# Personality and Culture Revisited: Linking Traits and Dimensions of Culture

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*"Culture and personality" was a focus of anthropology and psychology in the first half of the 20th century. It was concerned with traditional and preliterate societies and drew many of its constructs from psychoanalysis. In this article, we note that taxonomies of personality traits and cultural values developed independently since 1980 have created new possibilities for exploring the topic. The Five-Factor Model of personality is a universally valid taxonomy of traits. The IBM study (conducted by Hofstede) dimensions of culture represent a well-validated operationalization of differences between cultures as manifested in dominant value systems. In reanalyses of recently reported data, mean personality scores from 33 countries were significantly and substantially correlated with culture dimension scores. We discuss environmental and temperamental explanations for these associations and suggest directions for future research, including replications, experimental simulations, acculturation studies, and research on the interaction of traits and culture in shaping human lives.*

The notion that a population or a part thereof—one's own or another's—possesses collective mental characteristics is probably as old as the populations themselves. Tacitus, writing in 98 CE, addressed the character of ancient German tribes by describing the Chauci as noble and the Harii as "fierce in nature." In the 14th century, the great Muslim scholar Ibn Khaldûn—considered by some as the founder of sociology—dwelt at length in his book *Al-Muqaddima* (1377/1968) on the different mentalities of nomads and sedentary peoples. He argued that the mind in its original state is ready to absorb any influence, good or bad: "As Mohammed has said: 'Every child is born in a natural state. It is his parents who make him into a Jew, Christian or Zoroastrian'" (p. 246; author translation). Expert opinion has been divided ever since on whether alleged differences in national character are due to nature or nurture. In this article, we give an overview of the history of research on personality and culture, discuss recent developments, and present alternative interpretations of new empirical links between traits in the Five-Factor Model and Hofstede's (2001) dimensions of culture. Both environmental and genetic bases for national character are considered.

## THE HISTORICAL LINK BETWEEN
## PERSONALITY AND CULTURE

In the 18th century, philosophers like Hume in England, Montesquieu in France, and Kant in Germany dealt with questions of "national character." Popular wisdom about comparative national characteristics was codified, as in an anonymous Austrian painting published in Goody (1977, pp. 154-155), a *Völkertafel* that tabulates 10 European nations according to each of 17 qualifiers, such as dress, religion, and pastimes as well as *Natur und Eigenschaft* (nature and characteristics). The artist has not hidden his sympathies and antipathies.

In the 20th century, anthropologists embraced the concept of national character. In the 1920s and 1930s, ideas on personality

and culture began to be discussed (LeVine, 2001), and during and after World War II the U.S. government called on anthropologists to help understand the psyche of its enemy nations, including Germany, Japan, and the Soviet Union. An anthropological definition of *national character* was "Relatively enduring personality characteristics and patterns that are modal among the adult members of the society" (Inkeles & Levinson, 1954/1969, p. 17). *Culture and personality* or *personality and culture* became classic names for psychological anthropology. In her introduction to the 1959 edition of Benedict's 1934 book, *Patterns of Culture*, Mead described Benedict's view of human cultures as "personality writ large."

A textbook on social anthropology (Bohannan, 1963/1971) defined the relationship between personality and culture in the following terms:

> Children, when they are born, are without culture, and hence are without personality, and almost without social relationships. The very fact of birth may be described as the termination of a biophysical relationship and, in the usual course of events, its replacement with a social relationship. Social relationships, then, expand with maturation; new culture is demanded in which to respond to other people so that the relationships are possible. The acquisition of that culture is ipso facto the growth of the personality. As the personality develops, the characteristic way of responding to given stimuli (some of the responses being universal, some culturally normal, and some eccentric) becomes more highly developed and, at the same time, more set. (p. 20)

The view that personality is created through the process of enculturation is akin to some contemporary ideas of psychological anthropology, which hold that culture is constitutive of personality (Miller, 1999).

