

One

OVERVIEW

HISTORY AND DEVELOPMENT

The 16 Personality Factor Questionnaire (16PF®) is a comprehensive measure of normal-range personality that is widely used in settings in which an in-depth, integrated picture of the whole person is needed. Key information about the test is provided in Rapid Reference 1.1. The history of the development of the 16PF Questionnaire spans almost the entire history of objective personality measurement. Instead of being developed to measure preconceived dimensions of interest to a particular author for a particular purpose, the 16PF Questionnaire originated from the unique perspective of an empirical quest to try to discover the basic structural elements of personality via scientific research sampling of the whole domain of human personality. In addition to leading to the discovery of the 16 personality factors for which the test is named, the research identified the broad dimensions currently called the Big Five factors of personality. Because of its scientific origin, the test has a long history of empirical research, is embedded in a well-established theory of individual differences, and has proven useful in understanding a wide variety of important behaviors. These features provide a rich source of interpretation for the test user.

That the 16PF Questionnaire originated from scientific inquiry was no accident; its author, Raymond B. Cattell, was the product of a strong scientific and analytical background. His grandfather, father, and brother were inventors and engineers. As a young man, he witnessed the astounding results of pioneering scientific research—electricity, radios, telephones, automobiles, and airplanes. These influences inspired his decision to pursue undergraduate and master's degrees in the physical sciences at the University of London in the 1920s.

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At that time, the field of scientific psychology was quite limited in scope. Cattell studied the work of physiological and experimental psychologists (e.g., Pavlov, Thorndike, and Wundt) who used the scientific method to examine very particular areas of human functioning such as sensation and learning. He found that personality theory originated in the postulations of philosophers such as Aristotle, Locke, and Nietzsche, whereas modern developments were largely generated by medically trained professionals such as Sigmund Freud and Carl Jung, who studied the symptoms and problems of troubled patients. These professionals drew their ideas primarily from clinical experience and relied on intuition for reconstruction of what was going on inside people, often scorning the rigor and precision of science. Thus, Cattell discovered that experimental psychologists seemed to have little to say about the larger issues of human personality and that personality theorists showed little inclination to use a scientific approach.

Cattell was influenced by his studies and by the social and political ferment of post-World War I London, where he regularly was exposed to people like George Bernard Shaw, Aldous Huxley, H. G. Wells, and Bertram Russell. This experience led Cattell to believe that the biggest problems in the world were often the result of human temperament and motivation. He speculated that there must be some way to apply the powerful tools of science to understanding human personality.

*Rapid Reference 1.1***Key Features of the 16PF Fifth Edition Questionnaire**

1. Result of scientific research into the basic elements of human personality
2. Multitiered trait structure that provides rich, integrated picture of the whole person, including global (Big Five) traits
3. Comprehensive, integrated measure of normal-range personality
4. Extensive research available from a range of applied settings
5. Useful in a wide variety of applied settings: clinical, counseling, career development, employee selection, educational settings, and basic research
6. Available in more than 30 languages worldwide, with many languages available online

At the University of London, Cattell worked with Charles Spearman, who was developing the methods of factor analysis to try to identify and organize the basic elements of human ability. Cattell's involvement in this study sparked his conviction that factor analysis, a powerful tool for discovering the basic underlying dimensions behind complex phenomena, could also be applied productively to personality. He reasoned that human personality must have basic structural elements in the same way that the physical world has basic building blocks (e.g., oxygen and hydrogen). If the basic building blocks of personality were discovered and the structure of personality was indeed measurable, then human behavior would—to some extent—become understandable and predictable. For example, complex behavioral criteria such as leadership, self-esteem, and creativity could be predicted from these basic structural elements of personality.

Thus, Cattell's goal in creating the 16PF Questionnaire was to provide a thorough, research-based map of normal personality. However, the development of the 16PF represented only one part of a much larger research effort. Cattell believed in examining the broadest possible range of personality phenomena, including roles and states, thoughts and actions, verbal and nonverbal behavior, normal and abnormal personality, and ability and interest variables. He believed that for psychology to advance as a science, psychologists needed scientific measurement procedures for three distinct domains of human characteristics: personality, ability, and motivation (with the latter defined as dynamic drives such as a need for power, achievement, or security). By sampling each of these domains and applying factor-analytic methods, Cattell sought to discover the number and nature of the variables that comprised the meaning of each.

