the nine cases selected and a 9x9 correlation matrix developed. The factors were extracted and rotated to orthogonal simple structure producing three factors.[1]

---

[1] After application of Humphrey's Rule, criteria for sufficient factors, a fourth factor was dropped.

TABLE 1

VARIABLE LOADINGS ON FACTORS
FOR Q ANALYSIS

	Factors		
Var.	I	IV	VII
Ach[a]	-24[b]		
Def	27		-20
Aut			56
Aff		-66	
Int	51		
Suc		-26	
Aba			25
Nur	32	-53	
End			-29
Agg			24
Con		-20	
Theo			30
Econ	-25		
Aes			21
Soc	74	-29	
Rel		-56	
Sex		-22	
Maj			32
L/A	24		

[a]See p. 34 for list of abbreviations.

[b]Decimals omitted.

CHAPTER III

FINDINGS AND DISCUSSION OF FINDINGS

The R Analysis

In this chapter the results of the factor analysis of the twenty-seven variables are described and discussed. The principle findings are presented in tabular form in Table 3, Final Factor Matrix (Modified).[1]

It will be noted that the original twenty-seven variables, fifteen needs, six values, five personal data categories, and a need-consistency score, have been reduced to nine factors. These factors indicate the extent to which the twenty-seven sub-tests or indices are dependent upon common underlying personality characteristics for their common variance. The principle interest in these findings, of course, lies in the need-value relationship. The interrelation of Sex, Age, Academic Rank, Major Area of Study, and Level of Aspiration is a secondary matter to be considered later.

All twenty-seven variables loaded on at least one

---

[1] Table 3, Final Factor Matrix (Modified), showing the principle findings, consists of the significant loadings only (.20 or higher). The complete factor matrix is presented in Appendix B.

factor, indicating that sufficient factors were found to account for all of the variables. Some variables loaded on more than one factor, indicating that the common variance has its source in more than one underlying characteristic.

The communality (h^2), shown in Table 4, indicates the amount of common variance accounted for by the factor loadings for each variable. In a factor analytic study, the total variance stems from three sources: the common variance (h^2) from the factors, the specific variance (s^2) from specific "traits" or characteristics measures by the twenty-seven sub-tests, and the error variance (e^2). The error variance is determined by subtracting the reliability of the instrument from 1.00 ($e^2 = 1.0-r_{tt}$). When all of the variance is accounted for, the total variance ($h^2+s^2+e^2$, or common, specific, and error) equals 1.00. It will be noted that this is the case for all twenty-seven variables. The communality (h^2) is the sum of the squares of each loading across the factors.[1]

For the sake of simplicity, the variance can be considered as percentages. Thus in the case of need Achievement (Table 4), 21 per cent of the total variance is accounted for by Factors I and V, 53 per cent of the total variance is accounted for by the specific variance, or the

---

[1]The loadings are squared in order to take care of negative numbers.

TABLE 2

CORRELATION MATRIX (R)
INTERCORRELATION OF ALL DATA FROM TESTING PROGRAM

	Manifest Needs											
Var	Ach	Def	Ord	Exh	Aut	Aff	Int	Suc	Dom	Aba	Nur	Chg
Ach[a]	[b]											
Def	-058[c]											
Ord	029	317										
Exh	286	-201	-226									
Aut	117	-154	-106	236								
Aff	-070	031	-116	-042	-125							
Int	-107	259	028	033	-022	043						
Suc	-060	-081	143	047	-152	104	-095					
Dom	293	-107	-084	281	155	-015	029	-120				
Aba	-148	128	146	-206	044	-018	060	098	-159			
Nur	-132	064	-056	-233	-121	555	136	185	-168	131		
Chg	-026	-043	-138	107	208	134	193	-241	-025	-097	-024	
End	-076	344	298	-273	-362	100	126	-020	-047	027	035	057
Het	098	-001	-137	283	119	-080	-155	030	096	-177	-154	007
Agg	076	-055	020	145	212	-190	-101	161	098	041	-197	-186
Con	301	193	050	230	172	164	257	-134	204	-088	-008	239
Theo	232	127	063	266	325	011	182	-134	298	-062	019	134
Econ	340	093	348	192	090	-080	-142	160	163	085	-239	035
Aes	099	-050	-067	228	279	139	235	-069	-008	-044	223	390
Soc	-139	309	085	-044	-067	357	430	235	010	138	512	-065
Pol	291	069	025	286	251	-051	102	056	362	071	-221	040
Rel	-079	201	110	-118	-185	346	059	251	-048	224	283	045
Sex	-222	060	284	-100	-100	288	226	235	-253	171	239	263
Age	130	284	325	-116	105	007	184	092	117	011	053	-020
Rank	010	125	181	-085	084	016	040	199	-010	-080	046	020
Maj	-116	039	-082	-007	122	080	047	088	073	053	067	-071
L/A	257	134	091	217	142	041	239	006	285	-109	025	-040

[a]See p. 34 for list of abbreviations.

[b]Diagonal omitted.

[c]Decimals omitted.

			Social Values						Personal Data				
let	Agg	Con	Theo	Econ	Aes	Soc	Pol	Rel	Sex	Age	Rank	Maj	L/A
68													
23	125												
68	098	257											
72	327	163	037										
02	020	297	189	-139									
22	-050	138	130	-203	053								
79	313	281	215	394	-082	038							
28	-117	058	-373	-044	-097	090	-195						
83	-167	026	-190	-073	304	282	-206	368					
67	089	242	276	081	110	263	149	-047	160				
47	110	121	149	100	085	174	018	-103	160	594			
00	083	068	172	-021	-038	246	-004	-026	025	076	258		
09	118	192	339	078	099	221	340	-144	-141	227	124	009	

TABLE 3

FINAL FACTOR MATRIX (MODIFIED)

Var.	Factors I	II	III	IV	V	VI	VII	VIII	IX	Number Loadings
Ach[a]	-24[b]				-32					2
Def	27					24	-20			3
Ord						47				1
Exh			30							1
Aut							56			1
Aff				-66						1
Int	51		27							2
Suc				-26	23	22			56	4
Dom					-27			-27		2
Aba						34	25			2
Nur	32			-53				31	25	4
Chg			54		20				-34	3
End							-29		-29	2
Het			23		37			-49		3
Agg						28	24		21	3
Con			27	-20					-26	3
Theo					-38		30			2
Econ	-25					62				2
Aes			58				21	36		3
Soc	74			-29					31	3
Pol								-59		1
Rel				-56						1
Sex		21	56	-22	63					4
Age		69								1
Rank		63								1
Maj							32			1
L/A	24				-24					2
Number Loadings	7	3	7	7	8	6	8	5	7	

[a]See p. 34 for list of abbreviations.

[b]Decimals omitted.

TABLE 4

SOURCES OF VARIANCE BY VARIABLE FOR FINAL FACTOR MATRIX

Var.	h^2	r_{tt}	s^2	e^2	Total $(h^2+s^2+e^2)$
Ach[a]	21[b]	74[c]	53	26	100
Def	19	60	41	40	100
Ord	30	74	44	26	100
Exh	16	61	45	39	100
Aut	38	76	38	24	100
Aff	47	70	23	30	100
Int	35	79	44	21	100
Suc	53	76	23	24	100
Dom	20	81	61	19	100
Aba	25	84	59	16	100
Nur	55	78	23	22	100
Chg	47	79	32	21	100
End	20	81	61	19	100
Het	44	87	43	13	100
Agg	22	84	62	16	100
Con	17	78	61	22	100
Theo	29	73	44	27	100
Econ	49	87	38	13	100
Aes	52	80	28	20	100
Soc	75	82	07	18	100
Pol	42	77	35	23	100
Rel	42	90	48	10	100
Sex	88				100
Age	48				100
Rank	43				100
Maj	21				100
L/A	17				100
Total	1015		913	489	2700

[a]See p. 34 for list of abbreviations.

[b]Decimals omitted.

[c]Reliability (r_{tt}) obtained from Allen L. Edwards, Edwards Personal Preference Schedule Manual (New York: Psychological Corporation, 1953), p. 12 and Gordon W. Allport, Philip E. Vernon, and Gardner Lindzey, The Study of Values Manual of Directions (Cambridge: The Riverside Press, 1951), p. 7. All r_{tt} are by split-half except consistency score, which is by test-retest. Reliability not available for personal data.

specific (unique) characteristics measured by the items for that variable, and 26 per cent is due to the statistical error of measurement (.21+.53+.26 = 1.00, the total variance). In this instance, the loadings of need Achievement on Factors I and V are both negative, meaning that need Achievement is negatively related to the two factors; i.e., the opposite of Achievement is positively related to the factors. By examining all of Table 3 in this fashion, the manner in which the twenty-seven variables group themselves into patterns may be seen.[1]

These clusters, when extracted from Table 3, are as follows:[2]

Variables Listed by Factors
From Highest to Lowest Loadings As Indicated

Positive			Negative		
Factor I					
v.	Social	.74	v.	Economic	-.25
n.	Intraception	.51	n.	Achievement	-.24
n.	Nurturance	.32			
n.	Deference	.27			
p.d.	Level of Aspiration	.24			
Factor II					
p.d.	Age	.69			
p.d.	Rank	.63			
p.d.	Sex (feminine)	.21			

[1] In keeping with common practice, all loadings falling below .20 are considered not significant.

[2] Following Murray's system of notation, the names of needs are preceded by a lower case "n.," values by a lower case "v.," and personal data by lower case "p.d.," when context and clarity permit.

Positive			Negative		
Factor III					
v.	Aesthetic	.58			
p.d.	Sex (feminine)	.56			
n.	Change	.54			
n.	Exhibition	.30			
n.	Intraception	.27			
n.	Heterosexuality	.23			
n.	Consistency	.27			
Factor IV					
			n.	Affiliation	-.66
			v.	Religious	-.56
			n.	Nurturance	-.53
			v.	Social	-.29
			n.	Succorance	-.26
			p.d.	Sex (masculine)	-.22
			n.	Consistency	-.20
Factor V					
p.d.	Sex (feminine)	.63	v.	Theoretical	-.38
n.	Heterosexuality	.37	n.	Achievement	-.32
n.	Succorance	.23	n.	Dominance	-.27
n.	Change	.20	p.d.	Level of Aspiration	-.24
Factor VI					
v.	Economic	.62			
n.	Order	.47			
n.	Abasement	.34			
n.	Aggression	.28			
n.	Deference	.24			
n.	Succorance	.22			
Factor VII					
n.	Autonomy	.56	n.	Endurance	-.29
p.d.	Major	.32	n.	Deference	-.20
v.	Theoretic	.30			
n.	Abasement	.25			
n.	Aggression	.24			
v.	Aesthetic	.21			

Positive			Negative		
		Factor VIII			
v.	Aesthetic	.36	n.	Heterosexuality	-.49
n.	Nurturance	.31	n.	Dominance	-.27
			v.	Political	-.59
		Factor IX			
n.	Succorance	.56	n.	Change	-.34
v.	Social	.31	n.	Endurance	-.29
n.	Nurturance	.25	n.	Consistency	-.26
n.	Aggression	.21			

Inspection of Table 3, Final Factor Matrix (Modified), indicates clearly that out of a possible fifteen needs, not more than eight load on any one factor (Factors V and VII), and that not less than five load on any one factor (Factor VIII). Factor II is an exception to this, having only three personal data variables loaded on it--Sex, Age, and Rank. In terms of the need-value relationship, this appears to be a spurious factor. It may also be seen that, except for Factor II, all factors loaded with both needs and values, indicating a tendency for needs and values to cluster into specific need-value patterns insofar as their common variance is concerned.

