

TRAIT THEORY: THE FIVE-FACTOR MODEL; APPLICATIONS AND EVALUATION OF TRAIT APPROACHES TO PERSONALITY

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You are applying to graduate school and Allport, Eysenck, and Cattell are writing you letters of recommendation. What would their three letters look like? Certainly they would differ. Eysenck would discuss your behavior and accomplishments in terms of his 'three broad superfactors', Cattell would consider twenty-some more specific traits, and Allport might weave a richly detailed idiographic portrayal, including many entirely unique trait configurations. While there might be some common themes in the letters, none of the theorists would ever give up his preferred theoretical position. That leads us to the question, How can we ever reach agreement about the basic traits if we cannot break this stalemate?

Suppose we proceed as follows. We ask a thousand people to write personality descriptions of a thousand others. Then we collect together all the trait-descriptive adjectives used in these descriptions. The result would be a list of personality descriptors that is not biased by any theoretical preconceptions. Certainly, with a thousand words, there would be considerable redundancy (e.g., *perfect* and *flawless* mean pretty much the same thing), permitting us to reduce the size of the list. If we then factor-analyze personality ratings on these traits, we should end up with the major dimensions of personality trait descriptions. The result may be a compromise that does not please everybody, but at least it is arrived at through a fair set of procedures, and its practicality and usefulness will determine whether it is generally accepted in the field.

In this chapter we continue our discussion of trait theory and consider the efforts of trait researchers to reach a consensus using the procedures outlined above. We focus on the emerging consensus on the importance of five basic trait dimensions and consider the evidence supporting this five-factor model as well as its application to the individual. The chapter concludes with an overall evaluation of the trait approach to personality.

**QUESTIONS TO BE
ADDRESSED IN
THIS CHAPTER**

1. Is it possible for trait researchers to reach a consensus on one model of the organization of personality traits?
2. How many and which trait dimensions are necessary for a basic description of personality?
3. Can a trait model derived from factor analysis be connected to the personality terms we use in everyday language? Would we expect such a model to be universal across cultures? Would we expect it to make sense in terms of our evolutionary heritage?
4. What are the implications of individual differences in traits for career choice, physical health, and psychological well-being?
5. How stable or variable are traits over time and across situations? That is, how much does one's personality change over time and from situation to situation?

In any area of study, one needs taxonomies. There must be an accepted way of classifying the objects of study. Is it a plant or an animal? An organic or an inorganic compound? A planned or a free market economy? An impressionist or an expressionist painting? Classification schemes (i.e., taxonomies) guide investigation and enable scholars to communicate findings to one another.

Personality psychology is no exception. The field can benefit from an agreed-upon taxonomy of individual differences in personality dispositions, or traits. With a trait taxonomy in hand, the researcher can study specified domains of traits, rather than examining separately the thousands of particular traits that make human beings individual and unique. Organizing the multiplicity of personality traits into a simple coherent taxonomy has been a major activity in personality psychology during the last quarter century. This chapter reviews the primary fruit of this effort: the five-factor model. Many researchers believe that individual differences can be usefully organized in terms of five broad, bipolar dimensions (John, Naumann, & Soto, 2008; McCrae & Costa, 2008), dimensions widely known in the professional field as the **Big Five**.

The five-factor model relates directly to ideas you learned about in Chapter 7. It is a trait approach, just like all the theories presented in the previous chapter. It is a *factor-analytic* trait approach, just like the theories of Eysenck and Cattell. (Its views of the person and of personality science thus are the same as those presented at the beginning of Chapter 7.) So what's new about five-factor theory? In one word: evidence. A huge body of research evidence indicates that five factors—more than Eysenck's three, less than Cattell's sixteen—are necessary and reasonably sufficient for a taxonomy of individual differences. In this chapter, we review this evidence.

So what is this evidence? The idea that five personality factors are the foundation of individual differences in personality rests on factor analyses of three types of data: (1) trait terms in the natural language, (2) cross-cultural research testing the universality of trait dimensions, and (3) the relation of trait questionnaires to other questionnaires and ratings. In this chapter, we consider each of these areas, as well as various applications of the model.

THE FIVE-FACTOR MODEL OF PERSONALITY: RESEARCH EVIDENCE

ANALYSIS OF TRAIT TERMS IN NATURAL LANGUAGE AND IN QUESTIONNAIRES

As you have learned from previous chapters, psychologists build personality theories on different types of variables—different units of analysis (Chapter 1). Most scientific theories, including most theories of personality, describe their main variables using a specialized scientific language; terms such as *superego*, *collective unconscious*, *actualization motive*, and so forth are introduced to describe a feature of human psychology. The five-factor model is not like this. Instead of creating a scientific language, five-factor theorists put faith in the natural language, that is, the regular, everyday language people use to describe personality. Specifically, they place their faith in one aspect of the natural language: individual words (primarily adjectives) that describe persons.

The basic research procedure is to have individuals rate themselves or others on a wide variety of traits carefully sampled from the dictionary. The ratings



Courtesy Lewis Goldberg.

Lewis R. Goldberg

are then factor-analyzed (see Chapter 7 for a discussion of factor analysis) to see which traits go together. The questions to be answered are these: (1) How many different factors are needed to understand the patterns of correlation in the data? and (2) What specifically are the factors?

Early work by Norman (1963), who drew upon research by Allport, Cattell, and others, indicated that five factors are necessary. Similar five-factor solutions were found repeatedly in studies that included a wide range of data sources, samples, and assessment instruments (John, 1990). All five factors were shown to possess considerable reliability and validity and to remain relatively stable throughout adulthood (McCrae & Costa, 2008). In 1981, Lewis Goldberg reviewed the existing research and, impressed with the consistency of its results, suggested that “any model for structuring individual differences will have to encompass at some level something like these ‘Big Five’ dimensions” (p. 159). “Big” was meant to refer to the finding that each factor subsumes a large number of more specific traits; the factors are almost as broad and abstract in the personality hierarchy as Eysenck’s superfactors.

And what, exactly, are these factors? The terms Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C) (Table 8.1) are used most commonly to label them. (They are made more memorable by the fact that their first letters spell the word **OCEAN**; John, 1990.) The meaning of the factors can best be seen by examining trait adjectives that describe individuals who score high and low on each (see Table 8.1). Neuroticism contrasts emotional stability with a broad range of negative feelings, including anxiety, sadness, irritability, and nervous tension. Openness to experience describes the breadth, depth, and complexity of an individual's mental and experiential life. Extraversion and Agreeableness both summarize traits that are interpersonal; that is, they capture what people do with each other and to each other. Finally, Conscientiousness primarily describes task- and goal-directed behavior and socially required impulse control.

The factor definitions in Table 8.1 are based on the work by Costa and McCrae (1992). The definitions suggested by other researchers are quite similar. For example, Goldberg (1992) has suggested an inventory of bipolar traits (e.g., silent–talkative) that individuals can use to rate their own standing on the

Table 8.1 The Big Five Trait Factors and Illustrative Scales

<i>Characteristics of the High Scorer</i>	<i>Trait Scales</i>	<i>Characteristics of the Low Scorer</i>
NEUROTICISM (N) Worrying, nervous, emotional, insecure, inadequate, hypochondriacal	Assesses adjustment versus emotional instability. Identifies individuals prone to psychological distress, unrealistic ideas, excessive cravings or urges, and maladaptive coping responses	Calm, relaxed, unemotional, hardy, secure, self-satisfied
EXTRAVERSION (E) Sociable, active, talkative, person-oriented, optimistic, fun-loving, affectionate	Assesses quantity and intensity of interpersonal interaction; activity level; need for stimulation; and capacity for joy	Reserved, sober, unexuberant, aloof, task-oriented, retiring, quiet
OPENNESS (O) Curious, broad interests, creative, original, imaginative, untraditional	Assesses proactive seeking and appreciation of experience for its own sake; toleration for and exploration of the unfamiliar	Conventional, down-to-earth, narrow interests, unartistic, unanalytical
AGREEABLENESS (A) Soft-hearted, good-natured, trusting, helpful, forgiving, gullible, straightforward	Assesses the quality of one's interpersonal orientation along a continuum from compassion to antagonism in thoughts, feelings, and actions	Cynical, rude, suspicious, uncooperative, vengeful, ruthless, irritable, manipulative
CONSCIENTIOUSNESS (C) Organized, reliable, hard-working, self-disciplined, punctual, scrupulous, neat, ambitious, persevering	Assesses the individual's degree of organization, persistence, and motivation in goal-directed behavior; contrasts dependable, fastidious people with those who are lackadaisical and sloppy	Aimless, unreliable, lazy, careless, lax, negligent, weak-willed, hedonistic

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Big Five dimensions. An abbreviated version of this inventory follows. Please consider the following instructions as you complete it:

Try to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age. For each of the trait scales listed, circle a number that best describes you on this dimension.

If you would like to know your Big Five scores, you can find out now. Simply add together all the five numbers you circled for E and divide that sum by 5. Then do the same for each of the other factors. How did you score? Did any one trait score much higher than another? Do you find your scores to be what you would have expected or surprising? How well do you think the scores capture your

	INTROVERSION VERSUS EXTRAVERSION								
	Very	Moderately		Neither	Moderately		Very		
silent	1	2	3	4	5	6	7	8	9
unassertive	1	2	3	4	5	6	7	8	9
unadventurous	1	2	3	4	5	6	7	8	9
unenergetic	1	2	3	4	5	6	7	8	9
timid	1	2	3	4	5	6	7	8	9
	ANTAGONISM VERSUS AGREEABLENESS								
unkind	1	2	3	4	5	6	7	8	9
uncooperative	1	2	3	4	5	6	7	8	9
selfish	1	2	3	4	5	6	7	8	9
distrustful	1	2	3	4	5	6	7	8	9
stingy	1	2	3	4	5	6	7	8	9
	LACK OF DIRECTION VERSUS CONSCIENTIOUSNESS								
disorganized	1	2	3	4	5	6	7	8	9
irresponsible	1	2	3	4	5	6	7	8	9
impractical	1	2	3	4	5	6	7	8	9
careless	1	2	3	4	5	6	7	8	9
lazy	1	2	3	4	5	6	7	8	9
	EMOTIONAL STABILITY VERSUS NEUROTICISM								
relaxed	1	2	3	4	5	6	7	8	9
at ease	1	2	3	4	5	6	7	8	9
stable	1	2	3	4	5	6	7	8	9
contented	1	2	3	4	5	6	7	8	9
unemotional	1	2	3	4	5	6	7	8	9
	CLOSEDNESS VERSUS OPENNESS TO NEW EXPERIENCE								
unimaginative	1	2	3	4	5	6	7	8	9
uncreative	1	2	3	4	5	6	7	8	9
uninquisitive	1	2	3	4	5	6	7	8	9
unreflective	1	2	3	4	5	6	7	8	9
unsophisticated	1	2	3	4	5	6	7	8	9
	Very	Moderately		Neither	Moderately		Very		

true personality? Do you think that your scores are a deep or merely a superficial description of your personality? Keep in mind that this inventory is not a formal, complete test of individual differences in the Big Five. However, it is fundamentally of the same structure as formal, "official" Big Five measures. The professional psychologists' tests commonly are longer. However, in recent years a number of Big Five researchers have shown that the five factors can be adequately measured with tests that are no longer and, in some cases, actually are shorter (Gosling, Rentfrow, & Swann, 2003; Rammstedt & John, 2007).



Personality and the Brain

The Big Five

Personality psychologists first found the Big Five personality trait dimensions when analyzing questionnaire responses. Can they also find them when analyzing the brain?

Relating brain regions to Big Five scores is difficult. There are so many neural subsystems and so many interconnections among them in the brain that it's hard to know where to look. A theoretical analysis of psychological processes that are central to each Big Five dimension can be a helpful guide, as shown by recent theory and research by DeYoung and colleagues.