In addition, Cattell posited three types of information or data sources that need to be sampled in exploring each of the three domains. Life record or life observation (L-data) involves observing and recording information about a person from natural, real life settings—actual in situ behavior from everyday life. These data range from historical or biographical facts to behavior counts to observer ratings by those who know the person well. Questionnaire data (Q-data) are obtained from the person's self-description in response to multiple-choice or open-ended questions. This type of conscious self-disclosure

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provides the mental interior to the external record provided by the L-data, but it is still just another piece of behavior whose actual meaning is discerned through further research. Objective tests (T-data), on the other hand, involve objective measurement of behavior through standardized, contrived tests or laboratory situations that do not require the individual to conduct any self-examination. T-data instruments range from paper-and-pencil tests, such as ability or projective tests, to behavioral measures in experimental situations. Cattell sought to identify the basic traits of personality from factor-analytic studies covering information from L-, Q-, and T-data sources, assuming that traits that emerged in all three media would represent true functional unities.

Cattell and his colleagues embarked on a comprehensive program of research to identify and map the underlying dimensions of personality. Because a critical determinant of the outcome of a factor analysis is the range of data that is used, Cattell stressed the importance of adequately sampling the whole domain of personality. Thus, the researchers began their search with an exhaustive listing of personality descriptors—based on the belief that “all aspects of human personality which are or have been of importance, interest, or utility have already become recorded in the substance of language” (Cattell, 1943, p. 483). Starting with a compilation of all known personality descriptors in the English language (Allport & Odbert, 1936), they tried to discover the factors underlying the traits by analyzing the patterns among them in actual peer ratings, self-report questionnaires, and objective behavioral measures. An extensive description of this research process is included in Cattell’s *Personality and Mood by Questionnaire* (1973).

After years of factor-analytic work, Cattell and his colleagues around the world determined a list of the fundamental building blocks of personality that were termed *primary traits*. These traits, the dimensions measured by the 16PF Questionnaire, are presented in Rapid Reference 1.2. The traits were developed using data from all three research media (peer ratings, self-report tests, and objective behavioral measures) and in a wide range of populations (e.g., undergraduates, military personnel, working adults), which has contributed to the robustness of the 16PF scales and their predictive utility in many kinds of settings. Lengthier descriptions of the scales appear in chapter 3.

Rapid Reference 1.2

16PF Scale Names and Descriptors

Descriptors of Low Range	Primary Scales	Descriptors of High Range
Reserved, impersonal, distant	Warmth (A)	Warm, participating, attentive to others
Concrete, lower mental capacity	Reasoning (B)	Abstract, bright, fast-learner
Reactive, affected by feelings	Emotional Stability (C)	Emotionally stable, adaptive, mature
Deferential, cooperative, avoids conflict	Dominance (E)	Dominant, forceful, assertive
Serious, restrained, careful	Liveliness (F)	Enthusiastic, animated, spontaneous
Expedient, nonconforming	Rule-Consciousness (G)	Rule conscious, dutiful
Shy, timid, threat sensitive	Social Boldness (H)	Socially bold, venturesome, thick-skinned
Tough, objective, unsentimental	Sensitivity (I)	Sensitive, aesthetic, tender-minded
Trusting, unsuspecting, accepting	Vigilance (L)	Vigilant, suspicious, skeptical, wary
Practical, grounded, down-to-earth	Abstractedness (M)	Abstracted, imaginative, idea oriented
Forthright, genuine, artless	Privateness (N)	Private, discreet, nondisclosing
Self-assured, unworried, complacent	Apprehension (O)	Apprehensive, self-doubting, worried
Traditional, attached to familiar	Openness to Change (Q1)	Open to change, experimenting
Group-oriented, affiliative	Self-Reliance (Q2)	Self-reliant, solitary, individualistic
Tolerates disorder, unexacting, flexible	Perfectionism (Q3)	Perfectionistic, organized, self-disciplined
Relaxed, placid, patient	Tension (Q4)	Tense, high energy, driven

(continued)

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Descriptors of Low Range	Global Scales	Descriptors of High Range
Introverted, socially inhibited	Extraversion	Extraverted, socially participating
Low anxiety, imperturbable	Anxiety	High anxiety, perturbable
Receptive, open-minded, intuitive	Tough-Mindedness	Tough-minded, resolute, unempathic
Accommodating, agreeable, selfless	Independence	Independent, persuasive, willful
Unrestrained, follows urges	Self-Control	Self-controlled, inhibits urges

Note. Adapted with permission from Conn, S. R., & Rieke, M. L. (1994). *16PF Fifth Edition technical manual*. Champaign, IL: Institute for Personality and Ability Testing, Inc.

