

Business Application



Background and Validation Studies

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1. INTRODUCTION

profilingvalues serves as a modern online business application based on formal axiology, i.e. the science of measuring values. The *profilingvalues report* and its professional interpretation assists in candidate selection or associate promotion and it provides recommendation for optimal performance regarding human resources development.

profilingvalues was developed by Dr. Ulrich Vogel. It is based on the Hartman Value Profile (HVP)¹ or the Hartman Inventory which has been extensively validated internationally as well as in various environments including many business settings.

A concise description of the HVP essential performance indicators and mechanism was published by The Brooks Group and is quoted in the following paragraphs².

"The Hartman Value Profile is the creation of the late Dr. Robert S. Hartman and is owned by the Robert S. Hartman Institute, university of Tennessee. It is a paper and pencil exercise that requires that the subject rank order eighteen different statements in two different lists. This forced ranking of the statements requires that the subject evaluate each statement and compare it to every other statement. The resultant rankings demonstrate the subject's different capacities and biases in valuing. The Hartman Value Profile is based on the science of formal axiology. [...]"

Axiology is the formal system of identifying and measuring value. The Hartman Value Profile is one means by which we are able to measure an individual person's propensity and capacity to value. It is the person's structure of value (the road map and filtration system a person uses to think, evaluate and make decisions) that results in personality, individual perceptions, and decisions. In common parlance, a person's structure of value is how that person thinks.

That we are able to simply and objectively measure a person's structure of value has significant ramifications for mental health and business. The Hartman Value Profile eliminates much of the need for arduous and expensive psychological testing for either clinical or business purposes. It provides an easy to use, objective, deductive, measurement which can be (and has been) used for counseling, training, and development. Businesses have used the Hartman Value Profile in candidate selection, designing of training, and measuring the efficacy of their training and development programs (before and after measurement of growth, change, or improved skills). The most comprehensive book to date covering Dr. Robert

¹ s. Robert S. Hartman, *The Structure of Value*, Southern Illinois University Press, Carbondale 1967

² s. The Brooks Group, *Attitude/Personal Skills Validation Study*, Kinsel Enterprise, Inc., Greensboro, NC, 1998, p. 5

Hartman, formal Axiology, and the uses of Axiology is Dr. Rem B. Edwards' and John W. Davis's book: *Forms of Values and Valuation*, University Press of America, 1991."

During the last years, comprehensive validation studies and scientific research regarding the development of axiological psychology had been undertaken by Leon Pomeroy³. Dr. Pomeroy is the most recognized scientist with respect to axiological psychology or value science worldwide⁴. Furthermore, it is appropriate to refer to the research and publications of Victor Frankl and Albert Ellis regarding value theory and related science⁵.

Due to the multitude of validations regarding the HVP which has been accomplished up to date, we would like to concentrate on the most recognized studies. Thus, the following paper is a compilation of a variety of validation studies referring to the mentioned scientist Dr. Leon Pomeroy and Dr. Robert Kinsel Smith covering the research field of value based psychology in combination with the Hartman Value Profile which serves as the "engine" of *profilingvalues* today⁶. The competence scales from *profilingvalues* refer exactly to the corresponding scales within the Hartman Value Profile.

Validating is the multi-faceted discipline that determines the accuracy, dependability and the consistency of an instrument with the scientific theories supporting it. Validation measures how closely a testing instrument's scores correspond to measurable behaviors or characteristics. It also establishes the reliability of the instrument, insuring that the nature of the instrument does not significantly affect its outcomes. The process of validating an instrument is compartmentalized with each different process measuring different aspects about the instrument.

³ s. Leon Pomeroy, *The New Science of Axiological Psychology*, edited by Rem B. Edwards, Amsterdam - New York 2005

⁴ Leon Pomeroy, Ph.D., holds advanced degrees in biology and psychology from the University of Massachusetts at Amherst and University of Texas at Austin. After receiving his psychology doctorate, Pomeroy accepted an invitation to join the psychology faculty of Long Island University. There he became interested in the moral dimensions of health care. During the several years he served as an Associate Professor of Psychology, Pomeroy accepted regular invitations to be a visiting professor on the summer faculties of New York University and the City University of New York. In the early 1980s, he rediscovered the work of Robert S. Hartman, the philosopher he had discovered earlier at the Albert Ellis Institute. After intensive research and several publications about Hartman's work, he served as the President of the Robert S. Hartman Institute at the University of Tennessee, Knoxville, and is fully engaged with developing value centric cognitive psychology and the new science of axiological psychology.

⁵ s. e.g. Victor Frankl, *Man's Search for Meaning. An Introduction to Logotherapy*, New York, London 2004; s. e.g. Albert Ellis, *The Road to Tolerance: The Philosophy of Rational Emotive Behavior Therapy*. Prometheus Books, 2004

⁶ s. Leon Pomeroy and The Brooks Group I.c.

The following summaries outline specifically the HVP viable, replicable, objective, and reliable findings which constitute methodology and mathematics of *profilingvalues*. It shows that HVP meets the requirements of the E.E.O.C. for non-discrimination against race, sex, and age (s. following paragraph). All studies described within this paper comply with the American Psychological Association's guidelines for analysis of psychometric instruments and follow industry-standard procedures for statistical analysis.

The Equal Employment Opportunity Commission (E.E.O.C.) established that screening instruments, psychological testing, personality tests, and all other evaluation procedures used in industry are to fulfill the Uniform Guidelines on Employment Selection Procedures (1978): "Employer policies and practices which have an adverse impact on the employment opportunities of any age, race, sex, or ethnic group are illegal. [...] Employer decisions include, but are not limited to hiring, promotion, demotion, membership, referral, retention, licensing, and certification." [Federal Registry, Vol. 43, No. 166, 8/25/78]

The conclusion from these studies is that *profilingvalues* does comply with the E.E.O.C. requirements and does not discriminate against persons of different racial origins, sexes, ages, and religions.

2. CONSTRUCT VALIDITY AND RELIABILITY

Establishing the validity of the Hartman Value Profile can be achieved through comparison with reputed and highly proven psychological tests that measure the same behavioral parameters. A correlational study matches comparable value metric and psychometric scales, called "concurrent validation" which is shown in chapter 4 of this paper with the well-known Cattell's 16 PF.