These investigators (DeYoung et al., 2010) obtained Big Five scores for a set of 116 adult research participants. They then obtained whole-brain images for each participant (using magnetic resonance imaging, MRI) and, using the images, looked for variations in brain volume that might be linked to variations in Big Five scores. The reasoning behind this approach is that greater volume in a specific brain region may indicate a greater psychological capacity to perform activities for which that region is needed. They found that:

- people with higher levels of Extraversion had larger brain volume in a region of the frontal cortex that contributes to the processing of information about environmental rewards. This supports the idea that the pursuit of rewarding experiences is a core feature of extraversion.
- higher Neuroticism scores were correlated with great volume in brain regions known to be associated with the processing of environmental threats.
- Agreeableness scores correlated with brain volume in regions of the brain that contribute to people's ability to understand others' mental states—a

distinct psychological ability that has been linked to specific brain regions.

- Conscientiousness correlated with volume in a region of the frontal cortex known to be active when people plan events and follow rules.
- Openness to experience was not significantly related to any of the examined brain regions.

So is it safe to conclude that these researchers have identified the neural origins of the Big Five traits? As the researchers themselves are aware, the answer is no. The findings are merely a first step in a newly emerging field, and they must be interpreted with caution, for at least three reasons: (1) In addition to results that were consistent with the researchers' theoretical conceptions, the study yielded a number of null results (where personality traits scores did not correlate with brain volume as expected) and unexpected results (where personality traits scores *did* correlate with brain volumes, but in areas of the brain that were *unexpected*). (2) Cause-effect relationships were impossible to determine. It may be that inherited differences in brain volume caused people to display a given personality disposition. Conversely, it may be that personality dispositions caused people to have different brain volumes. People who repeatedly engage in a behavior experience increases in brain volume in regions of the brain that are used to perform that behavior (Draganski et al., 2004). (3) The brain's various regions are enormously interconnected. During any complex task, a network of multiple interconnected regions becomes active (Bullmore & Sporns, 2009). Inevitably, then, focusing on volume in one region of the brain may yield an incomplete portrait of the complex brain networks that contribute to the multifaceted personality tendencies described by the Big Five personality traits. •

The Fundamental Lexical Hypothesis

The Big Five were designed to capture those personality traits that people consider most important to personality. Goldberg has spelled out the rationale for this approach in terms of the **fundamental lexical** (language) **hypothesis**: "the most important individual differences in human transactions will come to be encoded as single terms in some or all of the world's languages" (Goldberg,

1990, p. 1216). The hypothesis, then, is that over time humans have found some individual differences particularly important in their interactions and have developed terms for easy reference to them. These trait terms communicate information about individual differences that are important to our own well-being or that of our group or clan. Thus, they are socially useful because they serve the purpose of prediction and control: They help us predict what others will do and thus control our life outcomes (Chaplin et al., 1988). They help answer questions about how an individual is likely to behave across a wide range of relevant situations. The emphasis on universal terms for describing important individual differences ties trait theory to an evolutionary model: "The existence of cultural universals would be consistent with an evolutionary perspective. If the tasks most central to human survival are universal, then the most important individual differences, and the terms people use to label these individual differences, should be universal as well" (John, Naumann, & Soto, 2008, p. 121). On the other hand, culturally specific dimensions would suggest individual differences that are uniquely important to that culture. Presumably both could, perhaps should, exist, giving expression to what is basic to human nature and what is culturally distinct.

There are some counterexamples to the lexical hypothesis. For example, some writers note that individuals differ in the degree to which they need variety in their lives, or the degree to which they can tolerate ambiguity when making decisions; contrary to the lexical hypothesis, there is no single term in the English language that corresponds to these qualities (McCrae & Costa, 1997). Nonetheless, the lexical hypothesis has been an important stimulant to research and continues to guide much thinking in the field.

CROSS-CULTURAL RESEARCH: ARE THE BIG FIVE DIMENSIONS UNIVERSAL?

If there are universal questions concerning individual differences and human interaction, then one might expect the same basic trait dimensions to appear in many different languages; in other words, one might expect the Big Five factor structure to be universal. Fortunately, thanks to the efforts of international researchers conducting multinational studies, many research results begin to answer the question, Are the Big Five dimensions universal?

Before considering these research results, we will consider the research methods. When asking whether the Big Five is found universally, across languages and cultures, methodological issues can make a big difference. One issue involves translation. Many researchers study the universality of personality traits by translating a personality questionnaire written in one language (e.g., English) into others (German, Japanese, etc.). Such translations can be tricky. Languages may lack one-to-one translations, and even words that translate the same (e.g., English *aggressive* and the German word meaning aggressive) do not necessarily mean the same thing (the German word for aggressive means hostile rather than forceful-assertive). Thus, a word such as *outgoing* (an extraversion trait) mis-translated from Japanese into English as *affectionate* (an agreeableness trait) might lead researchers to question whether they have found the same factor in the two languages.

To illustrate such problems, Hofstede and colleagues (1997) identified 126 words that they could translate fairly directly across previous lexical studies

**CURRENT
QUESTIONS****EMOTIONS AND TRAITS: OTHER ANIMALS?**

Darwin's *The Origin of Species* suggested a continuity between humans and other species. In his book *The Expression of the Emotions in Man and Animals*, he suggested a continuity of expressions of emotions in animals and people—that is, that many of the same basic emotions and accompanying facial expressions exist in both. There is evidence of a similarity of expression of what are called basic emotions (e.g., anger, sadness, fear, joy) in nonhuman primates and humans, in infants as well as adults, and across cultures (Ekman, 1993, 1998). Evolutionary psychologists suggest that a continuity in traits exists between humans and other species; this view is bolstered by the fact that humans and the great apes share over 98% of the same genes. Is there evidence of such a continuity of traits?

Gosling and John (1998, 1999) set out to consider the question of whether there are dimensions of personality common to a wide range of species, raising the question: "What are the major dimensions of animal personality?" In a review of the literature of descriptions of 12 species, ranging from octopuses, guppies, and rats to gorillas and chimpanzees, they found evidence that three of the human five-factor dimensions showed generality across species—E, N, and A: "The evidence indicates that chimpanzees, various other primates, dogs, cats, donkeys, and pigs, even guppies and octopuses all show individual differences that can be organized along dimensions akin to E, N, and (with the exception of guppies and octopuses) A" (1999, p. 70). However, a separate C factor was found only in chimps (King & Figueiredo, 1997), our closest relatives. This may be because traits related to C, such as following rules and norms, thinking before acting, and cognitively controlling impulses may be a relatively recent evolutionary development.

Are such similarities anthropomorphic projections on the part of humans, or are they actual attributes of the animals? In a study of trait ratings of humans, dogs, and cats, Gosling and John again found evidence of three of the Big Five in dogs and cats as well as humans—E, N, and A, but no separate C factor. In a further study, they generated a list of "personality descriptors" of dogs, based on attributes human subjects most frequently used to describe dogs (e.g., affectionate, cuddly, energetic, happy, intelligent, nervous, lazy, loyal). One group of subjects then rated a human they knew on the "dog personality inventory," and another group of subjects rated a dog they knew on the same list of descriptors. Would the same factors emerge from the two groups of ratings, suggesting similar dimensions of personality for humans and dogs? Using the dog personality inventory for humans, they again found evidence of the Big Five: N, E, O, A, C. When the same rating items were applied to dogs, three factors similar to E, N, and A again emerged, with no separate C factor.

Overall, studies on animal personality suggested the following conclusions: (1) Animal personality can be assessed reliably. (2) The structure of personality traits in humans resembles that of chimps. (3) Nonprimate mammals like dogs and cats seem to have a less differentiated personality structure, with three dimensions showing considerable, though not perfect, generality across many species. (4) Personality descriptions of other species are not mere anthropomorphic projections; that is, such descriptions are not "all in the mind" of the human but instead reflect actual characteristics of the animal being rated.

SOURCE: Ekman (1998); Gosling & John (1998, 1999); Weinstein, Capitanio, & Gosling (2008).

in English, Dutch, and German and used them to compare the meanings of the factors in the three languages. Their findings showed considerable congruence across these three related languages, with one important exception: the Openness factor. The German and English were very similar, but the Dutch factor not only included the expected traits related to intellect and imagination (e.g., inventive, original, imaginative) but also emphasized traits related to unconventionality and rebelliousness. A similar variant of Openness was found in Italian and Hungarian trait studies (Caprara & Perugini, 1994).

Reviews of the literature generally suggest that factors similar to the Big Five are found in most languages (Benet-Martinez & Oishi, 2008; John, Naumann, & Soto, 2008; McCrae & Costa, 2008). McCrae and Costa (1997) have taken a very strong position, suggesting that the Big Five personality structure is a human universal. The evidence for their conclusion involves translations of their Big Five instrument (the NEO-PI-R, to be considered shortly) into many languages. When researchers work with such translations, the same five factors result with great regularity.

But you should note the potential limitation here. It is possible that the process of translating English-language questionnaires into another language forces the issue. The translation process may inadvertently impose certain psychological factors onto respondents in another culture, a culture where the factor may not arise spontaneously. For example, it might be that people in a given culture give relatively little thought to individual differences in Openness unless a psychologist asks them to think about this feature of personality.

This consideration highlights the importance of an alternative research strategy. Rather than imposing an English-language scale onto members of a different language group, one could study each language group's indigenous personality terms, that is, personality descriptors taken from the native language being studied. When this happens, findings become more complex (Saucier & Goldberg, 1996). Results often differ depending on whether the trait terms are imposed on members of a culture as opposed to being drawn from the language of that culture itself. As an example, consider research conducted by Di Blas and Forzi (1999), who explored the structure of personality terms in Italian.

They did not do this by translating a scale from English into Italian; instead, they selected items directly from the indigenous language. They then asked people to rate themselves on these terms and used factor analysis to see if the Big Five structure, common in English, would replicate in Italian. It didn't; that is, not all five factors replicated consistently. Instead, Di Blas and Forzi (1999, p. 476) "found consistently that a three-factor solution was more stable across participants and observers"; Extraversion, Agreeableness, and Conscientiousness, which generally are more replicable than the other two components of the Big Five model (Saucier, 1997), were the factors found consistently in Italian. The traditional trait factor of Neuroticism was not found in the Italian language (Di Blas & Forzi, 1999), a null result similar to that of other investigators (Caprara & Perugini, 1994). The authors suggest that cultural variations in the perceptions of negative emotions in different interpersonal settings may explain the difference between Italian and English-language results (Di Blas & Forzi, 1999). Subsequently, De Raad and Peabody (2005) examined trait terms across

11 languages and concluded that “the Big Three—Extraversion, Agreeableness, and Conscientiousness—are cross linguistically recurrent,” whereas “the full Big Five Model is questionable” (De Raad & Peabody, 2005, p. 464).

The existence of variations in results from one country and language to another leads some to suggest that personality factors may exist that are unique to particular cultures. A potential example is a “Chinese tradition” factor (Cheung et al., 1996), which seems to capture values and attitudes considered important in traditional Chinese society. Such culture-specific factors are certainly possible, though further confirmation and replication are needed before we accept these factors as empirical fact. For example, it is possible that such factors do not reflect personality traits proper but other individual differences, such as attitudes and beliefs (e.g., conservative versus liberal).

In sum, there is growing evidence that people in diverse cultures, using very different languages, view individual differences in personality traits in ways similar to the Big Five. At least three of the factors are frequently found across cultures and language groups, the other two are commonly found, while there also appear to be factors specific to some languages and cultures. In addition, some personality traits are apparently unique to individual cultures. And the importance of traits and the ways in which they are expressed can vary from culture to culture, as well as within the same culture over time. The universality of some traits suggests a biological basis in terms of genes and evolution; that is, they are part of what we call human nature. Differences in the ways in which traits are expressed and the uniqueness of some traits to specific cultures suggest that culture has an important role in facilitating adaptation to specific environments.

