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Measurement of Personality

5th Lecture

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Definition of PERSONALITY

1

a : the quality or state of being a person

b : personal existence

2

a : the condition or fact of relating to a particular person; specifically: the condition of referring directly to or being aimed disparagingly or hostilely at an individual

b : an offensively personal remark <angrily resorted to personalities>

3

a : the complex of characteristics that distinguishes an individual or a nation or group; especially : the totality of an individual's behavioral and emotional characteristics

b : a set of distinctive traits and characteristics <the energetic personality of the city>

4

a : distinction or excellence of personal and social traits; also : a person having such quality

b : a person of importance, prominence, renown, or notoriety <a TV personality>

Examples of PERSONALITY
- He has a very pleasant personality.
- We all have different personalities.
- The psychiatrist considered behavior as well as personality before prescribing a treatment.
- He has lots of personality.
- He wants to buy a car that has personality.
- She has met many television personalities.
- He was an influential personality in genetic engineering.

Origin of PERSONALITY
- Middle English personalite, from Anglo-French personalité, from Late Latin personalitat-, personalitas, from personalis
- First Known Use: 15th century

Merriam-Webster

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Personality

refers to individual differences in characteristic patterns of thinking, feeling and behaving. The study of personality focuses on two broad areas:

- One is understanding individual differences in particular personality characteristics, such as sociability or irritability.
- The other is understanding how the various parts of a person come together as a whole.

APA, Encyclopedia of Psychology

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Personality
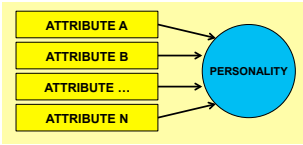
is an individual's characteristic patterns of though, emotion, and behavior, thegether with the psychological mechanisms – hidden or not – behind those patterns
(Funder, 1997)

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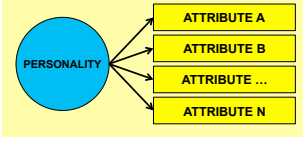
Personality

| ATTRIBUTE A |
| ATTRIBUTE B |
| ATTRIBUTE … |
| ATTRIBUTE N |

→ PERSONALITY

• a set of attributes characterising an individual

PERSONALITY →

| ATTRIBUTE A |
| ATTRIBUTE B |
| ATTRIBUTE … |
| ATTRIBUTE N |

• the underlying system that generates the set of attributes

Saucier (2008) Recurrent Personality Dimensions in Inclusive Lexical Studies: Indications for a Big Six Structure

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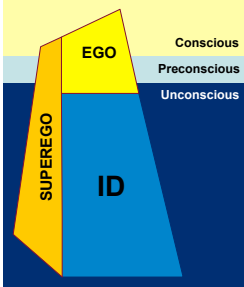
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Freud legacy:

Freudian Personality Structure (1915)

EGO — Conscious
Preconscious
Unconscious

SUPEREGO

ID

an individual possess cause-consequence structures, which are operated according to some rules and these structures and rules are influencing individual's behavior in systematic ways.

• **ID**: operates according to the pleasure principle - primitive and unconscious
• **EGO**: operates according to the reality principle - mediates between ID and SUPEREGO
• **SUPEREGO**: moral ideas and conscience

Negative: theory that focused on negative instincts, drives, energy processes, defense mechanisms and motivations that lead to the dysfunction of the personality.

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Projective Test

Rorschach inkblot test (1921)

Ambiguous stimuli

EXPLANATION → PERSONALITY

Thematic Apperception Test (TAT) (1930~; 1943)

Ambiguous stimuli

STORY → PERSONALITY

is personality test designed to let a person respond to ambiguous stimuli, presumably revealing hidden emotions and internal conflicts.
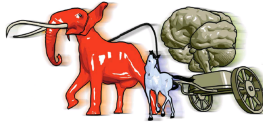
- The responses to projective tests are content analyzed for meaning rather than being based on presuppositions about meaning, as is the case with objective tests.

- Poor standardization of results ☹
- Dual-Processing paradigm; Implicit/ Explicit ☺

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Need for Implicit Measurement

Plato's idea that the chariot of spirit is pulled by the mind and emotions, it is true, but - the mind is a small pony, and feelings are a large elephant.
(Camerer, Loewenstein, 2006)

Many behaviors result from processes that operate with limited conscious control and in some cases entirely outside conscious awareness. These implicit processes are intuitive, spontaneous, unintentional, and in some cases even unconscious.

They generally pertain to a broad set of:

  – attitudes
  – stereotypes
  – motivations
  – assumptions

Cannot be captured through traditional self-report methodologies.

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Hugo Münsterberg: need for exact measurement

If the existence or absence of mental traits is to be found out in the interest of the positions to be filled, we have after all only one really reliable method, and that is to observe that mental trait itself. The help which we get from group psychology is not to be disregarded, and the well-trained observer will also be able to get some slight suggestions from the physical appearance and the features of the physiognomy. But an exact, reliable, and really satisfactory result can after all be hoped for only from the direct measurement of the special function.

If a place is to be filled, the first requirement is therefore a definite and satisfactory study of the mental traits and abilities needed for the best work in the place, and secondly an exact examination of those required mental functions in the individual case.

The fundamental difference of the psychological method is the application of so-called tests by which the mental function is isolated and is exactly measured, while it is applied not to the complex tasks of practical life, but to simple, artificial material. We must consider these mental tests and their practical application.
Münsterberg (1924) Business Psychology

With the help of this instrument it becomes possible to measure through periods of hours the times and the mistakes in any reactions on railway signals and to study the most favorable conditions for such work. The experiment is useful in determining the fitness of individuals for the vocation of a railway engineer

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Measurement of Personality

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Gordon Allport: Trait Theory of Personality (1921)
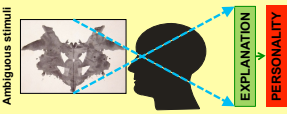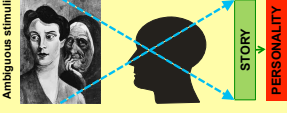
*Gordon Allport
1897-1967*

Traits are the fundamental elements of personality. They define the unique, generally stable characteristics of an individual.

- Trait – a neuropsychic structure having the capacity to render many stimuli functionally equivalent, and to initiate and guide an equivalent (meaningfully and consistent) form of adaptive and expressive behavior.
- Traits:
  - nomothetic - common to all people
  - idiographic - unique to the individual
    - cardinal - dominant
    - central - prevailing
    - secondary - flexible
- Values: theoretical, economic, aesthetic, social, political, and religious
- Personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristic behavior and thought.

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The Lexical Hypothesis

most of the socially relevant and salient personality characteristics have become encoded in the natural language (Baumgarten, 1933; Allport, 1937). Thus, the personality vocabulary contained in the dictionaries of a natural language provides an extensive, yet finite, set of attributes that the people speaking that language have found important and useful in their daily interactions.