Another approach to validating the HVP lies in construct validation. It employs the statistical method known as "factor analysis" applied to an inter-correlation matrix (R-Matrix) of some HVP subscales. The question is whether the HVP provides what it claims to provide. This also adds to the validity of the HVP and the formal model from which it derives.

To explain what factor analysis does, consider the example of measuring twenty boxes in every possible way including length, height, width, the six surface areas, and volume. Do we need all ten measurements of the boxes? What are the fewest number of independent measures? The box variable or parameter (1 to 10) heads up rows and columns of an inter-correlation or "R" matrix upon which the factor analysis is performed. In case we include all 10 measurements, it would become a huge matrix. This is not necessary due to the fact that the result of a factor analysis on our box data reveals that only three orthogonal (independent) measures exist. From these, all other measures can be derived. Length, height, and width yield all

the essential information. This is how factor analysis works. It distills the most fundamental information from which all other information can be calculated.

In the case of the Hartman Value Profile, i.e. *profilingvalues*, we will look at thirty-six variables and determine the numbers of factors (orthogonal or independent dimensions) that can be extracted. The hypothesis is that factor analysis will reveal two gross dimensions of values – world value-vision (world-reality testing), and self value-vision (self-reality testing). These two dimensions should account for most of the variance or variability of test scores that come out of the thirty-six variables or scales of the HVP. Part I of the HVP reflects a person's general capacity for reality testing in the world. Part II reflects this person's general capacity for self reality testing. These two dimensions of the General Capacity to Value (GCV-1 and GCV-2) result from more elemental valuation skills that act in concert with Intrinsic (I), Extrinsic (E), and Systemic (S) dynamics. Good scores for these dimensions, together with dimensional balance (DIM), point to rational autonomy with minimal anti-self, anti-social conflicts; bad scores point to the opposite.

Table 1 confirms that the HVP measures two basic dimensions of valuation, so it has construct validity. To assess the reliability or stability of this finding, this study was repeated with several other populations. In all cases, two fundamental factors account for most of the test variance inherent in scores of the HVP scales. The hypothesis that value metrics (HVP) measures two gross dimensions of valuation is confirmed. Hence, the HVP provides the type of information that Robert S. Hartman claims to provide. It displays two dimensions of valuation, one independently dedicated to world value-vision, the other independently dedicated to self value-vision.

The I, E, and S dimensions of valuation are primary (DIMI, DIME, DIMS). They come together to form the secondary dimensions of general world value-vision and general self value-vision. In the combinatorial calculus, the three basic dimensions come together in various combinations and permutations to give rise to the two general secondary dimensions of valuation, as well as to other dynamics of value-vision reflected in the remaining scales of the Hartman Value Profile like INT% (reaction confronted with problems), AI% (attitude index, positive or negative attitude towards the world and self), DIF (differences, variances, ability to value, sensitivity), DIM% (proportional measure of valuating ability), DI (dimensional integration, sense of proportion in problem-solving), and BQR (relative balance between self and world valuation). All HVP scales record deviations of obtained results from the value science norm (logic-mathematical norm). RHO is an overall deviation statistic that correlates obtained profile rankings with the axiological profile norms given by value science (for detailed discussion of RHO see following chapter). The term "normative" has special meaning in value metrics. It refers to the benchmark calculations given by value science, not to a benchmark drawn statistically from reference populations. Value metrics is not psychometrics; the two meet only in validation studies reported in this paper.

Table 1: Factor Analysis of Pooled Data: U.S.A. Students, Doctors and General Medical Patient Data (N= 361)⁷

HVP	F-I	F-II	F-III	F-IV	F-V
DIF-1		+0.85			
DIMI-1		+0.69			
DIME-1		+0.66			
DIMS-1		+0.74			
DIM%-1			+0.71	-0.60	
INTI-1		+0.71			-0.45
INTE-1		+0.68			
INTES-1		+0.74			+0.38
INT-1		+0.85			
INT%-1		+0.79			
DI-1		+0.69			
DIS-1		+0.71			
VQ-1		+0.87			
VQ-2		+0.86			
BQR-1		-0.18			
BQA-1	+0.98				
CQ-1	+0.85				
DIF-2	+0.93				
DIMI-2	+0.88				
DIME-2	+0.82				
DIMS-2	+0.74				
DIM-2	+0.67				
DIM%-2			+0.61	+0.70	
INTI-2	+0.88				
INTE-2	+0.83				
INTS-2	+0.75				
INT-2	+0.94				
INT%-2	+0.89				
DI-2	+0.74				
DIS-2	+0.91				
AI%-2	+0.87				
SQ-1	+0.95				
SQ-2	+0.95				
BQR-2		-0.79			
BQA-2	+0.97				
TOTAL%	17.2%	10.9%	2.4%	2.0%	1.2%

⁷ s. Leon Pomeroy I.c., p. 70

The picture that emerges from Table 1 consistently confirms the hypothesis that the HVP measures two orthogonal (independent) gross dimensions of valuation consistently defined by either DIMI-1, DIME-1, DIMS-1 or DIMI-2, DIME-2, DIMS-2 scales of elemental valuation. This defines with mathematical precision the existence of two orthogonal (independent) dimensions of emergent, gross, secondary valuation that are born of elemental primary (Intrinsic I, Extrinsic E, Systemic S) dimensions (DIM) of valuation. This is consistent with what Hartman says the HVP should do. This evidence establishes the construct validity of the HVP. Successful replication of factor analysis across several populations further supports the reliability of these findings.

RELIABILITY

Reliability measures whether the results or assessments derived from an instrument are the result of chance. When an instrument is proven to be reliable, it can be used at different times, in different contexts with confidence that the presiding conditions did not affect the results with any statistical significance. Reliability is usually proven with a test-retest procedure within a ten-day period. The longer the period, the more reliable the instrument is found to be.

Reliability of the Hartman Value Profile means that it will perform consistently when administered over a short period of time to confirm the test-retest reliability. The HVP was administered to a test group, followed up by a re-test after a month. The research hypothesis is a null hypothesis, meaning there will be no significant difference in test scores between the pre-test and post-test. The two outcomes must be statistically evaluated to search for any significant changes in scores. This empirical procedure is called "test-re-test reliability". A finding of reliability for the HVP strengthens all validity claims for the method, its foundational formal model, and for axiological psychology. The findings are summarized in Table 2. HVP change scores are given along with their associated level of statistical significance.