THE BIG FIVE IN PERSONALITY QUESTIONNAIRES

A variety of questionnaires have been developed to measure the Big Five. These include the abbreviated version of Goldberg's (1992) bipolar inventory measuring the Big Five with trait adjectives described previously in this chapter. A particularly well-developed questionnaire is the NEO-Personality Inventory Revised (**NEO-PI-R**).

The NEO-PI-R and Its Hierarchical Structure: Facets

Costa and McCrae (1985, 1989, 1992) have developed a questionnaire, the NEO-PI-R, to measure the Big Five personality factors. Originally they had focused only on the three factors of Neuroticism, Extraversion, and Openness (thus the title NEO-Personality Inventory). Subsequently, they added the factors of Agreeableness and Conscientiousness to conform to the five-factor model. In addition to measuring the five factors, they differentiated each factor into six narrower **facets**; facets are more specific components that make up each of the broad Big Five factors.

The six facets defining each Big Five factor are listed in Table 8.2, along with a famous individual or fictional character who exemplifies a prototypical high scorer for each factor. For example, in Costa and McCrae's NEO-PI-R, Extraversion is defined by these six facets: Activity Level, Assertiveness, Excitement Seeking, Positive Emotions, Gregariousness, and Warmth. Don't these six

Table 8.2 Each Big Five Factor Consists of Six Facets and Is Illustrated by an Individual or Fictional Character Who Exemplifies a Prototypical High Scorer

Extraversion	Gregariousness Activity Level Assertiveness Excitement Seeking Positive Emotions Warmth	Bill Clinton, U.S. president 1993–2001
Agreeableness	Straightforwardness Trust Altruism Modesty Tendermindedness Compliance	Radar, character from <i>M*A*S*H</i>
Conscientiousness	Self-discipline Dutifulness Competence Order Deliberation Achievement striving	Spock, character from <i>Star Trek</i>
Neuroticism	Anxiety Self-consciousness Depression Vulnerability Impulsiveness Angry hostility	Woody Allen, movie director
Openness to new experience	Fantasy Aesthetics Feelings Ideas Actions Values	Lewis Carroll, author of <i>Alice in Wonderland</i>

facets capture traits that would describe former U.S. president Bill Clinton? Each facet is measured by 8 items, so that the most recent NEO-PI-R consists of a total of 240 items (i.e., 5 factors × 6 facets × 8 items). For example, two items from the Activity facet scale are “My life is fast-paced” and “When I do things, I do them vigorously” (Costa & McCrae, 1992, p. 70). Indeed, most observers would agree that Clinton thrived on his fast-paced life in the White House, and he certainly did things vigorously, as the following newspaper report suggests:

CLINTON PARTIES HEARTY. Between parties, golf and reading, he has little time to rest: Less than a week into the vacation on Martha’s Vineyard, he’s stayed out past 11 each night, played saxophone with a jazz band, briefly debated a bicycle courier and attended at least four fundraisers and several parties. That doesn’t count his two rounds of golf and the dozen hefty books he brought along.

Presidential vacations may say more about a chief executive's personality and inclinations than will a host of policy speeches. Ronald Reagan rode horses, cut brush, and made little fuss about summer reading lists. George Bush piloted loud powerboats. Richard Nixon walked the beach in black wing tips. Bill Clinton, renowned for his appetite for food, conversation, and ideas, apparently thinks vacations shouldn't be wasted on frivolities such as sleep but instead should be crammed with as much socializing, golfing, and reading as possible.

SOURCE: SAN FRANCISCO CHRONICLE, AUGUST 25, 1999, p. A4.

When the NEO-PI-R is administered in research and clinical contexts, subjects indicate for each item the extent to which they agree or disagree, using a five-point rating scale. The resulting scales all have good reliability and show validity across different data sources, such as ratings by peers or spouses. McCrae and Costa (1990, 2003) argue strongly for the use of structured questionnaires to assess personality and are critical of projective tests and clinical interviews, which they consider unsystematic and prone to biases. Evidence shows that their NEO-PI-R scales also agree well with other Big Five instruments, such as Goldberg's (1992) adjective inventories (Benet-Martinez & John, 1998; John & Srivastava, 1999). Nonetheless, it is important to point out that there are also some differences in which facets are emphasized on each instrument. For example, Costa and McCrae place the warmth facet on Extraversion, whereas other Big Five researchers find that warmth is more closely related to Agreeableness (John & Srivastava, 1999). Particular disagreement is found in the conceptualization of the fifth factor, Openness. Goldberg emphasizes intellectual and creative cognition, calling the factor Intellect or Imagination; McCrae (1996) criticizes this view as too narrow a definition of the Openness factor (see Table 8.2). Thus, there are still some inconsistencies among the various researchers that need to be worked out.

Integration of Eysenck's and Cattell's Factors Within the Big Five

Assuming that the NEO-PI-R is an adequate measure of the five-factor model of personality, one can ask a question that harkens back to our previous chapter: Can the personality factors of Cattell and Eysenck be understood within the five-factor system? Much evidence suggests that the answer is yes. Scores on the NEO-PI-R correlate as predicted with scores on other personality questionnaires, including Eysenck's inventories and Cattell's 16 personality factors (Costa & McCrae, 1992, 1994).

These correlations are important theoretically. They allow one to integrate the older factor-analytic models with the Big Five and thus with each other. In particular, Eysenck's superfactors of Extraversion and Neuroticism are found to be virtually identical to the same-named dimensions in the Big Five, and Eysenck's Psychoticism superfactor corresponds to a combination of low Agreeableness and low Conscientiousness (Clark & Watson, 1999; Costa & McCrae, 1995; Goldberg & Rosolack, 1994). Cattell's 16 personality factors (Table 7.2) also map onto the broader Big Five dimensions (McCrae & Costa, 2003). For example, his scales Outgoing, Assertive, and Venturesome link with NEO-PI-R Extraversion. Based on findings of this sort, proponents of the

Big Five model suggest that it provides a comprehensive framework within which Eysenckian and Cattellian constructs can be integrated.

Moreover, the NEO-PI-R questionnaire relates meaningfully to other forms of measurement (e.g., Q-sort ratings) and to questionnaires derived from other theoretical orientations. Individual differences identified in Murray's motivational model of personality can be understood within the Big Five system of traits, which is important because it suggests a link between traits and motives (Pervin, 1999). Individual differences identified in biological research on temperament (see Chapter 9) can be described within the Big Five system (De Fruyt, Wiele, & van Heeringen, 2000), which suggests that the factors might be reducible to underlying biological systems (see this chapter's *Personality and the Brain* feature).

Self-Ratings and Observer Ratings

Another important strength of the NEO-PI-R is that forms are available for both self-report and ratings by others. In several studies, subjects' self-ratings have been compared with ratings by their peers and spouses. McCrae and Costa (1990) report substantial agreement of self-ratings with ratings by peers and with ratings by spouses on all five factors. Agreement between self and spouse is greater than that between self and peer, perhaps because spouses generally know each other better than do friends or because spouses talk a lot about each others' personalities (see Kenny, 1994).

Three major findings have emerged from research using both self-report measures (S-data, as you learned in Chapter 2) and observer-report data (O-data) of the Big Five factors.

- (1) As noted above, the same five factors are found in both self-reports and observer ratings (McCrae & Costa, 1990).
- (2) Observers agree reasonably well with each other about the standing of individuals on each Big Five dimension. If you think you are conscientious, introverted, and neurotic, your friends probably think so, too (Connelly & Ones, 2010; McCrae & Costa, 1987).
- (3) O-data sometimes is a better predictor of performance than S-data. A meta-analysis (that is, a statistical analysis of large numbers of prior studies) of the relationship between personality test scores and indices of the quality of job performance reveals that observer ratings of personality predict performance above and beyond the predictions that can be made by self-ratings of personality (Oh, Wang, & Mount, 2011).

How might observer ratings and self-ratings on the Big Five traits differ? Evidence suggests that differences are observed when ratings are made with respect to traits that are not highly visible. For example, Neuroticism (which involves inner feelings of anxiety that are not observable by others) may be more accurately measured by S-data than O-data (Vazire, 2010). Furthermore, people's desire to see themselves in a positive light may cause self-ratings to be more positive than other-ratings. A multinational data set shows that, although S-data and O-data often do correspond closely, people generally see themselves as higher in Neuroticism and lower in Conscientiousness than others believe them to be (Allik et al., 2010).

Thus far, we have said little about a critical conceptual point. It is the question of the conceptual status of the trait constructs. In this regard, note that constructs for characterizing people come in different types. Some terms are merely descriptive labels. They label the way a person tends to act. Other terms refer to psychological properties that a person is said to possess; they refer to mental structures or processes that are causes of the person's behavior. An analogy outside of psychological characteristics makes the distinction between descriptive and causal constructs obvious. Consider physical characteristics and the term *attractive*. We often say that someone "is attractive" or is "more attractive than someone else." In doing so, we use the term *attractive* merely as a description. It describes, in a summary form, appealing characteristics involving physique, facial features, a cute smile, good hair, and so forth. We do not use the term *attractiveness* to refer to a separate biological system that causes the person to have the attractive physique, a cute smile, and so forth. Attractiveness does not cause someone to have good hair. Attractiveness is a descriptive label, not a biological structure that causally influences anything.

What about trait concepts such as the Big Five? Are they merely descriptions of psychological characteristics? Or might they also correspond to real psychological entities that individuals possess and that causally explain an individual's behavior? Many trait psychologists view the Big Five factors merely as descriptive. They view the constructs as a descriptive taxonomy of individual differences. However, in the 1990s McCrae and Costa (1999, 2008) offered a bolder theoretical view. They call their ideas **five-factor theory** (Figure 8.1). Five-factor theory claims that the five primary traits are more than mere descriptions of ways that people differ. The traits are treated as things that really exist; each is seen as a psychological structure that each and every person has in varying amounts (in the way that everyone has, for example, a certain degree of height in varying

PROPOSED THEORETICAL MODEL FOR THE BIG FIVE

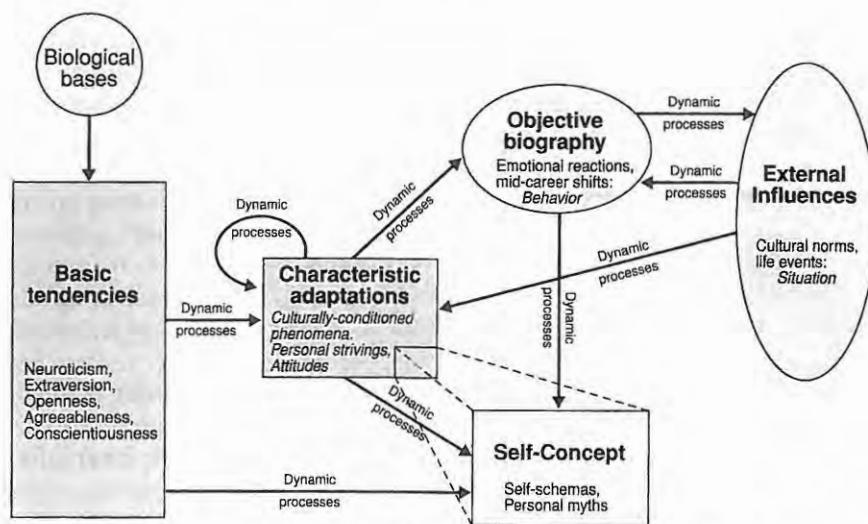


Figure 8.1 A Representation of the Five-Factor Theory Personality System.
(Core components are in rectangles; interfacing components are in ellipses.)
(Costa & McCrae, 1999). Reprinted by permission, Guilford Press.

Bo Mathisen, Oslo Norway (www.bomathisen.no);*Paul T. Costa, Jr.*

amounts). The traits are said to causally influence each individual's psychological development. Phrased more technically, in five-factor theory the idea is that the five factors are basic dispositional tendencies that are possessed universally, that is, by all individuals.