- English language contained approximately 18,000 trait words that could describe a person – „a semantic nightmare" (Allport, 1937)
- Cattell (1943 - 1948): 18 000 [4 500] words could be organized in to 16 personality factors, later – in 5 global factors.
- Norman (1963): 5 factors (Extraversion, Emotional Stability, Agreeableness, Conscientiousness, and Culture) = "Norman's Big Five", "Big Five."

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Problems with different languages

- Five factors of personality adjectives are present in Dutch or English or German languages.
- Non-Germanic languages:
  - Hungarian - six-factor structure (Szirmák, De Raad,1994)
  - Italian - six-factor structure (DiBlas & Forzi, 1997)
  - French - six-factor structure (Boies et al., 2001)
  - Hebrew - seven-factor structure (Church et al., 1997)

Saucier (2008) Recurrent Personality Dimensions in Inclusive Lexical Studies - Indications for a Big Six Structure

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Universal and Culture-Specific Factors

Taxonomic research in other languages and cultures can determine the usefulness of a taxonomy in other cultural contexts and test for universals and variations in the encoding of individual differences across languages and cultures (Goldberg, 1981).

- **Evolutionary interpretation**: if the tasks most central to human survival are universal, the most important individual differences, and the terms people use to label these individual differences, would be universal as well (D. M. Buss, 1996; Hogan, 1983).
- **Cross-cultural interpretation**: because cultures are different, there are culturally specific dimension, and variation on that dimension may be uniquely important within that culture's particular social context (Yang & Bond, 1990).

- **Strong conclusions about the linguistic universality of the lexically derived Big Five would be premature.**
- **The general contours of the Big Five model as the best working hypothesis of an omnipresent trait structure.**

John, Srivastava (1999) The Big-Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives

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How Factors from Eight Lexical Studies Map Onto Six Consensus Factors

	Hebrew	Greek	Chinese	Filipino	Spanish	English-OR	English-MN	Turkish
Conscientiousness	5 Dependability	3 Conscientiousns.	2 Conscientiousns.	--	5** Temperance	3* Conscientiousns.	5 Conscientiousns.	2 Conscientiousns.
Negative Valence (vs. Non-Violativeness)	2** Neg. Valence	6 Neg. Valence	4 Noxious Violativeness	3 Neg. Valence	2 Neg. Valence	7 Neg. Valence	2 Neg. Valence	--
Agreeableness (Even Temper and Accomm./Cooperation)	4 and 6 Neg. Emotity. & Agreeability	4 Even Temper	5* and 3* Emot.Volatil. & Unselfishness	4* Tempera- mentalness	4* and 6 Engagement & Agreeableness	2* Agreeableness	4 and 6 Neg. Emotity. & Agreeability	4* and 3 Emot. Stability & Agreeableness
Resiliency versus Internalizing Negat. Emotionality	1 Agentic PE	2* Prowess/Heroism		6** Self-Assurance	3 Pleasure	1 Emot. Stability	--	--
Extraversion (Gregariousness/ Cheerfulness)	7 Communal PE	1 Pos. Affect/ Agreeableness	1 Extraversion	5 Gregariousness	--	6* Extraversion	3 PE (Positive Emotionality)	1* Extraversion
Originality/Talent	3 Pos. Valence	7* Intellect	6 Intellect/ Pos. Valence	7 Intellect	1 Pos. Valence	5 and 4 Intellect & PSSV	1 and 7 Pos. Valence & Unconv.	6** Intellect
Factors Unassigned Above	--	5 Honesty (Honor)	7 Dependency/ Fragility	1 and 2 Egotism & Conscientiousns.	7 Openness	--	--	5 and 7 Neg. Valence & Attractiveness

Note. English-OR – Saucier (1997), English-MN – Tellegen & Waller (1987). PE – Positive Emotionality. PSSV- Positive Social Stimulus Value. Multiple numbers in a cell indicate that more than one factor in a study had the specified content, and none had a decisive majority (⬜2/3) of it. * In addition to multiple cluster-related terms (from Figure 1) one non-cluster-related term in the figure has a salient loading on this factor. ** In addition to multiple cluster-related terms (from Figure 1) two non-cluster-related terms in the figure has a salient loading on this factor.

Saucier (2008) Recurrent Personality Dimensions in Inclusive Lexical Studies - Indications for a Big Six Structure

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Problems with determination of taxonomies of main dimensions of personalities

Theorist(s)	Surgency (I)	Agreeableness (II)	Conscientiousness (III)	Emotional Stability (IV)	Intellect/Openness to Experiences (V)
Bales (1970)	Dominant-Initiative	Social-Emotional Orientation	Task Orientation		
Block (1961)	Low Ego Control		High Ego Control	Ego Resiliency	Ego Resiliency
Buss & Plomin (1984)	Activity		Impulsivity	Emotionality	
Cattell (1943)	Exvia (vs. Invia)	Pathemia (vs. Cortertia)	Super Ego Strength	Adjustment vs. Anxiety	Independence vs. Subduedness
Comrey Scales (Comrey 1970)	Extraversion and Activity	Femininity	Orderliness and Social Conformity	Emotional Stability	Rebelliousness
Costa & McCrae* (1992)	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Eysenck & Eysenck (1985)	Extraversion	Psychoticism	Psychoticism	Neuroticism	
Goldberg* (1992, 1993)	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Openness
Gough CPI Factors (Gough & Bradley, 1996)	Extraversion	Consensuality	Control		Flexibility
Gough CPI Vectors (Gough & Bradley, 1996)	Externality		Non-Favoring	Self-Realization	Self-Realization
Guilford (1975)	Social Activity	Paranoid Disposition	Thinking Introversion	Emotional Stability	
Hogan (1986)	Ambition and Sociability	Likability	Prudence	Adjustment	Intellectance
Jackson (1964, 1976)	Outgoing, Social Leadership	Self-Protective Orientation	Work Orientation	Dependence	Aesthetic-Intellectual
Myers-Briggs (Myers & McCaulley, 1985)	Extraversion vs. Introversion	Feeling vs. Thinking	Judging vs. Perception		Intuition vs. Sensing
Tellegen (1985)	Positive Emotionality	Positive Emotionality	Constraint	Negative Emotionality	Absorption
Wiggins (1995)	Dominance	Love			

Big Five Dimensions and Similar Dimensions in Different Models of Personality

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Personality Variables in Context
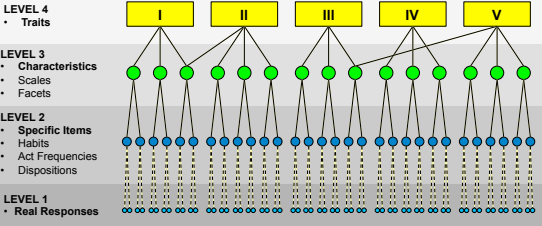
- Personality traits are not the only relevant predictors of performance. Other predictors would include cognitive abilities, work experience, education, and motivation etc.
- Personality measures should not be used by themselves, but used in combination with other predictors for selection purposes. Personality measures are also suited for human relations training and development, career planning, or team development situations.
- **Important: jobs differ in complexity:**
  – In the complex jobs, the difference in performance between the best and average worker is greater than a similar comparison made for simple jobs.
  – For the more complex jobs, a valid selection system will deliver more utility to the employer than what would be obtained for simple jobs.