Some letters are missing from the alphabetic designations of the 16PF primary scales (D, J, K, or P); these scales turned up only inconsistently in early factor analyses and therefore were dropped.

THE 16PF STRUCTURE AND THE ORIGINAL BIG FIVE

From the beginning, Cattell conceptualized personality in terms of a hierarchical, multilevel structure (Cattell, 1946). He found that when the primary traits themselves were factor analyzed, a smaller number of broad, underlying influences among the primaries emerged; Cattell called these “second-order” or “global” traits (see Rapid Reference 1.2). Thus, the global traits were constructed from the primary traits, which define the global traits, and the two levels of personality structure are fundamentally interrelated. Although Cattell continued to search for more than five global factors, only five have remained clearly and consistently identifiable, and these factors have been scored from the test for the last 30 years.

Figure 1.1 highlights the significance and usefulness of the multilevel 16PF factor structure. The five global scales give an overview of an individual’s personality makeup at a broad level of functioning while the more specific primary scales (from which the globals were constructed) provide an in-depth picture of the individual’s unique personality dynamics.

16PF GLOBAL FACTORS AND THEIR CONTRIBUTING PRIMARIES

Extraversion/ Introversion	High Anxiety/ Low Anxiety	Tough-Mindedness/ Receptivity	Independence/ Accommodation	Self-Control/ Lack of Restraint
↑	↑	↑	↑	↑
(A+) Reserved/Warm	(L-) Emotionally Stable/ Reactive	(A-) Warm/Reserved	(E+) Deferential/ Dominant	(F-) Lively/Serious
(F+) Serious/Lively	(L+) Trusting/Vigilant	(I-) Sensitive/ Unsentimental	(H+) Shy/Bold	(G+) Expedient/ Rule-Conscious
(H+) Shy/Bold	(O+) Self-Assured/ Apprehensive	(M-) Abstracted/ Practical	(L+) Trusting/Vigilant	(M-) Abstracted/ Practical
(N-) Private/Forthright	(Q4+) Relaxed/Tense	(Q1-) Open-to-Change/ Traditional	(Q1+) Traditional/ Open-to-Change	(Q3+) Tolerates Disorder/ Perfectionistic
(Q2-) Self-Reliant/ Group-Oriented				

Figure 1.1 16PF global factors and their contributing primaries.

For example, global scale Extraversion/Introversion emerged as a combination of five primary scales, each representing a unique motivation for moving toward versus away from other people. Thus, two people who are each at the 80th percentile on Extraversion may spend equal amounts of time around other people but for very different reasons. One person, for example, might move toward others because he is caring and warm (high on Warmth-A), feels a need for companionship and support (low on Self-Reliance-Q2), but is shy and modest (low on Social Boldness-H). Another person at the 80th percentile on Extraversion might be talkative and high-spirited (high on Liveliness-F), bold and thick-skinned (high on Social Boldness-H), but detached and objective (low on Warmth-A). This second extravert may be perceived as less sincere and shallower than the first; therefore, people would respond very differently to the two. Overall, these two extraverts contrast greatly in their empathy for others and would be quite dissimilar to live with, to work for, or to supervise.

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As the preceding example illustrates, the 16PF structure allows the professional to view an individual's personality at various levels of organization and to understand deeper motivations. Note that all the scales have distinct definitions for both ends or poles (i.e., are bipolar) and that the high ends are not "good" and the low ends are not "bad"—that is, both high and low scores have both strengths and weaknesses depending on the situation. Primary scales may contribute to a particular global scale in either a positive or negative direction (either the high or low end of the scale), depending on how the factor analysis defined a given global scale.

Test users frequently focus on the 16PF primary-level traits because they offer a more fine-grained definition of an individual's unique dynamics and because they have been proven more powerful predictors of actual behavior (Ashton, 1998; Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995; Goldberg, 1972, in press; Mershon & Gorsuch, 1988; Paunonen, 1993). However, the five global scales create a basic conceptual organizing structure among the primaries—that is, they help to give meaning to the primaries and contribute to the interpretation and understanding of individual scores.