McCrae and Costa propose that the factors have a biological basis. Behavioral differences linked to the Big Five are said to be determined by genetic influences on neural structures, brain chemistry, and so on. Indeed, in proposing this model, McCrae and Costa felt that the biological basis of the factors was so strong that the basic five dispositional tendencies are not influenced directly by the environment; their contention was that "Personality traits, like temperaments, are endogenous dispositions that follow intrinsic paths of development essentially independent of environmental influences" (McCrae et al., 2000, p. 173). This position speaks to a classic issue in psychology: nature versus nurture. McCrae and Costa's theory is perhaps the strongest "nature" position possible—that is, the strongest possible claim that inherited biology (nature) determines personality and that social experience (nurture) has little effect. As is evident from Figure 8.1, in five-factor theory traits are expressions of human biology. External influences are thought not to affect the traits (there are no



Courtesy Robert McCrae;

Robert R. McCrae.

arrows in the figure from external influences to trait variables). The claim that external influences have no influence on an individual's personality traits is a relatively unique claim of five-factor theory.

The second unique feature of the theory is the one we discussed above, namely, the claim that the traits are not merely descriptions of individual differences (akin to *attractiveness* in the earlier example) but also causal structure. Five-factor theory views traits as causal factors that influence the life course of each and every individual. The five traits are said to be the "universal raw material of personality" (McCrae & Costa, 1996, p. 66). In five-factor theory, then, a trait construct such as Agreeableness serves two functions. It not only is (1) a "dimension of individual differences that applies to populations rather than people" but also is (2) "the underlying causal basis [of] consistent patterns of thoughts, feelings" where this causal analysis "applies directly to people" (McCrae & Costa, 2003).

What is one to think of five-factor theory? The model clearly has exceptional integrative potential. If it is basically correct, it would connect a biological view of traits and environmental influences to observable personality variables that are of such great concern to the other theoretical orientations represented in this book. Yet the model leaves open as many questions as it answers. Three issues seem particularly problematic for five-factor theory. Since these three issues are of broad, general importance to personality theory, we will consider them in some detail. The first problem is how to link personality structures to personality processes. Note the arrows specifying "Dynamic processes" in Figure 8.1. Trait theory has little to say about these processes; in McCrae and Costa's (1999) view, these are details to be filled in by other theoretical approaches to personality. This unquestionably is a significant theoretical limitation.

A further limitation is not merely that these dynamic processes are not filled in yet but that it is not at all clear how, even in principle, they could be filled in. In general, personality theorists connect structures to processes by specifying the psychological mechanisms that make up the personality structure, and then they explain how those mechanisms guide dynamic personality processing. For example, psychoanalysts posit that the basic mechanisms of the id involve unconscious, biologically based drives, and then they explain how these unconscious forces influence observable behavior. But in five-factor theory, the biological and psychological mechanisms associated with the trait structures are unspecified. The traits are thought of merely as tendencies. Since the causal mechanisms associated with the traits are unknown, it is difficult even to begin building a model that links them to dynamic processes.

The other two problems concern the two unique features of five-factor theory noted earlier. One is the idea that traits are not affected by social factors. The problem is that research findings contradict this theoretical idea. Particularly interesting data come from analyses of changes in personality trait scores that are observed across historical periods. Twenge (2002) reasoned that cultural changes across periods of the 20th century might have caused changes in personality. Consider changes in the United States in the middle versus latter decades of the century. Compared to the 1950s, in the 1990s people experienced a culture with higher divorce rates, higher crime rates, smaller family size, and less contact with one's extended family (due to greater job and educational

mobility of the population). These sociocultural changes, Twenge finds, were associated with higher levels of anxiety. By examining mean-level scores on anxiety and neuroticism scales in research reports published in the 1950s through 1990s, Twenge was able to demonstrate that anxiety increased significantly during this period. She also found significant increases in extraversion across decades of the 20th century, perhaps reflecting American society's increasing concern with individualism and personal assertiveness (Twenge, 2002). As Twenge notes, these historical changes, which were found to be rather large in size, directly contradict the hypothesis that personality traits are unaffected by social factors.

The third concern regarding five-factor theory is conceptually subtle, yet deeply important. Five-factor theory claims that all individuals possess the five factors. The claim, in other words, is that all individuals possess psychological structures corresponding to each of the factors, with individuals varying in their level on each trait. To five-factor theorists, the factors are analogous to bodily organs (Costa & McCrae, 1998), which might vary in size from one person to another. The problem is that this theoretical claim does not follow, in any direct or logically necessary way, from the available research evidence. The evidence that supports the five-factor model involves statistical analyses of populations of persons. When one examines populations, one finds that the five factors do a good job of summarizing individual differences in the population at large. But this finding does not demonstrate that each and every individual in the population possesses each of the five factors. Questions about populations and about individual persons involve different levels of analysis. A statement that may be true about a population of persons (e.g., "the native American population in the United States is shrinking") may not necessarily be true of any individual persons (no individual native American "is shrinking"; cf. Rorer, 1990).

The question, then, is whether the factors identified when studying populations enable one to make any claims about psychological structures possessed by individual persons. Recently, Borsboom, Mellenbergh, and van Heerden (2003) have taken up this question in detail. These writers emphasize that analyses of populations and of individuals are entirely different things. The only way to claim validly that the five factors explain the personality functioning of individuals would be to conduct factor analyses of individuals one at a time and to find that, for each individual person, the five-factor model is recovered. As they write, "if one wants to know what happens in a person, one must study that person. This requires representing individual processes where they belong, namely, at the level of the individual one cannot expect between-subjects analyses to miraculously yield information at this level" (Borsboom et al., 2003, p. 216).

At present, relatively few researchers have even tried to find the five-factor structure at the level of the individual. Data that do exist suggest that the behavioral tendencies of individuals commonly differ from the tendencies described by the five-factor model (Borkenau & Ostendorf, 1998). This is why a variety of other personality theories exist despite the fact that the Big Five are so successful at describing individual differences. To most other personality theorists, the five factors do not solve the problem taken up by Freud, by Rogers, and by the theorists discussed in subsequent chapters of this book: identifying personality structures *in the head of the individual* that explain his or her typical experiences and action.

AGE DIFFERENCES THROUGHOUT ADULTHOOD

GROWTH AND DEVELOPMENT

Do people's scores on Big Five measures change systematically as they age? Or are levels of these personality traits stable throughout adulthood? The most direct way to answer this question is to study people over long periods of time and to administer the same personality trait measures at the different time periods. Research employing this strategy yields consistent findings. There is much stability (Caspi & Roberts, 1999; McCrae & Costa, 2008; Roberts & Del Vecchio, 2000). Even over long periods of time, the correlations between measures from one time to another remain significant (Fraley & Roberts, 2005). This does not mean that there are no significant changes whatsoever in personality for people in general. And it does not mean that individual people (who might differ from a group average) do not change. However, it does mean that personality trait psychologists can be confident in concluding that the personality trait variables of their theories are capturing personal qualities that are substantially stable, over substantial periods of time, for substantial numbers of people.

Despite this stability, it is also the case that change is found: "The 30-year-old extravert is still likely to be an extravert at age 70, though not quite as active or keen on excitement" (McCrae & Costa, 2008, p. 167). Older adults score significantly lower in Neuroticism, Extraversion, and Openness, and higher in Agreeableness and Conscientiousness than adolescents and young adults (Costa & McCrae, 1994). On average, teenagers seem to be beset by more anxieties and concerns with acceptance and self-esteem (higher N), to spend more time on the phone and in social activities with their friends (higher E), are more open to all kinds of experience and experimentation (higher O), but also are more critical and demanding of specific others and society in general (lower A) and less conscientious and responsible than others (parents, teachers, police) expect them to be (lower C). Not surprisingly, we speak of "angry young men," not of "angry middle-aged men" or "angry grandfathers." The teenage years and early 20s are the times of greatest discontent, turbulence, and revolt.

However, these findings are ambiguous because, as noted above, the observed differences may reflect not age changes but cohort differences—that is, differences due to generation effects associated with growing up during different time periods. In other words, differences might be due to historical factors (e.g., growing up during the Depression as opposed to during World War II or during the tumultuous 1960s) rather than age factors. For example, today's college students might be less conscientious than their parents' generation when they were in college. Subsequent research by McCrae, Costa, and their collaborators (McCrae et al., 2000; McCrae & Costa, 2003) addressed this limitation by studying age differences in a wide range of cultures. To illustrate, Figure 8.2 shows the findings for Conscientiousness for five cultures. The means are shown for five age groups: 14–17, 18–21, 22–29, 30–49, and 50 and older; when Figure 8.2 shows no entry, then there were not enough subjects for that particular age group. Age trends were generally similar for men and women, and the predicted increase was observed in each culture: People became increasingly conscientious with age.

More generally, McCrae and colleagues (2000) were able to replicate the findings obtained earlier in the United States, although they had to modify somewhat their strong earlier stance that there is no personality change after age 30—the new cross-cultural data suggest that some of these age trends continue

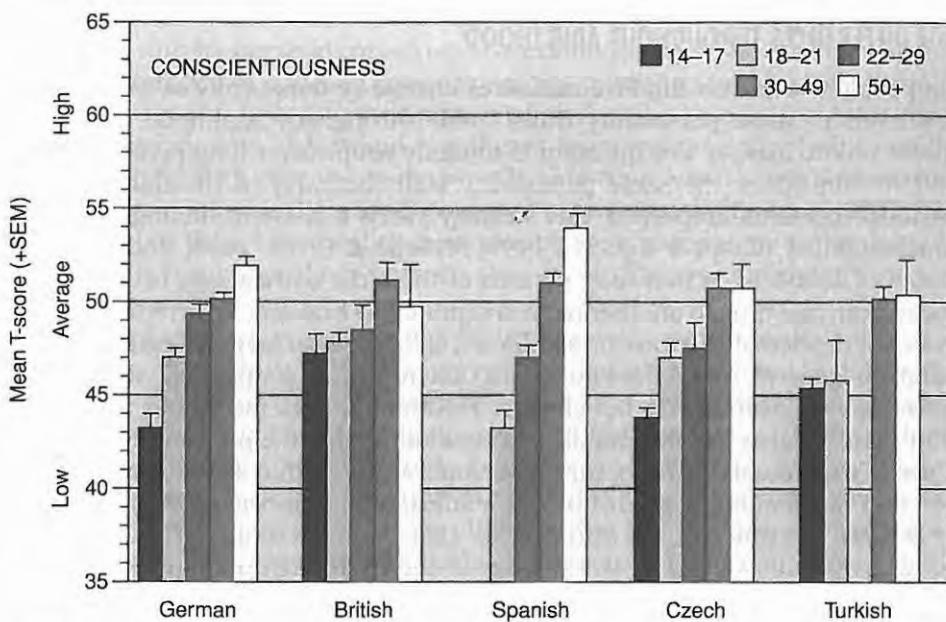


Figure 8.2 *Mean Levels of Conscientiousness in Five Cultures.* T-scores are based on the mean and standard deviation of all respondents over age 21 within each culture. Error bars represent standard errors of the means.

(McCrae et al., 2000). Copyright © 2000 American Psychological Association. Reprinted by permission.

after age 30, though at a diminished rate. Note that the overall finding is quite astounding: The same pattern of personality trait change was observed across numerous diverse cultures, which differed considerably in their political, cultural, and economic conditions. These findings led McCrae and colleagues to argue that changes in personality trait levels are not closely linked to experiences across the life span. Instead, as previously noted, they propose that age differences reflect intrinsic maturation, just like other biologically based systems (e.g., McCrae, 2002). Additional research indeed supports the view that even a large accumulation of environmental experience may not eliminate the differences in Big Five trait scores observed originally (Fraley & Roberts, 2005).