Within psychology, between 1911 and 1920, the German Wilhelm Wundt (1832 to 1920), the father of experimental psychology, had published a 19-volume book series on *Völkerpsychologie* (psychology of peoples), presenting a comparative analysis among countries of language, myths, morals, religion, art, and law, put into a psychological context (Boring, 1968). In the 1930s, the psychiatrist Abram Kardiner in the United States interpreted anthropological descriptions of cultures psychoanalytically, identifying for each culture a "basic personality structure" (Kardiner, Linton, Du Bois, & West, 1945). Personality psychologists at midcentury were

deeply concerned with cultural influences, leading to such classics as *The Authoritarian Personality* (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950), *Childhood and Society* (Erikson, 1950), and *The Achieving Society* (McClelland, 1961).

Nevertheless, the national character concept lost popularity in mainstream Anglophone cultural anthropology in the 1960s (see LeVine, 2001, for a discussion of some of the reasons). Although anthropologists began to study segments of modern societies (e.g., Magat, 1999), they continued to use methods and perspectives that had been developed for use in research on traditional and preliterate societies. With the notable exception of those in the Society for Cross-Cultural Research, most cultural anthropologists to the present day have resisted the use of statistical analysis (D'Andrade, 2000), which is indispensable for studying the cultures of complex societies (Braudel, 1958, pp. 747-748). Duijker and Frijda (1960), reviewing some 1000 publications in *National Character and National Stereotypes*, reported that "no comparative studies based on representative samples of national populations are known to us" (p. 21). National characters thus remained simplistic stereotypes and did not acquire the status of empirically supported common components in the thought and actions of the various members of a nation. The stereotypes were falsified by the obvious variety of members within complex societies.

After 1960, personality psychologists moved away from the grand theories of Erikson and McClelland. With a few exceptions (Lynn, 1971; Peabody, 1985), the topic of national character was also abandoned. A quantitative approach to cultural psychology was, however, continued in the field of cross-cultural psychology. The International Association for Cross-Cultural Psychology has met biannually since 1972 and publishes the *Journal of Cross-Cultural Psychology*. The study of national cultures was stimulated by a need for better international understanding and cooperation, and it was made possible by the availability of more systematic and partly quantitative information, including the kind of comparative studies that Duijker and Frijda had earlier found lacking.

Recently, there have been signs of a renewed interest, at least among psychologists, in the relationship between personality and culture. Lee, McCauley, and Draguns (1999) edited a reader with contributions from a variety of approaches, addressing a number of questions in this field. In the present article, we will demonstrate how systematic, quantitative research on both culture[1] and

personality has opened a new way to link the two concepts, contributing to the state of the art in anthropology and psychology. On the personality side, this has meant adoption of a trait perspective in preference to the psychoanalytic models favored by early personality and culture theorists. On the culture side, it has meant the identification of common dimensions of culture in preference to the incommensurable depictions of each unique ethos. Its new theoretical perspectives are firmly tied to data, which are increasingly easy to obtain in the new electronic world.

## DIMENSIONS OF PERSONALITY

The term *personality* has been used in many ways, but most personality psychologists claim to be concerned about the whole individual and those features of psychology unique to him or her. Psychoanalysis, with its emphasis on the unconscious determination of behavior and the origins of personality in early experience, was the dominant school in the first half of the 20th century. It had a tremendous influence on personality and culture studies, and was itself influenced by them (e.g., Erikson, 1950). In the second half of the 20th century, however, critiques of psychoanalysis (Eysenck, 1952) and the projective techniques used to assess its personality constructs (Lilienfeld, Wood, & Garb, 2000) have dramatically reduced its influence.

Instead, contemporary personality psychology is dominated by the trait approach, in which individual differences in enduring dispositions are assessed. Trait psychology can be traced back to the ancient Greeks (e.g., Theophrastus, 300 B.C./2003) and has been a continuing presence in personality psychology, associated particularly with the work of Allport, Cattell, and Eysenck. During the 1960s and 1970s, it was subjected to critical scrutiny and briefly went out of favor. Since 1980, however, it has become established as the central focus of personality research.

