Research and Development Division

Professional DynaMetric Programs, Inc.

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Independent Studies of the Reliability and Validity of Responses to the Professional DynaMetric Programs® Survey

PART I
THE PDP® SURVEY: DEVELOPMENT AND STANDARDIZATION

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PART II
THE PDP® SURVEY: EMPIRICAL TEST OF RELIABILITY AND VALIDITY

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PART I

The PDP® Survey: Development and Standardization

Introduction

The present two-part monograph was written to document the reliability and validity of responses of individuals to a survey that has been carefully prepared by Professional DynaMetric Programs® (PDP®), Inc. The information in Part I refers to the Survey's development and standardization and to results of studies conducted on the normative sample. Part II contains results of a study conducted subsequent to standardization in a prospective empirical situation. It also suggests appropriate practical applications and uses of the instrument by employers, managers, counselors and individuals.

The PDP® Survey is a simple, objective device designed to measure important behavioral traits that are possessed in different amounts by every human being. The items of the Survey include 60 carefully selected, self-descriptive adjectives presented on two sides of a single card, 30 adjectives on Side 1 and 30 adjectives on Side 2. The selection of each adjective was made by Hubby, Houston and Solomon (1977a, 1977b, 1978a, 1978b), following the analysis of carefully conducted field trials and extensive case study reports.

The response to each adjective is recorded on a five-point Likert (1932) scale with 1 being least and 5 being most.

The PDP® Survey purports to measure four primary behavioral traits (1-4) and one secondary trait (5), as follows:

Factors of Behavior Measured by the PDP® Survey

(1) Dominance, the control trait

(2) Extroversion, the social and fluency trait

(3) Pace/Patience, the rate of motion trait (often referred to as Patience)

(4) Conformity/Structure, the structure and detail trait

(5) Logic/Rationale, the type of reasoning trait

The Survey also measures certain "dynamic features" of the personality that are derived from special formulas applied to the available data. Those features are identified in the list that follows:

Dynamic Features of Behavior Measured by the PDP® Survey

(1) Energy level

(2) Environmental stress

(3) Direction of stress in behavioral changes, e.g., "...feel the need to be less (or more) dominant"

(4) Energy lost due to stress

(5) Morale/satisfaction

(6) Rationale for decisions, fact or feeling

(7) Primary and back-up management styles

(8) Primary and back-up communication styles

(9) Primary and back-up approaches to tasks or goals

(10) Environmental preferences

(11) Motivators, demotivators

(12) Prime needs, those being met and those not being met

The entire Survey typically is completed within 5 minutes when administered to individuals and within 10 minutes when administered to groups. However, the instrument is not timed and must be used without time restrictions; each respondent may use as much time as he/she requires to complete the Survey.

The next several pages provide the theoretical foundation on which the instrument was built and technical information about its development and standardization.

Theoretical Assumptions

The development of the PDP® Survey was based on the following primary assumptions:

(1) Human behavior is comprised of different factors.

(2) Factors of behavior can be measured by appropriate sets of self-descriptive word lists.

(3) Knowledge of behavioral traits is useful for describing, understanding and predicting individual behavior.

(4) The ability to describe, understand and predict behavior can make important differences in many real-life situations.

Self description is a common means by which human behavior is measured. Indeed, self-descriptive word lists have been used extensively to identify and measure important behavioral traits by both early and recent investigators: Cattell, (1945 and 1950); Daniels, (1973); Eysenck, (1947); Fiske, (1949); Guilford, (1954); Horst, (1968); Hubby, Houston and Solomon (1977-1983); Jung, (1933); and Thurstone, (1934).

Carl Jung (1933), a Swiss physician and psychologist, was first to observe the behavioral construct referred to in bipolar terms as “Introversion-Extroversion.” Later, Cattell (1950) and Eysenck (1947) independently demonstrated that variations among

individuals on this trait can be arrayed at various positions on a continuum. When the sample is large, continuous data of this type usually are distributed in a Gaussian (bell-shaped or normal) curve within a definable range that includes the lowest and highest scores. The normal distribution of scores is an important prerequisite for the appropriate application of a sophisticated statistical tool called factor analysis. Cattell used that procedure to identify 16 potential "factor" dimensions.

Factor analysis is effective in the reduction of large amounts of information, such as a long list of self-descriptive words, to one or more scales that are much more manageable than the original information but still retain their power for measuring important constructs. In addition to the normal distribution of raw scores, factor analysis requires scores to be consistent with repeated administrations of the instrument. A third requirement is that scores reveal certain commonalities in the response patterns. The scores from responses to word lists from which the PDP® Survey was developed met these conditions, and factor analysis was used as the analytical tool for identifying the behavioral traits.

All self-descriptive techniques are subject to the possibility that respondents guess, make selections at random, deliberately distort responses and/or choose responses that contain erroneous perceptions of the facts. In the present situation, individuals in the normative sample had the same opportunity to make those errors as did subsequent respondents and individuals who will take the Survey in the future. If such errors occurred frequently in the normative sample, the norms of the Survey are flawed and those flaws will be reflected in low coefficients of reliability and validity, perhaps to levels that are unacceptable. On the other hand, if reliability and validity coefficients are high, then errors from the above sources could not have occurred often in the normative sample and, therefore, they also may be assumed to be rare among respondents, generally. (Results reported in Tables 1 through 19 show that coefficients of reliability and validity

with few exceptions were substantial to very high in studies conducted to date.)

Despite the potential sources of error from chance, deliberate distortion or poor judgment, there were three reasons for thinking that, in fact, their effect would be negligible.
First, observations clearly show that respondents react without hesitation or difficulty to positive stimuli. For this reason the instrument was specifically designed to include non-threatening descriptors, diminishing the need for distortion. Second, each factor measured by the Survey was developed from not more than eight adjectives all of which were randomly distributed in the two lists of 30 words. The ability to correctly associate every adjective with its appropriate factor is highly unlikely, thereby lowering the probability that respondents are able to bias their choices on several adjectives for any one factor. Third, the Survey was designed to utilize differences between actual and perceived behaviors.

Thus, theoretical assumptions provided an important basis for the definition of human behavior in terms of multiple trait-dimensions within which individuals locate themselves at particular points and which together define the behavior space. Factor analysis was relied upon as the statistical tool for translating theoretical constructs into scales of measurement. The use of that statistical procedure assumed that scores on self-descriptive word lists are distributed normally when samples are large, that consistencies occur in repeated measurements, and that commonalities among responses exist. It was with those understandings that the development of the PDP® Survey proceeded.

Factor Analytic Methodology

Briefly, the steps involved in the factor analysis were as follows (Houston and Solomon, 1977):

1. A matrix of Pearson product moment correlation coefficients was computed.

When a datum was missing, the mean value for that variable was inserted. The amount of missing data was less than one percent.

2. Squared multiple correlations were entered as initial communality estimates. Iteration for communalities proceeded until the maximum absolute deviation between iterations dropped below .001.
3. Kaiser's criterion was used to determine the number of factors to be rotated.
4. A rotation to the varimax criterion was performed.
   The orthogonal varimax solution was rotated to oblique simple structure, using the
5. maxplane and promax criteria (hyperplane width is .10).
6. The matrix of regression weights of the variables of the factors V(fe) was computed using V(fe)=(Rv)-1V(fs), where Rv-1 is the matrix of correlations among the variables and V(fs) is the oblique factor structure matrix.

Development of the Item Pool

A five-point Likert scale was chosen as the medium for responses to self-descriptive adjectives in preference to the Q Sort, interview, or picture alternatives. That decision proved to have many benefits. It ensured quick and effective administration and precise scoring of the instrument, even for a group. It helped simplify the reporting of results, and all of these qualities contributed to the important objective of producing an instrument that is both "user" and "management" friendly.

An original pool of 185 adjectives was drawn from the works of Thurstone (1934), Cattell (1950), Guilford (1954), Fiske (1949), Daniels (1973), Horst (1968) and the designers of PDP®, Hubby, Houston and Solomon (1978). An experimental survey was administered to several hundred individuals whose responses were factor analyzed. That analysis reduced the list of adjectives from 185 to the 60 adjectives that constitute the present instrument

. The terms were arranged on the Survey Card so that measurements of behavioral traits could be obtained from three different perspec-tives, the Basic/Natural Self, Priority Environment(s) and the Predictor/Outward Self.

The Basic/Natural Self refers to how the individual functions when there is freedom to respond in a completely natural way. The first 30 terms listed on the Survey measure the behavior from this perspective and the responses to these terms are made in reference to the statement: "How you feel you really are."

Priority Environment(s) refer to environments that are important to the respondent and the responses are to people within those environments. It is a fact of life that individuals either feel the need or are forced to make adjustments to their environment in order to reach goals that are perceived to be necessary for success or survival. Case studies reveal that those adjustments nearly always are in reference to one or more of the six environments. Those environments have been observed to include: the work world (employment or lack thereof); the domestic scene including all aspects of the family and mate (or lack thereof); health, both mental and physical; finances or economic considerations; social relationships and perhaps matters that pertain to one's religious beliefs. This perspective, then, represents the self as perceived through the eyes of "others" who are associated with some environment that predominates in the mind or even in the unconscious thinking of the respondent at the moment the item is scored. Information that pertains to Priority Environment(s) is from the directed responses to "How you feel others expect you to be or act." The Predictor/Outward Self is a synthesis of responses to the Basic/Natural Self and the Priority Environment(s). Normative data were prepared independently and confirmed by feedback from a large number of case studies.