Yet other researchers provide evidence that suggests somewhat greater degrees of change and a bigger role for social factors. Ravenna Helson and colleagues (e.g., Helson & Kwan, 2000; Helson, Kwan, John, & Jones, 2002) have studied a group of women residing in northern California over a particularly long period of time. The women were first studied around 1960, when they were seniors in college. Subsequent measures were taken as late as 40 years later, when the women were 61 years old. Clear evidence of *changes* in personality across adulthood were found. For example, women changed in self-reports of norm orientation (the degree to which one controls emotional impulses in accord with social norms, a quality that correlated with Big Five Agreeableness and Conscientiousness; Helson & Kwan, 2000). On most norm-orientation measures, women's scores consistently increased with increasing age. Conversely, on measures of social vitality (a measure that correlates with extraversion),

**CURRENT
APPLICATIONS****AGREEABLENESS INCREASES WITH AGE**

At 35, Cage was quick to point out that he had responsibilities. "I have people I have to take care of," Cage says. "Back then, I was living out my fantasies. . . . I wanted to be unpredictable and frightening, and I guess I was. I can't really imagine myself getting that angry now. I haven't punched a wall in years."

SOURCE: *Rolling Stone*, 1999.

Nicolas Cage at age 35: No longer an angry man.



©AP/Wide World Photos.

consistent changes were found in the opposite direction; women scored lower in social vitality with increasing age. A particularly interesting aspect of this study is evidence that changes in women's personality were related to a sociocultural factor, namely, the women's movement, which began to usher in new ideas about gender and women's place in society during the 1960s and 1970s. Findings suggest that "women for whom the [women's] movement was important increased on Self-acceptance, Dominance, and Empathy scales, that is, they became more 'empowered,' more confident, assertive, and involved in the affective understanding of others" (Helson & Kwan, 2000, p. 96). A recent review (Helson et al., 2002) indicates that such changes are found consistently across different studies and in samples of research participants.

Further evidence of changes in personality trait scores during adulthood comes from work by Srivastava, John, Gosling, and Potter (2003). These researchers conducted an Internet survey in which a large sample of adults of varying ages from the United States and Canada completed a five-factor inventory. The analysis of survey responses revealed significant age-linked changes in most of the Big Five traits for both men and women. For example, self-ratings on the factor of Agreeableness increased significantly for both men and women between the ages of 31 and 50; as the authors note, these are years during which many adults are raising children and these nurturing experiences may alter agreeableness tendencies. The authors emphasize that these results "contradict the five-factor theory's brand of biologism" (Srivastava et al., 2003, p. 1051). In other words, they contradict the notion that personality trait levels are entirely inherited and are unaffected by social experiences (see Figure 8.1). Even though trait theories of personality devote less attention to social influences than do most of the other theoretical frameworks in the field, trait

research increasingly provides evidence that personality develops across the course of life as a result of individuals' interactions with the social environment.

Other recent evidence of personality change comes from work that interestingly combines two theoretical approaches. Cramer (2003) explored the possibility that individual differences in the tendency to use alternative defense mechanisms (see Chapter 3) would predict changes in scores on Big Five traits. Her results indicated that the use of defense mechanisms in early adulthood predicted personality trait change in later adulthood; for example, people who tended to employ the relatively immature defense of denial and projection experienced higher levels of neuroticism in later years. In summary, although trait scores are quite stable over time, there also is much indication that they can change in a meaningful, systematic manner.

INITIAL FINDINGS FROM CHILDHOOD AND ADOLESCENCE

The studies we just reviewed concern personality in adulthood. What about earlier periods of development? Research has explored connections between infant temperament, childhood personality, and the Big Five in adulthood (Halverson, Kohnstamm, & Martin, 1994). It is safe to suggest that earlier temperamental characteristics, such as sociability, activity, and emotionality (Buss & Plomin, 1984), develop and mature into dimensions we know as extraversion and neuroticism in adulthood. However, the exact linkages, and the processes by which this development takes place, have not yet been extensively studied.

One intriguing finding is that personality structure appears to be more complex and less integrated in childhood than in adulthood. Rather than the usual number of five factors, seven child factors were found in the United States (John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994). This finding was replicated in the Netherlands (van Lieshout & Haselager, 1994). Essentially, instead of one broad extraversion factor, the researchers found separate sociability and activity factors, and instead of one broad neuroticism factor, they found separate fearfulness and irritability factors. These findings suggest that the expression of personality may change over the course of development—during the course of adolescence, initially separate dimensions merge together to form the broader, more fully integrated personality dimensions we know in adulthood. The idea that the adult extraversion factor is foreshadowed by separate sociability and activity factors in childhood is consistent with the view that these two attributes are distinct, early emerging, and largely inherited temperament traits (Buss & Plomin, 1984) (see Chapter 9 for a discussion of temperament and heritability).

STABILITY AND CHANGE IN PERSONALITY

In sum, what can be said about how stable individuals are in regard to their basic tendencies during the life course? Is the rank ordering of individuals on the Big Five stable throughout life even if average levels change somewhat? We will have more to say about this issue in the next chapter, but here we may note that differing points of view exist. For example, one view suggests that personality development is largely biologically determined and continuous,

that “the child is father of the man” (Caspi, 2000, p. 158). Similarly, McCrae and Costa suggest that the evidence of traits having a large inherited component and the lack of evidence of a clear environmental impact suggest a biological basis for traits: “How was it possible that years of experience, marriage, divorce, career changes, chronic and acute illnesses, wars and depressions, and countless hours of television viewing could have so little impact on personality traits?” (2008, p. 169).

Another view is that although there is evidence of trait consistency across the life course, it is not so high as to warrant the conclusion that change does not occur (Roberts & Del Vecchio, 2000). And a third view is that although general trait structure and levels remain fairly stable, there is evidence of change in individual trait levels (Asendorpf & van Aken, 1999). Of particular note here is evidence that parenting practices can impact personality development and that work experiences can impact personality development during young adulthood (Roberts, 1997; Suomi, 1999). At this point in time the data would appear to suggest the following: (1) Personality is more stable over short periods of time than over long periods of time. (2) Personality is more stable in adulthood than in childhood. (3) Although there is evidence of general trait stability, there are individual differences in stability during development. (4) Despite evidence of general trait stability, the limits of environmental influence on change, during childhood and adulthood, remain to be determined. (5) Some of the reasons for stability are genetic, and some are environmental in terms of environments that confirm already existing personality traits. In addition, some of the reasons for change are changes in life circumstances and active efforts toward change as in psychotherapy.

From the 1980s through the early years of the current century, the Big Five model was a consensus position among trait psychologists. The factors appear to be not only necessary, but reasonably sufficient to describe average differences among persons. Then something happened. Multiple data sets, compiled by an international team of researchers working with participants from a variety of nations, suggested that trait psychologists had “missed one.” There appeared to be a sixth factor that was overlooked in prior analyses.

To get an intuitive sense of this factor, consider two hypothetical cases: (1) a smart, outgoing, hardworking, interpersonally agreeable, and socially skilled chief executive of a corporation; (2) a smart, outgoing, hardworking, interpersonally agreeable, and socially skilled chief executive of a corporation who engages in unfair business practices and lies about his company’s finances. Clearly the people differ. But the differences seem not to be captured by the five-factor model. Both individuals may be similar in O, C, E, A, and N, but they differ in something else: honesty, or honesty/humility (Ashton et al., 2004, p. 363).

The question is whether this basic intuition—that people who are similar on Big Five traits might differ systematically on a sixth trait, the dimension of honesty/humility—holds up not only at an intuitive level but also scientifically. If one analyzes self-ratings made using personality trait adjectives, and if one is careful to include in the pool of personality adjectives a wide range of attributes

MAYBE WE MISSED ONE? THE SIX-FACTOR MODEL



John Minihan/Getty Images, Inc.

Mother Teresa, a Nobel Peace Prize winner who devoted her life to serving the poor, exemplified for millions around the world psychological traits including honesty and humility—the sixth trait factor in the six-factor model of personality.

(so that no important global traits will be missed), does one actually find this sixth factor? Based on findings across seven different languages, the answer is yes (Ashton et al., 2004). In addition to the original five factors (some of which change subtly in their meaning when the sixth factor is identified), there is indeed a sixth factor of honesty-humility. Individual differences in the tendency to be truthful and sincere, as opposed to cunning and disloyal, are a reliable sixth factor (see Table 8.3).

The six-factor model (i.e., the five-factor model plus this additional factor of honesty) is a new development in trait psychology. It has not yet been incorporated fully into either basic theory or applied research. Thus, as we now turn to applications, we will return to the basic five-factor model. However, as you read the material ahead, you should recognize that individual differences in honesty and humility, versus dishonesty and/or egotism, may be underrepresented in the five-dimensional model that has been so popular among trait psychologists. Furthermore, additional factors may be underrepresented. In

Table 8.3 Adjectives Defining the High and Low Poles of a Sixth Factor of Individual Differences Identified Across a Range of Languages

Language	"Low" Pole of Factor	"High" Pole of Factor
Dutch	sincere, loyal/faithful	cunning, smug
French	true/genuine, sincere	thoughtless, mean
German	honest, sincere	boastful, arrogant
Hungarian	veracious, just	pretending, haughty
Italian	honest, sincere	disloyal, megalomaniac
Korean	truthful, frank	flattering, pretentious
Polish	helpful, unselfish	egoistic, envious

SOURCE: Ashton et al., 2004.

a very recent study, De Raad (2006) noted that almost all research on the Big Five model has studied adjectives but that the study of nouns and verbs might convey additional information about people. Factor analyses of a database, including all three classes of words, revealed *eight* factors, including factors (such as competence) not identified clearly in the Big Five or Big Six models (De Raad, 2006).

One of the great strengths of the Big Five model is that it provides psychologists with a comprehensive, widely accepted tool that can be used to solve applied problems. Employers, educators, clinical psychologists, and many others require a reliable means of assessing stable individual differences. Big Five assessments are one such means and thus have been applied widely, as we now review.

A possibility of interest to students of vocational (career) behavior is that variations in personality traits may predict the kinds of careers people choose and how they function in these occupations (De Fruyt & Salgado, 2003; Hogan & Ones, 1997; Roberts & Hogan, 2001). According to the five-factor model, individuals high in Extraversion should prefer and excel in social and enterprising occupations, relative to low-E individuals. People high on Openness to Experience should prefer and excel in artistic and investigative occupations (e.g., journalist, freelance writer) that require curiosity, creativity, and independent thinking—central features of high Openness. Indeed, much research does suggest that the five-factor model is useful in predicting job performance (Hogan & Ones, 1997). A review of a large number of existing studies indicated that Conscientiousness is related in a particularly consistent manner to performance across a variety of different types of jobs and a variety of different measures of job performance (Barrick & Mount, 1991). Nonetheless, some writers caution that personality characteristics beyond those in the Big Five model are important to predictions of workplace performance (Hough & Oswald, 2000; Matthews, 1997), and others find surprisingly weak results and caution that different measures of the same Big Five personality trait may fail to correspond with one another (Anderson & Ones, 2003, p. S62).

APPLICATIONS OF THE BIG FIVE MODEL

Personality trait research indicates that people who are high on the trait of conscientiousness take better care of themselves and live longer.



Marc Romanelli/Photo Disc/Getty Images

One area of application is that of *subjective well-being*, or the extent to which people think and feel that their life is going well. In general, there is an association between high scores on subjective well-being and the traits of high positive emotion and low negative emotion (Lucas & Diener, 2008). Although these associations tend to be stable and predictive over time, it does not mean that change in life satisfaction and subjective well-being is not possible. Change in personality as well as change in life circumstances can make a difference.