These five global scales represent the original traits now commonly referred to as the Big Five (Cattell, 1957). In fact, the development of the recent Big Five theories was heavily influenced by the use of Cattell's original scales (e.g., Digman, 1990; Goldberg, 1993; Norman, 1963; Tupes & Christal, 1961). For example, the authors of the NEO describe its development as beginning with cluster analyses of the 16PF scales (Costa & McCrae, 1976, 1985). Comparisons between the five 16PF global scales and other Big Five scales (such as those from the NEO) show a high level of alignment. Research has found that the average correlation between the NEO five factors and the 16PF globals is just as high as the average correlation between the NEO five factors and Goldberg's Big Five factors (Cattell, H. E. P., 1996; Pipher, 2002). Rapid Reference 1.3 indicates the alignments between the factors in the three major systems.

Although the fit across the various representatives of the model is close, the 16PF global scales have an important advantage over the other five-factor models. They have this advantage because the method used in the 16PF development allowed the data itself to determine the factors, whereas the other Big Five systems were developed based on methods that forced their factors to be uncorrelated, thus affecting their definitions. Technically, the

*Rapid Reference 1.3***Alignments Among the Three Main Five-Factor Models**

16PF (Cattell)	NEO-PI-R (Costa & McCrae)	Big-Five (Goldberg)
Extraversion/Introversion	Extraversion	Surgency
Low Anxiety/High Anxiety	Neuroticism	Emotional Stability
Tough-Mindedness/Receptivity	Openness	Intellect or Culture
Independence/Accommodation	Agreeableness	Agreeableness
Self-Control/Lack of Restraint	Conscientiousness	Conscientiousness or Dependability

16PF global scales emerged in a factor analysis that allowed oblique rotations; in contrast, the other systems used orthogonal rotations, despite the fact that the scales in these systems have repeatedly been found to be significantly correlated (not orthogonal). Thus, the 16PF global scales are the only Big Five scales developed without their definitions' being constricted by methods of statistical convenience.

USES OF THE 16PF QUESTIONNAIRE

Although the 16PF Questionnaire measures normal-range traits (not psychopathology), it has been used extensively in counseling and clinical settings because of its ability to give an in-depth, integrated picture of the whole person, including strengths and weaknesses. In addition, it can facilitate dialogue between the clinician and client by promoting understanding, empathy, and rapport from the very first session. Furthermore, because 16PF scale meanings represent common areas of everyday experience, the professional can share test results openly with clients, thus facilitating discussion, increasing self-awareness, and enabling clients to feel a sense of partnership in the assessment and planning processes.

The test can provide information on issues relevant to the counseling process, such as the individual's capacity for insight, self-esteem, cognitive style,

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internalization of standards, openness to change, capacity for empathy, level of interpersonal trust, quality of attachments, interpersonal needs, attitude toward authority, power dynamics, frustration tolerance, and coping style. Additionally, test results can suggest effective strategies for establishing a working alliance, developing a therapeutic plan, and selecting effective therapeutic interventions or modes of treatment. 16PF scores can be particularly useful in time-limited or managed-care environments, where the clinician needs to quickly develop a picture of the whole person as a context in which to place presenting problems and then develop a therapeutic plan to suit the client's individual needs.

The 16PF Questionnaire also provides an objective, comprehensive, and efficient source of information in employment and career settings. Its relevance for world-of-work issues has led to its wide use in employment settings, including the areas of career development and career counseling; employee selection, promotion, and outplacement; and employee development, training, and coaching. Research has generated a wide range of occupational profiles, such as for executives and managers, salespeople and customer service people, law enforcement officers and security personnel, social workers and teachers, scientists and engineers, and writers and artists (see chapter 6). Comparisons with these occupational profiles are often useful in interpreting individual profiles. Decades of use in industrial settings has led to prediction equations for a variety of criteria, such as problem-solving style, creativity, leadership, social skills, stress tolerance, conscientiousness, initiative taking, learning style, and the Holland occupational types.

The 16PF Questionnaire is used in a wide range of other settings, including basic research, education, sports psychology, medical treatment, and military training. For example, it has been used to study the effects of birth order on personality (Beer, 2001), investigate effects of aging (Long, 2000), understand differences in learning styles (Macgregor, 2000), study equivalence of cross-cultural test translations (Budd, 1998), investigate the effects of social desirability on tests (Ellington, Smith, & Sackett, 2001), understand issues of sexual orientation (Cabrera, 2001), and improve selection and training of military pilots (Bartram, 1995).