The Survey also includes a Respondent Information Record (RIR), completed partially by the respondent and partially by the Survey administrator. The RIR contains space for recording date, name, occupation, organization, age, and sex, although the only mandatory information on the list is a name or identifier (initials or an alpha-numeric code).

The Norming Procedure

Standardization procedures provided separate norms for each trait within each of the three perspectives. A major step in those procedures was the administration of the final list of self-descriptive adjectives to the normative sample. That sample consisted of 1024 individuals who were carefully selected to represent a cross section of the adult population in the United States. The factor analysis of scores from the normative sample clearly identified the five behavioral traits. Indices for other important dynamic features also were derived by applying certain proprietary formulas to normative sample scores. Finally, exhaustive case studies were employed to establish the meaning of a score at any given location on the continuum of its normative distribution.

The raw scores for each individual in the normative sample were converted to standard scores to form standard score distributions each of which had a base of seven sigmas. Also, mean standard scores for the four primary factors provided a standard score "variable norm" within each of the three perspectives, Basic/Natural Self, Priority Environment(s) and Predictor/Outward Self. Thus, the extent of the deviation from the individuals own "central tendency norm" on a given trait provided an index of the intensity of that trait. This unique concept made it possible to measure the strength of individual behavioral traits not only with reference to other traits of the individual, but also with reference to the population norms.

Narrative descriptions of the factors and "variable norm" values are presented for individuals. Each factor is labeled in a positive manner with high scores being most characteristic of the label. For example, references to the two extremes on the continuum of scores on the Dominance scale are "High Dominance" and "Low Dominance," as opposed to common references of "Dominant" and "Submissive," respectively.

The five behavioral traits measured by the PDP® Survey and for which separate norms are provided within each of the three "perspectives" are described below:

Factor D: Dominance

Individuals with high scores on this factor consider themselves to be concerned about getting things done, very competitive, decisive, calculating and risk takers. Those with low scores consider themselves to be non-confrontive, submissive, cautious, and risk avoiders.

Factor E: Extroversion

Individuals with high scores on this factor consider themselves to be outgoing, friendly, optimistic and persuasive. Those with low scores consider themselves to be bashful, quiet, introspective and awkward or uncomfortable in social situations.

Factor P: Pace/Patience

Individuals with high pace/patience scores consider themselves to be relaxed, stable, likeable, and at ease or cooperative with their environment. Those with low pace/patience scores consider themselves to be urgent, intense, action-oriented, pressing and receptive to change.

Factor C: Conformity/Structure

Individuals with high scores on this factor consider themselves to be very precise, dedicated, careful and concerned about what is "right." Those with low scores on this factor consider themselves to be very independent, free thinkers, non-traditional, not concerned about the "establishment" and more interested in the "end" as opposed to the "means."

Factor L: Logic/Rationale

Individuals with high scores on logic/rationale consider themselves to be fact-oriented and objective. Those with low scores consider themselves to be feeling-oriented, ruled by the heart, and subjective.

Unique Features

There are eight features of the PDP® Survey that distinguish it from most other instruments that purport to measure behavioral traits. They are listed below:

(1) The adjectives selected for use by the Survey are unique—no other instrument is composed of the identical word list and, consequently, no other instrument contains exactly the same data on which the specific behavioral traits are based.

(2) Behavioral traits are measured from different perspectives the "Basic/Natural Self" and the "Priority Environment(s)" are measured by direct responses to the Survey; the "Predictor/Outward Self" is an indirect measurement of behavioral traits and is produced from a synthesis between raw scores for the first two perspectives. Separate norms were derived for each trait within each of the three perspectives.

(3) The Survey measures important "dynamic features" of the behavior. Those

features are derived from special proprietary formulas applied to the available data.

(4) The Survey was standardized separately on the adult and pre-adult population for the purpose of describing normal behaviors in contrast to instruments designed to identify aberrant or abnormal behaviors.

(5) The four primary factors of behavior produce a "variable norm" that permits measurement of the relative intensity of each individual trait.

(6) The instrument is computerized—scores and results are compiled and reported in both narrative and graphic form entirely by computer.

(7) The software programs, data entry procedures, computer-compiled reports and interpretation of reports were all planned and designed for use by laymen so that mastery could be achieved by thorough but relatively simple training. This means the product accommodates both administrative and managerial issues so the system is both "user friendly" and "management friendly."

(8) The user is able to score, retain, and has complete control over, all information associated with every Survey. No individuals or agencies except those directly involved need to see or have access to the information.

Factor Correlations

Factor analysis attempts to identify factors that are independent and therefore do not correlate significantly with other factors. However, that kind of purity is rare in practice. Correlations among the factors derived from Survey data are presented in Tables 1 and 2. As the results in the two tables indicate, the patterns of intercorrelations among the factors for the Basic/Natural Self and Priority Environment(s) are quite similar. In general, the correlations among the factors are low to moderate.

Reliability

Estimates of the reliability of responses to the Survey were obtained by test-retest and split-half correlations. Table 3 reports coefficients of reliability for those analyses. The test-retest coefficients are for Surveys administered three months apart.

Test-retest coefficients of reliability for 101 adults ranged in the 0.70's and 0.80's. Split-half coefficients of reliability for a sample of 332 individuals were in the high 0.80's and low 0.90's, except for one factor, Logic/Rationale under Priority Environment(s) that was 0.80. Overall, the coefficients compare very favorably with the reliability of scores earned on many achievement tests and are somewhat higher than other nationally normed measures in the affective domain.

Intrinsic Validity

Structural integrity is a generic term formulated by Nesselroade and Bates (1970) that incorporates systematic factor analysis procedures for establishing desirable characteristics of a psychological measure. A scale cannot be a valid predictor of outside (extrinsic) criteria unless it predicts itself. The ability to predict itself requires consistency of scores under varying conditions. These qualities include, replicability, invariance, constancy and stability and determine the internal soundness of an instrument, its "intrinsic validity." Each of the four concepts is described briefly below.

Replicability - The extent to which a pattern, regularity, or configuration appears in essentially the same form in random samples or occasions, for example, random replicates of individuals.

Invariance - The similarity of the configuration of the structure across selected groups with varying characteristics, e.g., configurational similarity across race, sex, occupation, age, etc.

Constancy - The degree to which a pattern or configuration appears in essentially the same form in each quartile of the range of a measure or instrument, e.g., do

individuals scoring low on Dominance evidence the same configuration of items as do individuals scoring high on that factor?

Table 1. Coefficients of Correlation Among Factors in Basic/Natural Self
(N=1024)

	Dom.	Ext.	Pac.	Con.	Log.
Dominance	1.00	.40	.08	.06	.51
Extroversion	.40	1.00	.21	.20	.41
Pace	.08	.21	1.00	.54	.28
Conformity	.06	.20	.54	1.00	.39
Logic/Rationale	.51	.41	.28	.39	1.00

Table 2. Coefficients of Correlation Among Factors in Priority Environment(s)
(N=1024)

	Dom.	Ext.	Pac.	Con.	Log.
Dominance	1.00	.63	.02	.06	.39
Extroversion	.63	1.00	.12	.13	.33
Pace	.02	.12	1.00	.55	.20
Conformity	.06	.13	.55	1.00	.36
Logic/Rationale	.39	.33	.20	.36	1.00

Table 3. Coefficients of Reliability

	Three-Month Test-Retest (N=101)	Split-Half * (N=332)
Basic/Natural Self:		
Dominance	.83	.91
Extroversion	.81	.90
Pace	.78	.89
Conformity	.85	.92
Logic/Rationale	.76	.86
Priority Environment(s):		
Dominance	.82	.89
Extroversion	.80	.89
Pace	.77	.87
Conformity	.86	.90
Logic/Rationale		

*Internal consistency

Stability - The similarity of the pattern across two or more administrations of the instrument to the same subjects.

Studies performed by Houston and Solomon (1977) considered two of the four above characteristics, the replicability of the instrument and its invariance across sex, occupation, and race where factor analysis was the statistical procedure employed. Those studies were conducted as part of the initial validation of the instrument and were carried out on the normative sample. The methods they used and the results of their analyses are

reported below.

To determine the replicability of the factors, four random subsamples (n=250) were drawn from the total validation samples. The factor analytic procedure previously outlined was applied to each of the four replicates. Each factor estimation matrix was used to calculate factor scores for each member of the total sample thus yielding four separate estimates of an individual's score on each factor. Correlation coefficients between factor score estimates from each replicate pair were computed, producing six estimates of the coefficient of replicability for each factor. Fisher's r to Z transformation was performed on each of the six coefficients of replicability for each factor. The means and standard deviations of Fisher Z values were obtained and r equivalents of the mean Fisher Z values were computed.

The instruments of the PDP® system were highly replicable with coefficients of replicability above 0.94 for all factors.

Since replicability across random subsamples was demonstrated, the next concern was to investigate the invariance of the factors across race, sex, and occupation. A procedure identical to the one outlined above was applied to groups selected according to race, sex, and occupation. There were four occupations, nurses, lawyers, ministers, and military, two race categories, white and non-white, and two sex categories, males and females. As a result, 32 coefficients of invariance were calculated.

Each of the factors was highly invariant across race, sex, and occupation with coefficients above 0.87 in all cases.

Validity

Jung's (1933) theory of type provided a model of behavioral traits for the PDP® Survey. Thus, one appropriate test of the Survey's validity was the strength of coefficients

of correlation between Survey scores and scores earned on scales that purport to measure the same or similar constructs when both instruments are administered at the same time and under similar conditions. Such coefficients are examples of concurrent validity.