Table 2: HVP Reliability Test (N = 80 College Sophomores)⁸

HVP Scale	Pre-Test	Post-Test	Change	Significance
DIF-1	33.17	33.50	0.33	p = 0.82, ns
DIF-2	43.57	43.13	-0.44	p = 0.84, ns

The results show no significant changes in HVP scores. The data confirm the null hypothesis of no significant changes between pre and post-test scores. This warrants the conclusion that the HVP possesses the reliability required for serious applications of value metrics. It also reflects favorably on the global effort to validate empirically the HVP as a value profiling methodology.

⁸ s. Leon Pomeroy l.c., p. 78 excerpt

3. THE RHO CORRELATION

Completing the first part of *profilingvalues*, or the Hartman Value Profile respectively, requires the ranking of 18 value statements. In this case, the ranking possibilities add up to more than 6.4 quadrillion ($1 \times 2 \times 3 \dots \times 18$, or mathematically "18!"). This is a number with 15 zero digits. The combination of Part I and Part II leads to "36!" or 3.7×10^{48} , a figure of ranking possibilities higher than the number of atoms in the universe. The probability against this kind of response within one part is $1/10^{15}$, that is, it is practically impossible. The correlation with the theoretical sequence, the mathematically correct rank order is RHO or $\rho = 1.0$. The correlation formula for sequences is

$$\rho (\text{RHO}) = 1 - [6 \sum D^2 / n(n^2 - 1)]$$

where D is the difference between a theoretical item of the axiological sequence and an actual item in a person's test, and $n = 18$, for the 18 items of the test. RHO is the rank order correlation coefficient, which means that it correlates the sequence of the testee's valuation numbers with the sequence of the test valuation numbers (the logic-mathematic norm), finds the differences and then correlates these differences in such a way that pluses and minuses disappear through squaring of the differences, so that, through the general formula of RHO, the total nature of the test appears within that number. The range of RHO is between +1 and -1 ("inverted score"). The statistical significance at 5 percent for RHO, with 18 items, is 0,475; so anything above this number is significant whereas anything below that number is in increasing degree a matter of chance. The scale of RHO should therefore be between 1,000 and 0,475 and is as follows.

Table 3: The Scale of RHO within the HVP

Scale Attribute	RHO
Excellent	1.000 - .925
Very Good	.924 - .850
Good	.849 - .775
Average	.774 - .700
Poor	.699 - .625
Very Poor	.624 - .550
Extremely Poor	.549 - and below

Between the theoretical extremes, and usually above the "semi-inverted" score (items are put in the right half above or below within the ranking and in each half inverted compared to the norm) falls the large majority of all tests, in other words, has a significant correlation with the axiological sequence.

For comparison reasons, random order needed to be tried to determine how the 18 items arrange themselves. To this end, 18 pieces of equal weight and form, numbered 1 to 18, were thoroughly mixed and together thrown in the same direction. The number of each item was then registered on the scoring form according to its distance from the thrower, with the closest item in position 1, the next closest in position 2, etc., and the most distant in position 18. The results were the following scores for RHO for two throws: -.210 and .024.

4. VALIDATION AGAINST WELL-ESTABLISHED CATTELL'S 16 PF

Concurrent validity is the test as to whether a particular instrument correlates significantly to other valid instruments. This validation provides an alternative means of validating an instrument by "piggy-backing" on the reams of validation of previously benchmarked, psychometric instruments.

Before we will step in-depth into the Cattell' 16 PF, we refer to another concurrent validation study which incorporated six different psychological instruments as measuring rods to establish concurrent validation⁹. The instruments were the MMPI, the Cattell's 16PF, the CAQ, Ellis's Personal Belief Inventory, the Cornell Medical Index, and the Auto Lethality Index. This study was completed in two phases over a period of more than a year. The first study had a sample size of 68 adults and compared the Hartman Value Profile with the MMPI, ALI, CMI, and the PBI. The second study had a sample size of 72 adults and compared the HVP to the 16PF and the CAQ. The results of this two-part study are very comprehensive and can be summarized in the following manner: Part I: The Hartman Value Profile correlated with a high degree of significance ($.05 > p < .0001$) in thirty-six different specific measurements to the MMPI, CMI, AL, and PBI. Part II: The HVP correlated with a high degree of significance ($.05 > p < .0001$) in thirty-two different specific measurements to the 16PF and CAQ.

Table 4 shows the Cattell scales involved in the study conducted by Leon Pomeroy¹⁰ together with their definitions. Cattell's scales are derived using factor analytic methods. The Cattell's 16PF is an objective psychological test of a special nature. Like the Hartman Value Profile, it relies on mathematical precision. Below table 4, please find a list of selected HVP correlations with Cattell measurement criteria. This enumeration first identifies the HVP scale including its meaning, then lists the Cattell scale to which it corresponds and provides the correlation (r value) and the associated probability (p value). These scales are mathematical factors; table 4 describes the meaning of low and high scores.

⁹ s. The Brooks Group, l.c., p. 14 and the following

¹⁰ s. Leon Pomeroy, l.c., p. 175 and the following

Table 4: Definition of Select Cattell Scales¹¹

	Low End Scores	High End Scores
A	Reserved	Outgoing
B	< IQ	> IQ
C	< Ego	> Ego
E	Submissive	Dominant
F	Serious	Lively
G	Ignores Rules	Moralistic
H	Timid	Bold
I	Tough Minded	Tender Minded
L	Trusting	Suspicious
M	Practical	Bohemian
N	Blunt	Polished
Q1	Conservative	Free Thinking
Q2	Joiner Group Oriented	Loner-Self Sufficient
Q3	Undisciplined	Controlled
Q4	Relaxed	Tend, Driven
O	Very Secure	Very Insecure

WORLD VALUE-VISION SCALES

DIME-1 (valuation of extrinsic values related to the world, i.e. practical thinking or common sense): D5: $r = +0.23$ ($p = .05$). Elevated DIME-1 scores reflect elevated fatigue, low energy, depression, and feelings of worn out.

DI-1 (sense of proportion in problem solving related to the world): Q1:2 = -0.24 ($p < .05$) Elevated DI-1 scores reflect a conservative personality that resists change and opposes innovation. This person will feel more comfortable with established ideas and traditional beliefs.