Another area of application is that of health. A long-term study indicates that more conscientious persons may live longer (Friedman et al., 1995a, 1995b). A large sample of children was followed for 70 years by several generations of researchers who kept track of which participants died and the causes of death. Adults who were conscientious as children (according to parent and teacher ratings at age 11) lived significantly longer and were about 30% less likely to die in any given year. Why do conscientious individuals live longer? That is, what are the causal mechanisms that lead to these differences in longevity? First, the researchers ruled out the possibility that environmental variables, such as parental divorce, explain the conscientiousness effects. Second, throughout their lives, conscientious individuals were less likely to die from violent deaths, whereas less conscientious individuals took risks that led to accidents and fights. Third, conscientious people were less likely to smoke and drink heavily. The researchers suggest that conscientiousness is likely to influence a whole pattern of health-relevant behaviors. Thus, in addition to less likelihood of smoking and drinking heavily, they were more likely to do the following: engage in regular exercise, eat a balanced diet, have regular physicals and observe medication regimens, and avoid environmental toxins.

Hampson and colleagues (Hampson & Friedman, 2008) have recently presented related findings. Many of the studies establishing these linkages are longitudinal, suggesting that the effects of personality on health often are cumulative. Children who differ in Big Five traits in childhood, as rated by teachers, are found to differ in self-reports of health-related behaviors when they are studied 40 years later (Hampson, Goldberg, Vogt, & Dubanoski, 2006). Traits are linked to health partly through their relation to daily activities and habits. For example, children rated as more extraverted are, in later years, more likely to engage in physical activities and also more likely to smoke; adult health status predicts physical activity (positively) and smoking (negatively) (Hampson, Goldberg, Vogt, & Dubanoski, 2007).

Five-factor theorists also believe that their model of personality traits can inform clinical diagnosis and treatment. They see many kinds of abnormal behavior as exaggerated versions of normal personality traits (Costa & Widiger, 2001; Widiger & Smith, 2008). In other words, many forms of psychopathology are seen as falling on a continuum with normal personality rather than as representing a distinct departure from the normal. For example, the compulsive personality might be seen as someone extremely high on both Conscientiousness and Neuroticism, and the antisocial personality as someone extremely low on both Agreeableness and Conscientiousness. Thus, it may be the pattern of scores on the five factors that are most important. This suggests that the five-factor framework would prove valuable not only as a taxonomy of individual differences in everyday personality functioning but also as a tool for clinical diagnosis.

There also has been interest in using the Big Five model in choosing and planning psychological treatments (Harkness & Lilienfeld, 1997). With an understanding of the individual's personality, the therapist may be in a better position to anticipate problems and plan the course of treatment. Another potentially important contribution may be the guidance that can be given in selecting the optimal form of therapy (Widiger & Smith, 2008). The principle here is that just as individuals with different personalities function better or worse in different vocations, so too they may profit more or less from different forms of psychological treatment. For example, individuals high in Openness may profit more from therapies that encourage exploration and fantasy than would individuals low on this factor. The latter may prefer and profit better from more directive forms of treatment, including the use of medication. One clinician writing about this notes that he has often heard a patient low on Openness say something like "Some people need to lie on a couch and talk about their mother. My 'therapy' is working out at the gym" (Miller, 1991, p. 426). In contrast, the person high on Openness may prefer the exploration of dreams found in psychoanalysis or the emphasis on self-actualization found in the humanistic-existential approach.

In summary, the five-factor model has proven to have numerous valuable applications across diverse areas of psychology. Its greatest strengths have been in those settings in which investigators wish to predict individual differences in psychological and social outcomes. In these domains, numerous positive findings attest to the worth of the model. In other domains, the model is more limited. For example, it offers little unique insight into the causal dynamics underlying psychopathology, and thus to the clinician it is more a way of merely describing disorders than explaining them. More generally, unlike the other

theories covered in this book, the five-factor model has not generated unique therapeutic methods for helping people to change psychological qualities that are maladaptive for them.

THE CASE OF JIM

FACTOR-ANALYTIC TRAIT-BASED ASSESSMENT

Let us now return to the case of Jim and consider how his personality is depicted by personality trait questionnaires. We begin with Cattell's 16 P.F. The following brief description of Jim's personality was written by a psychologist who assessed the results of Jim's 16 P.F. but was unaware of any of the other data on him.

Jim presents himself as a very bright and outgoing young man, although he is insecure, easily upset, and somewhat dependent. Less assertive, conscientious, and venturesome than he may initially appear, Jim is confused and conflicted about who he is and where he is going, tends toward introspection, and is quite anxious. His profile suggests that he may experience periodic mood swings and may also have a history of psychosomatic complaints. Since the 16 P.F. has been administered to college students throughout the country, we can also compare Jim with the average college student. Compared to other students, Jim is more outgoing, intelligent, and affected by feelings—easily upset, hypersensitive, and often depressed and anxious.

The trait-based assessment classified Jim as extremely high on anxiety. This may relate to his dissatisfaction with his ability to meet the demands of life and to achieve what he desires. The high level of anxiety also suggests the possibility of physical disturbances and bodily symptoms. Also, Jim scored high on what Cattell called tender-minded emotionality. This suggests that rather than being enterprising and decisive, Jim is troubled by emotionality and often becomes discouraged and frustrated. Although sensitive to the subtleties of life, this sensitivity sometimes leads to preoccupation and to too much thought before he takes action. On other traits, Jim's scores were nearer to the average rather than being extremely high or low.

The 16 P.F. revealed two features of Jim's personality with particular clarity. The first is the frequency of his mood swings. In reading the results of the 16 P.F., Jim stated that he has frequent and extreme mood swings, ranging from extreme happiness to extreme depression. During the latter periods, he tends to take his feelings out on others and becomes hostile to them in a sarcastic, "biting," or "cutting" way. Second, Jim expressed many psychosomatic complaints. Jim has had considerable difficulty with an ulcer and frequently had to drink milk for the condition, as was recommended at that time. Notice that although this is a serious condition that gives him considerable trouble, Jim did not mention it at all in his autobiography.

Despite its informativeness, one is left wondering whether 16 dimensions are adequate for the description of personality. The clinician also wonders whether a score in the middle of the scale means that the trait is not important

for understanding Jim or simply that he is not extreme on that characteristic; the latter appeared to be the case. Yet, when one writes up a personality description based on the results of the 16 P.F., the major emphasis tends to fall on scales with extreme scores.

Perhaps most serious, however, is that the results of the 16 P.F. are descriptive but not interpretive or dynamic. The test yields only a pattern of scores—not a whole individual. Although the Cattellian theory takes into consideration the dynamic interplay among motives, the results of the 16 P.F. appear to be unrelated to this portion of the theory. Jim is described as being anxious and frustrated, but anxious about what and frustrated for what reason? Why is Jim outgoing and shy? Why does he find it so hard to be decisive and enterprising? The results of the 16 P.F. tell us nothing about the nature of Jim's conflicts and how he tries to handle them. Note that the same problem would have arisen if Jim had been assessed in terms of five-factor scores; one still would have obtained a collection of test scores but little understanding of how and why one score might relate to another.

PERSONALITY STABILITY: JIM 5 AND 20 YEARS LATER

The material on Jim presented so far was written at approximately the time of his graduation from college. Since then, much time has elapsed, and Jim agreed to be reassessed. Five years after graduation, he was contacted and asked (1) to indicate whether there had been significant life experiences for him since graduation and, if so, how they affected him, and (2) to describe his personality and any ways it had changed since graduation. He responded:

After leaving college, I entered business school. I only got into one graduate school in psychology; it was not particularly prestigious, whereas I got into a number of excellent business schools, and so on that basis I chose to go to business school. I did not really enjoy business school, though it was not terribly noxious either, but it was clear to me that my interest really was in the field of psychology, so I applied to a couple of schools during the academic year but did not get in. I had a job in a New York import-export firm over the summer and disliked it intensely enough to once more write to graduate schools over the summer. I was accepted at two, and then went into a very difficult decision-making process. My parents explicitly wanted me to return to business school, but I eventually decided to try graduate school in psychology. My ability to make that decision in the face of parental opposition was very significant for me; it asserted my strength and independence as nothing else in my life ever had. Going through graduate school in the Midwest in clinical psychology was extremely significant for me. I have a keen professional identification as a clinician that is quite central to my self-concept. I have a system of thinking that is well-grounded and very central to the way I deal with my environment. I am entirely pleased with the decision I made, even though I still toy with the idea of returning to business school. Even if I do it, it would be to attain an adjunct degree; it would not change the fact that my primary identification is with psychology. I also fell in love during my first year in graduate school, for the first and only time in

my life. The relationship did not work out, which was devastating to me, and I've not gotten completely over it yet. Despite the pain, however, it was a life-infusing experience.

Last year I lived in a communal setting, and it was a watershed experience for me. We worked a lot on ourselves and each other during the year, in our formal once-a-week groups and informally at any time, and it was a frequently painful, frequently joyful, and always a growth-producing experience. Toward the end of last year, I began a relationship that has now become primary for me. I am living with a woman, Kathy, who is in a master's program in social work. She has been married twice. It is a sober relationship with problems involved; basically, there are some things about her that I am not comfortable with. I do not feel "in love" at this point, but there are a great many things about her that I like and appreciate, and so I am remaining in the relationship to see what develops and how I feel about continuing to be with her. I have no plans to get married, nor much immediate interest in doing so. The relationship does not have the passionate feeling that my other significant relationship had, and I am presently trying to work through how much of my feeling at that time was idealization and how much real, and whether my more sober feelings for Kathy indicate that she's not the right woman for me or whether I need to come to grips with the fact that no woman is going to be "perfect" for me. In any event, my relationship with Kathy also feels like a wonderful growth-producing experience and is the most significant life experience I am currently involved in. I do not think I've changed in very basic ways since leaving college. As a result of going into psychology, I think of myself as somewhat more self-aware these days, which I think is helpful. As I remember your interpretation of the tests I took back then, you saw me as primarily depressive. At this point, however, I think of myself as being primarily obsessive. I think I am prone to depression but on balance see myself as happier these days—less frequently depressed. I see my obsessiveness as a deeply ingrained characterological pattern and have been thinking for some time now about going into analysis to work on it (among other things, of course). . . . I see myself as more similar to, than different from, the way I was five years ago. I think of myself as a witty, aware, interesting and fun-loving person. I continue to be quite moody, so sometimes none of these characteristics is in evidence at all. My sexual relationship with my girlfriend has put to rest my concern about my sexual adequacy (especially about premature ejaculation). I still see myself as having an "authority" issue (i.e., being quite sensitive and vulnerable to the way in which those who have authority over me treat me). I am extremely compulsive, I very efficiently get done what needs to be done, and I experience considerable anxiety when I am not on top of things.

By the time he reached his 40s, Jim was practicing as a consulting psychologist in a medium-size city on the West Coast. The most important subsequent events for him were marriage, the birth of a child, and the stabilization of a professional identity. He describes his wife as calm and peaceful, with a good sense of perspective on life. He feels that he has changed in a way that makes a lasting relationship possible: "I have a greater capacity for acceptance of the

other and a clearer sense of boundaries between me and others—she is she and I am I. And she accepts me, foibles and all.”

Jim feels that he has made progress in what he calls “getting out of myself” but feels that his narcissism remains an important issue: “I’m selectively perfectionistic with myself, unforgiving of myself. If I lose money I punish myself. As a teenager I lost twenty dollars and went without lunches all summer long. I didn’t need the money. My family has plenty of it. But what I did was unforgivable. Is it perfectionistic or compulsive? I push myself all the time. I must read the newspaper thoroughly seven days a week. I feel imprisoned by it a lot of the time. Can I give up these rituals and self-indulgences with the birth of a child? I must.”

SELF-RATINGS AND RATINGS BY WIFE ON THE NEO-PI

The NEO-PI was not available at the time of the original testing but was administered, via both self-ratings and ratings of Jim by his wife, at later time periods. In terms of self-ratings, the most distinctive feature of Jim’s personality is his very low standing on Agreeableness. The test classified him as antagonistic and tending to be brusque or even rude with others. Two other significant features of Jim’s responses were his very high ratings on Extraversion and Neuroticism. On specific subscale scores, the test indicated that he sees himself as forceful and dominant and prefers to be a group leader rather than a follower. In terms of Neuroticism, Jim’s score is characteristic of individuals prone to have a high level of negative emotion and frequent episodes of psychological distress.