One practical reason for measuring behavioral traits is that those measurements have a potential for providing information about the future performance or behavior of individuals. Procedures that, in fact, estimate how effective an instrument measures performance in advance deals with its predictive validity.

Whereas, in the previous section the focus was on criteria that were "intrinsic," or internal, the next section assesses the PDP® Survey with reference to its effectiveness as a measure of "extrinsic" criteria. Both concurrent and predictive validity coefficients are indices of extrinsic validity.

Extrinsic Validity

The validation of the PDP® Survey with reference to extrinsic criteria was done by studies that correlated scores on the Survey with those obtained concurrently on other comparable instruments (concurrent validity) and by other studies that correlated PDP® Survey scores with various criteria of performance or success (predictive validity).

In Table 4 are presented concurrent validity estimates in which selected factor scores on the PDP® Survey are correlated with selected factor scores on the Predictive Index (Daniels, 1973), selected scales (Adjective Rating Scales) from Veldman and Parker (1970), and selected factors from the Self Index (Solomon and Houston, 1982).

Ultimately, the criterion for any method of measuring behavior is its relevance to the goals of the investigators. While it is impossible to assess the extrinsic validity of an instrument for all the potential uses to which it might be applied, a few studies are presented in Table 5 which show that Survey factors can be used to increase understanding

of the behavioral differences among predefined groups. A multiple linear regression procedure was employed in which the ten factors of the PDP® (Basic/Natural Self and Priority Environment(s)) served as the set of independent variables and each of the dependent variables was as specified in Table 5.

In Table 5 a square of the multiple correlation coefficient (R^2) is reported for each of the seven empirical studies. That coefficient indicates the percentage of total variance that is common between the independent variables and the criterion (dependent variable). If the coefficient was 1.00, for example, there would be perfect agreement between what was being measured by the set of independent variables and the criterion variable. In that situation, when any set of values for the independent variables was known, the value for the dependent variable also would be known (predicted) without error.

The PDP® Survey was developed from a sound theoretical base, a carefully selected normative sample and appropriate statistical procedures. Evidence from initial experiments showed high coefficients of reliability and validity. That evidence has been confirmed further by feedback from more than 600,000 individual case study reports.

Table 4. Coefficients of Concurrent Validity

PDP® Factors	Predictive Index (N=117)	Adjective Rating Scales (N=46)	Self Index (N=87)
Basic/Natural Self:			
Factor D	Factor A (.75)	Factor 2 (.72) (Soc. Abrasiveness)	Factor B (.58) (Personal Style)
Factor E	Factor B (.81)	Factor 4 (.69) (Int. RD/Ext. RD)	Factor A (.45) (Int. Pers. Beh.)
Factor P	Factor C (.63)		Factor C (.61) (Social Attitude)
Factor C	Factor D (.87)	Factor 6 (.64) (Individualism)	Factor D (.39) (Ego Behavior)
Factor L	Factor E (.86)		
Priority Environment(s):			
Factor D	Factor A (.56)		
Factor E	Factor B (.75)		
Factor P	Factor C (.73)		
Factor C	Factor D (.74)		
Factor L	Factor E (.83)		

Table 5. Coefficients of Predictive Validity

Group	Sample Size (N)	Dependent Variable	Multiple R^2
Ministers	68	Number of Members	.63
Stock Brokers	21	Volume of Sales	.50
Doctoral Students in Administration	31	Graduate GPA	.60
Undergraduate Nursing Students	53	Undergraduate GPA	.61
Attorneys	15	Rank in Law School	.51
Teachers	58	Undergraduate GPA	.54
Military Officers	34	Grade in Graduate Course in Administration	.55

PART II

The PDP® Survey: Empirical Tests of Reliability and Validity

The information reported in Part I describes work performed on the standardization of the PDP® Survey. Part II reports evidence of the reliability and validity of Survey scores from an empirical study conducted subsequent to standardization. Selected uses and applications of the instrument also are listed.

Purpose

The study was designed to document certain practical effects of the structural integrity of the PDP® Survey. The plan called for analyses of responses to the PDP® Survey obtained on two groups of adults who were thought to differ significantly on one or more behavioral traits. This was a deliberate attempt to "stretch" the instrument, to determine if the set of terms that predict a given behavioral trait is the same when the group means are at opposite ends of the scale. Thus, by design and for the purposes of the study no attempt was made to represent any large population of individuals. The rationale for such a design was that positive findings would provide practical evidence of the instrument's replicability, invariance, constancy and stability and would demonstrate its unbiased utility even in atypical situations.

Sample

Under normal conditions the PDP® Survey is used to describe, understand or predict the behavior of individual respondents. In the present study, however, the focus was reversed—it was on the instrument rather than on the respondents. Therefore, the two groups that made up the sample were intentionally selected to facilitate an evaluation of the

instrument with reference to its reliability and validity. In order to reach the goal, one desirable condition was that the groups differ in their locations on the continuums for some of the factors being measured. That objective introduced the need to conceal the identities of the groups so that there would be no possibility that inappropriate inferences be made about the respective populations from which each group was drawn. For this reason the groups will be identified by labels rather than by their true names or descriptive references.

The sample was formed by two groups of adults labeled Group A and Group B. One group included 162 individuals drawn from the population of PDP® respondents who took the Survey sometime during 1986. Scores for Group A were obtained at random from computer storage files without regard to the respondents sex, age, race, occupation, level of education, address, marital status or other condition.

Group B included 49 adults all of whom were members of a single organization located in one area in southern California. The organization provided opportunities for its members to relate to and support each other in common difficult circumstances. The nature of those circumstances introduced the possibility that the group's responses might result in low coefficients of intrinsic validity, even to levels that would be unacceptable. Such a finding had the potential for restricting the appropriate uses and applications of the instrument.

Methods

The PDP® Survey was administered to Group B on two occasions exactly one week apart. This was done so scores earned at the time of the first administration could be correlated with those earned at the time of the second administration, providing coefficients of reliability for each trait. The numbers 1 and 2 were associated with the group label to differentiate between the two occasions of Survey administration.

As described earlier, the procedures by which the Survey was developed ensured that the same factors measured on Side 1 also were measured by different, but highly correlated, terms on Side 2. The minimum inter-term correlation coefficient that was acceptable for a term to be included as a predictor of a primary trait was 0.80. The range of those coefficients was from 0.804 to 0.940. Under ideal initial research conditions each term should contribute to the measurement of one and only one behavioral trait which, in fact, was achieved for the normative sample (Monographs 1, 1977, through Monograph 6-B, 1984).

For purposes of the study it was important that the statistical analysis of the data identify the set of terms that predicted each behavioral factor (1 through 5) within each group/administration (Group A, B1, B2) and each form (Side 1 versus Side 2). Thus, the analysis produced thirty different regression equations. This meant that there were thirty separate opportunities for differences to be found among the various sets of predictors of behavioral traits.

To achieve the above goal, raw scores for the 30 adjectives on Side 1 (Basic/Natural Self) and the total scores for the five behavioral traits were entered into a computer for the entire sample to form one data base. A second data base was formed by entering the raw scores and total scores for the 30 adjectives on Side 2 (Priority Environment(s)) for all respondents. Separate analyses then were performed for each factor, group and form, utilizing a stepwise multiple regression procedure. In each analysis the independent variables (predictors) were the 30 quantitative responses to each adjective, and the dependent variable (criterion or variable that was predicted) was the total score for a given behavioral factor.

The terms entered each regression equation in a stepwise manner until the set of “true” predictor terms for a given factor was complete. Results were tabulated to display

coefficients at each step in the identification of "true" predictors, plus one additional step for a term that contributed minimally to the prediction. Whereas, "true" predictors were represented by alpha characters other than "X," the foreign term always was labeled "X."

Results

The first analysis of the data tested the difference in mean values for statistical significance between Groups A and B1 and between Groups A and B2 on each of the behavioral traits. The purpose of that test was to determine if the selection procedures indeed had resulted in groups that were drawn from different populations. Table 6 reports the results of that analysis.

Whereas, it was desirable for differences to be found for comparisons between the independent Groups A and B, that condition was not necessary and was unexpected for comparisons between the correlated mean values for the two Survey administration for Group B (Groups B1 and B2). Table 7 shows the results of the latter comparisons.

Differences in the mean values between Groups A and B1 and between Group A and B2 were statistically significant on three of the five factors for the Basic/Natural Self and on the same factors for the Priority Environment(s). In contrast to that finding, differences in mean values between the two administrations of the Survey (Groups B1 and B2) were significant on one factor, Basic/Natural Self, Logic/Rationale. Since ten comparisons were made, the probabilities that one was significant was undoubtedly a chance occurrence and did not represent a true difference. These findings provided the conditions that the investigators needed for examining the instrument under empirical circumstances that were more extreme than would be expected in typical applications of the instrument.

The reliability coefficients earned by correlating results for Groups B1 and B2 are reported in Table 8. In general the coefficients were similar to those obtained for the normative sample (See Table 3, Part I), however, the former were based on scores earned from separate administrations of the Survey that were three months apart rather than one week apart.

The results of stepwise multiple regression analyses are reported in a series of tables that follow. Traits that were predicted by terms in the Basic/Natural Self are presented in Tables 9A through 13B2 and for traits predicted by terms in the Priority Environment(s) in Tables 14A through 18B2. The letter assigned to each table identifies the group on which the results were obtained, as follows: Tables with the letter "A" are always associated with results for Group A; tables with the letter "B1" report results for the first Survey of Group B; tables with the letter "B2" report results for the second Survey of Group B.