DIS-1 (proneness to value distortion related to the world): L: $r = +0.28$ ($p = .02$). Elevated DIS-1 scores are associated with moody individuals who tend to be cynical, fault finding, and markedly suspicious. They are not team players, and they are often jealous and possessive. They are "lone wolves".

DIS-1: M: $r = -0.28$ ($p = .02$). Elevated DIS-1 scores are also associated with lower M scores (negative or reciprocal correlations) that point to practical and logical individuals who strive hard to be proper and conventional. Elevated DIS-1 people seek to avoid behaviors that would set them apart. They are alert, cautious, practical, and punctual.

¹¹ s. Leon Pomeroy, l.c., p. 176

INT-1 (seeing the relevant in the complex related to the world): Q1: $r = -0.24$ ($p < .05$). Elevated INT-1 scores are associated with conservatism.

SELF VALUE-VISION SCALES

DIF-2 (value sensitivity related to self): F: $r = -0.26$ ($p = .02$). Elevated DIF-2 scores are associated with lower F factor scores. Elevated DIF-2 scores indicate a more taciturn, restrained, deliberate, pessimistic, introspective, and scrupulously correct personality orientation. Such people tolerate monotonous work well and are more prone to anxiety about change.

DIME-2 (developed capacity to discern practical values related to self, i.e. role awareness): M: $r = -0.25$ ($p < .03$). Elevated DIME-2 scores are associated with logical, practical, conventional, moralistic, punctual, alert personalities who are very responsive to external realities. They have a low level of accident proneness and are seen as very "down to earth".

DIME-2: N: $r = +0.31$ ($p = .009$). This highly significant correlation between DIME-2 and Cattell's N scale suggests that elevated DIME-2 scores indicate shrewdness. This unexpected finding may indicate compensation for weaknesses otherwise associated with elevated DIME-2 scores. The DIME-2 dimension of role awareness is the contingent-worth dimension where authenticating and validating self proceeds from successful performance and achievements. Heavy investments in contingent-worth formulas to support role awareness might lead people to be especially shrewd, astute, polished, and socially alert on a compensatory basis. In such cases, the DIME-1 scores should be carefully checked out as well.

DIMS-2 (capacity to discern system and order related to self): N: $r = +0.25$ ($p < .05$). Elevated DIMS-2 scores are positively correlated with elevated N scale values. Rising DIMS-2 scores translate as increasing shrewdness and more polished social behaviors free of sentimentality and wishful thinking. Low DIMS-2 scores may also be associated with behaviors that are too socially direct and blunt.

AI%-2 (attitude index related to self): C: $r = -0.26$ ($p = .029$). Elevated AI%-2 scores are associated with low ego strength. This translates into emotional instability that is easily affected by feelings, lack of patience, lack of self-control, lack of perseverance, inappropriate affect, superficial friendliness, aggressive self-assertion, and anger.

AI%-2: E: $r = -0.29$ ($p = .087$). Moderately elevated AI%-2 scores are associated with low E scores (negative correlations), suggesting submissiveness. Submissive personalities have a tolerance for monotonous work.

AI%-2: G: $r = +0.23$ ($p < .05$). Moderately elevated AI%-2 scores are associated with conformity, moralistic and conscientious behavior, persevering habits, and self-exacting perfectionism.

INT%-2 (reaction confronted with problems): C: $r = -0.24$ ($p < .05$). Elevated INT%-2 scores are associated with lack of patience, lack of perseverance, and lack of self-control, an excessive display of emotions, aggressive self-assertion, anger, excitability, and general upset proneness. This finding is in the range of anxiety states. This correlation is negative, so elevated INT%-2 scores are associated with low C levels. This indicates ego strength and emotional instability having the signs already cited.

INT%-2: H: $r = -0.23$ ($p < .05$). This significant correlation implies that moderately elevated INT%-2 scores are associated with shy, timid, inhibited, taciturn, reserved, formal, self-contained, uneasy, self-conscious, cautious, socially withdrawn personalities. In the moderate range of elevation, INT%-2 points to personalities that typically excel at precision work demanding great attention to detail.

INT%-2: M: $r = -0.27$ ($p < .02$). Moderate INT%-2 elevations are associated with "down to earth" practical concerns. Low level elevations are associated with logical, conventional, moralistic, and strict approaches to practical matters. These are alert and cautious individuals. In some cases, their traits may be compensatory in the face of moderate anxiety elevations.

INT-2 (seeing the relevant in complex situations related to self): The INT scale refers to the general ability to distinguish the "trees" from the "forest" in matters of self value-vision, to discriminate what is important in the midst of self-complexity. INT is a general index of problem-solving capacity. In the present context, it is an index of the ability to "know-thyself". This is an important skill for developing and maintaining self-esteem and that harmony and balance we call "peace of mind". This scale might reasonably be expected to attain many significant correlations with Cattell's criterion measures.

INT-2: F: $r = -0.28$ ($p = .02$). From this correlation, we may expect moderately elevated INT-2 scores to be associated with introspective, taciturn, restrained, and deliberate personalities. This association is likely for the lower ranges of scale elevation.

INT-2: M: $r = -0.25$ ($p = .03$). Moderately elevated INT-2 scores yield personality characteristics. They are associated with logical, conventional, practical, moralistic, formulaic, cautious personalities. These personalities also exhibit low accident proneness. The correlation is negative, so elevated INT-2 scales are associated with low M traits, as just described. These are personalities with very "down to earth" concerns, like those with mid-level elevations of the INT-2 scores. Moderately INT-2 scores are associated with tense, irritable, restless, driven, impatient, excitable, and easily frustrated personalities.

BQR-2 (relative balance of world valuation and self valuation): L: $r = +0.26$ ($p = .025$). Elevated BQR-2 scores are associated with moody, cynical, fault finding, suspicious personalities. Such individuals have problems fitting into a group, and they make poor team players. They are lone wolves, and they are often jealous and possessive.

5. PROFESSIONAL HIGH ACHIEVERS STUDY

This chapter will contrast a within-nation (U.S.A.) pattern of axiological differentiation (heterogeneity) with the within-nation pattern of axiological homogeneity found among professional high achievers who were given the Hartman Value Profile.