Need-Value Patterns

One use of factor analysis is that of discovering and identifying new and simpler dimensions of personality. A discussion of the present data by factors will be presented later in this chapter. In the meantime, recalling the hypotheses presented in Chapter I, it is necessary to ex-

amine the data from the standpoint of the relationship of needs and values. In order to facilitate this examination, reference to Table 5, Need-Value Patterns, will be helpful.

Table 5 indicates the interrelationship between needs and values. The factor loadings are numerically shown after the name of each value and under the name of each need. While there were only eight factors involving both needs and values, some values loaded as many as three times, once on each of three factors. Because of this overlap, the six values loaded twelve times on eight factors.

It is readily apparent that the need-value relationship is not a series of simple clusters of several needs around a single value, but rather it would appear that needs tend to cluster in two or three different combinations around one or more values. Sometimes this variation in the need pattern appears to be related to whether the value is negatively or positively loaded on the factor, as in the case of Theoretic value and Social value where the need patterns become quite different when the value is negatively loaded on the factor. Sometimes the amount or strength of the loading appears to be related to the kind of need cluster found. This is clearly demonstrated in the case of Aesthetic value where the value loads positively at three different levels--high, moderate, and barely significant.

It is of some interest that certain values seem to

TABLE 5

NEED-VALUE PATTERNS SHOWING SIZE AND DIRECTION OF NEED LOADING IN RELATION TO VALUE LOADING

Value			Need													
Pos.		Neg.	Ach[a]	Def	Ord	Exh	Aut	Aff	Int	Suc	Dom	Aba	Nur	Chg	End	Het	Agg
T[b]	30[c]			-20			56					25			-29		24
		T 38	-32							23	-27			20		37	
E	62			24	47					22		34					28
		E 25	-24	27					51				32				
A	58					30			27					54		23	
A	36										-27		31			-49	
A	21			-20			56					25			-29		24
S	74		-24	27					51				32				
S	31									56			25	-34	-29		21
		S 29						-66		-26			-53				
		P 59									-27		31			-49	
		R 56						-66		-26			-53				

[a]See p. 34 for list of abbreviations.

[b]Legend: T--Theoretic, E--Economic, A--Aesthetic, S--Social, P--Political, R--Religious.

[c]Decimals omitted.

stand in opposition to each other when seen in relationship to need clusters. Thus, Aesthetic and Political values (beauty and power), as well as Economic (utility) and Social values are somewhat opposed. In other instances, two values may exist together in a cluster, as in the case of Factor IV where Social and Religious values are associated.

Because the factors represent "traits" and not people, and because one person has more than one "trait," it should not be surprising that some of the clusters are difficult to understand. When these seemingly odd combinations appear, however, as in the case of Theoretical value (-.38) and Heterosexual need (.37), the loadings are moderate. There should be some combinations that fall in the expected direction, and, indeed, there are. Social value loads on three different Factors, I, IV, and IX (Table 3). The need for Nurturance loads on four Factors, I, IV, VIII, and IX. It may be noted that three of these four factors are the same factors on which Social value appears. On all three, Social value and Nurturance load in the same direction. In the population studied, the need to help others may exist without a Social value, but a Social value may not exist without a need to be helpful.

Another example of an expected cluster is that of Social and Religious values. They both load negatively on Factor IV, indicating that if either value loads negatively, the needs for Affiliation, Nurturance, and Succorance also

load negatively. Since Spranger's Religious value, as interpreted by Allport, is influenced by Christian ethics, it is evident that both values, Religious and Social, and the three needs associated with them, Affiliation, Nurturance, and Succorance, can be subsumed under an interest in interpersonal relations. It should be noted, however, that on the factor most heavily loaded with Social value (Factor I, .74), neither Religious value, Succorance, nor Affiliation appear, but only Intraception, Nurturance, and Deference. Thus, it may be seen that Social value is associated with the Religious-interpersonal pattern only where Social value is weak (-.29) or negative, but when it is strong (.74) and positive, a different kind of interpersonal pattern emerges.

The data, then, appear to indicate the existence of different kinds of need-value patterns subsumed under a given value, varying with both the direction and strength of the factor loadings.

This finding is further evidenced by the loading patterns of Theoretic and Economic values. Theoretic value, when positively loaded on the factor, is associated with Autonomy, Abasement, and Aggression, but Endurance and Deference are negatively loaded. When Theoretic value is negatively loaded, Heterosexuality, Succorance, and Change are positively associated, while Achievement and Dominance are negatively loaded.

Economic value, when positively loaded, is associated with Order, Abasement, Aggression, Deference, and Succorance. When it is negatively loaded on the factor, Achievement is also negative, but Intraception, Nurturance, and Deference are positively loaded. In this case, Deference is loaded to about the same extent (.27 and .24) with both positive and negative loadings of Economic value.

Political (power) and Religious values load only once each. This could be due to a clearer cultural definition of these values or to the ability of the instrument to discriminate between them and other value patterns.

The relationship between Political (power) value and the needs associated with it is in the expected direction. That the avoidance of the Political value is accompanied by the avoidance of Heterosexuality is certainly understandable from the standpoint of personality dynamics. A value structure built around power would also include n. Dominance but not n. Nurturance.

Factor Identification

The interpretation of factors in a factor analytic study is a very tenuous process. Rarely is it possible positively to identify factors and never without repeated factor analytic studies of the same variables. In fact, Cattell has stated that factors cannot be adequately identified without later controlled experiment with the fac-

tor.[1] This means that final interpretation and identification of factors results not from a single study, but from many researches as well as intensive study involving the same factors and, in some instances, even the same variables. The most that can be done in a single study, then, is to determine what variables are associated with each of the factors. Fruchter has said: "As with all scientific hypotheses, these inferences need to be verified by prediction and further investigation."[2]

Factor I.--In Factor I, Spranger's Social value type is fairly clear. Considered in the light of the operational definitions of the variables, this factor could be described as a tendency to enter into love relationships with other people, to prize other persons as ends, as kindness, sympathy, and unselfishness. This value structure is supported by, or related to, the need Intraception, which involves an interest in the motives of one's self and others, an effort to be understanding and non-judgmental. The need Nurturance is also associated and, not unlike the Social value, refers to generosity, sympathy, and affection.

If loadings between .20 and .30 are considered, defer-

---

[1]Raymond B. Cattell, Factor Analysis (New York: Harper and Brothers, 1952), p. 340.

[2]Benjamin Fruchter, Introduction to Factor Analysis (New York: D. Van Nostrand Company, Inc., 1954), p. 149.

ence to others, interest in what others think, acceptance of the leadership of others, and conformity to custom (n. Deference) becomes part of the picture. The tendency to expect to earn higher academic degrees is only slightly indicated, and the negatively loaded v. Economic suggests an avoidance of utilitarianism or "practicality." Since n. Achievement is lightly loaded in a negative direction, little urgency to succeed is indicated.

Such a need-value pattern is almost a stereotype in American culture, being characterized by such derogatory expressions as "do-gooder" and "coddler." In its more favorable aspects, however, there is a large humanitarian element present, and for that reason the designation Humanitarianism is applied to Factor I.

Factor II.--This factor yields no direct information about the need-value structure, but consists only of the personal data--Sex, Age, and Academic Rank. The loadings fall in the expected direction. Age and Academic Rank have a high loading (.69 and .63 respectively), while the sex of the subject is barely significant (.24). That older students (men) in education tend to be in higher academic levels is only a confirmation of a commonplace observation. It is of some passing interest, however, that two of these three variables are not related to any of the needs or values, and that they tend to vary independently. The absence of both need and value loadings on this factor

supports the use of factor analysis as a technique for studying such relationships. The factor is identified as Personal Data.

Factor III.--There are seven variables loaded on this factor, but only three variables have high loadings: v. Aesthetic (.58), p.d. Sex (.56), and n. Change (.54), suggesting that this is a factor more characteristic of women than of men. It involves an emphasis on beauty even though truth and utility might be sacrificed. Just how this value is related to n. Change, an interest in doing new and different things, is not clear, although a need for change might be associated with an interest in objects on a somewhat superficial and transitory basis. If v. Aesthetic were less subject to the demands of reality and cognitive control, as was suggested in Chapter I, then a need for new and different experiences in terms of the pleasant-unpleasant continuum (lust-unlust) through the primary process (pleasure principle) is suggested. On the basis of pure speculation, this cluster is remindful of the clinically weak ego of the immature personality still dominated by the pleasure principle, where the object choice is a function of relatively pure impulsivity, without the benefit of mature ego development and the role of long range goals. This is not to say that all aesthetic value is so based, but only that one kind of Aesthetic value may be thus motivated. Later it will be seen that v. Aesthetic is also

related to other factors.

If factor loadings between .20 and .30 are considered, n. Exhibition, n. Intraception, need-consistency, and n. Heterosexuality are positively associated with Factor III. This suggests the tendency to try to be "the center of attention," to say clever things, and to draw attention to one's self, as well as a concern with the motives of others and some interest in the opposite sex (.23). The need-consistency loading (.27) suggests that a tendency to exercise these needs repeatedly is also present to some extent. Whether need-consistency is a kind of inflexibility associated with the obsessive-compulsive syndrome is, of course, not indicated by the present data. It would seem more likely that the consistency might be a function of poverty of modes of expression associated with a weakness of reality testing, rather than a repetition compulsion. Behavior motivated by this kind of a need-value structure may, therefore, result from an ignorance of reality, as it were, rather than from a neurotic compulsion to behave this way. It must be remembered that need-consistency is not a separate and distinct need in the sense of the fifteen needs measured by the EPPS, but rather a measure of the consistency with which the subject selects the same needs when he is given the same choice. Considering only the high loadings, Artistic Appreciation will serve to identify this factor.