On the two remaining factors, Jim scored high on Conscientiousness and average on Openness. Additional personality correlates suggested in the report were that he likely uses ineffective coping responses in dealing with the stresses of everyday life and that he is overly sensitive to signs of physical problems and illnesses.

How similar a picture of Jim is given by his wife? On three of the five factors there is very close agreement. Both Jim and his wife saw him as very high on Extraversion, average on Openness, and very low on Agreeableness. There was a small difference in relation to Conscientiousness, with Jim rating himself slightly higher than his wife rated him. The big difference in ratings occurred in relation to Neuroticism, where Jim rated himself as very high and his wife rated him as low. Jim saw himself as much more anxious, hostile, and depressed than his wife rated him to be. In addition, whereas his responses suggest a person with ineffective devices for coping with stress and oversensitivity to physical problems, his wife’s ratings portray an individual with effective coping devices and a tendency to discount physical and medical complaints.

How are we to evaluate such a level of agreement? In some ways, this is like asking whether a glass is half filled or half empty. The high level of agreement on some traits suggests that the self-ratings were basically accurate. Where there was disagreement, it is hard to know if Jim’s wife was actually more accurate or if Jim successfully hides some aspects of his personality—even from his spouse. His Rorschach report from about 20 years earlier suggested that Jim hides some negative emotions behind a façade of poise. Is his wife’s more positive view of Jim a result of his being excessively self-critical or a result of his hiding from her his more negative emotions?

THE PERSON-SITUATION CONTROVERSY

When we began our coverage of the trait approach in Chapter 7, we explained that traits refer to “consistency . . . regularity in the person’s behavior.” At the time we skipped over a question: How much consistency is there? Consider your own experiences. Are you consistently extraverted? Or conscientious? Or agreeable? Or are you sometimes extraverted and, at other times, shy and inhibited? Conscientious in some respects but in others unreliable? Agreeable with some people some of the time but sometimes in a disagreeable mood?

Since the 1960s, various writers have questioned whether there is enough consistency in social behavior even to support the idea of trait concepts as a centerpiece of personality theory. The most influential of these writers was Walter Mischel, whose book *Personality and Assessment* (1968) profoundly affected the field. Mischel’s review of research evidence led him to conclude that people’s behavior often varies or is inconsistent from one situation to another. This inconsistency, he reasoned, reflects a basic human capability: the capability to discriminate between different situations and to vary one’s actions in accord with the different opportunities, constraints, rules, and norms present in different circumstances. Mischel was not alone in his criticism; others similarly have noted the importance of situational factors in personality functioning and have explained that situational influences may contribute to the relative weakness of global personality traits in predicting behavior (e.g., Bandura, 1999; Pervin, 1994). In the 1970s and early 1980s, debate over these questions—what came to be known as the **person-situation controversy**—dominated much of the professional field.

In considering whether people are consistent in their personality traits, one must distinguish two aspects of such consistency: longitudinal stability and cross-situational consistency. Longitudinal stability asks whether people high on a trait at one point in time are also high on that trait at another point in time. Cross-situational consistency asks whether people high on that trait in some situations are also high on that trait in other situations. Trait theorists suggest that both are true, that is, that people are stable over time and across situations in their trait personality characteristics. The degree of cross-situational stability is what critics of trait theory question.

As we have seen, generally there is evidence of longitudinal stability of trait scores, although there exist individual differences in the degree of such stability. However, the issue of cross-situational consistency is perhaps more complex than that of longitudinal stability. One must consider a range of issues before one can make any sense of empirical results. One issue is how to decide that a person has acted, across situations, in a manner that we should call “consistent” or “inconsistent.” It would not make sense for a person to behave the same way in all situations, nor would trait theorists expect this to happen. One would hardly expect evidence of aggressiveness in a religious ceremony or of agreeableness in a football game. The trait position that needs to be evaluated empirically is whether there is consistency across a range of situations where different behaviors are considered expressive of the same trait.

Concerning the issue of range of situations, trait psychologists suggest that it is an error to measure behavior in one situation as evidence of a person’s standing on a trait. A single situation may not be relevant to the trait in question, and it is possible for an error in measurement to be made. On the other hand, sampling over a wide range of situations ensures that relevant and reliable measures

will be obtained (Epstein, 1983). One reason trait psychologists like to use questionnaires is that they provide for the assessment of behavior in a wide range of situations that might be impossible to measure by other means.

So what happens if one takes these considerations into account and actually measures the consistency of trait-related behavior? One answer to this question comes from a study of the consistency of behaviors related to conscientiousness among college students, conducted by Mischel and Peake (1983). These investigators solved the problem of determining what counts as conscientiousness by asking students to nominate behaviors that represent the trait in a college environment (e.g., taking clear class notes). They solved the problem of error of measurement by measuring behaviors on multiple occasions and aggregating the measures together. Their results yielded impressive evidence of longitudinal stability of trait-related behaviors; people who were relatively high on conscientiousness at one point during the semester continued to act conscientiously later in the semester. However, levels of cross-situational consistency were relatively low. It was commonly the case that students were conscientious in some settings (e.g., they took good lecture notes) but not conscientious in other settings (e.g., their dorm room was a mess). It is important to note that levels of cross-situational consistency were not zero; people did display some consistency in their trait-related behaviors. Furthermore, levels of cross-situational consistency are higher if one focuses on a subset of the conscientious behaviors, specifically those within the same kinds of settings (e.g., school, home, or work) (Jackson & Paunonen, 1985). Nonetheless, Mischel and Peake (1983) emphasize that a basic fact of social life is that people may vary their behavior from one situation to another. In so doing, they commonly may display behaviors that are inconsistent with respect to a broad personality trait. This result was consistent with findings from much earlier in the field's history; a classic study by Hartshorne and May (1928) similarly indicated that levels of longitudinal stability could be quite high, whereas the cross-situational consistency of behaviors related to a broad trait might be low.

Note that trait questionnaires ask about general tendencies to display a given personality trait; they do not ask about how variable the behavior is. Even if we assume that people differ in their average display of trait-related behavior—and they clearly do, as findings reviewed previously indicate—it still might be that there is enormous variability *around* the average. An exciting recent advance in personality psychology is that researchers have developed methods for describing these variations around the average. In so doing, they have significantly expanded the field's understanding of personality and social behavior (e.g., Moskowitz & Herschberger, 2002; Moskowitz & Zuroff, 2005).

One important line of research is that of Fleeson (2001; Fleeson & Leicht, 2006). He asks research participants to record their current thoughts and feelings a few times a day, over a number of days. These ratings generally are done using Palm Pilots, that is, hand-held computers. Rather than asking people merely to report their typical, overall level of a trait, Fleeson asks them to report on the degree to which they have exhibited a given type of trait-related behavior *during the past hour*. For example, a traditional extraversion item asks people whether they are talkative in general (e.g., "Are you a talkative person?"). Instead of this, Fleeson asks, "During the previous hour, how well does 'talkative' describe you?" (Fleeson, 2001). By asking this question repeatedly, over a series of days, one

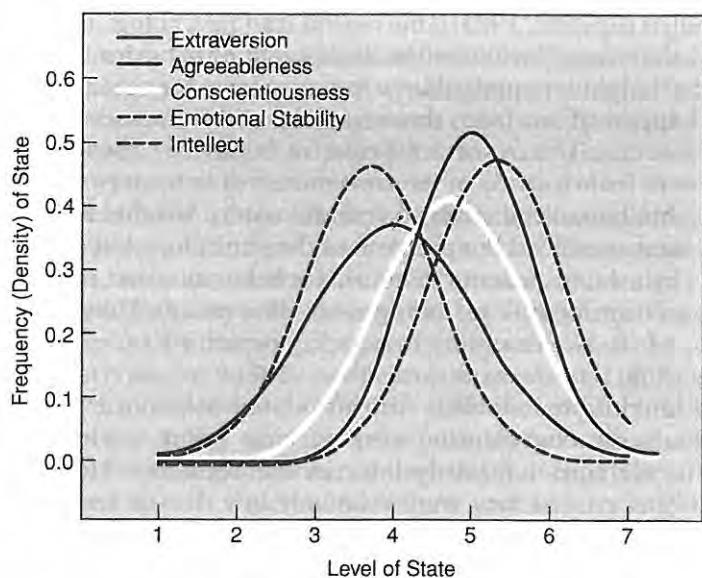


Figure 8.3 Graph displays the average individual's distributions of psychological states that generally are construed as manifestations of each of the Big Five traits. The graph indicates that there is substantial within-person variability in trait-related behavior; that is, the average individual shows both high and low levels of the trait.

(Fleeson, 2001). Reprinted with permission.

obtains a large amount of information per person. With this information, one can determine not only average levels of behavior but also the degree to which people's behavior varies around the average.

So how much variability in trait-related behavior is there? A lot! The results (see Figure 8.3) indicate that people show levels of variability that are "close to the maximum extreme possible" (Fleeson, 2001, p. 1016). Participants rated their behavior on a 7-point scale, with the values 1 and 7 being the low and high ends of the rating scale. As you can see from Figure 8.3, on the Big Five traits of Extraversion, Conscientiousness, and Openness/Intellect ("Intellect" in the figure), the distribution of people's personality characteristics ranged all the way from the low to the high end of the scale. In other words, "the average individual routinely and regularly manifests all levels of" these traits and also "most levels of Agreeableness and Emotional Stability" (Fleeson, 2001, p. 1016). People do differ in their average level of behavior. But that's only a part of the story. As they adapt to the diverse challenges and opportunities of daily life, people vary their behavior substantially, and these variations simply are not described, or explained, by trait constructs.

So where does this leave us in terms of the person-situation controversy? Can a conclusion based on the evidence be reached at this time? People are prepared to answer trait questionnaires, but they also report that their behavior varies from context to context. Do they know something personality psychologists have yet to conclude? A fair judgment at this time suggests that there is evidence of trait consistency, but this appears to be more within domains of

situations (e.g., home, school, work, friends, recreation) than across domains of situations. Since people tend to be observed over a limited range of situations, there may appear to be greater consistency than actually exists. Beyond this, the conclusions vary with the psychologist's point of view (Funder, 2008). There is evidence both for cross-situational consistency and for cross-situational variability, just as the nonprofessional suggests. To a certain extent people are the same regardless of context, and to a certain extent they also are different depending on the context. Trait theorists are impressed with the former and use such evidence to support their position, whereas situationist theorists are impressed with the latter and use such evidence to support their position. In Chapters 12 and 13 we will have the opportunity to consider theories that focus on the ways in which individuals perceive and adapt to different situations.

We once again will evaluate a theoretical perspective by considering how well it achieves the five goals for a theory of personality that were reviewed back in Chapter 1. The evaluation of trait theory on these five criteria is a little more difficult than was the evaluation of psychodynamic and phenomenological theories (Chapters 4 and 6). This is because there is no one, single-trait theory. Critical evaluations might vary depending on whether one is considering the trait theory of Allport, or Eysenck, or Cattell, or the lexical Big Five model, or the five-factor theory of McCrae and Costa. In our evaluations, we will try to focus on main themes that are evident across the work of these different trait theorists.

CRITICAL EVALUATION

SCIENTIFIC OBSERVATION: THE DATABASE

The first of these five criteria, as you will recall, is whether a theory is based on a sound body of careful scientific observations. On this point, the trait theories excel. Thanks in particular to the pioneering efforts of Cattell, the theoretical edifice of trait theory has, almost from its outset, been built on a strong foundation of objective scientific data. Rather than relying on subjective interpretations of clinical interviews, trait theorists have employed statistical analyses of objectively scored personality tests. This objectivity is a major advantage.

The trait theorists' data not only are objective; they also are diverse. Large numbers of persons—of different ages, ethnicities, and sociocultural backgrounds—have taken part in the multinational enterprise that is personality trait testing. The number of research publications on the Big Five and trait theory more generally increased dramatically between 1990 and 2008 (John, Naumann, & Soto, 2008).