Table 5 identifies one set of HVP data obtained between 1985 und 1995 from professional high achievers. The results are offered to benchmark the limits of axiological variability within the U.S.A. and to provide an axiological reference for understanding. Table 5 gives the occupations of those participating, tables 6 and 7 present their HVP scores.

Table 5: Professional High Achievers Identified by Occupation (N = 10)¹²

Subjects	Profession
1	Psychiatrist
2	Professor
3	Chiropractor
4	Explorer-Hunter
5	Physician
6	Professor
7	Engineer
8	Psychologist
9	Engineer
10	Professor

RHO scores provide a quick-test of results. They are non-parametric correlations of a person's ranking scores with the normative ranking given by Hartman's formal model, developed without reference to empirical norms. This immediately distinguishes Hartman's value metrics (direct value measurement) from the psychometrics (indirect value measurement) of traditional psychology. Since both metric systems reflect values, the validation of the first with the second is possible.

¹² s. Leon Pomeroy, l.c., p. 217

Table 6: HVP Scores Obtained From Professional High Achievers¹³

Subject	#1	#2	#3	#4	#5	#6	#7	#8	#9	10	Mean
RHO-1	55	74	76	94	76	89	91	86	97	89	83.0
DIF-1	28	46	52	20	52	32	28	30	16	36	34.0
DIMI-1	4	16	21	3	15	11	11	9	6	7	10.3
DIME-1	11	14	14	11	19	9	4	10	2	12	10.5
DIMS-1	13	16	17	6	18	13	13	11	8	17	13.2
VDIMI-1	0	-16	0	1	-7	-3	1	-3	0	-5	-4.3
VDIME-1	-7	-4	1	-7	5	2	-4	-4	0	2	-1.3
VDIMS-1	-5	-16	-1	-2	2	1	3	7	0	-9	+1.2
DIM%-1	39	43	17	65	30	22	39	10	50	42	30.9
INT%-1	32	54	30	20	48	31	25	37	6	31	33.0
AI%-1	71	89	50	70	50	50	50	50	50	66	50.6
RHO-2	91	76	89	85	65	71	86	68	85	84	80.0
DIF-2	34	54	34	40	62	54	36	56	38	38	45.0
DIMI-2	12	24	10	12	15	14	16	27	11	10	15.0
DIME-2	10	14	12	10	20	26	12	11	12	14	13.6
DIMS-2	12	18	12	18	17	14	8	18	15	14	14.6
VDIMI-2	-6	-20	-10	-10	-11	-12	-4	-21	-11	-10	-11.5
VDIME-2	-4	0	-4	2	-2	-12	6	1	2	-4	-1.5
VDIMS-2	9	2	8	4	-1	6	-2	2	9	14	+5.2
DIM%-2	26	29	26	35	31	44	33	45	18	11	25.7
INT%-2	21	45	29	38	56	50	36	52	32	42	40.0
AI%-2	50	66	58	55	61	54	50	66	50	50	57.0

The higher the RHO scores the better. "Better" implies higher rational autonomy and pro-social, pro-self behavior consistent with optimizing psychosocial adaptation, survival, and flourishing or well being. The higher the RHO scores, the better the value-vision. The better the value-vision is, the greater the probability of self-benefitting behavior patterns over self-defeating behavior patterns.

Professional high achievers on average present higher RHO scores and better HVP scores than the general population. This is seen when scores in the discriminant validity study are compared with professional high achiever results, see Table 7. Exceptions exist because conflicted individuals can mount brilliant compensatory axiological defenses or compensations, reflecting the old adage that "Genius comes close to madness" and the fact that we can do good things for the right and for the wrong reasons.

¹³ s. Leon Pomeroy, l.c., p. 221

Table 7: Truth Table: Multivariate Discriminant Analysis of Student, Doctor, Patient Populations Employing the HVP. Test Populations: Group I Patients (N = 97), Group II Students (N = 119), Group III Doctors (N = 156)¹⁴

Test Populations	Group I Patients	Group II Students	Group III Doctors	Total %	N
Patients Group I	63.92%	22.68%	13.40%	100%	97
Students Group II	2.52%	92.44%	5.04%	100%	119
Doctors Group III	1.92%	30.77%	67.31%	100%	156
Total %	18.28%	48.39%	33.33%		

Off-diagonal cells record misses. The biggest miss (discriminatory error) is the inaccurate classification of 30.77% of the doctors as students. But is this erroneous? Aren't doctors students, at least formerly so? Aren't college sophomores the epitome of mental health in the sense of being normal populations often recruited for psychological testing? They are often used as control subjects in psychological research. The long education of doctors tends to favor a student mind-set, with startling exceptions at times. The exceptions are replete with brilliant defenses that drive them to be achievers for the wrong reasons, not for the right reasons. The normal mental status of doctors and students gives us groups possessing a relatively normal axiological signature in value metric terms. Distinguishing doctors from students might be expected to be difficult. Even so the results are very impressive. The HVP cannot be severely faulted for wrongly identifying 30.77% of doctors as students, especially when 67.31% are correctly identified as doctors, and only 1.92% of doctors are classified as patients.

In the given HVP sample of professional high achievers, RHO-1 scores are usually better than RHO-2 scores. Self-valuation is crucial to survival and to getting the good things in life for ourselves in the long run, but world valuation demands more immediate attention. Otherwise, external reality immediately comes up and slaps us in the face. Ideally, we hope to see good RHO-1 and RHO-2 scores plus balance between them.

Examining HVP outcomes on a case-by-case basis for professional high-achievers reveals the axiological individuality within this relatively homogeneous group of individuals. Within-group or within-nation axiological variability is the denominator of the critical ratios of statistical tests that compare groups such as nations, or doctors versus students. This data on professional high achievers is offered to benchmark both the HVP patterns associated with high achievement and the axiological variability inherent among relatively homogeneous populations that are shaped presumably by the cookie-cutters of ambition, careerism, and need achievement.

¹⁴ s. Leon Pomeroy, l.c., p. 92 and the following

Professional high achievers find much existential meaning in their lives. In pursuing their vital absorbing interests, they rejoice in pro-self and pro-social behaviors and delight in rational autonomy. On the path of life rather than death, they enrich the lives of others in love and fellowship. Where problems exist, they become rational problem solvers, benefitting themselves and others.