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Traits Questionnaires: Four levels of abstraction, from specific behaviors to traits

| LEVEL 4 • Traits | I | II | III | IV | V |

LEVEL 3
- **Characteristics**
- Scales
- Facets

LEVEL 2
- **Specific Items**
- Habits
- Act Frequencies
- Dispositions

LEVEL 1
- **Real Responses**

- Basic level: the specific response to a specific situation
- Specific items on inventories: responses typically made to prototypic situations = habits, act frequencies, behavior aggregates

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Functional job analysis

Welcome to ITA - Information Technology Associates

O*NET Occupational Information Network
www.occupationalinfo.org/onet

- Dictionary of Occupational Titles: http://www.occupationalinfo.org
- CODE:
- TITLE:
- DEFINITION:

- Tasks
- Knowledge
- Skills
- Abilities
- Work activities
- Work context
- Interests
- Work values
- Crosswalks

= ≈

PERSONALITY

Industrial-Organizational Psychologists:
http://www.occupationalinfo.org/onet/27108j.html

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Task-based method

Task 1	Performance criteria 1
Task 2	Performance criteria 2
Task 3	Performance criteria 3
Task 4	Performance criteria 4
Task 5	Performance criteria 5
Task 6	Performance criteria 6
Task 7	Performance criteria 7
Task 8	Performance criteria 8
Task 9	Performance criteria 9
Task 10	Performance criteria 10
Task 11	Performance criteria 11
Task ...	Performance criteria ...
Task n	Performance criteria n

Factor 1	Criteria 1
Factor 2	Criteria 2
Factor ...	Criteria ...
Factor n	Criteria n

PERSONALITY TRAITS MACHING CRITERIAS

1. Task-based job analysis begins with a large group of identifiable job tasks. The first step would be to compile a nearly exhaustive list of tasks from available work records.
2. Next, the tasks would be made into items on a rating form.
3. Then, for each task, incumbent worker(s) would rate the task for importance, frequency, and possibly its difficulty or time requirement.
4. Finally, the ratings would be factor analyzed and used to develop performance criteria

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Job analysis—Content of the job

A description of the method used to analyze the job should be provided (essential). The work behavior(s), the associated tasks, and, if the behavior results in a work product, the work products should be completely described (essential). Measures of criticality and/or importance of the work behavior(s) and the method of determining these measures should be provided (essential). Where the job analysis also identified the knowledges, skills, and abilities used in work behavior(s), an operational definition for each knowledge in terms of a body of learned information and for each skill and ability in terms of observable behaviors and outcomes, and the relationship between each knowledge, skill, or ability and each work behavior, as well as the method used to determine this relationship, should be provided (essential). The work situation should be described, including the setting in which work behavior(s) are performed, and where appropriate, the manner in which knowledges, skills, or abilities are used, and the complexity and difficulty of the knowledge, skill, or ability as used in the work behavior(s).

Electronic Code of Federal Regulations. PART 1607—UNIFORM GUIDELINES ON EMPLOYEE SELECTION PROCEDURES (1978)
http://www.ecfr.gov/cgi-bin/text-idx?
c=ecfr&sid=c3dc650728046810b4ebefc51b4fca76&rgn=div5&view=text&node=29:4.1.4.1.8&idno=29#29:4.1.4.1.8.0.23.15

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Management Jobs

1. **Provision of staff service**, activities would entail services performed by managers for the organization as a whole, or for operations (line) personnel.
2. **Exercise of broad power and authority**, such as opening and closing new manufacturing plants, visiting operations for annual reviews, negotiating with unions, and making long-term financial arrangements.
3. **Preservation of assets**, such as purchasing insurance policies, making investments, assessing legal risks, and loss prevention.
4. **Technical aspects of markets and products**, such as research and development, product quality, product design, and marketing.
5. **Personal demands**, such as extensive travel or unusual conformity pressures.
6. Human, community, and social affairs concerning **public relations and the selection** of new managers into the organization.
7. **Supervision** of subordinates' work.
8. **Business control**, such as cost reduction, maintenance of inventories, preparation of budgets, and enforcement of regulations.
9. **Long-range planning**, which would include the definition of the company's goals, evaluating business projects, and assessing the impact of new legislation on the activities of the company.
10. **Business reputation**, including product design, customer service responsibilities, and certain forms of public relations as they pertain to markets and products.
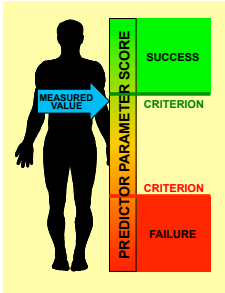
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Selection modes: positive and negative

- **Positive selection mode:** instruments are used for making positive predictions about future performance of individuals in specific situations.
- **Negative selection mode**: instruments are used to exclude "at risk" individuals.

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Performance Criteria

Having determined what a job requires, the second step for the human resource manager is to establish standards of performance, along with a measurement system that captures those standards.

- **Objective measures**. Examples of "objective" or "hard" criteria would include number of items produced, sold, or scrapped for the manager's work unit; dollar volume of good produced by the manger's work unit; number of social service clients served; cost-efficiency of operations; safety and absence rates for those manager's work unit; or the attainment of specific goals. The major assets of these types of criteria are that they are observable directly and would appear to involve little interpretation or guesswork. The limitation of so-called objective criteria is that many such outcomes are partially the result of environmental and economic influences, or the result of the work of a team, rather than of a single individual. Thus, a certain amount of the outcome lies beyond the control of the individual being assessed.
- **Subjective measures**. Ratings of work behavior, in principle, are more flexible for isolating a person's contribution to work outcomes. The subjectivity in these criteria lends itself to possible inaccuracies in evaluation. Such inaccuracies may be inherent in the rating scheme itself or a result of errors in judgment on the part of raters using the systems. A behavioral criterion focuses on the presence or absence of a behavior, not the level of a trait.

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How many criteria?

Personnel psychology recognizes no upper limit to the number of criteria that could be used in a validity study or performance appraisal system.

- A small number of measures is simpler to use for administrative purposes, and would greatly simplify a test validation study.
- Larger numbers of more detailed scales, however, are preferable for employee counseling purposes where specific feedback to the employee is desired to help improve performance.

Limitation: "the magical number 7 plus or minus 2" (Miller, 1956).