VERSIONS OF THE 16PF QUESTIONNAIRE

Since the 16PF Questionnaire was first published in 1949, research and refinement have continued, resulting in new editions published in 1956, 1962, and 1968 and in the 16PF Fifth Edition Questionnaire in 1993. (See Rapid Reference 1.4 for a brief history of 16PF development and Rapid Reference 1.6 for basic information about the test.) In 2001, the 16PF Questionnaire was restandardized on a stratified random sample of over 10,000 individuals, which reflects the 2000 U.S. Census figures for sex, race, and age.

The personality structure of younger age ranges was also studied, resulting in parallel 16PF testing forms for children and teens. These forms include the High School Personality Questionnaire (HSPQ) for ages 12 to 18 (Cattell, M. Cattell, & Johns, 1984), the Children's Personality Questionnaire (CPQ) for ages 8 to 12 (Porter & Cattell, 1975), and the Early School Personality Questionnaire (ESPQ) for ages 6 to 8 (Cattell & R. W. Coan, 1976). The HSPQ has been updated and renamed the 16PF Adolescent Personality Questionnaire (Schuerger, 2001a); this test includes new sections of career interest questions and a section asking directly about problems in living. A revision of the CPQ is in progress.

A shortened version of the test, called the 16PF Select Questionnaire (R. B. Cattell, H. E. P. Cattell, A. K. Cattell, & Kelly, 1999), is available for selection settings. It allows the professional to define the personality characteristics that are most important for effective job performance, and provides objective feedback comparing an applicant's personality characteristics to the desired personality dimensions for the job.

Because of the international nature of Cattell's research, the 16PF Questionnaire was quickly translated and adapted into many other languages. Since its first publication in 1949, the test has been adapted into more than 35 languages and dialects. The introduction of 16PFworld.com in 1999 enabled multinational users to access the test in many different languages for Internet administration, scoring, and computer interpretive reports. Ongoing adaptation and improvement of the 16PF test continues at the Institute for Personality & Ability Testing (IPAT), the publisher, in conjunction with scientists and practitioners throughout the world.

*Rapid Reference 1.4***History and Development of the 16PF Questionnaire**

- 1930s—Cattell works with Charles Spearman in the development of factor-analytic methods to study the structure of human abilities.
- 1940s—Cattell begins comprehensive program of research, applying factor analysis to identify the basic elements of personality structure.
- 1949—First publication of the 16PF Questionnaire in the United States.
- 1952—First publication of the 16PF Questionnaire in Great Britain.
- 1953—First publication of the High School Personality Questionnaire (HSPQ).
- 1956—Publication of the 16PF Second Edition.
- 1959—First publication of the Children's Personality Questionnaire (CPQ).
- 1962—Publication of the 16PF Third Edition.
- 1965—Introduction of computer scoring by mail.
- 1968—Publication of the 16PF Fourth Edition.
- 1972—Publication of first computerized interpretive report.
- 1980—Test translations exceed 35 languages worldwide.
- 1992—Computer scoring by OnSite software.
- 1993—Publication of the 16PF Fifth Edition.
- 1999—Online administration and scoring and computerized interpretive reports (NetAssess) were introduced.
- 1999—Publication of the 16PF Select Questionnaire.
- 2000—Restandardization of the 16PF Fifth Edition with over 10,000 people.
- 2001—Online administration and scoring and computerized interpretive reports became available in multiple international languages (16PF world.com).
- 2001—Publication of the 16PF Adolescent Personality Questionnaire (APQ, a revision of the HSPQ).

TEST DESCRIPTION, RELIABILITY, AND VALIDITY**Description**

Since its first publication in 1949, the test has undergone four major revisions. The latest edition, the 16PF Fifth Edition Questionnaire (1993), is the main subject of this book. In contrast to previous editions, the 16PF Fifth

Edition Questionnaire features simpler, updated language; a lower reading level; improved psychometric characteristics; new response-style indices; easier hand scoring; and updated norms. It was reviewed for compliance with the Americans with Disabilities Act, and for gender, cultural, and racial biases. Special attention was given to cross-cultural translatability of items since previous editions had been translated into over 35 languages. In 2001, the test was restandardized on a stratified random sample of more than 10,000 individuals, which reflects the 2000 U.S. Census figures for sex, race, and age.