The crucial event in the revival of trait psychology was the emergence of the Five-Factor Model (Digman, 1990). Although there are thousands of trait-descriptive adjectives in English (e.g., nervous, enthusiastic, original, appreciative, and controlled), it was obvious that there were far fewer major groups of traits, or factors. Competing systems argued for 3, 10, or 16 main factors, but the work of Tupes and Christal (1961/1992), replicated by later researchers (Goldberg, 1981; McCrae & Costa, 1985), established

the superiority of 5. The same factors were consistently found in adults and adolescents, men and women, and self-reports and observer ratings. In one study by Hofstede, Bond, and Luk (1993), the way individuals described the cultures of their organizations reflected very similar personality factors. Although many instruments have now been developed to measure the Five-Factor Model, the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992) is the most widely used and researched.

The factors have been given somewhat different names and interpretations by different investigators. In the NEO-PI-R, they are called *neuroticism* (N), *extraversion* (E), *openness to experience* (O), *agreeableness* (A), and *conscientiousness* (C). Each factor is defined by six specific traits, or facets. For example, conscientiousness is represented by subscales measuring competence, order, dutifulness, achievement striving, self-discipline, and deliberation.

Research in the English-speaking world using the NEO-PI-R (McCrae & Costa, 2003) established that individual differences in the factors are stable throughout most of the adult life span; that self-reports generally agree with observer ratings; and that the five factors, as well as the more specific traits that define them, are strongly heritable. In the 1990s, researchers around the world began to develop translations[2] of the instrument, making cross-cultural research possible. A series of studies showed that much the same factor structure was found in a wide variety of cultures (McCrae & Costa, 1997), that developmental trends in the mean levels of personality traits between adolescence and later adulthood appeared to be universal (McCrae et al., 1999), and that similar gender differences were found among cultures (Costa, Terracciano, & McCrae, 2001).

McCrae and Costa (2003) interpreted these findings to mean that personality traits are biologically based dispositions that characterize members of the human species. In important ways, they appear to transcend culture. From this perspective, the study of personality and culture is no longer a matter of documenting how culture shapes personality; instead, it asks how personality traits and culture interact to shape the behavior of individuals and social groups (McCrae, 2000).

At the level of the individual, this perspective suggests that the attitudes, values, habits, and skills—the whole set of *characteristic adaptations* (McCrae & Costa, 1999) that people develop—are likely to reflect contributions of both the individual and the

cultural context. For example, women in Western societies have much greater freedom to pursue careers outside the home than do women in fundamentalist Islamic countries. But whether Western women choose to do so depends in part on how high they are in assertiveness and achievement striving.

The same argument can be made at the level of organizations or whole cultures. A society composed solely of extraverts might well develop different institutions than a society of introverts. No such societies exist; all known populations show a mix of personality characteristics. But if there are differences in the mean level of personality traits, they might, in principle, give rise to different cultural practices.

## DIMENSIONS OF CULTURE IN THE LITERATURE

The number of definitions of *culture* is notoriously large, and we do not want to get involved in a discussion of the merits of one definition over another. Hofstede's operating definition is "The collective programming of the mind that distinguishes one group or category of people from another." This stresses that culture is (a) a collective, not individual, attribute; (b) not directly visible but manifested in behaviors; and (c) common to some but not all people.

Many authors in the second half of the 20th century have speculated about the nature of basic problems of societies that would give rise to distinct dimensions of culture (Hofstede, 2001, pp. 29-34). A pioneer contribution was made by George P. Murdock (1957), who in the 1940s established the Human Relations Area Files, which systematically classified anthropological information about a large number of traditional and nonliterate societies studied by field anthropologists. This allowed correlating anthropological data among these societies.