6. FURTHER BUSINESS RELATED VALIDATION STUDIES

The E.E.O.C. requires any instrument used in candidate selection to be able to prove "business necessity": *it must measure those traits and/or abilities that directly relate to what is needed to do a particular job.* When an instrument has either predictive validity or criterion validity, it fulfills the business necessity requirement.

Criterion validity measures the ability of an instrument to correspond to specific criteria or behavior. This type of validation compares groups and analyzes the differences measured between the groups. When the analysis is statistically significant, then the instrument is a valid tool for distinguishing the characteristics that separate the members of the two groups. The following summary of the mentioned studies refers to the validation research of Dr. Robert K. Smith¹⁵.

CRITERION VALIDATIONS

For the following customer service study, all members of the sample groups were employed as customer service personnel. They were divided into two groups: those who were successful and from those who were not successful in customer service. The criteria used for distinguishing the groups were letters of commendation from satisfied customers and the management's recognition of a person's success in this role.

The management study A compared managers who had succeeded with those who had failed (Study A). The second and third management studies compared those who had advanced into management positions with those who had not advanced into management positions (Study B and Study C).

CUSTOMER SERVICE CRITERION VALIDITY

A study sample of 41 customer service personnel was the basis. The criterion used to distinguish one group from the other was success in the customer service role. The sample was divided into two groups: those who had been recognized for their service by customers their colleagues within the company for their exemplary

¹⁵ s. The Brooks Group, l.c., p. 18 and the following

customer service, and those who had neither been recognized by customers nor colleagues.

The marketplace distinguishes consistently good performers from mediocre and bad performers. This study measured the differences between those two groups as they performed in customer service roles. General observations would lead one to conclude that those who excel are better able to find practical solutions, communicate with others, instill confidence in their ability to perform, and be able to be persistent without being stubbornly insistent. To confirm the validity of the Hartman Value Profile, these abilities would have to be distinguished by statistically significant differences in the dimensional scores of measuring common sense, personal competence, and personal duty (DIME-1, DIME-2, and DIMS-2).

The results confirmed that those who were superior in customer service had greater abilities in all dimensions measured by the HVP and statistically higher abilities to reason in the three dimensional areas noted above (noted by * in Table 8).

Table 8: Customer Service Differentiation¹⁶

	% Higher of Excellent	p value
Empathy	17%	.19
Common Sense	21%	.02*
Logical Solutions	15%	.18
Self Esteem	13%	.26
Personal Competence	30%	.05*
Personal Duty	17%	.07*

This study proves that the HVP scores correlate directly to behavior, abilities, and attitudes that are required for excellence in customer service.

MANAGEMENT CRITERION VALIDITY (STUDY A)

A sample of 150 managers that manage retail stores was given the HVP. All participants had been identified as qualified for management and had been managers of their respective stores for fewer than two years. They were given the HVP as part of their ongoing management training and education.

Two years later, the division head divided the list of names from the sample into three groups (excellent, good, and failures). The criteria he used to distinguish the excellent managers from the good managers were: operations, sales, turnover, and ability to function within budget. At that time, the company had an annual management assessment program (completed by peers, subordinates and corporate management) which scored all managers on a numeric scale. These scores provided

¹⁶ s. The Brooks Group, I.c., p. 20

further distinctions by which the excellent managers (28) were distinguished from the good managers (79). Managers who were identified to be failures (43) had been removed or had quit their positions prior. They had failed for various reasons ranging from an inability to effectively lead and manage people, an inability to effectively and efficiently oversee operations, and an inability to plan and effectively execute those plans.

The results of this study are based on the differences between the excellent managers and failures. In this particular case, the unusual feature is that all participants (excellent, good, and failures) had been selected by the management as capable managers. The profile scores that were compared are the results from the profiling test that all managers completed before they started their job.

The final conclusions were reached by comparing the dimensional scores of the two groups. Previous management studies had shown that different personality types are able to function effectively in management roles. This was confirmed by this study. It was also confirmed that the differences between the two groups were not those that manifest personality characteristics as much as those that manifest differences in functionality:

- better ability to work with and be patient with people (excellent were 18% more empathic with a valence of DIMI-1 of 54% positive versus 54% negative)
- greater tendency to work with others (excellent were 53% more inclined to delegate with a DIME-1 valence of 28% versus 43% positive),
- greater tendency to be proactive rather than reactive (excellent were 18% more planning oriented with DIMS-2 of 11 versus 13)
- greater personal courage resulting in less defensiveness (excellent had 42% healthier self-esteems with an DIMI-2 valence of 25% versus 16% positive)
- greater resilience when under stress (excellent were 50% better able to function in stressful situations with BQRs of 1.1 versus 1.65).

All of the differences noted above are statistically significant with a $p < .05$.

This study confirms that the HVP scores correlate directly to behavior, abilities, and attitudes that are confirmed by the marketplace as crucial distinctions between those who succeed in managing a retail store from those who do not.

MANAGEMENT CRITERION VALIDITY (STUDY B)

A sample of 257 managers from eight different companies was given the Hartman Value Profile. All participants were in management positions when they took the profile. They were given the HVP as part of their ongoing management development.

The sample was divided into three groups: excellent managers, good managers, and poor managers. The criteria used to distinguish the excellent managers from

the good managers were: superior operations in their respective fields, effectiveness with their staff, turnover, and the ability to function within budget. All managers were also assessed by their peers, subordinates and superiors who identified them as excellent (70), good (100), or poor (87). In order for a manager to have been identified as poor, s/he had to have ongoing significant problems, ineffectiveness or failures within business contexts in which others were succeeding.

The results of this study are based on the differences between the excellent and poor managers. The final conclusions were reached by comparing the dimensional scores of these two groups. Previous management studies had shown that different personality types are able to function effectively in management roles. This was confirmed by this study. It was also confirmed that the differences between the two groups were not those that manifest personality characteristics as much as those that manifest functional capability. The poor managers did not score higher than the excellent managers in any dimension. The excellent managers were statistically superior to the poor managers in the following dimensions:

- better ability to work with and be patient with people (excellent were 26% more empathic with a DIMI-1 valence of 59% versus 43% positive)
- a greater tendency to work with others and delegate (excellent were 25% more inclined to delegate with an DIME-1 valence of 32% versus 44% positive)
- greater personal courage resulting in less defensiveness (excellent had 13% healthier self-esteems with DIMI-2 of 11 versus 13)
- a greater degree of reasonability when confronted (excellent were 18% more reasonable and less stubborn than the poor managers were with an DIMS-2 of 12 versus 14).