The 16PF Fifth Edition contains 185 multiple-choice items that are written at a fifth-grade reading level. It provides scores on 16 primary personality scales (one of which is a short reasoning-ability scale, positioned by itself at the end of the test) and five global (Big Five) scales. Three response-style scales are also included to help in identifying unusual response patterns that may affect the validity of scores. Each primary scale contains 10–15 items, and each item has a three-choice answer format, with the middle choice being a question mark (?).

A distinguishing characteristic of 16PF items is that they tend to sample a broad range of normal behavior by asking test takers about their behavior in specific situations (rather than merely asking how they would rate themselves on personality traits, as is the practice of many other tests). The test includes a wide range of item types, including items that ask about actual behavior:

- When I find myself in a boring situation, I usually “tune out” and daydream about other things. (*a. true; b. ?; c. false*)
- In talking to a friend, I tend to: (*a. let my feelings show; b. ?; c. keep my feelings to myself*)
- I hardly ever feel hurried or rushed as I go about my daily tasks. (*a. true: I don't; b. ?; c. false: I often feel rushed.*)

Reliability

Reliabilities for the 16PF Fifth Edition's primary and global scales are comparable to those of other personality measures even though the scales are fairly short (10–15 items). These reliabilities are summarized in Rapid Reference 1.5. Internal consistency reliabilities (how highly the items in a scale correlate with each other) for the primary scales average .76 (ranging from

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.68 to .87 over the 16 scales) in the normative sample of 10,261 individuals. Test-retest reliabilities (or estimates of the consistency of scores over time) for a 2-week interval ranged from .69 to .87 with a median of .80. Two-month test-retest reliabilities ranged from .56 to .79 with a median of .69. The 16PF global scales have even higher reliabilities; 2-week test-retest estimates ranged from .84 to .91 with a mean of .87, and 2-month test-retest estimates ranged from .70 to .82 with a median of .80. Further information can be found in the *16PF Fifth Edition Technical Manual* (Conn & Rieke, 1994).

Rapid Reference 1.5

Reliability Estimates for 16PF Fifth Edition Scales

Primary Scales	Internal Consistency ^a (Cronbach's alpha) (N = 10,261)	Test-Retest Interval	
		2-week (N = 204)	2-month (N = 159)
A Warmth	.69	.83	.77
B Reasoning	.75	.69	.65
C Emotional Stability	.79	.75	.67
E Dominance	.68	.77	.69
F Liveliness	.73	.82	.69
G Rule-Consciousness	.77	.80	.76
H Social Boldness	.87	.87	.79
I Sensitivity	.79	.82	.76
L Vigilance	.73	.76	.56
M Abstractedness	.78	.84	.67
N Privatness	.77	.77	.70
O Apprehension	.80	.79	.64
Q1 Openness to Change	.68	.83	.70
Q2 Self-Reliance	.79	.86	.69
Q3 Perfectionism	.74	.80	.77
Q4 Tension	.79	.78	.68
Mean	.76	.80	.70

(continued)

Primary Scales	Internal Consistency ^a	Test-Retest Interval	
	(Cronbach's alpha)	2-week	2-month
	(N = 10,261)	(N = 204)	(N = 159)
Global Scales			
Extraversion		.91	.80
Anxiety		.84	.70
Tough-Mindedness		.87	.82
Independence		.84	.81
Self-Control		.87	.79
Mean		.87	.78

Note. Adapted with permission from *16PF Fifth Edition norm supplement, release 2002* by C. C. Maraist and M. T. Russell, 2002; and from "Reliability and Equivalency" by S. R. Conn, 1994, in S. R. Conn & M. L. Rieke (Eds.), *The 16PF Fifth Edition technical manual*. Champaign, IL: Institute for Personality and Ability Testing, Inc.

^aInternal consistency values are not available for the global factor scales because their scores are derived from combinations of the 16 primary scales.