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General aspects of performance for managerial work

1. **Ability to motivate**: the extent to which the manager motivated and developed subordinates and built a cohesive work team.
2. **Problem solving and resourcefulness**: the extent to which the manager demonstrated competency in solving difficult problems and generating new ideas and strategies.
3. **Communication**: the extent to which the manager kept coworkers and upper management properly informed about important matters, and the quality and clarity of those communications.
4. **Commitment to the organization**: the extent to which the manager is committed to organizational goals and policies as demonstrated by actions.
5. **Planning and control**: how effective the manager is at maintaining control over his or her responsibilities and making workable plans to carry out objectives.

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16PF Questionnaire

Raymond B. Cattell
(March 20, 1905 - February 2, 1998)

- First publication in 1949. Four major revisions, in 1956, 1962, 1968, and the fifth edition in 1993.
- Standardization contains over 10000 people
- Adapted into more than 35 languages worldwide.
- 185 multiple-choice items, with a three point answer format. Item content is non-threatening, asking about daily behavior, interests, and opinions. The short ability scale items (Factor B) are grouped together at the end of the questionnaire with separate instructions.
- The questionnaire is written at a fifth grade reading level, and meant for use with people 16 years and older.
- Web-based administration (introduced 1999) allow international test-users easy access to administration, scoring, and reports in many different languages, using local norms
- IPAT (the Institute for Personality and Ability Testing, Inc.) www.ipat.com

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16PF questions

Questions about broad range of normal behavior.

16PF questions tend to ask about actual behavior in hypothetical situations (not about self-ratings).

- *„When I find myself in boring situation, I usually „tune out" and daydream about other things" (a) true; (b) false.*
- NOT *„I'm not a worrier"(a) true; (b) false.*

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Measurement of Personality

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16PF Global and Primary Scales

Global Scales	EX	AX	TM	IN	SC	
	Extraversion	Anxiety Neuroticism	Tough-Mindedness	Indepen-dence	Self-Control	
Primary Scales	A	C	A	E	F	B
	Warmth	Emotional Stability	Warmth	Dominance	Liveliness	Reasoning
	F	L	I	H	G	
	Liveliness	Vigilance	Sensitivity	Social Boldness	Rule-Conscious-ness	
	H	O	M	L	M	
	Social Boldness	Appre-hension	Abstracted-ness	Vigilance	Abstracted-ness	
	N	Q4	Q1	Q1	Q3	
	Privateness	Tension	Openness to Change	Openness to Change	Perfectio-nism	
	Q2					
	Self-Reliance					

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16PF Scale Names and Descriptors: Primary Scales

	Scale	Descriptors of Low Range / Left Meaning	Descriptors of High Range / Right Meaning
A	Warmth	Reserved, Impersonal, Distant	Warm-hearted, Caring, Attentive To Others
B	Reasoning	Concrete, Lower Mental Capacity	Abstract, Bright, Fast-Learner
C	Emotional Stability	Emotionally Changeable, Reactive, Affected By Feelings	Emotionally Stable, Adaptive, Mature
E	Dominance	Deferential, Cooperative, Avoids Conflict	Dominant, Forceful, Assertive
F	Liveliness	Serious, Restrained, Careful	Lively, Enthusiastic, Animated, Spontaneous
G	Rule-Consciousness	Expedient, Nonconforming	Rule-Conscious, Dutiful
H	Social Boldness	Shy, Timid, Threat-Sensitive	Socially Bold, Venturesome, Thick-Skinned
I	Sensitivity	Utilitarian, Tough, Objective, Unsentimental	Sensitive, Aesthetic, Tender-Minded, Sentimental
L	Vigilance	Trusting, Unsuspecting, Accepting	Vigilant, Suspicious, Skeptical, Wary
M	Abstractedness	Practical, Grounded, Down-To-Earth, Solution-Oriented	Abstracted, Imaginative, Idea-Oriented
N	Privateness	Forthright, Genuine, Artless	Private, Discreet, Non-Disclosing
O	Apprehension	Self-Assured, Unworried, Complacent	Apprehensive, Self-Doubting, Worried
Q1	Openness to Change	Traditional, Attached To Familiar	Open To Change, Experimenting
Q2	Self-Reliance	Group-Orientated, Affiliative	Self-Reliant, Solitary, Individualistic
Q3	Perfectionism	Tolerates Disorder, Unexacting, Flexible	Perfectionistic, Organized, Self-Disciplined
Q4	Tension	Relaxed, Placid, Patient	Tense, High Energy, Driven

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16PF Description of Primary Scales

Primary scales		Description (Designed to Measure)
A	Warmth	Warmth in personal relationships, and the desire to emotionally exchange with people
B	Reasoning	Intelligence (brief measure)
C	Emotional Stability	Emotional coping with everyday life and difficulties, emotional reactions, and emotional well-being
E	Dominance	Assertiveness, dominance, and deference
F	Liveliness	Eagerness and spontaneyti in social situations
G	Rule-Consciousness	The degree to with people follow and respect rules
H	Social Boldness	Socialility versus timity and inhibition
I	Sensitivity	Sentimentality and sensitivity
L	Vigilance	Wachfulness and degree of trust
M	Abstractedness	Inpracticality
N	Privateness	Level of self-disclosure
O	Apprehension	Anxienty and assuredness
Q1	Openness to Change	Ability to be open to new ideas and new ways of behaving
Q2	Self-Reliance	Preference for doing things alone or with others
Q3	Perfectionism	Compulsivity and discipline
Q4	Tension	Patience and energy

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16PF Response Style Indices

Scale		High Score	Low Score
IM	Impression Management	Socially Desirable	Socially Undesirable
INF	Infrequency	Frequent Middle Responses	Infrequent Middle Responses
ACQ	Acquiescence	True Response Repeated	Balance of True/False Responses

Response Styles are indications of the manner in which the individual answered the questions:
- **Impression Management** expresses the degree that the test taker responses are socially desirable or undesirable.
- **Infrequency** indicates the number of middle or noncommittal responses on the part of the test taker.
- **Acquiescence** indicates the degree to which the test taker agreed to items no matter what the question asked.

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16PF Scale Names and Descriptors: Global Scales

Scale		Descriptors of Low Range / Left Meaning	Descriptors of High Range / Right Meaning
EX	Extraversion	Introverted, Socially Inhibited	Extraverted, Socially Participating
AX	Anxiety Neuroticism	Low Anxiety, Unperturbable, Hardy, Stress-resilient	High Anxiety, Perturbable, Emotionally Unstable, Stress-prone
TM	Tough-Mindedness	Receptive, Open-Minded, Intuitive	Tough-Minded, Resolute, Unempathic
IN	Independence	Accommodating, Agreeable, Selfless	Independent, Persuasive, Willful
SC	Self-Control	Unrestrained, Follows Urges	Self-Controlled, Inhibits Urges

- Global traits provide a broad overview of personality.
- Primary traits provide the more detailed information about the richness and uniqueness of the individual

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Meaning of Global Scales

EX	Extraversion	Relating to Others	The extent to which an individual's time and energy are focused on interpersonal relationships, as opposed to seeking more time alone and working independently on tasks.
AX	Anxiety Neuroticism	Influence and Collaboration	The extent to which an individual has a forceful, assertive and independent influence on their environment, or a more cooperative, collaborative style of functioning.
TM	Tough-Mindedness	Thinking Style	The tendency to have an intuitive, creative thinking style, or a more objective, realistic way of thinking.
IN	Independence	Structure and Flexibility	The tendency for self-discipline and self-control, or adopting a more unrestrained, flexible approach.
SC	Self-Control	Management of Pressure	Indicates different styles of coping with pressure, disappointments, challenges, setbacks and other stressful circumstances.