All of the differences noted above are statistically significant with a $p < .05$.

This study confirms that the HVP scores correlate directly to behavior, abilities, and attitudes that are confirmed by businesses as critical distinctions between those who succeed in management from those who do not.

MANAGEMENT CRITERION VALIDITY (STUDY C)

120 women in business were given the HVP as part of their ongoing training and development. They came from more than 20 different companies in 6 different states. Their ages ranged from mid-twenties to mid-fifties. The sample was divided into two groups, those who were executives, currently serving in management roles in their companies (20), and those who were not in management roles (100).

The results of this study are based on the differences between the managers and non-managers. The final conclusions were reached by comparing the dimensional scores of the two groups. This study confirmed that the differences between the two groups were dramatic and significant in five areas. The non-manager group did not score higher than the managers in any category.

The main differences are described as follows.

- greater ability to make decisions and use common sense (managers were 23% clearer in their decision making and common sense judgment with a DIME-1 of 7.25 versus 8.9),
- greater personal courage resulting in less defensiveness (managers had 20% healthier self-esteems with an DIMI-2 valence of 22% versus 19% and DIMI-2 of 10.1 versus 12.5),
- greater ability to make accurate self-assessments of their own strengths, limitations, and competencies (managers were 12.5% clearer and more accurate assessing their own abilities and roles with a DIME-2 of 12.75 versus 14.25),
- greater degree of personal freedom to make mistakes, risk loss, and shift one's own priorities (managers were 13% more reasonable and less dogmatic than the non-managers were with a DIMS-2 of 11.5 versus 13.8).

All of the differences noted above are statistically significant with a $p < .05$.

This study proves that the HVP scores correlate directly to behavior, abilities, and attitudes that are confirmed by the marketplace as the significant distinctions between women who are promoted into management positions and those who are not promoted.

7. CROSS-CULTURAL STUDIES

The following discussion will make cross-national comparisons and state or restate the information contained in or revealed by each HVP scale. Significant cross-national differences in axiological patterns are demonstrated by the data. The cross-national data presented here confirm the presence of greater between-nation axiological variability than within-nation axiological variability. National cultures both result from and shape axiological traditions. Persons, collectives, and nations have axiological "centers of gravity" imposed by evolution.

An extensive variety of correlations and conclusions can be and have been drawn from the figures in Table 9. The following paragraphs will pick just a few interesting facts and projections in order to give an impression of cross-cultural dimensions regarding the *profilingvalues* and the HVP respectively¹⁷.

¹⁷ A full range of correlations and conclusions is found at Leon Pomeroy, l.c., p. 245 - 336

Table 9: HVP Mean and Standard Deviations Significantly ($p < .000$) Distinguish Indonesian, Japanese, Mexican, Russian, and U.S.A. Students in Overall Cross-National Comparison by F-test¹⁸

	Indonesia		Japan		Mexico		Russia		U.S.A.	
	X	SD	X	SD	X	SD	X	SD	X	SD
HVP										
DIF-1	40	16	42	16	48	21	47	25	37	20
DIM%-1	36	18	35	19	35	19	38	23	35	19
INT%-1	36	11	37	12	41	15	40	16	31	14
AI%-1	56	9	60	10	64	12	65	12	60	11
VDIMI-1	-7	8	-8	7	-11	11	-8	12	-5	10
DIMI-1	14	8	14	7	17	10	14	11	11	9
VDIME-1	-1.2	7	-.5	7	-3	9	-5	9	-3	8
DIME-1	10	5	11	6	13	8	14	9	11	7
VDIMS-1	+1.3	8	-2	7	-3	9	-6	10	-3	7
RHO-1	.82	.17	.81	.17	.74	.23	.74	.29	.84	.24
RHO-2	.74	.17	.65	.34	.72	.24	.60	.26	.80	.12
DIF-2	50	16	66	27	53	20	62	23	44	12
DIM%-2	27	15	28	17	30	19	32	17	26	15
INT%-2	45	11	52	13	46	11	53	11	40	10
AI%-2	58	10	65	15	57	11	69	14	53	7
VDIMI-2	-13	9	-16	13	-10	11	-16	12	-10	7
DIMI-2	17	8	20	12	15	10	19	11	15	6
VDIME-2	-1	8	-8	14	-3	11	-11	14	-1	6
DIME-2	17	7	12	11	7	8	11	10	6	5
VDIMS-2	+5	9	-3	15	+2	10	-2	11	+8	8
DIS-1	1	2	2	2	3	3	3	3	2	3
DIS-2	1.8	2	3.7	4	2	3	4	3	0.7	2
DI-1	10	7	10	7	12	9	13	11	8	8
DI-2	11	9	15	12	12	10	16	11	9	7
BQR-1	1.8	.8	1.9	1.1	1.3	.7	1.6	.9	1.4	.8
BQR-2	1.7	1.4	2.2	2.0	1.4	1.3	2.0	1.5	1.6	1.2
BQA-1	80	26	99	37	93	38	105	44	70	27
BQA-2	35	15	46	21	42	21	50	25	29	15
CQ-1	121	100	203	188	114	90	167	123	97	73
CQ-2	61	68	117	151	57	61	92	81	45	49
DIF-1/DIF-2	86	42	73	41	97	45	81	40	89	47
DIF-2/DIF-1	139	61	170	80	121	51	151	69	137	59

With the power of profile analysis in mind, now the application of individual HVP scales to people from many nations, with emphasis on HVP results from the United States, Japan, Indonesia, Mexico, and Russia should be considered.

¹⁸ s. Leon Pomeroy, l.c., p. 255

Comparing Japanese with Americans, the Japanese score an average DIMI-1 = 14, with an associated VDIMI-1 = -8.0. The Americans have a DIMI-1 = 11.0, with an associated VDIMI-1 = -5.0. Japanese pressure on group solidarity is not without a price. The trade-off extracts an intrinsic price. HVP scaling means that a score of 14.0 is weaker than a score of 11.0, so the greater negativity of -8.0 for the Japanese speaks for itself. The Japanese suffer some blunting of their capacity to appreciate the individuality and uniqueness of others. Comparing interpersonal value-vision or sensitivity, the Japanese are more negatively disposed to what they discern of individuality. This sensitivity or value-vision is modulated by the associated negativity of VDIMI-1 for the Japanese. This data implies that the Japanese are less sensitive to the uniqueness, individuality, and intrinsic worth of their peers and that they are more negatively disposed toward what they “see” in others.