Factor IV.--This factor is rather an interesting one, since none of the variables are positively loaded on it; that is, all of the variables loaded on the factor are negatively associated with it. Cut at .30, the factor contains a loading of -.66 (n. Affiliation), -.56 (v. Religious), and -.53 (n. Nurturance). Again applying an operational definition of what the instruments used purport to measure, it appears that this factor is characterized by disloyalty, unfriendliness, lack of interest in other people, and an aversion to strong attachments. The Religious value of Spranger with its mysticism and search for unity is denied in this factor, and no other value supplants it. The Allport-Vernon-Lindzey version of the Religious value, saturated as it is with the orthodox Christian ethic, is also rejected in this factor. The n. Nurturance is quite strongly rejected. The factor includes an aversion to helping others, to forgiving others, and to being generous. Negation characterizes the factor more than anything else, since there are no positively associated needs or values. It is slightly more characteristic of men than of women, if values below .30 are considered. They include a negative v. Social (-.29) and n. Succorance (-.26), as well as a negative loading on need-consistency (-.20). It is difficult to avoid regarding such a trait from a purely clinical point of view. Why are there no positively associated needs or values? If v. Religious is negatively

associated with the factor, why isn't v. Economic or v. Political positively associated? These and similar questions remain unanswered. The common element in this factor is the negation of all feeling for other people, and, in fact, for all object relationships as measured by the instruments used.

In spite of the negative relationship these variables have with the factor, there is a cluster of values and needs having to do with human relationships, and it stands out in rather sharp contrast to Factor I, in which there was evidence of much interest in other people. The name Asocial is applied to this factor.

Factor V.--More characteristic of women than of men, this factor is somewhat loaded with n. Heterosexuality, that is, an interest in the opposite sex, and an aversion to v. Theoretic, the value having to do with rational and cognitive matters. Few of the loadings are high, the range of significant loadings being from .20 (n. Change) to .63 (p.d. Sex--femininity).

This is the "valueless" category in which there is no dominant directionality, the moderate negation of v. Theoretic (-.38) being the only evidence of any concern with value at all. The moderate positive loadings of n. Heterosexuality, n. Succorance, and n. Change, and the moderate negative loadings of n. Achievement, n. Dominance, and p.d. Level of Aspiration, all suggest dependency and absence of

any long range goals. Even the negation of the v. Theoretic is not very strongly associated with the factor. The name Apathy serves to designate this factor.

Factor VI.--Like Factor III, this factor contains no negative loadings. The positive loadings range from .22 (n. Succorance) to .62 (v. Economic). In Spranger's system the Economic man was said to be practical and utilitarian, a man of action who is also concerned with bodily needs. When seen as a "trait," this value structure embraces n. Order, the wish to do things in an orderly way, to be well organized, n. Abasement which includes feelings of guilt and inferiority, n. Aggression, that is to blame others, to become easily angered, to make fun of others, and to read of violence. There are loadings which indicate a slight tendency to defer to other people (n. Deference) and to seek to obtain sympathy from others (n. Succorance), but the last three needs mentioned (Aggression, Deference, and Succorance) are below the .30 level. The relationship of n. Order to v. Economic is not without some logic, as can be seen from a purely commonsense point of view, but the other needs positively associated with the factor, aside from the moderate n. Aggression, are not at all clear. Their loadings on the factor, however, are very low (Deference .24 and Succorance .22). The name Actionism is applicable.

Factor VII.--In this cluster the value organization

is split between two values, v. Theoretic (.30) and v. Aesthetic (.21) which may help to account for the relatively low loadings on each. The highest loading is on n. Autonomy (.56), the need to act independently, to avoid responsibility, to make one's own decisions, and to avoid conformity. There are lesser but significant loadings on n. Abasement (.25), which is associated with feelings of guilt, inferiority, and timidity; n. Aggression (.24), represented by a tendency to attack contrary points of view, to be critical, to make fun of others, and to become angry. The subjects' major area of study is also somewhat positively related to this factor, but because of the many possible major areas involved in the investigation, it is impossible to identify it.

Inversely related to the factor is the need for Endurance (-.29) which includes the tendency to persevere, to complete a task, and to put in long hours of work. There is only a barely significant negative loading of n. Deference (-.20) on the factor. This need is associated with the tendency to accept suggestions, to praise others, and to let others make decisions. Even though the loading is very low for Deference, it is in the expected direction and lends some support to the positive relation between n. autonomy and the factor.

This interest in beauty and cognitive matters, coupled with a need pattern involving considerable independence,

some aggression and abasement suggests a characteristic often associated with the artist, poet, or art critic. The opposition of the n. Endurance to the dominant value patterns introduces a note of conflict, but the absence of perseverance could, of course, indicate that the positively related needs, as they clustered around the value structure, were expressed passively.

The fact that v. Theoretic is loaded more strongly than v. Aesthetic (.30 against .21) suggests that the former dominates the value structure. This cognitive interest in beauty, coupled with a higher need for avoiding conformity, may point to a "Bohemian" need-value pattern. In the absence of complete evidence, the more conservative term Intellectual Individualism is applied.

Factor VIII.--Here is a rather clear picture falling along a dominant-submissive continuum and suggesting homosexuality. The factor is dominated by the contrasting loadings on Aesthetic value (.36) and Political value (-.59). The Aesthetic value refers, as was previously indicated, to a concern with beauty as against utility or truth. Since Political value refers to power and is negatively associated with the factor, weakness and submission are evident. This is confirmed by the somewhat negative loading of n. Dominance (-.27) and the positively loaded n. Nurturance (.31). A tendency to submit to others and to minister to their needs, to help them and to sympa-

thize with them is indicated. The picture is completed by the negative association of n. Heterosexuality (-.49) with the factor, a tendency to avoid the opposite sex. Whether this is indeed a homosexuality factor or just a lack of interest in sex and power cannot be determined from the loadings. There is certainly no evidence of mature sexuality, or an outlet for aggression. The designation Submissiveness is applied to this factor.

Factor IX.--This factor is dominated by the need to receive help and sympathy from others (n. Succorance, .56) and the need to avoid change (n. Change, -.34). The need to give help and sympathy to others (n. Nurturance, .25) and the need to be aggressive (n. Aggression, .21) are also present. The need to persevere (n. Endurance) is negatively associated with the factor to the extent of -.29, and the consistency in selecting need-oriented stimuli from the instrument is associated slightly but inversely (-.26). These needs, in both their positive and negative loadings, are clustered around the Social value (.31), but the value is only moderately associated with the factor. It should be noted that all of the positively associated needs (Succorance, Nurturance, and Aggression) are needs involving other people, and that the value around which they are clustered is Spranger's Social value, essentially an interest in interpersonal relationships.

The negatively loaded variables (need-consistency, n.

Change and n. Endurance) do not present a clear picture. The tendency to avoid change combined with a tendency to avoid enduring would seem to create something of a deadlock. That inconsistency in the selection of needs is loaded on the factor to the extent of -.26 may help to explain this contradiction. However, a similar polarity may be noted with the positively associated variables. Succorance and Nurturance, while not present in the same degree, certainly suggest a similar opposition. In terms of the higher loadings only, this factor is identified tentatively as Social Dependence.

Summary of R Factor Identification

The extraction and rotation of factors from the intercorrelations of the twenty-seven variables yielded nine factors which are more basic than were the original variables. The nine factors were identified on the basis of their significant loadings with varying degrees of confidence. The identifying names assigned to them were as follows:

Factor I ----- Humanitarianism

Factor II ---- Personal Data

Factor III --- Artistic Appreciation

Factor IV ---- Asocial Tendency

Factor V ----- Apathetic Tendency

Factor VI ---- Actionism

Factor VII --- Intellectual Individualism

Factor VIII -- Submissiveness

Factor IX ---- Social Dependence

These names are not intended to be diagnostic in character, but are necessarily somewhat arbitrary descriptive labels which it is hoped will serve as convenient "handles" which give some substance to otherwise nameless numerals. A true understanding of the need-value patterns revealed by the factor analysis requires a close study of the loadings. The reader is cautioned against over-interpretation of factors which may easily lead to speculation extending beyond that warranted by the data.

Common and Specific Variance

Not all of the total variance is accounted for by the factors, a large portion of it being found in the specific variance (s^2, Table 4). This raises the question of why the specific variance is so high in relation to the communality, since the effort in rotating factors is to pick up as much of the common variance as possible. There are two possible explanations for the occurrence of the high specific variance.

The high specific variance may mean that the clusters of items on both of the instruments purporting to measure specific needs or values also measure a specific or unique kind of need or value function which is not of a primary

nature.

As an example, the variable n. Achievement may be considered, where the communality (h^2) is equal to .21 and the specific variance (s^2) equal to .53. This means that the EPPS, as used in this study, may have measured a general basic need for achievement and a specific need to achieve particular unidentified goals. In terms of the motivational constructs discussed in the first chapter, the subjects in the study group may have reported an interest in gratifying a general need for achievement as well as a specific need for achievement which presumably would find expression in the selection of specific classes of objects. A scholar may need to achieve academic success in general but particularly need to achieve success in his special field of work. Both needs and values could be divided into these two categories in varying proportions.

This same reasoning could apply to all of the needs and values. Thus it is seen that these functions might be only partially of a unitary nature. According to this explanation, it would be incorrect to speak of a need for affiliation or of an aesthetic value in a loose general way. While a general kind of n. Affiliation or v. Aesthetic would seem to exist, one would also be forced to consider additional special kinds of n. Affiliation and v. Aesthetic. Needs and values do not exist in a vacuum, but in relation to specific classes of objects. Aesthetic

appreciation may take the form of appreciation for a Picasso, for Sibelius, for the purring of a powerful engine, or for a closely reasoned abstract theory. These appreciations may be either continuous or discrete; they may vary from person to person, or from situation to situation. Indeed, it is possible that they may vary with yet unmeasured physico-chemical tissue changes. One must always ask the question: How much need, or value, for what, and under what conditions?

The second possible explanation for the high specific variance is that the instruments, in addition to measuring the functions they purport to measure, also yield a measure of other variables not included in the study. There is reason to suspect from Morris's work that the valuation function may correlate to some extent with Sheldon's body types.[1] There is also some evidence that authoritarianism may be differentiated on the basis of value patterns.[2] The General Science portion of the ACE intelligence test is known to correlate positively with Theoretic value.[3] While there is no clear evidence, it would not be at all sur-

---

[1]Charles Morris, Varieties of Human Value (Chicago: University of Chicago Press, 1956), pp. 113-37.

[2]P. R. Hofstaetter, "A Factorial Study of Prejudice," Journal of Personality, XXI (1952), 228-39.