Outside anthropology, the most common dimension used for ordering societies was their degree of economic and technological evolution, modernity, or differentiation. A one-dimensional ordering of societies from traditional to modern fit well with the 19th-and 20th-century "evolutionism" that was characterized by a belief in progress (Mayr, 1982).

Although economic evolution is an important dimension that is bound to be reflected in societal values, there is no reason why it should suppress cultural variety in other respects. Examples of

multidimensional theoretical models are those by Aberle, Cohen, Davis, Levy, and Sutton (1950), who proposed nine "functional prerequisites of a society"; by Parsons and Shils (1951, p. 77) with five "pattern variables"; by Kluckhohn and Strodtbeck (1961, p.12) with five "value orientations"; and by Douglas (1973) with two "cosmologies" (*grid* and *group*). These multi- or bidimensional classifications represent subjective reflective attempts to order a complex reality. None of them is clear about the levels of analysis at which they are supposed to apply and not to apply (i.e., society, social category, group, or individual). None of them has been supported by empirical research at the level of modern societies.

The first empirical attempt to determine dimensions of culture at the society level was made by psychologist Raymond B. Cattell (1905 to 1998), who applied the factor analytical approach he had used in the development of personality tests to data about countries (Cattell, Graham, & Woliver, 1979). Cattell analyzed 48 and more country-level variables for over 40 countries. His variables were a motley set of geographical and demographic data; the supposed races of inhabitants; historical and political aspects; social, legal, and religious indicators; and economical, medical, and "elite" measures such as the number of Nobel prizes awarded. He looked for dimensions among nations of what he labeled "syntality," a concept parallel to the "personality" of individuals. Cattell's factors (he retained 12) are difficult to interpret; the only obvious underlying influence that some of them reflect is again economic development. Cattell's approach was continued by others, but the only common factors found were level of economic development, country size, and political allegiance to one of the two power blocs of those days. These were psychologically trivial and could have been identified without a factor analysis. Other taxonomies of nations from an ecocultural perspective offered by a psychological point of view were described by Rummel (1978) and Georgas and Berry (1995).

A breakthrough in the study of national cultures was Richard Lynn's 1971 book, *Personality and National Character.* This book showed results of a factor analysis of national medical and related indicators, such as the frequency of chronic psychosis, average calorie intake, suicide rates, and cigarette consumption in 18 developed countries, and it identified a dimension of "anxiety." Lynn and Hampson (1975) extended this to two dimensions, "neuroticism" and "extraversion." Lynn (1981) added "psychoticism." These three dimensions corresponded to their names from the personality trait

dimensions in Eysenck's (1978) system. Mean national scores on personality scales measuring these three dimensions for 37 countries were published by Lynn and Martin (1995). In the meantime, Lynn (1991) focused on a new potential dimension: "competitiveness." To this end, he collected paper-and-pencil survey answers from female and male students in 42 countries.

Since Hofstede's book, *Culture's Consequences* (1980; to be described in the next section), paper-and-pencil surveys among matched samples of national populations have become a common source of information for identifying dimensions of national cultures. Trompenaars (1993) developed a questionnaire inspired by the theories of Parsons and Shils (1951) and Kluckhohn and Strodtbeck (1961), and he administered this to personnel of his business clients. He claimed finding in his data the seven dimensions of culture that the theories postulated, but a multidimensional scaling analysis of his data did not confirm this (Smith, Dugan, & Trompenaars, 1996; Smith, Trompenaars, & Dugan, 1995). Schwartz (1994) developed a list of 56 values, which was completed by samples of students and of elementary school teachers in a growing number of countries (now over 40, according to Schwartz, 1999). He subjected these to Smallest Space Analysis, both at the individual and at the country level. At the country level, he found seven dimensions: conservatism (later called embeddedness), hierarchy, mastery, affective autonomy, intellectual autonomy, egalitarian commitment (later called egalitarianism), and harmony.