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The super factors of personality: third-order factors

Varimax rotated factor loadings of the second-order factors of the 16PF5 questionnaire (n = 4,405)

	Rotated factor I	Rotated factor II
Extraversion	0.821	
Independence	0.669	
Anxiety	−0.638	−0.522
Self-control		0.816
Tough-mindedness		0.737

- **Factor I**, involves human activities that are directed outward toward the world. encompasses tendencies to move assertively outward into the world toward both social connection and toward exploration/mastery of the environment, and might be called active outward engagement.
- **Factor II** involves internal types of processes and events. Factor II might be called selfdisciplined practicality versus unrestrained creativity

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16 PF Test–retest reliability

For the 16PF primary scales, test–retest reliabilities average 0.80 over a two-week interval (ranging from 0.69 to 0.87), and 0.70 over a two-month interval (ranging from 0.56 to 0.79). The five global scales of the 16PF Questionnaire show higher test–retest reliabilities (they have more items); they average 0.87 for a two week interval (ranging from 0.84 to 0.91), and 0.78 for a two-month interval (ranging from 0.70 to 0.82).

International 16PF editions show strong test–retest reliabilities:
- Two-week test–retest reliabilities for the Norwegian edition average 0.80 for primary scales and 0.87 for global scales (IPAT, 2004b);
- for the German edition, primary scale reliabilities average 0.83 over a one month interval (Schneewind and Graf, 1998);
- for the Danish edition, primary scale reliabilities average 0.86 over a two-week interval (IPAT, 2004c);
- for the French edition, one-month reliabilities average 0.73 (IPAT, 1995)

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16 PF Internal Consistency

- Internal consistency estimates for the 16PF primary scales on a sample of 4,660, range from 0.66 to 0.86, with a mean of 0.75 (Conn and Rieke, 1994).
- Internal consistency for international versions of the instrument meets professionally accepted standards, Cronbach alphas averages:
  – 0.74 in the German edition (Schneewind and Graf, 1998),
  – 0.72 in the French edition (Rolland and Mogenet, 1996),
  – 0.75 in the Japanese edition (IPAT, 2007),
  – 0.69 in the Chinese edition (Jia-xi and Guo-peng, 2006),
  – 0.73 in the Spanish-American or Pan-Spanish edition (H.E.P. Cattell, 2005).

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16PF Factorial Validity

- Dancer and Woods (2007) factor-analyzed the primary traits in a sample of 4,414 business employees and found strong support for the 16PF global factor structure.
- R. Gorsuch (pers. comm., February 2007) factor-analyzed the primary traits to find the global traits on a sample of 11,000 test-takers, and then applied a common factor analysis to the globals to confirm the third order factors.
- Hofer et al. (1997) used confirmatory factor analysis and structural equation modeling tests of factorial invariance to study the measurement properties of the questionnaire across six large, diverse, samples (n = 30,732), and concluded that 'the factor structure of the 16PF holds remarkably well across radically different samples of people, across gender, and across different forms of the 16PF'.
- Factor analyses of international editions have also confirmed the structure of the 16PF primary and global traits.

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16PF Construct Validity

- Correlations between the 16PF primary and global scales and a range of other measures of normal, adult personality:
- California Psychological Inventory (Gough, 1987),
- Myers-Briggs Type Indicator (Myers and McCaulley, 1985),
- NEO-PI-R (Costa and McCrae, 1992a),
- Personality Research Form (Jackson, 1989),
- Coopersmith Self-Esteem Inventory (Coopersmith, 1981),
- Holland occupational themes,
- other measures of creativity, leadership, and social skills.

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16PF Predictive Validity

Instrument has been effective in predicting:
- creativity (Guastello and Rieke, 1993b),
- social skills and empathy (Conn and Rieke, 1994),
- marital compatibility (Russell, 1995),
- leadership potential (Conn and Rieke, 1994),
- over a hundred occupational profiles (Cattell, R.B. et al., 1970; Conn and Rieke, 1994; Schuerger and Watterson, 1998; Walter, 2000).

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16PF Uses and Applications

Questionnaire is used in a wide range of settings, including industrial/organizational, counseling and clinical, basic research, educational, and medical settings.

- Powerful tool for industrial/organization applications, such as:
  – employee selection,
  – promotion,
  – development,
  – coaching, or
  – outplacement counseling
  – career counseling

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Employee selection, promotion, and development

The 16PF Questionnaire has proven itself in making a range of organizational decisions, such as employee hiring, promotion, development, coaching, outplacement, and retirement counseling.

Predicts:

- a wide variety of occupational profiles (Cattell, R.B. et al., 1970; Conn and Rieke, 1994; Guastello and Rieke, 1993a, 1993b; Russell and Karol, 2002; Schuerger and Watterson, 1998; Walter, 2000).
- creativity (Guastello and Rieke, 1993b),
- leadership styles (Watterson, 2002),
- team roles and team climate (Burch and Anderson, 2004; Fisher et al., 1998),
- social skills (Conn and Rieke, 1994),
- job training success (Tango and Kolodinsky, 2004),
- job satisfaction (Lounsdbury et al., 2004).
- punctuality, job preparedness, and ability to work alone (IPAT, 2004a);
- call-center customer service performance (Williams, 1999);
- leadership effectiveness ratings (Hetland and Sandal, 2003).

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Generalized Validity of Big Five Traits with Managerial Performance

16PF Trait (Secondary)	Big Five Trait	N of Cases	N of Corre-lations	Average Correlation	Population correlation coefficient p	90% CV
Extraversion	Extraversion	11 335	59	0,11	0,18	0,01
Anxiety	Emotional Stability	10 324	55	0,05	0,08	-0,04
Tough Poise	Agree-ableness	8 597	47	0,05	0,10	0,06
Behavior Control	Conscientious	10 058	52	0,09	0,23	0,23
Independence	Openness	7 611	37	0,05	0,08	-0,12

Barrick and Mount, 1991

90% CV (confidence value) is a lower bound for the population correlation coefficient (ρ); if the 90% CV is 0,00 or less, then there is no significant relationship between that class of variables and work performance.

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16PF Leadership Profile

The Leadership Potential Index for the 16PF is a composite of first-order traits that were first identified in an experimental leadership situation.