All of the tables have the same format. The important points to observe are listed below. Since the pattern of results was similar for all of the behavioral traits, one trait, "Dominance," will be discussed in some detail to call attention to the important points to note in each table. Then, the reader should be able to locate the same points in the remaining tables without the need for separate interpretations.

Table 6. z-Scores and Probability Values for Comparisons Between PDP® Survey Mean Values for Groups A and B1 and Groups A and B2 by Factor

	Group A vs. Group B1			Group A vs. Group B2		
	Mean Values	z	p	Mean Values	z	p
Basic/Natural Self						
Dominance	59.5-45.0	4.92	< 0.01	59.5-45.8	4.97	< 0.01
Extroversion	55.8-45.9	3.63	< 0.01	55.8-46.5	4.03	< 0.01
Pace	59.4-60.7	-0.42	> 0.05	59.4-61.8	-0.79	> 0.05
Conformity	61.8-63.9	-0.84	> 0.05	61.8-63.4	-0.62	> 0.05
Logic/Rationale	63.6-52.9	4.31	< 0.01	63.6-55.4	3.58	< 0.01
Priority Environment(s)						
Dominance	49.2-41.7	2.13	< 0.05	49.2-41.3	2.18	< 0.05
Extroversion	57.9-48.8	3.01	< 0.01	57.9-50.7	2.73	< 0.01
Pace	65.6-60.6	1.90	> 0.05	65.6-60.5	1.95	> 0.05
Conformity	63.1-58.8	1.58	> 0.05	63.1-60.7	0.83	> 0.05
Logic/Rationale	61.2-53.8	2.77	< 0.01	61.2-55.0	2.38	< 0.05

Note: Probability values (p) that were < 0.05 were statistically significant.

Table 7. t-tests and Probability Values for Comparisons Between PDP® Survey Paired Mean Values for Groups B1 and B2 by Factor

	Mean Value Group B1	Mean Value Group B2	Mean Difference	t-value	p
Basic/Natural Self					
Dominance	45.0	45.8	7.2	-0.78	0.44
Extroversion	45.9	46.5	6.8	-0.66	0.51
Pace	60.7	61.8	8.6	-0.92	0.36
Conformity	63.9	63.4	6.7	0.54	0.59
Logic/Rationale	52.9	55.4	8.6	-2.08	0.04
Priority Environment(s)					
Dominance	41.8	41.3	10.1	0.30	0.77
Extroversion	48.8	50.7	8.7	-1.59	0.12
Pace	60.6	60.5	11.9	0.07	0.95
Conformity	58.8	60.7	11.8	-1.09	0.28
Logic/Rationale	53.8	55.0	9.5	-0.82	0.42

Note: The p-value for Basic/Natural Self, Logic/Rationale was 0.04, indicating statistical significance for the difference between the mean values.

Table 8. Test-Retest Coefficients of Reliability

Factor	Group B (n=49)
Basic/Natural Self:	
Dominance	.86
Extroversion	.81
Pace	.81
Conformity	.87
Logic/Rationale	.67
Priority Environment(s)	
Dominance	.69
Extroversion	.78
Pace	.71
Conformity	.71
Logic/Rationale	.68

The points that should be given special attention in all the tables follow:

1. Note the number of steps and "terms" required to predict a specified behavioral trait. Each term is identified in the tables as an alpha character. The use of both upper and lower case is not important and merely reflects the need for more than 26 identifiers of terms. The alpha characters have been randomly assigned to obscure any association with the actual terms on the Survey card. Each alpha character that represents a term in the Basic/Natural Self (Side 1) is identical to the character that represents a related term in the Priority Environment(s) (Side2)

2. Note the sizes of F-ratios for terms that entered each regression equation in comparison to the F-ratio for each term labeled "X." "X" terms were free to enter the equation at any step, but they typically added very little to the prediction of the trait after the "true" predictors had been entered; they were not considered members of the set of factor predictors.
3. Note the size of R SQ (multiple correlation coefficient, squared), especially the R SQ value on the bottom complete row of values. That value for R SQ is an index of the efficiency of the regression equation to predict the designated behavioral trait.
4. Note the mean value for each factor and the standard error of the mean value.

Tables 9A, 9B1 and 9B2 now can be used as examples for implementing the above instructions. In Table 9A, it took seven steps and seven terms to predict the Dominance factor for the Basic/Natural Self. The strength of the relationship between each term and Dominance is reflected in the large F-ratios, although these F-ratios are based on part-whole relationships and therefore are higher than they would be if the factor being predicted was strictly an extrinsic criterion. Nevertheless, a statistically significant F-ratio, at the standard 5 percent level of significance is approximately 3.9 for 1, 160 degrees of freedom. Term "B" was weakest among the set of "true" predictors with an F-ratio of 146.4. The square of the multiple regression coefficient, R SQ, was 0.980. This means that only 2 percent of the variance in the prediction of Dominance was not explained by the set of seven adjectives that entered the regression equation. Another important point to note is the relatively small F-ratio (4.9) of the "X" term at step 8. Its contribution to the prediction was minimal, suggesting that it was not a member of the set of "true" predictors of the Dominance factor.

Table 9A. Terms That Predicted Dominance in the Basic/Natural Self for 162 Randomly Selected Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	N	231.5	0.721	0.519	0.519	0.721
02	G	146.4	0.848	0.719	0.200	0.684
03	d	230.0	0.914	0.835	0.116	0.718
04	V	252.9	0.943	0.890	0.054	0.61l
05	I	320.8	0.961	0.924	0.035	0.691
06	Y	84.9	0.977	0.955	0.031	0.560
07	b	202.0	0.990	0.980	0.026	0.603
08	X	4.9			0.223	

DOMINANCE: Mean = 59.51; Standard Error at Step 7: Mean ± 2.16

Table 9B1. Terms that Predicted Dominance in the Basic/Natural Self for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	d	53.9	0.767	0.588	0.588	0.767
02	V	149.2	0.893	0.798	0.210	0.651
03	N	50.1	0.934	0.872	0.073	0.702
04	G	41.5	0.959	0.920	0.048	0.652
05	Y	87.9	0.969	0.938	0.018	0.636
06	I	38.2	0.983	0.967	0.029	0.631
07	b	36.6	0.991	0.983	0.016	0.672
08	X	9.0				-0.161

DOMINANCE: Mean = 45.0; Standard Error at Step 7: Mean ± 2.01

Table 9B2. Terms the Predicted Dominance in the Basic/Natural Self for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	d	44.0	0.812	0.659	0.659	0.812
02	N	38.7	0.884	0.781	0.122	0.765
03	V	112.0	0.934	0.872	0.091	0.661
04	G	77.5	0.957	0.917	0.045	0.704
05	Y	94.6	0.970	0.941	0.024	0.606
06	I	70.6	0.982	0.964	0.023	0.694
07	b	53.4	0.992	0.984	0.020	0.568
08	X	5.6				0.437

DOMINANCE: Mean = 45.8; Standard Error at Step 7: Mean ± 1.77

Table 10A. Terms That Predicted Extroversion in the Basic/Natural Self for 162 Randomly Selected Adults in Group A.

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	e	225.9	0.745	0.555	0.555	0.745
02	W	274.9	0.857	0.735	0.179	0.668
03	T	262.9	0.914	0.836	0.101	0.731
04	E	466.0	0.953	0.909	0.073	0.582
05	A	256.4	0.973	0.947	0.038	0.677
06	b	244.8	0.990	0.979	0.033	0.682
07	X	10.8				0.192

EXTROVERSION: Mean = 55.8; Std. Error at Step 6: Mean $\pm$ 1.81

Table 10B1. Terms That Predicted Extroversion in the Basic/Natural Self for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	T	25.6	0.752	0.566	0.566	0.752
02	b	28.8	0.869	0.755	0.190	0.660
03	E	126.1	0.928	0.862	0.107	0.563
04	W	80.2	0.955	0.913	0.051	0.463
05	e	66.8	0.976	0.952	0.039	0.663
06	A	26.6	0.985	0.971	0.019	0.728
07	X	7.6				0.472

EXTROVERSION: Mean = 45.9; Std. Error at Step 6: Mean $\pm$ 2.04

Table 10B2. Terms That Predicted Extroversion in the Basic/Natural Self for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	A	55.6	0.801	0.643	0.643	0.801
02	X	0.2	0.925	0.855	0.213	0.758
03	E	207.7	0.945	0.894	0.038	0.607
04	e	110.7	0.959	0.921	0.027	0.667
05	W	109.3	0.977	0.955	0.034	0.535
06	b	60.0	0.986	0.972	0.017	0.637
07	T	40.4	0.993	0.986	0.014	0.762

EXTROVERSION: Mean = 46.5; Std. Error at Step 7: Mean $\pm$ 1.44

Table 11A. Terms That Predicted Pace/Patience in the Basic/Natural Self for 162 Randomly Selected Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Q	210.2	0.654	0.428	0.428	0.654
02	R	247.1	0.799	0.638	0.210	0.538
03	O	311.6	0.880	0.775	0.136	0.504
04	a	310.2	0.914	0.835	0.060	0.620
05	D	281.9	0.933	0.871	0.037	0.430
06	P	330.3	0.957	0.915	0.044	0.542
07	c	346.9	0.979	0.958	0.043	0.603
08	M	145.8	0.989	0.978	0.021	0.331
09	X	2.7				0.094