Validity

Because the 16PF dimensions were developed through factor analysis, construct validity is provided by studies confirming its factor structure (e.g., Chernyshenko, Stark, & Chan, 2001; Conn & Rieke, 1994; Cattell & Krug, 1986; Gerbing & Tuley, 1991; Hofer, Horn, & Eber, 1997). Additionally, the factor structure has been confirmed in a range of languages (e.g., *Italian*: Barbaranelli & Caprara, 1996; *French*: Mogenet & Rolland, 1995; *Japanese*: Motegi, 1982; *Spanish*: Prieto, Gouveia, & Fernandez, 1996; and *German*: Schneewind & Graf, 1998).

An extensive body of research dating back a half century provides evidence of the test's applied validity—its utility in counseling, clinical, career development, personnel selection and development, educational, and research settings. Profiles and prediction equations exist for a wide range of criteria such

as leadership, creativity, academic achievement, conscientiousness, social skills, empathy, self-esteem, marital adjustment, power dynamics, coping patterns, cognitive processing style, and dozens of occupational profiles (Cattell, Eber, & Tatsuoka, 1992; Conn & Rieke, 1994; Guastello & Rieke, 1993; Kelly, 1999; Krug & Johns, 1990; Russell & Karol, 2002; Schuerger & Watterson, 1998).

By the 1980s, the 16PF Questionnaire was ranked among the highest in number of research articles (Graham & Lilly, 1984, p. 234), and a recent estimate places the number of references since 1974 at more than 2,000 publications (Hofer & Eber, 2002). Since the 1960s, the test has been noted as a significant instrument in professional practice. For example, a study by Piotrowski and Keller (1989) found the 16PF Questionnaire to be the most recommended of general personality questionnaires. Research also suggests

Rapid Reference 1.6

Basics of the 16PF Fifth Edition Questionnaire

Authors: Raymond B. Cattell, A. Karen S. Cattell, and Heather E. P. Cattell

Publication date: 1993

What the test measures: Full range of normal personality—16 primary scales, 5 global scales, and 3 response style indices

Reading level: Fifth grade

Age range: 16 years and older

International usage: Special editions exist for use in Argentina, Australia, Brazil, Canada, Croatia, Czech Republic, Denmark, France, Finland, Germany, Greece, Italy, Japan, Norway, Philippines, Portugal, Romania, Slovak Republic, South Africa, Spain, Sweden, Turkey, and United Kingdom

Qualifications of examiners: Graduate or professional-level training in psychological assessment

Publisher: Institute for Personality & Ability Testing, Inc. (IPAT)

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that the test is somewhat more powerful than other major questionnaires in predicting real-life behavior. A recent study (Goldberg, in press) compared many popular personality questionnaires in their ability to predict six behavioral clusters and found that the 16PF dimensions had the highest predictive validity.



TEST YOURSELF



1. The 16PF Questionnaire, unlike many psychological measures, did NOT emerge out of applied clinical needs. What was the main influence on its development?

- (a) Studies into the structure of human abilities
- (b) Theory about the basic dimensions of personality
- (c) Scientific research into the basic structural elements of personality
- (d) Development of modern projective techniques

2. What is the name given to the statistical method that Cattell used to identify his 16 primary scales and 5 global scales?

- (a) Orthogonal rotation
- (b) Correlation coefficient
- (c) Multivariate analysis
- (d) Factor analysis

3. Cattell's research was based on data from which of the following domains?

- (a) peer ratings
- (b) self-report questionnaires
- (c) observable behavioral ratings
- (d) all of the above

4. How much of the personality domain was the test constructed to cover?

- (a) The Big Five traits
- (b) The abnormal range of personality
- (c) The entire domain of normal personality
- (d) Traits in which the author was interested

(continued)

5. When was the test first published?

- (a) 1949
- (b) 1957
- (c) 1968
- (d) 1993

6. The five global scales that measure broad organizing influences in personality, align fairly well with other Big-Five measures (and were discovered 30 years earlier). True or False?**7. The test is appropriate for ages 16 and above, is written at a fifth grade reading level, and takes about 45 minutes to complete.**

True or False?

8. Which of these is NOT a possible method of I6PF administration and scoring?

- (a) Paper and pencil
- (b) OnSite computer software
- (c) NetAssess
- (d) I6PFworld.com
- (e) OnFax

9. To what areas of practical use has the I6PF been applied?

- (a) Employee selection and development
- (b) Clinical and counseling
- (c) Basic research
- (d) Educational research
- (e) All of the above

Answers: 1. c; 2. d; 3. d; 4. c; 5. a; 6. True; 7. True; 8. e; 9. e.