[3]Benjamin R. Schaefer, "The Validity and Utility of the Allport-Vernon Study of Values Test," Journal of Abnormal and Social Psychology, XXX (1936), 419-22.

prising if a general verbal factor correlated highly with both the need and value instruments, since a degree of verbal fluency is necessary in order to understand the items.

Because the EPPS is a relatively new instrument, little is known regarding other personality variables with which it may correlate highly. But it would seem reasonable to expect both instruments to correlate highly with, for example, such things as the ability to follow directions and with the synthetic and reality testing functions of the ego. Research of this nature cannot include this multiplicity of variables since even electronic computers are limited in the number of variables they can handle.

It is left to future research to determine the role played by specific need and value factors in accounting for the specific variance as against the influence of personality variables other than need and value. If the specific variance is weighted heavily with additional variables such as those mentioned above, a serious question may be raised about the validity of the instruments. An instrument purporting to measure a specific variable is not expected to be saturated with measures of verbal factors, intelligence, socio-economic influences, and personality characteristics, even though these things might be expected to be related to the specified variable. This is also true of the value instrument, except that one would normally expect the valu-

ation function to contain social norms characteristic of the organism's environmental structure.

If there is lack of clarity as to what constitutes need, value, verbal fluency, and other personality variables, then perhaps there is need for greater convergence of construct and instrument in personality research.

The findings of the R analysis indicate in part that for the population studied, needs and values clustered into specific identifiable patterns with reference to their common variance. Groups of needs clustered around certain values in such a manner as to suggest that if the two measures are discrete, an orderly frequently predictable relationship exists between needs and values.

Murray's Hypotheses

Using the same format as was presented in Chapter I to outline Murray's categories of personality characteristics, the following need-value relationships were found in the present study:[1]

Factor VII
Function -- Thinking (Cognition)
Value ----- Theoretic-Aesthetic
Needs[2] ---- Autonomy, Abasement, Aggression (Negative for Endurance and Deference)

---

[1]It must be remembered that some of Murray's psychogenic needs are not measured by the EPPS; thus certain gaps (n. Understanding, for example) are inevitable.

[2]Needs are listed from highest to lowest loadings. Underlining indicates agreement with Murray. Factor II

Factor I
Function -- Feeling
Value ----- Social (Negative for Economic)
Needs ----- Nurturance, Intraception
Deference (Negative for Achievement)

Factor III
Function -- Sensation
Value ----- Aesthetic
Needs ----- Change, Exhibition, Intraception, Heterosexuality (Related to femininity)

Factor VIII
Function -- Sensation
Value ----- Aesthetic (Negative for Political)
Needs ----- Nurturance (Negative for Heterosexuality, Dominance)

Factor VI
Function -- Action
Value ----- Economic
Needs ----- Order, Abasement, Aggression, Deference, Succorance

Factor IV
Function -- Interpersonal Relations
Value ----- Religious--Social (Both negative)
Needs ----- (Negative--Nurturance, Succorance)

Allowing for the needs not measured by the EPPS, for the nature of the study group, and for the fact that Murray's suggested relationships were suggestions and not formal hypotheses, the present data would appear to support Murray to some extent. In six instances, a need related to a value in the expected direction. In several instances needs falling into the same general category as Murray's needs related to appropriate values (e.g., inter-

---

(Personal Data) and Factor V (Apathy) are omitted. This list is based on the R analysis only.

personal relations).

Insofar as Murray is referring to the association of needs and values in the form of personality patterns, the comparison of his list of associated needs and values with the present R factors may be taken at face value.

Some Theoretical Considerations Regarding R Factors

Theoretical speculation could lead this discussion far beyond that warranted by the data, and interpretation of findings will, of course, vary with the theoretical position of the reader. For purposes of the present study, however, it is felt that a marked conservatism is the best guide to interpretation. With this in mind, there are certain features of the need-value patterns that are worth noting.

Of particular interest is the variation in the need-value patterns which seem to be associated with the size and direction of the loadings. The case of v. Soc, which loaded on Factors I, IV, and IX, and n. Nur, which loaded on the same factors in addition to Factor VIII, was reported earlier. These interpersonal need patterns are quite different when associated with a weak or negative v. Soc than they are when associated with a high or positive v. Soc.

Of similar interest is the fact that v. Rel loaded on one factor only and that it loaded negatively when all

other variables loaded negatively. The only interest in v. Rel shown by the study group was an avoidance of the value. This may be a function of the nature of the population in the same way that its avoidance of the v. Pol (power) may be explained.

There is, of course, nothing in the findings to confirm or deny the various theoretical positions discussed in Chapter I. If one chooses to define the constructs need and value in such a way that they are seen as growing out of an organismic disequilibrium brought about by the press of external stimuli, and if one also chooses to regard valuation as a function which occurs at a more highly organized level of personality than does need (drive), then the present findings may be interpreted to mean that needs tend to be clustered in support of values. Perceptual distortion of perceived social norms by the needs of the individual are not contra-indicated by the present findings. There appears to be an orderly psychologically meaningful relationship between the psychogenic needs of the organism and the social norms he adopts as his own personal values or intentions. The dynamic wholeness of the organism is again supported, but detailed conjecture regarding the reasons why certain needs are found to be associated with certain values is a matter which must remain for further study because of the high degree of interindividual variation.

There is, of course, no direct evidence in the present study to support a criticism of current motivational constructs. But as the R analysis findings were examined and considered, the writer gained the feeling that certain contemporary theorists were moving in a direction which may prove to be highly profitable. As previously mentioned, Murray has recently urged that organismic need and environmental press be considered as a single need-press entity.[1] In a similar vein, Robert R. Sears has suggested that the monadic fragmentary approach to motivation and personality which considers the actor separately from the milieu which contains the causes of his action is inadequate, and that a dyadic view of behavior which includes the relevant actions of both the principle actor and other actors in his behavioral space might be more to the point.[2] These views of Murray and Sears constitute only a wider recognition of the familiar concepts of behavioral space, ego-world, and biosphere as they are known in organismic and holistic psychology.

---

[1] Henry A. Murray, "Toward a Classification of Interactions," Toward a General Theory of Action, ed. Talcott Parsons and Edward A. Shils (Cambridge: Harvard University Press, 1952), pp. 438-39.

[2] Robert R. Sears, "Social Behavior and Personality Development," Toward a General Theory of Action, ed. Talcott Parsons and Edward A. Shils (Cambridge: Harvard University Press, 1952), pp. 467-73.

The Q Analysis

It will be recalled that Murray suggested that needs and values might identify types of people. To speak of types is to imply a response frequency and a resulting norm in a population. To investigate the specific types suggested by Murray would obviously require a randomized sample of a large population in order to determine the frequency with which certain need-value patterns emerge in the population. Because the present study is not normative in nature, no effort was made to look specifically for Murray's suggested types. By transposing the R analysis so that it became a Q analysis, i.e., by intercorrelating people instead of variables, it became possible to determine whether or not any types existed in the study group.

Theoretically the Q analysis should produce types of people corresponding to the "traits" or factors out of which the Q Intercorrelation Matrix was constructed. In the interests of adhering to rigorous scientific method, all of the scores of the cases selected for the Q analysis were intercorrelated, not just those scores on the basis of which the cases were selected. This meant that score patterns other than those matching the R factors were introduced into the Q analysis. The chances of producing pure types were therefore less than would otherwise be the case. Under these conditions, Hypothesis Four, that needs and

values may be related in such a way as to identify types of people, is subjected to a very rigorous test.

The intercorrelations are shown in Table 6 and the Final Q Factor Matrix in Table 7. Examination of Table 7 indicates that the results of the Q analysis are not entirely clear. Types related to the original R factors are present, but not in a pure form.

The cluster of high loadings on Factor I (Type I) for all of the nine subjects represents what Cattell calls the "species factor," and indicates that all of the subjects loading on the factor have need and value patterns.[1] For the present purpose it may be ignored.

By applying the usual significance level for factor loadings (.20), Table 8 was developed, showing only the significant loadings. It may be seen that Factor II has two moderate positive loadings (Subject E, .28; Subject H, .29), two nearly negligible loadings (A, .22; F, .21), and two fairly strong negative loadings (G, -48; I, -.45). Since the identification of a factor depends upon the nature, size, and direction of the loadings, an examination of the need and value scores of subjects A, E, F, G, H, and I is necessary. The question, then, is what need-value characteristics are possessed to a moderate degree by E and H, to an average degree by A and F, and only

---

[1]Cattell, op. cit., p. 97.

TABLE 6

CORRELATION MATRIX FOR Q ANALYSIS

Subjects	A	B	C	D	E	F	G	H	I
A	(90)[a]	86	74	65	90	79	61	89	72
B	86	(86)	69	66	81	67	64	86	75
C	74	69	(89)	83	79	88	89	80	88
D	65	66	83	(89)	68	89	72	72	72
E	90	81	79	68	(90)	80	63	90	69
F	79	67	88	89	80	(89)	66	81	66
G	61	64	89	72	63	66	(97)	63	97
H	89	86	80	72	90	81	63	(90)	69
I	72	75	88	72	69	66	97	69	(97)

[a]Decimals omitted.

TABLE 7

FINAL Q FACTOR MATRIX

Subjects	Factors			
	I	II	III	h^2
A	89[a]	22	26	91
B	86	08	32	85
C	93	12	-25	94
D	85	00	-34	84
E	89	28	14	89
F	89	21	-31	93
G	85	-48	-08	96
H	91	29	13	93
I	89	-45	08	99

[a]Decimals omitted.

TABLE 8

FINAL Q FACTOR MATRIX (MODIFIED)

	Factors	
Subjects	II	III
A	22[a]	26
B		32
C		-25
D		-34
E	28	
F	21	-31
G	-48	
H	29	
I	-45	

[a]Decimals omitted.

slightly by G and I?

Assuming a normal distribution, the possession of a characteristic to an average degree would mean that the need-value scores of the subject would fall within one standard deviation of the mean for the group of 119 cases, and that possession of characteristics to an above average or below average degree would fall beyond one standard deviation in either direction. The standard deviation is used as a means for deciding into which group in the distribution a given score falls because, even though it is an arbitrary unit of measurement, it is less arbitrary than the use of some selected score point for which there is no justification.

In the case of subjects loading on Factors II and III below .40, no correspondence between original score patterns was found. In the two instances of loading above .40 (Factor II, subjects G and I, -.48 and -.45 respectively), considerable correspondence is evident, especially insofar as value scores are concerned. Out of fifteen need scores, both subjects fall within one standard deviation of the mean in eleven instances. More extreme scores did not evidence this agreement. Out of the six value scores, five scores for the two subjects fall in the same direction. Both subjects were high in values Theo and Aes and low in v. Econ. They were close to the group mean in v. Pol, but not in agreement on v. Soc.