PACE: Mean = 59.4; Std. Error at Step 8: Mean ± 2.13

Table 11B1. Terms That Predicted Pace/Patience in the Basic/Natural Self for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	c	68.2	0.667	0.445	0.445	0.667
02	O	62.5	0.834	0.695	0.250	0.644
03	P	64.3	0.880	0.775	0.080	0.634
04	a	107.2	0.906	0.820	0.045	0.496
05	D	82.0	0.932	0.869	0.049	0.373
06	R	90.6	0.961	0.924	0.055	0.472
07	Q	57.5	0.974	0.949	0.025	0.569
08	M	56.4	0.989	0.979	0.030	0.426
09	X	4.5				0.266

PACE: Mean = 60.7; Std. Error at Step 6: Mean ± 2.27

Table 11B2. Terms That Predicted Pace/Patience in the Basic/Natural Self for 49 Adults in group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	O	54.2	0.698	0.487	0.487	0.698
02	c	69.8	0.841	0.707	0.220	0.574
03	a	77.7	0.898	0.807	0.099	0.615
04	P	71.8	0.923	0.852	0.045	0.642
05	M	54.1	0.940	0.884	0.033	0.581
06	Q	71.7	0.958	0.919	0.034	0.541
07	D	82.4	0.977	0.955	0.036	0.113
08	R	49.0	0.990	0.980	0.025	0.516
09	X	2.0				0.072

PACE: Mean = 61.8; Std. Error at Step 6: Mean ± 2.18

Table 12A. Terms That Predicted Conformity/Structure in the Basic/Natural Self for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Q	287.6	0.680	0.462	0.462	0.680
02	H	267.1	0.812	0.659	0.196	0.587
03	L	344.6	0.864	0.746	0.088	0.631
04	C	378.3	0.901	0.812	0.066	0.439
05	J	402.9	0.929	0.863	0.051	0.423
06	K	428.5	0.952	0.907	0.043	0.421
07	c	443.9	0.977	0.955	0.04	80.591
08	M	187.9	0.990	0.980	0.025	0.285
09	X	8.5				0.077

CONFORMITY: Mean = 61.8; Std. Error at Step 8: Mean ± 1.94

Table 12B1. Terms That Predicted Conformity/Structure in the Basic/Natural Self for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	c	129.7	0.679	0.461	0.461	0.679
02	L	177.0	0.847	0.717	0.256	0.623
03	H	84.9	0.895	0.802	0.085	0.628
04	K	219.1	0.933	0.870	0.068	0.371
05	M	57.8	0.948	0.899	0.029	0.514
06	Q	117.4	0.966	0.932	0.033	0.598
07	C	140.8	0.978	0.957	0.025	0.496
08	J	104.7	0.994	0.988	0.031	0.422
09	X	2.8				-0.056

CONFORMITY: Mean = 63.9; Std. Error at Step 8: Mean ± 1.56

Table 12B2. Terms That Predicted Conformity/Structure in the Basic/Natural Self for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	c	95.6	0.666	0.444	0.444	0.444
02	L	118.0	0.847	0.717	0.273	0.569
03	H	111.5	0.912	0.832	0.115	0.630
04	C	0.4	0.932	0.869	0.037	0.393
05	J	115.4	0.954	0.911	0.042	0.533
06	Q	101.0	0.968	0.936	0.025	0.545
07	K	89.3	0.982	0.965	0.029	0.469
08	M	64.0	0.993	0.987	0.022	0.617
09	X	3.6				-0.049

CONFORMITY: Mean = 63.4; Std. Error at Step 8: Mean ± 1.71

Table 13A. Terms That Predicted Logic/Rationale in the Basic/Natural Self for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	D	261.3	0.738	0.545	0.545	0.738
02	U	499.9	0.849	0.721	0.177	0.607
03	B	333.3	0.909	0.826	0.104	0.369
04	Z	405.7	0.935	0.874	0.049	0.726
05	S	390.3	0.958	0.917	0.043	0.555
06	F	419.2	0.981	0.963	0.045	0.616
07	M	172.2	0.991	0.982	0.020	0.410
08	X	6.6				0.392

LOGIC/RATIONALE: Mean = 63.6; Std. Error at Step 7: Mean $\pm$ 1.78

Table 13B1. Terms That Predicted Logic/Rationale in the Basic/Natural Self for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	D	77.4	0.713	0.509	0.509	0.713
02	U	119.5	0.834	0.695	0.187	0.653
03	X	1.7	0.880	0.774	0.078	0.209
04	B	101.9	0.906	0.821	0.047	0.214
05	F	121.6	0.928	0.862	0.041	0.391
06	Z	103.9	0.959	0.920	0.058	0.580
07	S	61.0	0.967	0.936	0.016	0.174
08	M	57.7	0.987	0.974	0.038	0.225

LOGIC/RATIONALE: Mean = 52.9; Std. Error at Step 8: Mean $\pm$ 1.72

Table 13B2. Terms That Predicted Logic/Rationale in the Basic/Natural Self for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Z	189.3	0.713	0.509	0.509	0.713
02	B	139.3	0.839	0.704	0.195	0.364
03	U	126.3	0.913	0.834	0.130	0.554
04	F	158.7	0.936	0.876	0.041	0.547
05	M	169.6	0.957	0.915	0.040	0.289
06	S	94.4	0.979	0.959	0.044	0.469
07	D	77.7	0.993	0.986	0.027	0.667
08	X	4.2				0.514

LOGIC/RATIONALE: Mean = 55.4; Std. Error at Step 7: Mean $\pm$ 1.44

Table 14A. Terms That Predicted Dominance in the Priority Environment(s) for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	V	130.2	0.762	0.581	0.581	0.762
02	N	266.9	0.852	0.726	0.145	0.664
03	b	162.7	0.901	0.812	0.086	0.592
04	Y	300.8	0.929	0.863	0.051	0.490
05	G	226.5	0.956	0.914	0.033	0.663
06	d	230.3	0.973	0.946	0.028	0.563
07	I	170.3	0.987	0.975	0.001	0.620
08	X	8.7				0.454

DOMINANCE: Mean = 49.2; Standard Error at Step 7: Mean $\pm$ 2.56

Table 14B1. Terms That Predicted Dominance in the Priority Environment(s) for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	V	76.4	0.672	0.451	0.451	0.672
02	I	66.4	0.819	0.670	0.219	0.482
03	d	74.3	0.889	0.790	0.120	0.489
04	Y	49.6	0.926	0.858	0.068	0.670
05	b	65.6	0.958	0.919	0.061	0.455
06	N	51.3	0.976	0.953	0.034	0.573
07	G	18.4	0.984	0.967	0.015	0.574
08	X	5.6				0.098

DOMINANCE: Mean = 41.7; Standard Error at Step 7: Mean $\pm$ 2.42

Table 14B2. Terms That Predicted Dominance in the Priority Environment(s) for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	d	24.8	0.794	0.631	0.631	0.794
02	N	66.4	0.862	0.744	0.113	0.643
03	V	19.3	0.907	0.823	0.079	0.667
04	G	52.0	0.935	0.873	0.051	0.561
05	Y	69.7	0.964	0.928	0.055	0.662
06	I	34.0	0.977	0.954	0.026	0.643
07	b	16.3	0.984	0.967	0.013	0.553
08	X	2.3				0.196

DOMINANCE: Mean = 41.3; Standard Error at Step 7: Mean $\pm$ 2.57

Table 15A. Terms That Predicted Extroversion in the Priority Environment(s) for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	E	311.5	0.760	0.577	0.577	0.760
02	e	315.6	0.874	0.764	0.187	0.709
03	A	353.1	0.924	0.853	0.089	0.729
04	b	438.6	0.958	0.917	0.064	0.517
05	T	327.8	0.975	0.951	0.033	0.654
06	W	301.4	0.992	0.983	0.033	0.717
07	X	6.4				0.329

EXTROVERSION: Mean = 57.9; Std. Error at Step 6: Mean $\pm$ 1.81

Table 15B1. Terms That Predicted Extroversion in the Priority Environment(s) for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	W	51.2	0.756	0.571	0.571	0.756
02	T	41.5	0.922	0.850	0.279	0.748
03	b	62.3	0.948	0.898	0.049	0.468
04	e	35.7	0.967	0.935	0.036	0.697
05	E	37.3	0.974	0.949	0.014	0.734
06	A	36.5	0.986	0.973	0.024	0.669
07	X	5.1				0.202

EXTROVERSION: Mean = 48.8; Std. Error at Step 6: Mean $\pm$ 2.42

Table 15B2. Terms That Predicted Extroversion in the Priority Environment(s) for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	E	42.2	0.747	0.558	0.558	0.747
02	A	58.8	0.887	0.786	0.229	0.686
03	e	94.1	0.932	0.869	0.083	0.594
04	W	102.4	0.953	0.908	0.038	0.711
05	T	90.6	0.974	0.949	0.041	0.684
06	b	62.7	0.990	0.979	0.031	0.520
07	X	9.7				0.320

EXTROVERSION: Mean = 50.7; Std. Error at Step 6: Mean $\pm$ 1.92

Table 16A. Terms That Predicted Pace/Patience in the Priority Environment(s) for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Q	320.7	0.674	0.454	0.454	0.674
02	D	412.8	0.780	0.609	0.155	0.521
03	R	448.9	0.853	0.728	0.119	0.625
04	O	659.8	0.899	0.809	0.081	0.448
05	a	533.0	0.932	0.869	0.060	0.525
06	c	446.3	0.960	0.922	0.052	0.581
07	M	463.5	0.980	0.961	0.039	0.507
08	P	322.2	0.994	0.987	0.027	0.650
09	X	11.8				0.361