A research program for studying values using public opinion survey methods, started in the early 1980s by the European Values Systems Study Group, grew into the World Values Survey (WVS). It has so far covered some 60,000 respondents in 43 societies with a questionnaire including more than 360 items. Areas covered are ecology, economy, education, emotions, family, gender and sexuality, government and politics, health, happiness, leisure and friends, morality, religion, society and nation, and work. A summary of these data has been published in Inglehart, Basañez, and Moreno (1998). In a macroanalysis of the results, Inglehart (1997, pp. 81-98) factor-analyzed country mean scores on 47 variables summarizing some 100 key questions from all areas covered. Two factors accounted for 51% of the variance; Inglehart called these factors "key cultural dimensions" and labeled them "well-being versus survival" (explaining 30% of the variance) and "secular-rational versus traditional authority" (21%). Inglehart related a shift from

traditional to secular-rational authority to modernization, and a shift from survival to well being to what throughout his writings he has called *postmodernization*, a replacement of material goals by expressive (psychological) goals. More recently (Inglehart & Baker, 2000), he has included religion as an explanatory factor. Inglehart's analysis may be not yet be complete; it is likely that the WVS database hides a richer dimensional pattern.

A new application of the dimensions-of-culture paradigm for which the full results were not yet available to us is the GLOBE Research Project, originally conceived by Robert J. House in 1991 (House, Javidan, Hanges, & Dorfman, 2002; Javidan & House, 2001). It focuses on the relationships between societal culture, organizational culture, and leadership. House has built an extensive network of some 150 coinvestigators, who collected data from about 9,000 managers in 500 different organizations in 61 countries. The project aims at measuring nine dimensions derived from the literature, including those from the Hofstede's IBM Study, to be described below. These are hypothetical dimensions; the results should show to what extent the *empirical* dimensions in the data correspond with the theories.

## THE IBM STUDY DIMENSIONS OF CULTURE

Hofstede's study of national culture differences used a database collected by a multinational corporation (IBM) in its subsidiaries in 71 countries, containing the scores on a series of employee attitude surveys held between 1967 and 1973, a total of around 117,000 questionnaires. These surveys had explicitly tried to tap the employees' basic values along with their situational attitudes. IBM in those days was a tightly structured organization with a unified set of products and product-related jobs and a strong corporate culture, meaning that samples of employees from one subsidiary to another could be strictly matched to be similar in all respects except nationality. The questionnaires were administered in one of 20 languages, with minor adaptations to local idiom (e.g., Austrian, Swiss, and mainstream German). Data analyzed were mean scores for identically stratified samples of employees within each of those 40 countries for which the number of employees was judged sufficiently large to allow reliable comparison. In addition, the database contained the results of two successive survey rounds four years apart, and only those questions were retained for

analysis for which the ordering of countries over this period remained significantly constant, eliminating short-term effects. The successive identification of four dimensions of national culture in this material has been described in Hofstede (1980, 2001). In a factor analysis of country data, three orthogonal factors were found; two dimensions (*power distance* and *individualism*) were significantly correlated and initially formed one factor, but their relationship all but disappeared after national wealth (GNP per capita) was controlled for. The four dimensions, as they were interpreted based on the original survey questions and on correlated results from the IBM and other studies, are

1. *Power distance,* that is, the extent to which the less powerful members of organizations and institutions (such as the family) accept and expect that power is distributed unequally. This represents inequality (more versus less) but is defined from below, not from above. It suggests that a society's level of inequality is endorsed by the followers as much as by the leaders. Power and inequality, of course, are extremely fundamental facts of any society, and anybody with some international experience will be aware that "all societies are unequal, but some are more unequal than others." A society's power distance level is bred in its families through the extent to which its children are socialized toward obedience or toward initiative.