It is of some interest that the correspondence between scores of subjects with similar loadings on the factors appeared to vary with the magnitude of the loading. Since none of the loadings on the factors could be considered as strong, identification of the factors is not presumed. Insofar as the height of the loadings permitted, the correspondence of subjects with similar loadings was in the expected direction.

The Q factors, representing types instead of "traits," are for the most part mixed. Q Factor I, it will be recalled, was discarded as being a "species factor," a conglomerate of the need-value patterns of the nine subjects. The production of this factor resulted from the use of raw scores in the development of the correlation matrix.[1]

Q factor II, in terms of the subjects significantly loading on it but not loading on Factor III, consists of four subjects (E, G, H, and I) which, as may be seen by inspection of Table 23, load in pairs. Subjects E and H, both randomly selected, load only to the extent of .28 and .29, barely significant. Subjects G and I load to the extent of -.48 and -.45 respectively, and were originally to represent R Factors VII and I. That these subjects load fairly high on the same Q factor, in the same direction, and do not load significantly on Factor III indicates

---

[1] Ibid., p. 97.

their degree of purity in terms of their original R characteristics.

Q Factor III consists of subjects A, B, C, D, and F, representing in that order one random selection and R Factors I, VII, IV, and IV. The randomly selected subject (A) and the subject selected from R Factor VII (B), load very low, the latter in an inverse direction. Subject B loads at .32, while subjects D and F load negatively to the extent of -.34 and -.31. Both of these, representing the same R factor, evidence a degree of purity.

It may be seen from the foregoing findings that the results of the Q analysis are somewhat indeterminate. The "traits" introduced into the Q analysis did not produce clear unmixed corresponding types, but the types did become more clearly defined in the case of loadings above .30 and particularly above .40.

While the results of the Q analysis do not give sufficient reason for unqualified acceptance of Hypothesis Four, that is, clear unmixed types were not evident, neither does it give sufficient reason for total rejection of the hypothesis. Table 23 shows a marked increase in the clarity of the types as the size of the loadings on the Q Factor Matrix increases. Under more satisfactory conditions, a clearer pattern might have resulted.

The absence of clear unmixed types may have resulted, as indicated earlier, from the fact that all of the scores

earned by the nine subjects used in the Q analysis were introduced into the Q intercorrelation matrix.

Psychologically, there is no reason known to the writer why individual people--types, if they appear often enough in a population--may not possess need-value patterns which dominate their potential behavior, or intentions, as Spranger would say, and which are combinations of more than one R factor, or "trait."

We saw that Q Factor II contained an identifiable factor involving people whose need-value scores were selected from R Factors I and VII. It is not impossible, psychologically, that individuals might be found in a population in sufficient numbers to be considered as types dominated by R Factors I and VII as they were identified earlier. The solution to this problem, however, is not in the present data.

Interpretation of Personal Data

In the early stages of the study, following Fruchter, a product-moment correlation was chosen. Because it is advisable to use the same method of correlation for all variables, Sex, a dichotomy, and Major, a series of discrete categories, both of which ordinarily require a biserial correlation coefficient, were correlated by the product-moment method.[1] Because it seems reasonable to speak of degrees

---

[1]Fruchter, op. cit., p. 201.

of masculinity or femininity, the dichotomous sex item was arbitrarily treated as a continuum, with positive loadings representing the extent to which the variable was characteristic of women, and negative loadings the degree to which it was characteristic of men. This reasoning, of course, would not apply to Major, since it cannot be viewed as a continuum.

Sex, as a variable, loads slightly on Factor II which consists only of Sex, Age and Rank, as previously described.[1]

Age and Academic Rank load quite heavily (.69 and .63 respectively) on Factor II, as might be expected, indicating that these two variables have no relationship to the need-value pattern, but are related to each other.

Major area is positively associated with Factor VII to a moderate extent (.32), but the nature of this relationship is not apparent in the data.

The Level of Aspiration, as measured at a fairly realistic level by the question, What is the highest degree you ever expect to attain? is only slightly related to Factor I (.24) and is inversely related to Factor V (-.24), most of the variance being due to specific independent sources. Interestingly enough, Level of Aspiration is not, in this

---

[1] Personal data other than Age, Sex, Rank, Major, and Level of Aspiration are included on the Personal Data Sheet (Appendix A) but were not included in the investigation because of the risk of introducing irrelevant data and producing spurious factors.

study, related to Sex, Age, Rank, or Major, probably because of the make-up of the study group. This result would seem less likely in a college other than the College of Education.

The size of the need and value loadings on the factors may have been influenced by the presence of personal data variables. Age and Rank, falling on a separate factor, Factor II, are apparently not related to the need-value structure. Sex is slightly related to Age and Rank, but, as might be expected, quite definitely related to certain of the need-value patterns. Major and Level of Aspiration are slightly to moderately related to the motivational variables but not related to Age and Rank.

The writer feels that while the presence of personal data may have reduced the size of the need and value loadings on the factors, they serve the purpose of providing a somewhat subjective check on the validity of the factors, since the factor loadings are frequently in the expected direction. The presence of Age and Rank in a separate factor is seen, as was mentioned earlier, as a tribute to the methodology.

Comparison with Schlag's Findings

The findings in both the R and Q phases appear to support the Murray hypotheses somewhat more than did the Schlag study, even though factor analysis provides a more rigorous

test than does simple correlation. Without Schlag's work, however, the more rigorous factor analytic test might not have appeared feasible.

While a direct comparison between the present findings and those of Schlag is not possible because of differences in both population and methodology, some agreement is evident. Out of Schlag's twenty-six correlation coefficients significant at the .05 level or better, thirteen of the relationships were also found to exist in the present population, and two of the thirteen are in the same direction. The ten instances of agreement are as follows:

v. Theo with n. Ach

v. Econ with n. Def

v. Aes with n. Aut

v. Soc with n. Aut

v. Soc with n. Nur

v. Pol with n. Dom

v. Pol with n. Nur

v. Pol with n. Het

v. Rel with n. Aff

v. Rel with n. Nur

Unlike the Schlag data, the present data indicates an opposition between v. Theo and n. End, and no opposition between v. Aes and n. nur.

The fact that needs and values often load on more than one factor indicates that the relationship is not as simple

as the correlations might suggest. The relationship is a differential one depending on the factor on which the variables load and, as previously mentioned, on the strength and direction of loading. The factors seem to lend themselves much better to interpretation than do simple correlations, but these, in turn, yield a more precise and quantitative way of thinking about motivational dynamics than do purely qualitative statements.

Comparison with Brogden's Findings

In Chapter I the factor-analytic study of the Allport-Vernon Study of Values items by Hubert Brogden was reported, along with the factors he identified. Direct comparison is again not possible because of population and methodological differences. Brogden analyzed items of only one of the instruments used in this study, and his factors would thus be expected to be quite different.

There is some agreement between Brogden's ten value factors and the present need-value factors. His Factor I, General Aesthetic Interest, is similar to the present Factor III, Artistic Appreciation, inasmuch as both are fairly heavily loaded with Aesthetic value. In addition, the present findings include the three needs suggested by Murray, Change, Exhibition, and Heterosexuality.

Brogden's Factor II, Interest in Fine Arts, with its element of unconventionality, is not unlike the present

Factor VII, Intellectual Individualism, with its loading of need Autonomy. His Factor IV, Anti-religious Tendency, is similar to the present Factor IV, Asocial Tendency, which is quite markedly anti-religious (-.56) as well as showing the avoidance of interpersonal relations. Brogden's Factor VI, Humanitarian Tendency, is quite similar to the present Factor I, Humanitarianism. Both factors contain a well-marked negative loading on v. Econ and a positive loading on v. Soc.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Background and Definitions

Axiological problems have figured prominently in the writings of philosophers and theologians since the dawn of written history, but it remained for a contemporary European centralist psychologist, Eduard Spranger, to formulate a psychologically workable theory of value. His six value categories, Theoretic, Economic (utility), Aesthetic (beauty), Social, Political (power), and Religious, based on the behavioral intentions of people, became the basis for the Allport-Vernon test, A Study of Values, in 1931, and for the 1951 Allport-Vernon-Lindzey revision. Of the many instruments purporting to measure values, this has been by far the most widely used.

Considering the points of view from several different areas of psychology, but principally from psychoanalysis, valuation was defined as sustained preferential behavior having its origin in organismic disequilibrium but modified by environmental social standards.

Motivational drives, or needs, were not adequately formulated until the advent of Freudian psychoanalysis and

Lewinian topology. Since then, considerable work has been done with the drive concept. For purposes of this study, the work of Henry A. Murray is taken as a point of departure.

Manifest needs and personal values, as separate but related functions in the motivational hierarchy, could reasonably be expected to relate to each other in an identifiable and orderly fashion. Recognizing that both needs and values are hypothetical constructs, knowledge of which is gained by inference, both terms were defined in a single theoretical framework. Both were described as stages in the genetic history of the impulse arising out of organismic disequilibrium. Following H. A. Murray, manifest needs were defined as overt evidence of the physico-chemical changes which give direction to behavior, and partially following Charles Morris, values were defined as sustained preferential behavior.

These conceptions of need and value were regarded as specifics in a general theory of motivation. Values were held to exist at a higher and more organized level of personality than needs and to be directly influenced by social norms.

Review of Present Study

In order to explore the relationships of needs and values, and to follow through on Murray's suggested inter-

relationships, students, ranging from pre-education sophomores to doctoral candidates in the College of Education at Wayne State University, were given the Edwards Personal Preference Schedule and the Allport-Vernon-Lindzey Study of Values as well as a Personal Data Sheet. The resulting scores were intercorrelated by the Pearson product-moment method. The factors were extracted and rotated to oblique simple structure by Dr. Raymond B. Cattell of the Institute for Personality Testing, University of Illinois. In all, twenty-seven variables were measured. The variables are as follows:

Needs

Achievement	Dominance
Deference	Abasement
Order	Nurturance
Exhibition	Change
Autonomy	Endurance
Affiliation	Heterosexuality
Intraception	Aggression
Succorance	Consistency Score

Values

Theoretic	Social
Economic	Political
Aesthetic	Religious

Personal Data

Sex

Age

Rank

Major Area

Level of Aspiration

The twenty-seven variables were reduced to nine factors, the factors evincing meaningful and orderly need-value patterns. Their psychological meanings were interpreted with varying degrees of confidence in a manner that approximates custom in factor analytic studies. The need-value relationships were discussed as personality characteristics (factors) and in terms of common versus specific variance.