Military personnel (N = 800) were divided into small leaderless groups. The leaders who emerged from these groups displayed several common characteristics:

- capability for abstract thought (B+),
- conscientiousness or tendency toward conformity (G+),
- practicality (M-),
- conservatism (Q1-),
- self-confidence (O-)
- dominance (E+)

High scores on the composite (B+;G+;M-;Q1;O-;E+) describe people who are socially skilled and self-confident, have good organizational skills, and are attentive to job details and follow-through.

(Cattell & Stice, 1954)

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16PF Leaders Personality Profiles

- **Elected leaders** who stayed elected throughout the procedure, displayed several characteristics (at least 0.5 SD above or below the population mean): warmth (A+), intelligence (B+), cheerfulness (F+), conscientiousness (G+), socially bold (H+), trusting (L-), self-assured (O-), conservative (Q1-), group-dependent (Q2-), self-disciplined (Q3+) and relaxed rather than tense (Q4-).
- **Effective leaders** were less sociable (A-), self-sufficient (Q2+) and emotionally stable (C+). They shared five other characteristics with the elected leaders (B+, F+, G+, H+, Q3+, Q4-).
- **Technical Leaders** took on leadership roles only intermittently as the situations appeared to have warranted. Technical leaders were consistent with elected and effective leaders on the basis of B+, G+, H+, Q3+, Q4-. They were similar to elected leaders only on the basis of O- and F+. They were also consistent with effective leaders on the basis of C+. Their unique characteristics, compared to the other two groups, were relatively high dominance (E+) and imagination (M+).

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Leadership Traits for Effective Military Leaders and Business Executives

16PF Trait	Effective Military Leaders (N = 43)				Business Executives, Sample A (N =178)			
	Mean	z	w^2	r	Mean	z	w^2	r
A	4,7	-2,62	0,120	-0,35	7,8	12,27**	0,457	0,68
B	7,8	7,54**	0,565	0,75	7,5	16,68**	0,609	0,78
C	6,2	2,30*	0,090	0,30	5,7	1,27	0,003	0,06
E	5,9	1,31	0,017	0,13	5,8	1,54	0,008	0,09
F	5,5	0,00	0,000	0,00	5,3	-1,27	0,003	-0,06
G	6,1	1,97*	0,063	0,25	5,5	0,00	0,000	0,00
H	7,0	4,92**	0,350	0,59	6,6	7,72**	0,248	0,50
I	5,0	-1,64	0,037	0,19	5,6	0,67	0,000	0,00
L	5,0	-1,64	0,037	0,19	5,4	-0,67	0,000	0,00
M	5,1	-1,31	0,017	0,13	5,7	1,27	0,003	0,06
N	5,9	1,31	0,017	0,13	6,2	4,67**	0,105	0,32
O	5,0	-1,64	0,037	0,19	5,5	0,00	0,000	0,00
Q1	5,6	0,33	0,000	0,00	6,4	6,32**	0,180	0,42
Q2	6,2	2,30*	0,090	0,30	5,5	0,00	0,000	0,00
Q3	6,5	3,28**	0,185	0,43	5,8	1,74	0,011	0,11
Q4	3,8	-5,57**	0,412	0,64	5,3	-1,33	0,004	0,07
Leadership Potential	7,7	7,18**	0,540	0,740	6,2	4,74**	0,107	0,330
Sign. differences from gen. pop.	B+, C+, G+, H+, Q2+, Q3+, Q4+.				A+, B+, H+, N+; Q1+			

*p < 0,05, **p < 0,01.   *Cattell et al. , 1970*

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Sample-population Comparisons of Leadership Traits for Financial Executives

16PF Trait	Mean	t	w^2	r
A	6,74	3,95**	0,254	0,50
B	7,14	7,74**	0,578	0,76
C	5,93	1,95	0,002	0,14
E	7,63	7,63**	0,571	0,76
F	7,02	5,24**	0,381	0,62
G	6,98	4,80**	0,339	0,58
H	7,02	5,39**	0,395	0,63
I	4,74	-2,51*	0,110	0,33
L	5,40	-0,33	0,000	0,00
M	5,79	1,04	0,002	0,05
N	4,49	-3,54**	0,212	-0,46
O	4,35	-4,83**	0,342	-0,59
Q1	6,88	4,83**	0,340	0,58
Q2	5,14	-1,35	0,019	-0,14
Q3	5,81	1,35	0,019	0,14
Q4	5,30	-0,64	0,000	0,00
LP	7,00	4,91**	0,349	0,59

LP = Leadership Potential $*p < .05$, $**p < .01$.

Significant differences between the sample and population were noted for nine variables: A+, B+, E+, F+, G+, I-, N-, O-, Q1+.

(IPAT, 1980)

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16PF Manager Personality Profiles

- **Top-level executives whose roles involve developing long-term, innovative goals**, tend to score higher on Openness-to-Change (Q1+), Abstractedness (M+), Reasoning Ability (B+); average (below other managers) on Extraversion traits such as Warmth (A), Forthrightness (N), and Group-Orientation (Q2); and average to below on Rule-Consciousness (G−) (H.B. Cattell, 1989; Walter, 2000; Watterson, 2002).

- **Managers who are in applied manufacturing and operations roles** tend to score below average on Abstractedness (M−) and Sensitivity (I−), and above average on Rule-Consciousness (G+) and Perfectionism (Q3+).

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16PF: personalities of entrepreneurs

- **Personalities of entrepreneurs** are significantly below average on anxiety traits – low on Apprehensiveness (Self-Assured (O−)) and above average on Emotional Stability (C+). They were also above average on Independence and its traits of Dominance (E+), Social Boldness (H+), and Openness-to-Change (Q1+). They were also higher on Self-Reliance (Q2+), Rule-Consciousness (G+), and Reasoning Ability (B+), and low on Sensitivity (Utilitarian (I−)). (Aldridge, 1997)

- **Traits that distinguished entrepreneurs from other executives**: innovative thinking (Openness-to-Change (Q1+)); ability to step back and focus on the 'big picture' (Abstractedness (M+)); and a preference for working independently (Self-Reliance (Q2+)). (H.B. Cattell, 1989; H.B. Cattell and H.E.P. Cattell, 1997). Entrepreneurs tended to be less sociable than regular managers (low Warmth (A−), and low Trust (L+)), and prefer to work independently (Self-Reliance (Q2+)). (Aldridge, 1997; Fraboni and Saltstone, 1990)

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16PF profile for effective salespeople

Salespeople tend to be:
- high on Extraversion and its traits of Warmth (A+), Social Boldness (H+), Liveliness (F+), and Group-Orientation (Q2−).
- low on Anxiety and its sub-traits of Apprehensiveness (Self-Assured (O−)), Vigilance (Trusting (L−)),
- high on Emotional Stability (C+).
- above average on Independence and its traits of Social Boldness (H+) and Dominance (E+);
- above average on Rule-Consciousness (G+) and Reasoning Ability (B+).