2. *Uncertainty avoidance* deals with a society's tolerance for ambiguity. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, and different than usual. Uncertainty-avoiding cultures try to minimize the possibility of such situations by strict laws and rules, by safety and security measures, and, on the philosophical and religious level, by a belief in absolute Truth: "There can only be one Truth and we have it." People in uncertainty-avoiding countries are also more emotional and are motivated by inner nervous energy. The opposite type, uncertainty-accepting cultures, are more tolerant of opinions different from what they are used to; they try to have as few rules as possible, and on the philosophical and religious level they are relativist and allow many currents to flow side by side. People within these cultures are more phlegmatic and contemplative, and are not expected by their environment to express emotions. Uncertainty avoidance is related to (and correlated with) the level of cultural anxiety or neuroticism as measured in the studies by Lynn (1971) and Lynn and Hampson (1975; see Hofstede, 2001, p. 188).

3. *Individualism* versus its opposite, collectivism, refers to the degree to which individuals are integrated into groups. In individualist societies, the ties between individuals are loose: Everyone is expected to look after himself or herself and his or her immediate family. In collectivist societies, people are integrated from birth onward into strong, cohesive in-groups, often extended families (with uncles, aunts, and grandparents), protecting them in exchange for unquestioning loyalty. The word *collectivism* in this sense has no political meaning: It refers to the group, not to the state.

4. *Masculinity* versus its opposite, *femininity*, refers to the distribution of emotional roles between the sexes, another fundamental problem for any society to which a range of solutions are found. The IBM studies revealed that (a) women's values differ less among societies than men's values; and (b) men's values vary along a dimension from very assertive and competitive and maximally different from women's values on one side to modest and caring and similar to women's values on the other. The assertive pole has been called "masculine" and the modest, caring pole "feminine." The women in feminine countries have the same modest, caring values as the men; in masculine countries, they are somewhat assertive and competitive, but not as much as the men, so that these countries show a gap between men's values and women's values.

A theoretical justification for these dimensions—detected after the dimensions had been empirically identified—was found in an extensive review article about national character and modal personality by the U.S. sociologist Alex Inkeles and psychologist Daniel Levinson, originally published in 1954, extended in 1969 (1954/1969), and reprinted in Inkeles (1997). Summarizing a large number of anthropological and sociological studies, they identified the following "standard analytic issues":

1. Relation to authority.
2. Conception of self, including the individual's concepts of masculinity and femininity.
3. Primary dilemmas or conflicts, and ways of dealing with them, including the control of aggression and the expression versus inhibition of affect.

Inkeles and Levinson's (1954/1969) standard analytic issues are amazingly similar to the dimensions found in the IBM database: Power distance relates to the first, uncertainty avoidance to the third, and individualism and masculinity both relate to the second standard analytic issue. This correspondence suggests that the

IBM Study dimensions are not an arbitrary collection of factors that happened to emerge from a particular set of items; instead, they seem to reflect the basic dimensions of culture from the perspective of value systems. The comprehensiveness of these four dimensions is supported by research comparing them to other measured value systems (Hofstede, 2001, pp. 92-96, 158-159, 220-225, 296-297, 355-358; Smith & Schwartz, 1997, pp. 102-104).

The relative positions of the 40 countries on the four dimensions were expressed in scores between (approximately) 0 and 100. Afterward, additional scores were obtained for 10 more countries and 3 regions in the IBM Study, and estimates on the basis of other information were published for another 16 countries and regions (Hofstede, 2001, pp. 500-502). Power distance scores are high for Latin, Asian, and African countries and smaller for Germanic countries. Uncertainty avoidance scores are higher in Latin countries, in Japan, and in German-speaking countries, and they are lower in Anglo, Nordic, and Chinese-culture countries. Individualism prevails in developed and Western countries, whereas collectivism prevails in less developed and Eastern countries; Japan takes a middle position on this dimension. Masculinity is high in Japan and in some European countries such as Germany, Austria, and Switzerland, and is moderately high in Anglo countries; it is low in Nordic countries and in the Netherlands and is moderately low in some Latin and Asian countries like France, Spain, and Thailand.