In order to search for the possible existence of types of people dominated by a particular need-value pattern, as Murray had postulated, nine cases from the R analysis, six of which were selected because their original score patterns matched three of the R factors, two for each factor, and three cases selected at random were subjected to a Q analysis. While the results did not produce clear unmixed types, the possibility that further research might yield a typology is strongly suggested.

A question was raised regarding the validity of the Allport-Vernon-Lindzey Study of Values and particularly the Edwards Personal Preference Schedule, because the

specific variance was very high after the extraction and rotation of the R factors. It seemed that either there were many unique need and value functions or that functions other than need and value were being measured.

Conclusions

Considering the results of both the R analysis and the Q analysis, it is now possible to reexamine the original hypotheses for determination of their status. The hypotheses are evaluated in terms of their common variance only.

Hypothesis One: Needs tend to cluster together in such a manner as to form identifiable patterns or "traits."

The R analysis provided nine clusters of needs. These were clearly separate from each other and, when identified, yielded descriptive statements which were without overlap. The hypothesis was accepted.

Hypothesis Two: Needs tend to be identified with specific values.

In the eight R factors which contained loadings of motivational variables, all of the factors contain both need and value loadings. Some needs and some values loaded on more than one factor, indicating a complex differential relationship. Many of the relationships found were in a direction which might have been predictable from psycho-

logical theory. The hypothesis was accepted.

Hypothesis Three: A list of needs and a list of values, when measured by separate instruments, may be reduced to a smaller number of basic factors. The original twenty-seven variables were reduced to seven factors. The factors were tentatively identified with varying degrees of confidence.

While all significant loadings were considered in striving to identify factor names, the principle used and value variables considered are shown below, together with the factor identifications:

Factor I ----- Humanitarianism

Social value, needs Interpersonal Affection and Warmth

Factor II ---- Personal Data

Age and Academic Rank

Factor III --- Artistic Appreciation

Aesthetic value, needs Change and Exhibition

Factor IV ---- Social Tendency

Religious value, needs Affiliation and Warmth (all negative)

Factor V ----- Aesthetic Tendency

Theoretic value (negative),

needs Heterosexuality, Dominance (negative), and Achievement (negative)

Factor VI ---- Actionism

Economic value, needs Order and Abasement

Factor VII --- Intellectual Independence

Theoretic value, needs Autonomy, Endurance (negative), and Deference (negative)

Factor VIII -- Submissiveness

Political value (negative), needs Heterosexuality (negative), Nurturance and Dominance (negative)

Factor IX ---- Social Dependence

Social value, need Succorance

The hypothesis was accepted.

Hypothesis Four: Need-value patterns are such that they identify types of people.

The Q analysis of nine cases out of the total 119 cases, seen in terms of three of the nine R factors, did not produce clear unmixed types. The hypothesis was, therefore, rejected. However, the tendency for types to appear when people were loaded highly on the Q factors suggests the value of further study.

As a final word of caution, the writer wishes to emphasize that the findings and conclusions in this investigation apply only to the study groups investigated and are not to be generalized to any larger or other population.

Implications

The conclusions presented above are seen as supporting a dynamic theory of motivation, such as Murray's, and in no way contrary to psychoanalytic theory. The findings have application in psychology and education in that they point to means which can give a more meaningful and useful understanding of motivation than do statements about purely qualitative dimensions. If motivation influences educational and treatment outcomes, a greater understanding of motivation may improve learning and treatment conditions. Presumably the revelation of new knowledge or the measurement of intuitive hypotheses has a scientific value of its own regardless of its applicability in a professional setting. The progress of science is marked by small steps. It is hoped that the present effort has at least proved to be one such step.

Further Research

While we know much about the importance of motivation, we know little about motivation. We have some knowledge of what needs and what values are characteristic of certain interest, occupational, and cultural groups, but

we know little of the nature of needs and values themselves. Future research in this area might well take the present study as a point of departure, profiting by an improved design.

The deletion of personal data from the R factor analysis might yield clearer patterns of psychological variables.

Additional support for Murray's types might be found in a study design involving criterion types. One method applicable to this would be by the devising of statements for each variable loading on the factors and for each factor. The use of a Q-sort might then produce useful profiles.

A question can be raised regarding the adequacy of Spranger's values. The fact that in the present study a given value loaded in different degrees in the same direction on different factors suggests the possibility that more value categories are needed. If there are, for example, two or three different kinds of Social value, maybe two or three different measures of Social value are needed. Such instruments should be preceded by experimental investigation, however, and not devised by a priori methods alone.

In designing future experiments it would seem worthwhile to include measures of certain other variables with which needs and values might be highly correlated. Such an investigation, however, might prove more fruitful if a

small number of paid subjects were used and projective techniques as well as interviews utilized.

It appears to the present writer that two things are clearly evident. First, we are sorely in need of carefully conducted scientific research in the area of central psychological functions. Second, we are approaching a point in the development of new methodological devices where such research will not destroy the very dynamic functions it seeks to clarify. The increasing familiarity of the statistician with social and psychological problems and the familiarity of the psychologist and social scientist with the meaning of newer statistical techniques aid greatly in the facilitation of such research. Basic research, involving many complex variables, brings with it the increasing demand for computational shortcuts. With all of its advantages and disadvantages, the electronic computor will provide these necessary shortcuts.[1]

Construct Validity

Running throughout this entire study is the basic question of just how valid the constructs concerning motivation discussed in the first chapter really are. Does the valuation function occur at a higher, more integrated level of personality organization than the need or drive

---

[1]Charles Wrigley, "Electronic Computors and Psychological Research," The American Psychologist, XII (1957), 501-08.

process? While an affirmative answer to this question was assumed for purposes of this investigation, the relative positions of the two functions in the motivational hierarchy are clearly not known in terms of the variables measured by the two instruments used in this study.

It would be encouraging if one could assume that the Edwards Personal Preference Schedule measures need at a level below the ego and that the Study of Values measures only ego functions. But there is no basis for this assumption. The rather obvious influence of external social norms on the value responses, the scaling of the Edwards Schedule items for equality of social desirability, and the verbal reports of a few subjects not used in the study that they felt conflict and often had to exert conscious effort to answer the Edwards questions, all seem to suggest a difference in the level tapped by the two instruments. The evidence is not sufficient, however, to warrant a conclusion.

It is the feeling of the writer that the Edwards Personal Preference Schedule may tap a preconscious level in the sense in which Kris uses the term.[1] The writer felt, as did the few subjects mentioned above, that some of the material called for by the Edwards Schedule was "capable

---

[1]Ernst Kris, "On Preconscious Mental Processes," Organization and Pathology of Thought, trans. and ed. David Rapaport (New York: Columbia University Press, 1951), pp. 476-77.

of becoming conscious," but not fully conscious at the time the questions were first read, a condition not experienced with the Study of Values. If this condition exists, it suggests that the findings in this study would, in general, be interpreted to mean that valuation rests upon a complex differential need structure.

There is nothing in this study to clarify the question of the relative autonomy of the ego, since ego and non-ego are not clearly separated by the instruments. There is, however, clear evidence of a complex but orderly relationship between manifest need and personal value.

The relevance of Sears' dyadic scheme and Murray's need-press entity, as previously discussed, is again evident in that the abstraction of personal values from their normative social sources may create more of an imaginative figment than is often realized. There appears to be a need for the convergence of psychological constructs and instruments.

APPENDIX A

SPECIMEN MATERIALS

AND

NEED DEFINITIONS

INDIVIDUAL DIFFERENCES STUDY

Instructions to Subjects

You are being asked to help in a study having to do with differences between people. We are interested in learning how people in Education answer the two questionnaires, and not in learning about you as an individual. All data are strictly confidential and will not be communicated to your instructor, your college, your classmates,

The two questionnaires you have been given will require about 70 minutes for both. They are "self-administering" with instructions printed in the booklets.

There is no time limit on either questionnaire, but you should not ponder the questions. Work rapidly and answer all questions. If you can't decide on an answer, guess at it, but please don't skip it.

Be certain to put your name on the answer sheets. We need it temporarily to keep related material together. Later your name will be converted to a number and thrown in with many others.

Please do not score your own test because the norms may not apply to you. If you particularly want to know the results, add a note to that effect on the bottom of the Personal Data Sheet.

Return all the material at the next class meeting.

Please do not keep the test booklets.

Remember:

1. Read the test instructions.
2. Answer all questions on both tests.
3. Don't ponder the answers--work rapidly.
4. Do not consult with others about the answers.
5. If you can't decide on an answer, guess at it.
6. Return all the material.
7. All information is completely confidential. The tests do not measure personal adjustment, but only differences between people.

INDIVIDUAL DIFFERENCES STUDY

Personal Data Sheet

Please answer all questions.

Name _____

Address _____

Sex: Male _____ Female _____ Age ___

Education Curriculum (e.g., Social Studies, Music Educ., Ind. Educ., etc.)_____

Academic Level: (Check as appropriate)

Sophomore _____
Junior _____
Senior _____
Graduate _____
Post Bachelors Degree _____
Masters Cand. _____
"Post Masters" _____
Doctoral Degree Cand. _____

Number of years teaching experience: _____

Were you ever enrolled in a College of Liberal Arts or its equivalent? Yes _____ No _____

If so, approximately how many semester hours of credit did you earn there? _____

When did you first enroll in the College of Education _____

What is the highest degree you actually expect ever to obtain?
Bachelors' Degree _____
Masters' Degree _____
Doctors' Degree _____

SAMPLE DATA SHEET
FOR ELECTRONIC COMPUTOR (REDUCED)

Page____

Var.	Ident.			Card	N 1		N 2		N 3		N 4		N 5		N 6		N 7	
Col.	3	4	5	10	12	13	22	23	32	33	42	43	52	53	62	63	72	73
				1														
				2														
				3														
				4														1
				5	9 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	9
				1														
				2														
				3														
				4														1
				5	9 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	9
				1														
				2														
				3														
				4														1
				5	9 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	9

Following are the operational definitions of manifest needs which apply to the items in the Edwards Personal Preference Schedule as adapted from Edwards:[1]

> Achievement: To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.
>
> Deference: To get suggestions from others, to find out what others think, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.
>
> Order: To have written work neat and organized, to make plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when making a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.
>
> Exhibition: To say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon one's appearance, to say things just to see what effect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.
>
> Autonomy: To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think,

---

[1] Allen L. Edwards, Edwards Personal Preference Schedule Manual (New York: Psychological Corporation, 1953), p. 5.

to criticize those in positions of authority, to avoid responsibilities and obligations.

Affiliation: To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments, to write letters to friends.

Intraception: To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge people by why they do things rather than by what they do, to analyze the motives of others, to predict how others will act.

Succorance: To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

Dominance: To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs.