Salespeople tend to be generally similar to managers; however, salespeople tend to be even higher on the traits of Extraversion (especially F+, H+, and A+) and lower on Anxiety traits (more Self-Assured (O−), and are Stable (C+)). (Cattell, R.B. et al., 1970; Guastello and Rieke, 1993b; Rieke and Russell, 1987; Schuerger and Watterson, 1991; Tucker, 1991; Walter, 2000).

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Personalities of social/helping occupations

People in social/helping occupations (teaching, counseling, customer service, human resource personnel, ministers/priests, nurses, and physical therapists) tend to be:
- above average on Extraversion, and particularly on Warmth (A+);
- below average on Tough-Mindedness (in the Receptive/open direction)
- above average on Sensitivity (I+) and Open-to-Change (Q1+).
- below average on Anxiety: Relaxed (Q4−), Self-Assured (O−), Trusting (L−), and Emotionally Stable (C+);
- above average on Self-Control traits of Perfectionism (Q3) and Rule-Consciousness (G+). (Cattell, R.B. et al., 1970; H.B. Cattell and H.E.P. Cattell, 1997; Phillips et al., 1985; Roy, 1995; Schuerger and Watterson, 1998; Walter, 2000)

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Protective service officers Personalities

Protective service officers (police officers, prison guards, firefighters etc) tend to be:
- **calm and resilient under stress** (low Anxiety, Emotionally Stable (C+); Self-Assured (O−); and Trusting (L−)).
- **responsible, self-disciplined, and task-focused** (high self-control; Rule-Conscious, G+; Perfectionistic, Q3+; Practical, M−; and Serious, F−).
- **tough and pragmatic** (high on Tough-Mindedness; Unsentimental (I−); Practical (M−); and Traditional (Q1−)).
- **consistently bold and fearless** (high on Social Boldness (H+), but not on other Extraversion traits), and somewhat above average on Dominance (E+).

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16PF profiles for scientific or technological professions

computer scientists, physicists, engineers, and research and development personnel:

- high on Abstract Reasoning (B+),
- high on Independence and its traits of Dominance (E+) and Openness-to-Change (Q1+);
- low on Extraversion Traits of Reserved (A−), Serious (F−), and Self-Reliant (Q2+);
- below average on Anxiety traits of Self-Assured (O-), Relaxed (Q4−), and Emotionally Stable (C+). (Cattell, R.B. et al., 1970; Schuerger and Watterson, 1998; Walter, 2000).

Heather E.P. Cattell and Alan D. Mead (2008) The Sixteen Personality Factor Questionnaire (16PF). The SAGE Handbook Of Personality Theory And Assessment

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16PF and Leadership Styles

- **The Assertive Style** is characterized by the use of persuasion to accomplish objectives. A later study of 185 managers (Sweney & Fiechtner, 1974; Sweney, 1977) showed that the Assertive Style can be characterized by seven 16PF variables: dominance (E+), cheerfulness (F+), conscientiousness (G+), suspiciousness (L+), experimentativeness (Q1+), lack of tension (Q4-) and pragmatism (M-) ($R^2 = 0,18$, p < 0,01). The assertiveness composite has since been correlated 0,44 with Leadership Potential (IPAT, 1987).
- **The Facilitative Style** is characterized by the use of example and involvement to attain objectives (Sweney, 1970). The Facilitative Style can be described by six 16PF variables: conservatism (Q1-), cheerfulness (F+), trust (L-), imagination (M+), prudence (H-), and lack of tension (Q4-) ($R^2 = 0,26$, p < 0,01; Sweney, 1977). High scores on the Facilitative Style composite would typify the team builder.
- **The Permissive Style** emphasizes the maintenance of harmony and the avoidance of conflict (Sweney, 1970). Persons exhibiting Permissive Style would be characterized by the 16PF as cool (A-), sensitive (I+), practical (M-), and insecure (O+), ($R^2 = 0,18$, p < 0,01) (Sweney, 1977). Permissive Style was negatively correlated (r = -0,61) with Leadership Potential (IPAT, 1987).
- According to Sweney (1970), a leader may use any of the three styles interchangeable, although any one particular style may predominate for an individual.

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16PF Integration of Core Leadership Traits and Leadership Styles

Primary Personality Trait		Leadership Styles				Relevant Opposite
		Auto-cratic	Facili-tative	Visionary & Creative		
Assertive, dominant, responds well to competitive situations	(E+)	Left	Middle	Left	(E-)	Unassertive, prefers non-competitive situations
Friendly, optimistic, enthusiastic	(F+)	Left	Left	Depends	(F-)	Sober, serious
Conscientiously meets responsibilities; follows rules and standard proce-dures	(G+)	Left	Left	Right	(G-)	Searches for new and different approaches for unstructured situations
Adventurous, socially bold	(H+)	Left	Left	Left	(H-)	Timid, shy
Tough-minded, self-reliant	(I-)	Left	Left	Right	(I+)	Empathetic and socially perceptive
Practical, objective	(M-)	Left	Left	Right	(M+)	Imaginative, finds ways of integrating diverse views
Polished, diplomatic, aware of impact on other people	(N+)	Left	Left	Left	(N-)	Straight-forward, unpretentious
Self-assured, confident	(O-)	Left	Left	Left	(O+)	Apprehensive, Self doubting
Controlled self-discipline	(Q3+)	Left	Left	Right	(Q3-)	Can "go with the flow;" makes suggestions often

Faciliative style: neutral; put the primary needs of the group ahead of their own selfish needs; builds consensus. **Autocratic style:** take a position; domination; use of authority. **Visionary & creative style:** live more in the future, they use the imaginary future as a way to mobilize followers.

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Traits that further affect style, but not overall leadership potential

Primary Personality Trait		Leadership Styles			Relevant Opposite	
		Autocratic	Facili-tative	Visionary & Creative		
Warm, outgoing	(A+)	Depends	Depends	Depends	(A-)	Aloof, reserved
Skepticism (directed at people rather than ideas)	(L+)	Left	Right	Right	(L-)	Trusting
Experimentative critical, open-minded	(Q1+)	Left	Right	Right	(Q1-)	Cautious, prudent
Relaxed, tranquil, composed	(Q4-)	Left	Left	Depends	(Q4+)	Tense, driven

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The 16PF Questionnaire and Empathy

Empathy is viewed as either knowing how others feel (a cognitive appraisal) or having the ability to experience the emotions of others as a way of understanding how they feel (a more emotional appraisal).

Individuals who are empathetic are more likely to be helpful to others when asked, more well adjusted, and seen as more agreeable and socially skilled.

- Empathetic individuals tend to be more Socially Bold (H+), Warm (A+), Emotionally Stable (C+), Open to Change (Q1+) and Lively (F+) than non-empathic people.
- In addition, empathetic individuals are less Vigilant (L-) and Tense (Q4-) than non-empathetic people.