PACE: Mean = 65.6; Std. Error at Step 8: Mean ± 1.67

Table 16B1. Terms That Predicted Pace/Patience in the Priority Environment(s) for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	X	1.7	0.694	0.482	0.482	0.694
02	a	79.0	0.814	0.662	0.181	0.641
03	P	58.5	0.876	0.767	0.105	0.653
04	R	106.2	0.909	0.826	0.059	0.569
05	O	77.9	0.934	0.873	0.046	0.536
06	c	50.3	0.953	0.907	0.035	0.389
07	D	97.9	0.971	0.944	0.036	0.426
08	Q	70.5	0.977	0.955	0.011	0.532
09	M	67.4	0.992	0.983	0.029	0.561

PACE: Mean = 60.6; Std. Error at Step 9: Mean ± 2.03

Table 16B2. Terms That Predicted Pace/Patience in the Priority Environment(s) for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Q	27.0	0.780	0.608	0.608	0.780
02	O	66.5	0.905	0.820	0.211	0.588
03	D	67.4	0.944	0.890	0.071	0.696
04	R	103.1	0.962	0.925	0.035	0.496
05	c	54.8	0.975	0.950	0.025	0.630
06	a	57.0	0.982	0.965	0.015	0.733
07	P	39.0	0.987	0.974	0.009	0.689
08	M	38.6	0.993	0.987	0.013	0.681
09	X	10.0				0.187

PACE: Mean = 60.5; Std. Error at Step 8: Mean ± 2.09

Table 17A. Terms That Predicted Conformity/Structure in the Priority Environment(s) for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Q	302.4	0.621	0.386	0.386	0.621
02	J	479.7	0.766	0.588	0.202	0.572
03	H	1001.8	0.845	0.713	0.125	0.525
04	C	406.3	0.900	0.810	0.097	0.541
05	L	541.9	0.931	0.867	0.056	0.557
06	c	438.5	0.96	0.922	0.056	0.537
07	K	593.0	0.982	0.964	0.041	0.546
08	M	287.5	0.994	0.987	0.024	0.514
09	X	4.7				0.354

CONFORMITY: Mean = 63.1; Std. Error at Step 8: Mean ± 1.74

Table 17B1. Terms That Predicted Conformity/Structure in the Priority Environment(s) for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	C	56.5	0.792	0.629	0.629	0.792
02	L	34.1	0.876	0.768	0.139	0.525
03	H	75.7	0.912	0.832	0.064	0.490
04	K	72.7	0.936	0.875	0.043	0.737
05	M	86.5	0.953	0.908	0.033	0.639
06	Q	70.9	0.970	0.942	0.033	0.494
07	c	60.0	0.981	0.963	0.022	0.421
08	J	50.2	0.992	0.984	0.021	0.585
09	X	4.7				-0.130

CONFORMITY: Mean = 58.8; Std. Error at Step 8: Mean ± 2.09

Table 17B2. Terms That Predicted Conformity/Structure in the Priority Environment(s) for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	M	41.8	0.779	0.607	0.607	0.779
02	X	0.9	0.874	0.765	0.158	0.639
03	C	58.8	0.906	0.822	0.057	0.684
04	H	102.5	0.935	0.874	0.053	0.544
05	c	55.9	0.954	0.909	0.035	0.588
06	J	71.4	0.967	0.936	0.026	0.641
07	K	56.5	0.977	0.955	0.019	0.622
08	L	61.7	0.989	0.977	0.022	0.465
09	Q	14.0	0.992	0.983	0.006	0.721

CONFORMITY: Mean = 60.7; Std. Error at Step 8: Mean ± 2.32

Table 18A. Terms That Predicted Logic/Rationale in the Priority Environment(s) for 162 Randomly Sampled Adults in Group A

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	Z	414.9	0.642	0.412	0.412	0.642
02	B	367.6	0.788	0.621	0.209	0.598
03	D	383.1	0.850	0.723	0.102	0.549
04	U	456.4	0.895	0.800	0.077	0.409
05	S	459.7	0.940	0.884	0.083	0.316
06	F	368.7	0.965	0.931	0.047	0.620
07	M	311.0	0.989	0.977	0.046	0.561
08	X	13.3				0.307

LOGIC/RATIONALE: Mean = 61.2; Std. Error at Step 7: Mean $\pm$ 1.95

Table 18B1. Terms That Predicted Logic/Rationale in the Priority Environment(s) for 49 Adults in Group B1

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	F	201.3	0.618	0.382	0.382	0.618
02	M	107.6	0.805	0.648	0.265	0.550
03	D	165.9	0.892	0.796	0.148	0.598
04	Z	90.1	0.935	0.875	0.079	0.568
05	B	92.1	0.957	0.915	0.041	0.495
06	U	76.6	0.973	0.947	0.032	0.189
07	S	67.9	0.990	0.980	0.033	0.606
08	X	4.6				0.284

LOGIC/RATIONALE: Mean = 53.8; Std. Error at Step 7: Mean $\pm$ 1.82

Table 18B2. Terms That Predicted Logic/Rationale in the Priority Environment(s) for 49 Adults in Group B2

Step	Terms	F-Ratio	Multiple R	R SQ	RSQ CHG	Simple r
01	M	90.9	0.704	0.495	0.405	0.704
02	Z	135.6	0.856	0.732	0.237	0.658
03	D	93.4	0.909	0.827	0.095	0.584
04	F	134.8	0.945	0.893	0.06	0.572
05	S	84.0	0.960	0.921	0.028	0.557
06	U	79.8	0.974	0.949	0.028	0.303
07	B	75.2	0.991	0.982	0.033	0.532
08	X	5.8				0.590

LOGIC/RATIONALE: Mean = 55.0; Std. Error at Step 7: Mean $\pm$ 1.74

In Tables 9B1 and 9B2 which report results for the two administrations of the Survey for Group B, the Dominance factor also was predicted in seven steps by the identical sets of terms as those that were the predictors of Dominance for Group A. Furthermore, the efficiency of prediction was not lost in either administration; the R SQs were 0.983 and 0.984, respectively. The F-ratios for the next best predictors at step 8 were relatively low, indicating that the "X" terms would have made virtually no change in R SQ had they been allowed to enter the equations.

The information in Tables 9A, 9B1 and 9B2 was virtually repeated in Tables 10A through 18B2. In the analysis of every factor the sets of predictors were identical. None of the "X" terms that entered an equation early contributed significantly to the prediction of the factor after the last "true" term had been entered, and "X" terms that entered after the true terms had entered made only nominal increases in R SQ, at best. These results show that the PDP® Survey has high intrinsic validity.

The coefficients of reliability and validity obtained for the PDP® Survey recommend it as a tool for measuring behavior and using that information for its intended purposes, namely, to describe, understand and predict behavior. The many applications of the instrument have been greatly augmented by the recent mass availability of personal computers. In 1984, in anticipation of that eventuality, all the necessary information, scoring procedures and special formulas were computerized. Now, several reports can be generated and made available within minutes at any local cite following the entry of an individual's responses to the Survey.

Reports

The information generated by responses to the PDP® Survey is made available through several narrative reports and a graph. The titles and the number of pages of each

report are listed below:

(1) Comprehensive Report, 12 pages

(2) Summary Report, 9 pages

(3) Quick Scan Report, 6 pages

(4) Stress Scan Report, 2 pages

(5) Environmental Preference Report, 1 page (Sub Section of (1) and (2) above)

(6) Management Guide, 3 pages

(7) Job Dynamics Analysis, 3 pages

(8) Data Sheet (Graphic Display), 1 page

(9) Value Sheet (Statistical/AMU technical data), 1 page

As the titles imply each report has a special purpose. The first seven reports are narrative in format while the eighth is a one-page graphic display of the behavior from three perspectives, the Basic/ Natural Self, the Priority Environment(s) and the Predictor/Outward Self. The graph also provides visual displays of other "dynamic features" of the behavior, referenced earlier, as well. All the reports can be displayed on the computer screen and/or printed.

The graphic profiles can be interpreted easily by a trained observer. They equip the user with the ability to make immediate, important distinctions among individual personalities and the status of their dynamic features. Typically, the profiles are displayed on the computer screen for initial interpretation and subsequently reinforced in detail by the narrative descriptions of one or more reports. Other options include extra printed copies of selected reports and reprints of raw values.

The Comprehensive Report not only provides full descriptions of the respondent's behavior, it also contains the definitions of important concepts and terms and it gives the

reader full explanations of what is being measured in each section of the report. It is the report of choice when the user is unfamiliar with the format and substance of Survey analyses and when individual's want to gain understanding of their own behavior.

The Summary Report is similar to the Comprehensive Report but with fewer definitions and explanations. It is the report that is intended for interviewers who are relatively inexperienced in making interpretations and usage of information provided by the PDP® Survey.

The Quick Scan Report is an outline for use by the experienced PDP® user, however, it does not contain the section on motivators.

The Stress Scan Report, as indicated by its name, identifies the sources and "directions" of environmental and emotional stress. Most accurately stated, "stress" is the energy drain due to the conscious or unconscious efforts to change a trait or traits because of outside pressures.

The Environmental Preference Report (Sub Section of Comprehensive or Summary Report) produces a list of motivators. Case studies show that individuals with a particular profile are frequently motivated by conditions that also motivate a large number of people with the same or a similar profile. In other words, people with similar profiles have been found to be motivated by common conditions in the environment points out ways to relieve stress and increase productivity. The motivators are frequently used in advertising a job in order to attract applicants who are known to be motivated by certain key conditions and therefore usually have the profile that matches the one best suited for the job.. The report also points out ways to relieve stress and increase productivity. The motivators are frequently used in advertising a job in order to attract applicants who are known to be motivated by certain key conditions and therefore usually have the profile that matches the one best suited for the job.