Abasement: To feel guilty when one does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors, to feel inferior to others in most respects.

Nurturance: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others, to sympathize with others who are hurt or

sick, to show a great deal of affection for others, to have others confide in one about personal problems.

Change: To do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs, to move about the country and live in different places, to participate in new fads and fashions.

Endurance: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

Heterosexuality: To go out with members of the opposite sex, to engage in social activities with the opposite sex, to be in love with someone of the opposite sex, to kiss those of the opposite sex, to be regarded as physically attractive by those of the opposite sex, to participate in discussions about sex, to read books and plays involving sex, to listen to or tell jokes involving sex, to become sexually excited.

Aggression: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence.

APPENDIX B

DATA FROM R ANALYSIS

TABLE 9

STUDY POPULATION BY ACADEMIC RANK

Rank	Frequency
Sophomore	13
Junior	8
Senior	51
Masters	25
Doctoral	2
Post Degree	5
Other	15

TABLE 10

STUDY POPULATION BY SEX

Sex	Frequency
Male	60
Female	59

TABLE 11

MEANS AND STANDARD DEVIATIONS (N = 119)

Var.	Mean	Sigma
Ach[a]	14.6	4.8
Def	13.4	3.8
Ord	10.9	4.1
Exh	13.8	4.2
Aut	12.2	4.5
Aff	15.8	4.2
Int	17.9	4.7
Suc	11.4	4.5
Dom	15.3	5.0
Aba	13.1	6.2
Nur	15.7	5.1
Chg	15.2	5.5
End	13.0	5.1
Het	15.0	6.0
Agg	10.6	4.7
Con	11.5	2.2
Theo	41.2	9.0
Econ	38.0	8.8
Aes	39.7	9.3
Soc	39.7	8.3
Pol	38.5	7.5
Rel	40.6	12.1

[a]See p. 34 for list of abbreviations.

TABLE 12

TRANSFORMATION MATRIX FOR OBLIMAX SOLUTION

27[a]	25	28	-28	19	26	20	-18	12
-27	-16	10	19	-25	05	23	-18	-17
24	-23	53	-16	09	-39	30	24	-23
-14	28	10	35	-26	-20	-23	35	-52
-41	-29	45	-23	38	31	-29	-02	-23
-39	36	54	31	42	34	53	29	08
-40	48	04	-42	-20	-17	-28	43	49
39	26	12	55	68	-52	-56	-50	32
39	-52	32	34	-11	47	-10	48	49

[a]Decimals omitted.

TABLE 13

OBLIMAX FACTOR OUTPUT

	Factors								
Var.	I	II	III	IV	V	VI	VII	VIII	IX
Ach[a]	-20[b]	01	02	-11	-28	19	-08	06	04
Def	25	-06	-08	02	-01	20	-15	-06	-16
Ord	-03	10	06	13	10	45	-06	12	08
Exh	07	-14	22	04	04	-02	02	-17	16
Aut	-08	05	23	05	-04	10	56	-02	-10
Aff	10	-01	08	-62	02	-10	01	04	06
Int	49	-05	22	16	17	-13	-04	-07	-07
Suc	16	13	-04	-13	23	16	-08	-05	60
Dom	-05	09	-19	-16	-27	-10	03	-20	-09
Aba	15	-18	-04	-05	01	32	27	05	05
Nur	31	-06	09	-45	-03	-07	02	25	24
Chg	-10	-02	50	-01	31	-09	17	-05	-35
End	02	10	-00	-06	08	04	-22	00	-27
Het	-00	-09	05	-01	32	02	-02	-53	04
Agg	-00	04	-06	11	-03	27	25	-14	22
Con	-01	02	23	-21	-01	13	11	-11	-25
Theo	16	05	11	05	-28	04	30	07	-19
Econ	-22	-05	04	-01	03	63	13	-13	13
Aes	02	02	64	-04	20	04	23	25	-05
Soc	72	-00	-04	-14	09	-13	-02	-09	21
Pol	18	02	-22	09	01	10	04	-58	02
Rel	-08	-04	-04	-52	16	16	-15	-04	07
Sex	12	14	48	-07	72	07	-07	-11	15
Age	02	68	00	05	07	-03	-01	02	07
Rank	-06	63	10	01	19	-03	13	04	14
Maj	12	14	-13	-15	-04	-05	28	-11	-07
L/A	27	11	-04	05	-18	-04	-08	-06	14

[a]See p. 34 for list of abbreviations.

[b]Decimals omitted.

TABLE 14

COSINES OF ANGLES AMONG FACTORS
FOR OBLIMAX SOLUTION

-30[a]	-08	27	15	-21	-13	-28	28
	-09	-03	17	-34	-07	-04	12
		12	49	26	26	35	01
			26	-09	-13	-10	01
				-06	-14	-42	19
					37	28	16
						18	-22
							09

[a]Decimals omitted.

TABLE 15

TRANSFORMATION MATRIX (λ)

30[a]	28	32	-39	03	37	16	-09	09
-30	-24	14	29	-25	-02	21	-26	-16
30	-23	46	-17	-08	-38	39	36	-12
-13	24	02	49	-35	-23	-29	31	-50
-33	-32	56	-23	37	25	-44	02	-32
-39	29	39	29	30	31	44	36	00
-46	41	-08	-38	-30	-16	-27	36	32
39	41	37	40	68	-51	-46	-34	42
30	-48	24	23	-17	47	-13	57	56

[a]Decimals omitted.

TABLE 16

FINAL FACTOR MATRIX--ROTATED SOLUTION

	Factors								
Var.	I	II	III	IV	V	VI	VII	VIII	IX
Ach[a]	-24[b]	-05	02	-05	-32	18	-14	-01	-03
Def	27	-02	-04	-01	-00	24	-20	-04	-13
Ord	-04	10	03	10	09	47	-17	14	03
Exh	05	-13	30	01	-02	-03	04	-14	18
Aut	-08	-00	16	08	-13	09	56	-02	-09
Aff	15	-00	07	-66	-05	-04	04	07	02
Int	51	03	27	08	08	-08	-01	05	04
Suc	12	18	-02	-26	23	22	-06	01	56
Dom	-06	06	-15	-10	-27	-09	04	-27	-11
Aba	15	-17	-09	-10	04	34	25	07	07
Nur	32	-02	02	-53	-11	01	07	31	25
Chg	-02	-04	54	-01	20	-11	13	03	-34
End	07	12	03	-05	08	06	-29	02	-29
Het	02	-06	23	-07	37	01	-02	-49	05
Agg	-05	03	-07	08	-01	28	24	-15	21
Con	04	00	27	-20	-10	15	05	-09	-26
Theo	15	02	05	08	-38	07	30	06	-14
Econ	-25	-10	07	-03	06	62	01	-16	04
Aes	05	-00	58	-08	-00	05	21	36	-05
Soc	74	12	-01	-29	03	-01	07	03	31
Pol	18	05	-06	05	07	13	05	-59	05
Rel	-03	-02	00	-56	18	19	-19	-04	-02
Sex	19	21	56	-22	63	11	-10	07	14
Age	02	69	-03	03	-03	04	-03	03	02
Rank	-06	63	04	-02	09	03	11	07	07
Maj	14	14	-16	-16	-05	-01	32	-12	-06
L/A	24	13	-02	02	-24	00	-06	-05	17
Total	1262	10978	13405	13731	11218	10764	9462	10317	9483

[a]See p. 34 for list of abbreviations.

[b]Decimals omitted.

TABLE 17

COSINES OF ANGLES AMONG FACTORS

-12[a]	10	04	22	-15	02	-16	39
	-11	02	21	-35	-13	-14	11
		06	49	13	-00	24	02
			11	-19	-09	01	-06
				-07	-22	-40	20
					22	27	13
						12	-13
							12

[a]Decimals omitted.

APPENDIX C

DATA FROM Q ANALYSIS

TABLE 18

DATA FOR SELECTION OF CASES FOR Q ANALYSIS

Var.		Score	Mean	Distance from Mean	
		For R Factor I Case I			
Soc[a]	8.3	51	39	1.5	above
Int	4.7	22	17	1.0	above
Nur	5.1	19	15	1.0	above
Def	2.8	15	13	.5	above
Econ	8.8	25	38	1.5	below
Ach	4.8	11	14	.5	below
		Case B			
Soc	8.3	50	39	1.5	above
Int	4.7	24	17	1.0	above
Nur	5.1	21	15	1.0	above
Def	2.8	17	13	.5	above
Econ	8.8	36	38	.5	below
Ach	4.8	9	14	1.0	below
		For R Factor IV Case D			
Aff	4.2	10	15	1.5	below
Rel	12.1	18	40	1.0	below
Nur	5.1	4	15	1.5	below
Soc	8.3	33	39	1.0	below
Suc	4.5	12	11	1.0	below
Con	2.2	13	11	1.0	above
		Case F			
Aff	4.2	9	15	1.5	below
Rel	12.1	35	40	1.0	below
Nur	5.1	7	15	1.5	below
Soc	8.3	24	39	1.0	below
Suc	4.5	6	11	1.0	below
Con	2.2	14	11	1.0	above

TABLE 18--Continued

Var.		Score	Mean	Distance from Mean	
		For R Factor VII Case C			
Aut	4.5	21	12	1.5	above
Theo	9.0	54	41	1.0	above
End	5.1	4	13	1.0	below
Aba	6.2	14	13	.5	above
Agg	4.7	14	10	1.0	above
Aes	9.3	47	39	1.0	above
Def	3.8	10	13	1.0	below
		Case G			
Aut	4.5	19	12	1.5	above
Theo	9.0	58	41	1.0	above
End	5.1	6	13	1.5	below
Aba	6.2	14	13	.5	above
Agg	4.7	11	10	1.0	above
Aes	9.3	56	39	1.0	above
Def	3.8	12	13	1.0	below

[a]See p. 34 for list of abbreviations.

TABLE 19

FIRST RESIDUAL CORRELATION MATRIX FOR Q

Case	A	B	C	D	E	F	G	H	I
A	141[a] (112)	098	-086	-106	106	-002	-141	086	-068
B	098	106 (127)	-106	-068	045	-088	-084	082	-009
C	-086	-106	106 (025)	039	-041	055	103	-043	055
D	-106	-068	039	135 (166)	-081	135	000	-051	-035
E	106	045	-041	-081	126 (101)	-007	-126	090	-103
F	-002	-088	055	135	-007	135 (103)	-090	-006	-127
G	-141	-084	103	000	-126	-090	220 (254)	-136	220
H	086	082	-043	-051	090	-006	-136	136 (079)	-114
I	-068	-009	055	-035	-103	-127	220	-114	220 (183)

[a]Decimals omitted.