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The 16PF Questionnaire and Self-Esteem

Self-esteem is an individual's evaluation of their own self-worth. It is a concept "similar to self-concept, self-acceptance, self-worth, self-confidence, self-assurance, and self-efficacy"

- People who are higher in self-esteem are generally happier and more self-satisfied. They are also more likely to persist in the face of obstacles than are individuals who are low in self-esteem
- Individuals who higher in self-esteem are Warm (A+), Emotionally Stable (C+), Socially Bold (H+) , Private (N+), and Open to Change (Q1+). They are also less Abstracted (M-) and less Apprehensive (O-).

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The 16PF Questionnaire and Adjustment

Psychological adjustment has been described in many ways, from life satisfaction, positive emotions and wellbeing to successful adaptation to life.

- **Well adjusted individuals** tend to be Emotionally Stable (C+), Trusting (L-), and Self-Assured (O-).
- **Emotional adjustment** refers to predominately experiencing positive emotions, with few ups and downs in mood. Emotionally adjusted individuals are also less Abstracted (M-) and experience less physical Tension (Q4-).
- **Social adjustment** refers to adapting to social demands in a proactive manner. Socially adjusted individuals, on the other hand are more Assertive (E+), Socially Bold (H+), Sensitive (I+), as well as less Self-Reliant (Q2-).

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The 16PF Questionnaire and Creativity

Creative individuals are Abstracted (M+), Open to Change (Q1+), Self-Reliant (N+), and Perfectionistic (Q3+).

- Creative individuals working in science and industry are also Reserved (A-), Socially Bold (H+), and Utilitarian (I-).
- Creative individuals involved in the arts are Warm (A+), Lively (F+) and Sensitive (I+).
- The differences between creativity in science and industry versus the arts are primarily centered around global factor Tough-Mindedness. Creativity in science and industry is oriented toward Tough-Mindedness while the arts are more oriented toward the tender-minded pole.

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The 16PF Questionnaire and Social Skills

The term 'social skills' includes an array of knowledge, skills, and abilities related to interacting with other people.

- **Emotional expression** - sending of nonverbal signals to communicate affect, attitudes, and status. Emotionally expressive individuals are Assertive (E+), Socially Bold (H+), Forthright (N-), Driven (Q4+) and Expedient (G-).
- **Emotional sensitivity** - skill in understanding other peoples' nonverbal signals. Emotionally sensitive individuals are Warm (A+) and Open (Q1+).
- **Emotionally controlled** individuals consistently monitor and regulate their emotional and nonverbal communications. These individuals are Private (N+) and Self-Assured (O-).
- **Verbal speaking** skills and the ability to engage other people in social situations is the cornerstone of social expression. Socially expressive people are Lively (F+), Socially Bold (H+), Forthright (N-), and Open to Change (Q1+).
- **Social sensitivity** - an individual's ability to understand verbal communication and knowledge of social norms. Socially sensitive people are Warm (A+), Emotionally Reactive (C-), Modest (H-), Apprehensive (O+), Traditional (Q1-) and Driven (Q4+).
- **Self presentation** skill is encompassed by social control. Individuals high in social control readily adapt their behavior to fit their perception of the social situation. Socially controlled individuals are Assertive (E+), Socially Bold (H+), Open to Change (Q1+), Perfectionistic (Q3+), and Trusting (L-).

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Measurement of Personality

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Summary

Scales	Warmth	Reasoning	Emotional Stability	Dominance	Liveliness	Rule-Conscious-ness	Social Boldness	Sensitivity	Vigilance	Abstracted-ness	Privateness	Apprehension	Openness to Change	Self-Reliance	Perfectionism	Tension	
Profiles	A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4	N=
Military leaders		+		+	+	+											8
Elected leaders	+	+			+	+	+								+		11
Effective leaders	+	+	+		+	+	+			+					+		9
Technical leaders		+	+	+	+	+	+			+					+		10
Top-long executives, developing long-term, innovative goals	0	+									+	0		0			7
Managers, manufacturing and operations roles						+								+			4
Entrepreneurs	+	+	+	+		+							+	+			9
Traits that distinguished entrepreneurs from other executives									+	+				+			5
Effective salespeople	+	+	+	+	+	+	+		+					+	+		10
Social/helping occupations	+		+					+						+			9
Protective service officers		+	+		+	+								+			11
Scientific or technological professions		+	+	+										+	+		9
The Assertive Leadership Style				+	+					+							7
The Facilitative Leadership Style					+							+					6
The Permissive Leadership Style								+					+				4
Autocratic leader	?			+	+	+	+		+		+		+				13
Facilitative leader	?		0	+	+	+				+		+		+			13
Visionary & Creative leader	?			+	?		+		+	+	+		+		?		13
Empathy	+			+	+		+						+				7
Self-Esteem	+			+			+						+				7
Adjustment			+	+			+	+					+				9
Creativity									+	+	+		+				4
Creative individuals working in science and industry							+		+	+			+				7
Creative individuals involved in the arts	+				+				+	+			+				7
Social Skills																	
Emotional expression				+											+		5
Emotional sensitivity	+											+					2
Emotional control											+						2
Verbal speaking				+		+						+					4
Social sensitivity	+												+			+	6
Self presentation			+			+								+			5
N=	17	8	11	13	14	15	18	11	13	17	11	16	22	8	13	14	221

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16PF parallel versions

- 16PF Adolescent Personality Questionnaire measures the 16PF traits in 12–18 year olds (Schuerger, 2001).
- A shorter (20-minute) version of the questionnaire, consisting of a subset of somewhat-shortened scales, was developed for use in employee selection settings – the 16PF Select (Cattell, R.B. et al., 1999).
- The 16PF Express (Gorsuch, 2006) provides a very short, 15-minute measure of all the traits (with four or five items per factor).
- The 16PF traits also appear in the PsychEval Personality Questionnaire (PEPQ; Cattell, R.B. et al., 2003), a comprehensive instrument which includes both normal and abnormal personality dimensions

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The 16PF Select

is a shortened form of the 16PF Fifth Edition Questionnaire developed specifically for use in personnel selection situations (Cattell, et al., 1993; Kelly, 1999).

- The 16PF Select contains 107 items that encompass 12 primary personality factor scales and three response style indices.
- The 12 scales of the 16PF Select are: Warmth, Calmness, Dominance, Liveliness, Rule-Consciousness, Social Boldness, Trust, Imagination, Self-Assuredness, Open-Mindedness, Self-Reliance, and Organization.
- Each scale contains 8 or 9 items.
- The response style indices impression management, acquiescence, and infrequency.

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Recommendations for further reading

Cattell, Mead (2008) The Sixteen Personality Factor Questionnaire (16PF)
http://people.wku.edu/richard.miller/520%2016PF%20Cattell%20and %20Mead.pdf

Uhlmann et al (2012) Getting Explicit About the Implicit: A Taxonomy of Implicit Measures and Guide for Their Use in Organizational Research. Organizational Research Methods. October 2012 vol. 15 no. 4, 553-601

IPAT (the Institute for Personality and Ability Testing, Inc.) www.ipat.com

US Dept. of Labor. Dictionary of Occupational Titles.
http://www.occupationalinfo.org

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