RHO-1 and RHO-2 scales of the HVP provide a quick assessment of results for world value-vision skills (RHO-1), and self value-vision skills (RHO-2). Good RHO scores are all about adaptation, survival, and flourishing and indicate high correspondence between an individual’s rank ordering of test items and that provided by theory. The strongest mean RHO-1 score comes from Americans; Mexican and Russians are tied for the weakest mean RHO-1 score. The scores and conclusions drawn from them refer only to comparisons made in this study. Americans also obtained the highest mean RHO-2 score, Russian students the lowest.

In qualitative terms, the mean RHO-1 for Japanese (+.81) is good. The mean RHO-1 for Mexicans and Russians (+.74) is average. The mean RHO-1 for Americans is good. Thus, American students value the world within the range of average to good value-vision; they have an average to good general capacity to value and appreciate the individuality and uniqueness of others, useful properties located in social and practical situations, and the authority of rules, regulations, systems, and order. Good RHO-1 scores suggest good levels of emotional intelligence, practical intelligence, and abstract intelligence.

Other scales of the HVP that unpack DIF-2 to reveal components of the psychostasis around identity include: DIM, INT%, and AI%. The cross-national data suggests that Russians and Japanese have significant self-esteem issues in absolute and comparative terms. They tend to find refuge in the cultivation of work-confidence as compensation for diminished self-confidence.

The Japanese score not well in the intrinsic dimensions, but they manage to shine, in comparative terms, in the VDIMS dimensions with mean VDIMS1 = -2.0 and VDIMS-2 = -3.0 scores. Their Russian counterparts with depressed intrinsic scores shine only in the VDIMS-2 = -2.0 dimension, signaling a relative turning inward toward their inner authorities of reason, conscience, and will. Here the Indonesians and Americans dominate with mean VDMIS-2 scores of +5.0 and +8.0 respectively. Do the Indonesians and Americans overvalue their inner authorities of conscience,

reason, and will to the point of stubbornness and rigidity? No. Their valence scores, i.e. their attention, fall in the average range in absolute terms, but they are interesting in the context of cross-national comparison. Comparatively, these scores stand out dramatically. The findings are also associated with dramatically high levels of statistical significance ($p < .000$).

The Indonesian mean, VDIME-2 = -1.0, and the American mean, VDIME-2 = -1.0 reflect higher comparative levels of trust and confidence in their work-worlds. The Russian mean, VDIME-2 = -11.0, and the Japanese mean, VDIME-2 = -7.0, show significantly higher degrees of negativity towards their work-worlds.

The question, "Who has the greatest sensitivity for the work environment?" is answered by the DIME-2 (role awareness) and VDIME-2 (attention to it) mean scores. "Work environment sensitivity" is the ability to discern and understand the work settings plus the degree of comfort with it. The Japanese mean, DIME-2 = 21.0, compares unfavorable with the American mean, DIME-2 = 6.0. The Americans on average demonstrate a more than three-fold superiority in discerning the nuances and properties of their work settings. How can this be, given the importance of Japanese social concerns? The approach of the Japanese to work is formalistic and automatic. The approach of Americans is less formalistic and abstract, less automatic, and more individualized. This may favor work-related creativity reinforced by individualism. This means that the Americans have comparatively well developed abilities to grasp work-related situations.

8. SUMMARY

profilingvalues is a modern business application that measures how an individual values its environment and itself. It was developed for two main purposes in the professional context: First, *profilingvalues* helps to improve the success rate regarding candidate or associate selection by showing the accordance between requirements of a role or function and personality. Secondly, *profilingvalues* can be used to unleash an individual's potential in order to use more of its capabilities, i.e. improving the utilization of abilities and skills.

profilingvalues is based on the logic-mathematic, deductive-inductive model of measuring the capability to value, developed by Robert S. Hartman¹⁹. The methodology and the mathematics of the Hartman Value Profile (HVP) build the "engine" of *profilingvalues*.

The HVP requires a subject to rank eighteen different statements in two different lists. This exercise forces a subject to evaluate each statement and compare it to every other statement. The resulting rankings demonstrate the subject's different capacities and biases in valuing. The Hartman Value Profile is one means by which

¹⁹ s. Robert S. Hartman, The Structure of Value, I.c.

we are able to measure an individual's propensity and capacity to value. It is the person's structure of value (the road map and filtration system a person uses to think, evaluate and make decisions) that results in personality, individual perceptions, and decisions. In common parlance, a person's structure of value is how that person thinks.

This paper has shown the general approach of the HVP and *profilingvalues* respectively as well as a variety of studies and research which validated the HVP. This process is ongoing and will soon be further supported by more research from *profilingvalues*.

Throughout the different chapters we have discussed the following topics:

Construct Validity and Reliability: We have shown that both are evident and proven.

The RHO correlation: The correlation between the formal-mathematically rank order (the norm) compared to the testee's ranking is extremely high.

Validation against Cattell's 16 PF: A selection of linked scales was described, the in-depth study of Leon Pomeroy quoted.

Professional High Achiever's Study: It was pointed out that HVP is clearly able to distinguish successful professionals precisely from other groups.

Further Business Related Studies: We have shown that specialist functions (e.g. customer service) as well as a variety of management functions analyzed by the HVP could elaborate decisive success factors and separate performers from non-performers.

Cross-Cultural Studies: Regarding certain dimensions, e.g. the degree of how important individuality is valued, we gave basic insights into national diversity. Other factors like the proportion regarding intrinsic, extrinsic, and systemic values are independent from nationality. Further research in this area is desired.

Once again it needs to be emphasized that neither *profilingvalues* nor the HVP are matched against a specific norm group, either a national population or a specific professional group. The norm of the HVP is a logic-mathematic one and the referring scales are calibrated from this norm. Nevertheless, bigger groups of any population fulfill the normal distribution according to the Gaussian standard deviation.