TABLE 20

SECOND RESIDUAL CORRELATION MATRIX FOR Q

Case	A	B	C	D	E	F	G	H	I
A	027[a] (025)	002	-003	025	-006	-027	-009	-017	-020
B	002	067 (026)	032	001	-037	067	-025	-003	-064
C	-003	032	036 (038)	-023	-035	036	-002	-036	-012
D	025	001	-023	117 (078)	-012	117	-092	-021	-096
E	-006	-037	-035	-012	037 (041)	-029	013	002	028
F	-027	067	036	117	-029	146 (130)	-119	-028	-146
G	-009	-025	-002	-092	013	-119	120 (071)	020	120
H	-017	-003	-036	-021	002	-028	020	036 (045)	036
I	-020	-064	-012	-096	028	-146	120	036	146 (153)

[a]Decimals omitted.

TABLE 21

THIRD RESIDUAL CORRELATION MATRIX FOR Q

Case	A	B	C	D	E	F	G	H	I
A	$\frac{037}{(026)}$[a]	-002	-005	019	-008	-037	-016	014	010
B	-002	$\frac{040}{(039)}$	017	-040	022	004	-022	-016	000
C	-005	017	$\frac{045}{(028)}$	-045	027	002	-027	026	-022
D	019	-040	-045	$\frac{045}{(057)}$	-034	025	023	-006	003
E	-008	022	027	-034	$\frac{034}{(029)}$	-005	-013	-008	-007
F	-037	004	002	025	-005	$\frac{037}{(006)}$	014	-014	005
G	-016	-022	-027	023	-013	014	$\frac{027}{(040)}$	-012	013
H	014	-016	026	-006	-008	-014	-012	$\frac{026}{(024)}$	-006
I	010	000	-022	-003	-007	005	013	-006	$\frac{022}{(003)}$

[a]Decimals omitted.

TABLE 22

UNROTATED FACTOR MATRIX FOR Q

Cases	Factors			
	I	II	III	h^2
A	89[a]	34	03	91
B	86	28	17	85
C	93	-26	-09	94
D	85	-24	-24	84
E	89	29	-09	88
F	89	-07	-37	93
G	85	-39	28	95
H	91	30	-11	93
I	89	-26	37	99

[a]Decimals omitted.

TABLE 23

COMPARISON OF Q CASES FOR DETERMINATION OF TYPES--FACTOR II (Q)

Q Loading	Case	Needs															Values					
		Ach[a]	Def	Ord	Exh	Aut	Aff	Int	Suc	Dom	Aba	Nur	Chg	End	Het	Agg	T[b]	E	A	S	P	R
.28	E	H[c]	M	L	M	M	M	M	L	M	M	H	L	M	H	H	L	H	M	M	L	H
.29	H	M	M	M	M	M	L	M	M	H	M	M	M	M	H	M	M	M	L	M	M	H
.22	A	H	M	H	L	L	M	M	M	M	M	M	L	H	M	M	M	M	M	M	M	M
.21	F	H	M	M	M	H	L	M	L	H	L	L	H	M	M	M	M	H	M	L	M	M
-.48	G	M	M	M	M	H	M	H	M	M	M	M	L	L	M	M	H	L	H	M	M	L
-.45	I	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	H	L	H	H	M	L

[a] See p. 34 for list of abbreviations.

[b] Legend: T--Theoretic, E--Economic, A--Aesthetic, S--Social, P--Political, R--Religious.

[c] Legend: M--Subject's score within 1 σ of the group mean, H--Subject's score above 1 of the group mean, L--Subject's score below 1 of the group mean.

TABLE 24

COMPARISON OF Q CASES FOR DETERMINATION OF TYPES--FACTOR III (Q)

Q Loading	Case	Needs															Values					
		Ach[a]	Def	Ord	Exh	Aut	Aff	Int	Suc	Dom	Aba	Nur	Chg	End	Het	Agg	T[b]	E	A	S	P	R
.26	A	H[c]	M	H	L	L	M	L	M	M	M	M	L	H	M	M	M	M	M	M	M	M
-.25	C	M	M	M	M	H	L	M	L	M	M	M	M	L	M	M	H	M	M	M	M	M
-.31	F	H	M	M	M	H	L	M	L	H	L	L	H	M	M	M	M	H	M	L	M	M
.32	B	L	M	M	M	L	M	H	M	M	M	H	M	H	L	M	M	M	L	H	M	M
-.34	D	H	L	M	H	M	L	M	M	H	M	L	H	M	H	M	M	H	M	M	H	L

[a]See p. 34 for list of abbreviations.

[b]Legend: T--Theoretic, E--Economic, A--Aesthetic, S--Social, P--Political, R--Religious.

[c]Legend: M--Subject's score within 1 σ of the group mean, H--Subject's score above 1 of the group mean, L--Subject's score below 1 of the group mean.

BIBLIOGRAPHY

Ainsworth, Mary D., and Klopfer, Bruno. "Quantitative Analysis," Developments in the Rorschach Technique. Edited by Bruno Klopfer, et al. New York: World Book Company, 1954.

Allport, Gordon W., and Vernon, Philip E. A Study of Values. Boston: Houghton Mifflin Company, 1931.

Allport, Gordon W., and Vernon, Philip E., and Lindzey, Gardner. The Study of Values Manual of Directions. Cambridge: The Riverside Press, 1951.

Brogden, Hubert E. "The Primary Personal Value Measures of the Allport-Vernon Test, 'A Study of Values,'" Psychological Monographs, LXVI, No. 16 (1952), 1-31.

Bruner, J. S., and Goodman, C. C. "Value and Need as Organizing Factors in Perception," Journal of Abnormal and Social Psychology, XLII (1947), 33-44.

Cattell, Raymond B. Factor Analysis. New York: Harper and Brothers, 1952.

Cattell, Raymond B. Personal Correspondence, May 18, 1957.

Edwards, Allen L. Edwards Personal Preference Schedule. New York: Psychological Corporation, 1953.

Edwards, Allen L. Edwards Personal Preference Schedule Manual. New York: Psychological Corporation, 1953.

Edwards, Allen L. "The Relationship between the Judged Desirability of a Trait and the Probability that It Will Be Endorsed," Journal of Applied Psychology, XXXVII, No. 2 (1953), 90-93.

Einstein, Albert A. Out of My Later Years. New York: Philosophical Library, 1950.

Fruchter, Benjamin. Introduction to Factor Analysis. New York: D. Van Nostrand Company, Inc., 1954.

Freud, Anna. The Ego and the Mechanisms of Defense. New York: International Universities Press, 1946.

Freud, Sigmund. Civilization and Its Discontents. Translated by Joan Riviere. London: The Hogarth Press, Ltd., 1953.

Hofstaetter, P. R. "A Factorial Study of Prejudice," Journal of Personality, XXI (1952), 228-39.

Kluckhohn, Clyde, et al. "Values and Value Orientation in the Theory of Action," Toward a General Theory of Action. Edited by Talcott Parsons and Edward A. Shils. Cambridge: Harvard University Press, 1952.

Kris, Ernst. "On Preconscious Mental Processes," Organization and Pathology of Thought. Translated and Edited by David Rapaport. New York: Columbia University Press, 1951.

Lewin, Kurt. "Intention, Will and Need," Organization and Pathology of Thought. Translated and Edited by David Rapaport. New York: Columbia University Press, 1951.

Morris, Charles. Varieties of Human Value. Chicago: The University of Chicago Press, 1956.

Murray, Henry A. Explorations in Personality. New York: Oxford University Press, 1952.

Murray, Henry A. "Toward a Classification of Interactions," Toward a General Theory of Action. Edited by Talcott Parsons and Edward A. Shils. Cambridge: Harvard University Press, 1952.

Northrop, F. S. S. The Logic of the Sciences and the Humanities. New York: The Macmillan Company, 1949.

Rapaport, David. Organization and Pathology of Thought. New York: Columbia University Press, 1951.

Schaeffer, Benjamin R. "The Validity and Utility of the Allport-Vernon Study of Value Test," Journal of Abnormal and Social Psychology, XXX (January-March, 1936), 419-22.

Schlag, Madeleine. "The Relationship between the Personal Preference Schedule and the Allport-Vernon and Lindzey Study of Values." Unpublished Master's thesis, Department of Psychology, University of Washington, 1954.

Sears, Robert R. "Social Behavior and Personality Development," Toward a General Theory of Action. Edited by Talcott Parsons and Edward A. Shils. Cambridge: Harvard University Press, 1952.

Spranger, Edward. Types of Men. Translated by Paul J. W. Pigors. Halle: Max Niemeyer Verlag, 1928.

Thurstone, L. L. Multiple Factor Analysis. Chicago: University of Chicago Press, 1947.

Tolman, Edward C. "A Psychological Model," Toward a General Theory of Action. Edited by Talcott Parsons and Edward A. Shils. Cambridge: Harvard University Press, 1952.

Tolman, Edward C. "Value Standards," Toward a General Theory of Action. Edited by Talcott Parsons and Edward A. Shils. Cambridge: Harvard University Press, 1952.

Vernon, Philip E., and Allport, Gordon W. "A Test for Personal Values," Journal of Abnormal and Social Psychology, XXVI, No. 3 (October-December, 1931), 231-48.

Wrigley, Charles. "Electronic Computors and Psychological Research," The American Psychologist, XII (1957), 501-08.

AUTOBIOGRAPHICAL STATEMENT

Name: Earl David Sumner

Birth: April 15, 1916; Detroit, Michigan

Education: Elementary and High School, Highland Park, Michigan; Colleges: Hillsdale College, Hillsdale, Michigan, B. S. Degree, 1938; Wayne University, College of Education, Detroit, Michigan, M. A. Degree (Clinical Psychology), 1949.

Positions: Production Control, American Brakeblok Corp., Detroit, Michigan, 1941 and 1946. Counselor, Military and Veterans Affairs Office, Wayne University, 1947 to 1954; University Housing Counselor, Wayne State University, 1955 --; Part-time Instructor (psychology), Walsh Institute of Accountancy, 1953 --.

Military Service: Staff Sergeant, 321st Infantry Regiment, 81st Infantry Division, United States Army, 1942-46 (Pacific Theatre of War and Occupation).

Recognitions: Phi Delta Kappa, Wayne State University; Psi Chi (Honorary Psychology Fraternity).

Memberships: American Psychological Association, Midwest Psychological Association, Michigan Psychological Association, Detroit Psychological Association, Michigan Society for Projective Techniques, Michigan Society for Mental Health, Detroit Social Workers' Club, Wayne State University Delegate to Association of College and University Housing Officers (1955, 1956, 1957).

Offices: Chairman, Placement Committee, Detroit Psychological Association, 1957.