A third advantage of the trait-theory database is that it includes more than self-reports. It is true that self-report measures have been central to the trait theorists' efforts. Yet many investigators have recognized that self-reports must be complemented by other forms of data: reports by observers, measures of objective life events, physiological indices of neural or biochemical systems that underlie a given trait (Chapter 9). In many respects, then, the quality of the scientific database of trait theory is far superior to that of psychodynamic or phenomenological theories. The one significant limitation to the database is that it so rarely employs the in-depth methods used by clinical

theorists such as Rogers and Freud. In trait-theoretic assessments, one learns about a few general qualities of persons—their overall trait levels—but not about the inner psychological dynamics of the individual. This limitation has led one commentator to conclude that a trait analysis, by itself, yields “a psychology of the stranger” (McAdams, 1994, p. 145), that is, a superficial analysis that is similar to the information one might know about a stranger one only meets casually, rather than the deeper information that can be yielded by a detailed case study. Stated differently, one might say that the Big Five are not adequate to capture the uniqueness of the individual (Grice, Jackson, & McDaniel, 2006).

THEORY: SYSTEMATIC?

Are the different elements of trait theory tied together systematically? Does the trait theorist provide a coherent, integrated account of personality structure, processes, and development?

For some theorists, the answer is yes. By analyzing not only traits but also states, roles, and motivational processes, Cattell did provide a statement about personality that was highly systematic. But Cattell’s analyses of motivational processes had very little influence. By relating traits to biological mechanisms, Eysenck did provide a way of relating structures (enduring traits) to processes (of the nervous system). But except for work on the neurophysiology of extraversion, Eysenck’s efforts to relate traits to biology were not entirely successful.

When one turns to more contemporary trait theories, one finds less in the way of systematic theory. As we noted earlier in this chapter, McCrae and Costa themselves readily admit that their five-factor theory does not actually specify the dynamic processes through which traits influence experience and behavior. Clearly, any theory that fails to specify these processes is one that fails to provide an integrated account of personality structures on the one hand and personality dynamics on the other. If you are “grading” the personality theories, contemporary trait theory receives a relatively low grade on the task of providing a systematic account of diverse aspects of personality.

THEORY: TESTABLE?

Trait theories deserve much higher marks on another task: developing a theory that is testable via objective evidence. Numerous aspects of trait theory can be tested objectively. Big Five theorists clearly make the prediction that factor analyses will yield five major dimensions of personality. Any other result—a six-factor solution, a three-factor solution, and so forth—clearly is a counterexample to the theoretical predictions. The fact that there can, in principle, be such clear-cut counterexamples means that trait theories have stated their ideas with admirable clarity.

Trait theorists make numerous other predictions that are open to unambiguous empirical tests. For example, they expect that individual differences on self-report personality traits will predict behavior, that genetically identical individuals will score similarly on such tests, and that trait scores will be relatively stable over time. In each case the trait theorist could, in principle, be proven wrong. Their ideas are open to objective empirical testing.

THEORY: COMPREHENSIVE?

In some respects, the trait theories are remarkably comprehensive. Trait theorists have been keenly aware that efforts to develop a taxonomy of personality traits would be of little value if important personality traits were left out of the taxonomy. They have tried to ensure, then, that all significant individual differences are incorporated into their factor-analytic studies of personality structure. They have gone to great efforts to ensure this, with lexical researchers combing the dictionary for all possible words that could be used to describe persons. In this way, their efforts are comprehensive.

Yet in other ways their efforts are lacking in comprehensiveness. This is evident if one thinks back to topics discussed in earlier chapters: the interplay of conscious and unconscious processes, the role of sexuality in personality development, the significance of dreams, the interpersonal relationship between a therapist and his or her client, the role of parents in fostering a sense of self-worth in children. What did trait theory say about these topics? Virtually nothing. These and many other topics of interest to other personality psychologists simply were not addressed by the primary trait theorists. Trait theorists have concentrated almost all their energies into identifying a comprehensive taxonomy of personality traits and determining whether individual differences in traits predict individual differences in social behaviors. These are important tasks. But there are many other tasks that also are important to a comprehensive analysis of personality.

Trait theories lack comprehensiveness in two major ways. One is the relative absence of analyses of personality processes (Mischel & Shoda, 2008). The theories tell us far more about the stable “building blocks” of personality—personality trait structures—than about dynamic personality processes. The other is a relative lack of attention to the individual (Barenbaum & Winter, 2008). Except for Allport, trait theorists primarily focused on individual differences in the population rather than on the inner mental life of the individual person. This is a significant limitation. By analogy, suppose one knew nothing about the workings of the human body, wanted to create a science of human biology, and began one’s efforts with an individual-differences strategy: factor-analyzing questionnaire reports of physical characteristics and tendencies among a large population of persons. In principle, one might identify factors such as attractiveness (a dimension of unattractive versus attractive), athleticism (unathletic versus athletic people), and healthiness (chronically sickly versus healthy persons). Such factors clearly would provide valid descriptions of individual differences; some people really are more attractive, athletic, and healthy than others. But for a science of biology one also would want to identify factors such as “circulatory system” and “nervous system.” The individual-differences strategy may fail to identify these biological systems; since everyone

Trait Approaches at a Glance

Structure	Process	Growth and Development
Traits	Neural and biochemical processes associated with traits	Genetic influences are primary determinant of trait levels

possesses them, there may be no significant individual differences that would produce a statistical factor. The general point is that one cannot confidently assume that the traits identified in factor analyses of individual differences are qualities that exist in the psyche of each and every individual. Big Five researchers recognize this; Saucier, Hampson, and Goldberg (2000, p. 28) write: "Clearly, the study of different lexicons [of personality description] can lead to a useful and highly generalizable classification system for personality traits, but this classification system should not be reified into an explanatory one. A model of descriptions does not provide a model of causes, and the study of personality lexicons should not be equated with a study of personality." Some suggest that the Big Five was never intended as a comprehensive personality theory, while others, such as McCrae and Costa, appear to be much more committed to the five-factor theory as such a theory.

APPLICATIONS

It is easy to describe how trait theory has been applied but trickier to evaluate the worth of these applications. This is because any such evaluations hinge on subjective judgments about the applied products that a personality theory should provide.

What trait theories do provide are tools for prediction. Trait theorists have identified a consensually accepted set of traits and have developed reliable scales for measuring them. In so doing, they have provided a simple and valuable technology for predicting individual differences in a wide variety of psychological outcomes (Barenbaum & Winter, 2008; John, Naumann, & Soto, 2008; McCrae & Costa, 2008). The widespread use of these measures attests to their applied utility. Educational psychologists, clinical psychologists, industrial/organizational psychologists, and many other applied investigators have long employed measures of individual differences in global personality traits. If the provision of tools for the prediction of individual differences is the main applied product one wants from a personality theory, then trait theory applications can be judged a success.

However, other personality theorists want more. They want a theory of personality to be clinically useful, and they find trait theory lacking in this regard (Westen, Gabbard, & Ortigo, 2008). Every other personality theory discussed in this text provides not only a theory but a therapy. Freud and Rogers—and, as you will see in subsequent chapters, behaviorists, personal construct theorists, and social-cognitive theorists—each provide novel therapy techniques that are based on their theories. These therapies are the main applications of the given theory. But there is no "trait theory therapy." Trait theory (with the exception of some efforts by Eysenck) is the one body of theorizing that has not generated therapies for bringing about psychological change.

<i>Pathology</i>	<i>Change</i>	<i>Illustrative Case</i>
Extreme levels of traits (e.g., Neuroticism) predispose toward pathology	(No formal model)	Jim

Table 8.4 Summary of Strengths and Limitations of Trait Theory

1. Active research effort	1. The method: factor analysis
2. Interesting hypotheses	2. What does a trait include?
3. Potential ties to biology	3. What is left out or neglected?

The trait theorist may say that developing therapies simply is not what their work is about. Trait theories are theories of stable individual differences and the bases of those individual differences. They are not theories of psychological change. It thus may not be fair to evaluate trait theories negatively for their failure to produce novel forms of therapy.

MAJOR CONTRIBUTIONS AND SUMMARY

Psychologists working in the trait tradition rightly can claim to have made substantial gains (Table 8.4). This is most apparent by posing questions about personality that might be puzzling but that, thanks to the efforts of trait psychologists, have been answered convincingly: How many trait dimensions are needed to describe major individual differences in the population? Are people's standings in these dimensions consistent across time? Are there any relations between these individual differences and differences in social behavior? The answers "5 (or 6)," "yes," and "yes" can be provided with confidence, and enormous research backing, by the trait psychologist.

The ability to provide these answers is a major step forward. Outside of the halls of academia, people often desire a simple yet scientifically validated way of assessing individual differences in average psychological tendencies. There are so many potential individual differences that one might not even know how to get started on this task. But Cattell and Eysenck figured out a way to get started, and contemporary Big Five investigators provide a valuable and widely accepted solution to the problem.

Another major strength of the trait approach is its capacity to move from a psychological to a biological level of analysis. Work in genetics and neurophysiology has begun to identify biological foundations of individual differences, as we review in the chapter ahead. Although all personality psychologists recognize that persons are biological beings, the trait model particularly lends itself to the integration of biological findings into a comprehensive model of personality. We continue to consider this wedding of psychology to biology in the chapter ahead.

MAJOR CONCEPTS

Big Five In trait factor theory, the five major trait categories, including emotionality, activity, and sociability factors.

Facets The more specific traits (or components) that make up each of the broad Big Five factors. For

example, facets of extraversion are activity level, assertiveness, excitement seeking, positive emotions, gregariousness, and warmth.

Five-factor theory An emerging consensus among trait theorists suggesting five basic factors in human personality: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness.

Fundamental lexical hypothesis The hypothesis that over time the most important individual differences in human interaction have been encoded as single terms into language.

NEO-PI-R A personality questionnaire designed to measure people's standing on each of the factors of the five-factor model, as well as on facets of each factor.

OCEAN The acronym for the five basic traits: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

Person-situation controversy A controversy between psychologists who emphasize the consistency of behavior across situations and those who emphasize the importance of the variability of behavior according to the particular situation.

REVIEW

1. In the later years of the 20th century, a consensus emerged among trait theorists around the Big Five, or five-factor (OCEAN), model of personality traits. Support for the model comes from the factor analysis of trait terms in language and the factor analysis of personality ratings and questionnaires.
2. The Big Five theorists' study of language rests on the fundamental lexical hypothesis, which is the hypothesis that the fundamental individual differences among people have been encoded into the natural language.
3. McCrae and Costa have proposed a theoretical model, the five-factor model, that emphasizes the biological basis of traits, which are construed in the model as basic tendencies. Substantial evidence of stability of overall trait structures and of individual differences in trait levels is consistent with this theoretical model. However, the model is questioned by evidence of change in personality trait levels and by uncertainty concerning the limits of environmental influence on personality development. In addition, there is evidence that at least one more trait factor is required to capture all major individual differences.
4. Research indicates that individual differences in five-factor scores significantly predict outcomes

in domains of importance to applied psychologists, such as vocational guidance, personality diagnosis, work behavior, and psychological treatment. A limitation of the five-factor trait model as an applied tool, however, is that it offers no specific recommendations concerning the process of personality change.

5. Although there is evidence for longitudinal stability in personality traits, much research also suggests that people show significant variability in trait-related behavior when they encounter different social contexts. To some, this variability in trait-related behavior suggests that trait constructs are inadequate as a basis for personality theory. Yet others judge that the stability in behavior across time and place that does exist is sufficient to support the utility of trait theories (the person-situation controversy).
6. An overall evaluation of current trait theory suggests strengths in research, the formulation of interesting hypotheses, and the potential for ties to biology. At the same time, questions can be raised concerning the method of factor analysis and the neglect of such important areas of psychological functioning as the self and a theory of personality change.