The Management Guide gives employers and managers insight into the tendencies of individuals with particular behavioral profiles so they can accommodate individual needs in advance, and in so doing, frequently preclude problems that might arise, otherwise.

The Job Dynamics Analysis (JDA) is a profile and narrative report of behavioral traits that are required by the employer for a particular job or position. The concept is aimed at providing a means by which employers can match people with tasks and tailor jobs to talents.

Applications

The rationale for developing any scale presumes that its application will provide users with information that has practical value. That objective requires the instrument to be constructed on sound principles of measurement. The authors of the PDP® Survey were guided by that understanding and have developed an instrument that is objective, quick to administer, has computer-compiled scoring and reporting, is capable of providing immediate feedback from either visual or printed reports, is relatively inexpensive, and produces results that can be understood easily.

But, even more important than those considerations were the standardization and validation procedures and their results. The studies that tested responses to the Survey for their intrinsic and extrinsic validity produced evidence that the instrument measures what it purports to measure under a variety of conditions and does so with substantial to high levels of consistency.

The positive results of research studies make the information supplied by the Survey applicable in a wide range of situations. Its uses are both descriptive and predictive. Descriptively, the reports that can be generated are themselves important criteria of validity. Primarily, they confirm what is already known about oneself and close friends or well known employees. Such reports can be the user's personal source of confidence in the instrument. Thus, when the instrument measures what it purports to measure in situations about which the user has first-hand knowledge, there is a practical basis for assuming that it also can produce information that is true about individuals who are unknown or are known less well.

Predictive applications of the Survey refer to situations where future behaviors can be anticipated with confidence based upon the unique configurations of the individual's behavioral traits.

The ability to know such a large volume of important information about an individual even on first contact has considerable value in numerous situations. Some of the many applications of the PDP® Survey are listed below:

(1) Employers use the Survey to:

a. Standardize hiring procedures
b. Decrease employee turnover
c. Recognize strengths in others
d. Build team harmony
e. Increase productivity
f. Increase profits.

(2) Personnel Managers use the Survey to:

a. Provide and control a management tool as a service to all management and supervisory personnel
b. Improve the interview with job applicants allowing the interviewee to be an integral part of the confirmation and conclusions
c. Improve the selection of new employees
d Identify sources of employee stress and possible solutions
e. Improve communications among employees and between employees and management
f. Reduce employee interpersonal conflicts

g. Increase morale and job satisfaction

h. Identify individuals' prime needs

i. Discover "on buttons" of employee self motivation

j. Develop management/leadership skills of employees

k. Match people to tasks and tailor jobs to talents

l. Assist in making vertical and horizontal promotions

m. Increase camaraderie

n. Assist in organizational development

(3) Professional counselors use the Survey to:

a. Gain a quick understanding of the client's behavior

b. Identify the client's prime needs

c. Determine the client's keys to self-motivation

d. Gain insight into relationships between the subject and his/her mate, friends, employer, or other individuals

e. Relate the subjects strengths of behavior to career opportunities or vocational goals

f. Reduce interpersonal conflicts

g. Assist the subject in resolving problems related to current employment, career, marriage, education, religion, emotions, finances, abuses and similar issues pertaining to self-control, and many others

h. Recognize sources of stress and possible solutions

(4) Individuals use the Survey to:

a. Know themselves—to gain insight into their own behaviors

b. Discover their own prime needs and unique set of motivators

c. Become aware of their behavioral strengths

d. Supplement their resume with information about strengths in their behavior
e. Make practical applications of Survey information in their personal Priority Environment(s): economic, health, social/personal, family/mate, religion, work/employer

"Know thyself" is an age-old dictum that remains relevant in the information society. The information supplied by the PDP® Survey can be an important source by which that fundamental prerequisite is met by individual users either directly, or indirectly through employers or professional counselors. Actually, the potential applications exceed the space available here to report it. The sample list above merely is an attempt to stimulate the reader's imagination.

Conclusions

The data compiled on the PDP® Survey to date warrant the following conclusions:

(1) The PDP® Survey is a tool that measures behavioral traits that have been labeled Dominance, Extroversion, Pace/Patience, Conformity/Structure and Logic/Rationale.

(2) Responses on the Survey are sufficiently stable to permit predictions of behavior under a variety of conditions with substantial to high efficiency.

(3) The Survey provides information that is not available through other sources—information that is potentially valuable for describing, understanding and predicting behavior of individuals.

(4) The information supplied by the Survey is useful to employers, counselors, spouses, and to individuals who simply want to increase their knowledge about

their own behavioral traits and behavior.

Since its introduction as an instrument for measuring behavioral traits in 1978, positive feedback has been received from a very high percentage of more than 600,000 individual respondents who have taken the Survey, by more than 1,500 trained analysts, 6 professional case study experts and 45 other specialists in the measurement of behavioral traits.

The most representative statement that succinctly summarizes current comments about the Survey is: "It works!"

Summary

Monograph 9 contains information on the design, standardization and application of a survey that purports to measure certain behavioral traits possessed by adults. The survey was conceived and developed as a proprietary instrument by Professional Dynametric Programs® (PDP®), Inc., of Colorado Springs, Colorado, and is referred to here as the PDP® Survey. The monograph attempts to provide the reader with sufficient information and evidence to permit an objective and independent evaluation of the instrument with reference to its reliability, validity and practical utility.

The initial impetus for constructing the PDP® Survey came from four theoretical assumptions:

(1) Human behavior is comprised of different factors.

(2) Factors of behavior can be measured by appropriate sets of self-descriptive word lists.

(3) Knowledge of behavioral traits is useful for the description, understanding and prediction of individual behavior.

(4) The ability to describe, understand and predict behavior can make important differences in many real-life situations.

The Survey is a simple, two-sided card which contains 30 self-descriptive adjectives on Side 1 and a different set of 30 self- descriptive adjectives on Side 2. All 60 adjectives were reduced from 185 words selected from the works of well-known investigators: Cattell, 1945 and 1950; Daniels, 1973; Eysenck, 1947; Fiske, 1949; Guilford, 1954; Horst, 1968; Jung, 1933; Thurstone, 1934; or by the designers of the Survey: Hubby, Houston and Solomon, 1978.

The methods used to determine the final selection of terms and subsequent validation of the instrument employed the statistical tool called factor analysis. That procedure was applied to the Survey responses of 1024 individuals who formed the normative sample and were carefully selected to represent the population of adults in the United States. Validation studies were carried out in 1977 and 1978.

Steps were taken to reduce the instrument's natural vulnerability to errors from guessing, random responses and deliberate distortions. Those steps included the exclusive use of non-threatening adjectives and multiple-term sets of not more than eight adjectives to predict a given factor.

Coefficients of intrinsic and extrinsic validity from several empirical studies under controlled conditions provided objective criteria for evaluating the instrument. Those coef-ficients were obtained from analyses of responses by the normative sample and from other individuals in a study conducted subsequent to standardization. The results of the principal studies carried out to date are reported in Parts I and II of this monograph (Monograph 9), respectively, and they also are summarized here.

The Survey purports to measure five important behavioral traits that are possessed

to some degree by all individuals: Dominance, Extroversion, Pace/Patience, Conformity/Structure and Logic/Rationale. These traits are measured with reference to the Basic/Natural Self (How you feel you really are), Priority Environment(s) (How you feel others expect you to be or act), and the Predictor/Outward Self (How you come across to others).

By its unique design interactions between responses to the Basic/Natural Self and the Priority Environment(s) produce values that represent certain dynamics of behavior; such as, how the person comes across to others, environmental stress, how decisions are made, motivators, prime needs, morale, energy level, energy loss due to stress, styles of management and communication, and approaches to tasks or goals.

The instrument uses a five-point Likert (1932) scale for recording responses; it can be administered to individuals within five minutes and to groups within ten minutes; responses are scored by microcomputer; computer-generated reports include both narrative descriptions and corresponding graphic profiles of the behavior, either of which can be reviewed on the computer screen and/or printed.

During the norming phase, studies were conducted that examined the instrument's intrinsic validity with reference to the replicability, invariance and stability of scores. Results were highly replicable with coefficients above 0.94 for all factors. The instrument also yielded scores that were highly invariant across race, sex and occupation with coefficients above 0.87 in all cases. The stability of scores was estimated from three-month, test-retest coefficients of reliability that were in the 0.70's and 0.80's (N=101) and from split-half coefficients of reliability that were in the high 0.80's and low 0.90's, except for Logic/Rationale which was 0.80 (N=332). These coefficients are somewhat higher than those for other nationally normed measures in the affective domain.

Studies also were conducted that investigated the Survey's extrinsic validity with

specific reference to concurrent and predictive validity.

Concurrent validity coefficients ranged from 0.56 to 0.87 for correlations between the PDP® Survey and the Predictive Index (N=117), from 0.64 to 0.79 for correlations with the Adjective Rating Scales (N=46), and from 0.39 to 0.61 for correlations with the Self Index (N=87).

Several studies used PDP® Survey scores to predict "success" for selected groups. The groups and the criteria of success included, ministers (members), stock brokers (sales), doctoral students in administration (graduate GPA), nursing students (undergraduate GPA), attorneys (rank in law school), teachers (undergraduate GPA) and military officers (grade in a graduate course in administration). These studies produced multiple correlation coefficients in the range from 0.71 to 0.80 with corresponding multiple R squared values in the range from 0.50 to 0.63. The coefficients indicate the instrument has substantial predictive utility.

One additional post-normative study examined the intrinsic validity of Survey scores in two groups of adults. The groups in the sample were selected intentionally because they were thought to be different on certain of the factors measured by the Survey. Group A contained 162 adults who took the Survey in 1986. Individuals in Group B (n=49) were all members of the same organization and lived in the same general area in Southern California.

Differences in mean values between Group A and Group B were statistically significant on three of the five behavioral traits for the Basic/Natural Self and for the same three traits for the Priority Environment(s). These differences confirmed the investigators' suspicions that the two groups represented unique populations. Nevertheless, that fact made it possible to evaluate the invariance of scores by identifying the terms included in each set of predictors of a given factor and observing the similarities, or differences, in the configuration of terms under atypical circumstances

Group B was given the Survey on two occasions exactly one week apart. Correlation analyses of these scores produced short-term coefficients of test-retest reliability in the range from 0.67 to 0.87. These coefficients were comparable to those found for Surveys taken three months apart by a subgroup of the normative sample.

Comparisons between results for the Basic/Natural Self (Side 1) and the Priority Environment(s) (Side 2) demonstrated the replicability of responses in that there was opportunity for sets of terms that predicted a given factor on Side 1 to match (replicate) the set of corresponding terms that predicted the same factor on Side 2.

The statistical analysis of the data used raw scores of all 30 adjectives in the Basic/Natural Self as potential predictors of the total score for each behavioral trait. For those analyses raw scores for individual terms entered a multiple regression equation in a stepwise manner until the complete set of major predictors of a given trait was identified.

A second analysis was identical to the one above except the potential predictors of each behavioral trait were the 30 adjectives in the Priority Environment(s).

Table 19 is a composite of information reported in Tables 9A through 18B2. Alpha characters in the table represent terms on the PDP® Survey card. The five behavioral traits were measured by five different sets of terms on each side of the Survey card. Identical alpha characters were assigned to terms in the two sets of predictors of each factor. Responses to multiple terms by individuals in independent groups were correlated in a stepwise manner with total factor scores. By this procedure it was possible to observe several practical effects of the Survey's intrinsic validity.

Table 19. Composite of Tables 9A Through 18B2 Terms and Sets of Terms that Predicted Behavioral Traits on the PDP® Survey by Group/Administration for the Basic/Natural Self and Priority Environment(s)

	Adults	Adults, Group B	
	Group A	First Survey	Second Survey
Basic/Natural Self (Side 1)			
Dominance	b,d,G,I,N,V,Y	b,d,G,I,N,V,Y	b,d,G,I,N,V,Y
Extroversion	A,b,e,E,T,W	A,b,e,E,T,W	A,b,e,E,T,W
Pace	a,c,D,M,O,P,Q,R	a,c,D,M,O,P,Q,R	a,c,D,M,O,P,Q,R
Conformity	c,C,H,J,K,L,M,Q	c,C,H,J,K,L,M,Q	c,C,H,J,K,L,M,Q
Logic/Rationale	B,D,F,M,S,U,Z	B,D,F,M,S,U,Z	B,D,F,M,S,U,Z
Priority Environment(s) (Side 2)			
Dominance	b,d,G,I,N,V,Y	b,d,G,I,N,V,Y	b,d,G,I,N,V,Y
Extroversion	A,b,e,E,T,W	A,b,e,E,T,W	A,b,e,E,T,W
Pace	a,c,D,M,O,P,Q,R	a,c,D,M,O,P,Q,R	a,c,D,M,O,P,Q,R
Conformity	c,C,H,J,K,L,M,Q	c,C,H,J,K,L,M,Q	c,C,H,J,K,L,M,Q
Logic/Rationale	B,D,F,M,S,U,Z	B,D,F,M,S,U,Z	B,D,F,M,S,U,Z

Note: Lower and upper case letters in the table have no special meaning other than the fact that more than 26 identifiers were needed to cover the 30 descriptors on each side of the Survey card.

The terms have been arranged in alphabetical order by alpha character rather than in the true order of their entry into their respective regression equations. The actual steps at which terms entered and their order of entry are reported in Tables 9A through 18B2 in Part II of the monograph. Also, terms that made minimal contribution to the predictions—those labeled "X" in Tables 9A through 18B2—were eliminated in the present table. These steps were taken to dramatize the consistency of sets of predictors across factors, groups and forms and to make it easy for the reader to observe important results.

The most important finding of the study was that sets of predictors for a given

factor were identical across groups, Survey administrations, and forms, despite the fact that there were 30 different regression equations formulated any one of which could have introduced a foreign term. These results can be observed in Table 19 by simply comparing the three sets of predictors for each trait under Basic/Natural Self, then comparing those three sets with the three sets for the same trait under Priority Environment(s).

Duplication of terms across sets of predictors was quite low, providing evidence of relatively clean factors. However, the term represented by "b" appeared in the equations that predicted Dominance and Extroversion. Terms represented by "Q," and "c" entered the equations for Pace/Patience and Conformity/Structure, "M" was common to Pace/Patience, Conformity/Structure and Logic/Rationale, and "D" was common to Pace/Patience and Logic/Rationale. No term in the equations for Dominance or Extroversion appeared in the equations for Pace/Patience, Conformity/Structure or Logic/Rationale. All of the 30 adjectives on Side 1 entered at least one equation; the same was true for Side 2.

Information in Table 19 provides practical evidence of the intrinsic validity of the PDP® Survey by demonstrating high replicability, invariance, constancy and stability of responses.

The PDP® Survey produces several valuable narrative reports about individual respondents. Specific reports include: Comprehensive Report, Summary Report, Quick Scan Report, Stress Scan Report, Environmental Preference Report, Management Guide, and Job Dynamics Analysis. In addition to the narrative reports, a graph can be obtained that locates the respondent's scores on continuous scales for each behavioral factor. Essentially, the graph is a one-page profile of the individual's behavior with reference to the Basic/Natural Self, the Priority Environment(s), and the Predictor/Outward Self. A
synthesis of factor scores for the Basic/Natural Self and the Priority Environment(s) also produce the dynamic features of the behavior (e.g., stress, energy level, morale, etc.).

The authors of the PDP® Survey were guided by a clear understanding that any scale must incorporate sound principles of measurement in order to have practical value. The standardization and validation procedures produced an instrument that measures what it purports to measure under a variety of conditions with substantial to high levels of consistency. In addition the PDP® Survey is recommended by several administrative considerations: It is objective, quick to administer, and relatively inexpensive; it has computer-compiled scoring and reporting; it is capable of providing immediate feedback, either by visual displays on the computer screen or by printed copy or both; results can be understood without professional interpretation.

The information produced by the PDP® Survey is both descriptive and predictive. Descriptively, the reports confirm much of what individual respondents already know about themselves or what they know about other individuals with whom they are well acquainted. That information, however, is a practical basis for assuring the user that information obtained on individuals who are less well known also is true.

Predictive applications of the Survey refer to situations where future behaviors can be anticipated based upon the unique levels and configurations of the individual's behavioral traits. The ability to know so much about the behavior of individuals, especially on first contact, has important applications some of which are identified in the list below:

(1) Employers use the Survey to:

a. Standardize hiring procedures
b. Decrease employee turnover
c. Recognize strengths in others
d. Build team harmony
e. Increase productivity
f. Increase profits

(2) Personnel Managers use the Survey to:

a. Provide and control a management tool as a service to all management and supervisory personnel
b. Improve the interview with job applicants
c. Improve the selection of new employees
d. Identify sources of employee stress and possible solutions
e. Improve communications among employees and between employees and management
f. Reduce employee interpersonal conflicts
g. Increase morale and job satisfaction
h. Identify individuals' prime needs
i. Discover "on buttons" of employee self motivation
j. Develop management/leadership skills of employees
k. Match people to tasks and tailor jobs to talents
l. Assist in making vertical and horizontal promotions
m. Increase camaraderie
n. Assist in organizational development

(3) Professional counselors use the Survey to:

a. Gain a quick understanding of the client's behavior
b. Identify the client's prime needs
c. Determine the client's keys to self-motivation
d. Gain insight into relationships between the client and his/her spouse, friends, employer, or other individuals
e. Relate the client's strengths of behavior to career opportunities or vocational goals

f. Reduce interpersonal conflicts

g. Assist the client in resolving problems related to current employment, career, marriage, education, religion, emotions, finances, abuses and similar issues pertaining to self-control, and many others

h. Recognize sources of stress and possible solutions

(4) Individuals use the Survey to:

a. Know themselves—to gain insight into their own behaviors

b. Discover their own prime needs and unique set of motivators

c. Become aware of their behavioral strengths

d. Supplement their resume with information about strengths in their behavior

e. Make practical applications of Survey information in their personal Priority Environment(s): economic, health, social/personal, family/mate, religion, work/employer

The potential applications of the Survey actually are too numerous to list in the space available in this summary. Many other uses of the information are equally appropriate.

The evidence found by the studies reported in the present monograph and summarized here justify the conclusion that the PDP® Survey is a behavioral instrument that measures five factors referred to as behavioral traits, labeled, Dominance, Extroversion, Pace/Patience, Conformity/Structure and Logic/Rationale, and certain other dynamic features of behavior. The instrument measures those factors with substantial to high efficiency, providing users with information that has considerable practical value. The information is used by employers, counselors, and individuals for purposes of describing, understanding and predicting behavior.

Over the ten year period since its standardization in 1978, comments about the accuracy and validity of the PDP® Survey have been obtained from more than 600,000 individual users and over 1,500 analysts, case study experts and professionals in the measurement of behavior. The statement that most nearly represents current feedback about the Survey is: "It works!"

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