Since *Culture's Consequences* first appeared in 1980, many studies have administered the IBM questionnaire (or parts of it, or its later and improved versions) on other populations. Four major replications (covering 14 or more countries) were described in Hofstede (2001); two more have appeared since then (Mouritzen & Svara, 2002; van Nimwegen, 2002). Correlations of the country scores computed from the replications with the original IBM scores do not tend to become weaker over time. This supports the claim that the IBM dimension scores tapped resilient aspects of national culture differences.

Most of Hofstede's 1980 book was devoted to validating the four dimensions against other conceptually related data about the countries. For example, power distance was correlated with the use of violence in domestic politics and with income inequality in a country. Uncertainty avoidance was associated with Roman Catholicism and with the legal obligation in developed countries for citizens to carry identity cards. Individualism was correlated

with national wealth (GNP per capita) and with mobility between social classes from one generation to the next. Masculinity was correlated negatively with the share of GNP that governments of wealthy countries spent on development assistance to the Third World. In the second edition of *Culture's Consequences* (Hofstede, 2001), the number of validations has grown explosively (pp. 503-520), including correlations with Schwartz's values study, with many World Values Survey questions, and with consumer behavior data from market research (de Mooij, 2004). Again, among the various validating comparisons, correlations do not tend to become weaker over time. The IBM national dimension scores (or at least their relative positions) do seem to have remained as valid in the 1990s as they were around 1970.

In the 1980s, a fifth dimension was added to the four, *long-term versus short-term orientation*. This dimension was based on a study among students in 23 countries around the world, using a questionnaire designed by Chinese scholars (Hofstede & Bond, 1988). Values associated with long-term orientation are thrift and perseverance; values associated with short-term orientation are respect for tradition, fulfilling social obligations, and protecting one's "face." To date, scores on the fifth dimension are only available for part of the countries covered by the first four. In the present article, it will play no role.

## RELATING DIMENSIONS OF CULTURE TO PERSONALITY FACTORS

In studying personality, we compare individuals; in studying culture, we compare societies, even if our data have partly been collected from individuals within those societies. Individuals are to societies as trees are to forests; comparing forests is not comparing trees writ large, to paraphrase Mead's attribution to Benedict cited above (1934/1959). Comparing forests involves quite different elements: not only the configurations of different trees but also the entire biotope. Confusion between levels of analysis, by comparing individuals on data about societies, is known as the ecological fallacy (Robinson, 1950, p. 352; Thorndike, 1939), but at least as common is a reverse ecological fallacy committed by comparing societies on indices developed for the individual level (Hofstede, 2001, p. 16). Cultures are not king-sized individuals; they are wholes, and their internal logic cannot be understood in the terms used for

the personality dynamics of individuals. Eco-logic differs from individual logic.

In comparing studies of individuals, organizational cultures, and national cultures, Hofstede (1995) has used the metaphor of flowers, bouquets and gardens. Contextual social psychologists (Pettigrew, 1997) have also pointed out the ecological and compositional fallacies of assuming that the characteristics of a group must mirror the characteristics of group members. A group's ethos need not resemble the collective personality, because different processes occur on group and individual levels. This holds even more for higher levels of aggregation.

We are thus faced with a problem: We have a useful set of dimensions of personality (Digman, 1990) and a useful set of dimensions of culture (Hofstede, 2001), but they operate on different levels. How, if at all, are they to be related?

One possibility is to attempt to measure the culture dimensions in individuals. This has been tried most often in the case of individualism-collectivism, with notably inconsistent results (Oyserman, Coon, & Kemmelmeier, 2002). An alternative is to measure personality traits at the culture level. That might be accomplished by ratings of national character (Peabody, 1985), which reflect shared perceptions of the personality traits of the typical member of the culture, or by expert ratings of the ethos itself described in the language of personality, as when Benedict (1934/1959) described Zuñi culture as Apollonian. Here, it is operationalized as the mean level of traits in individuals from the culture. Just as a nation can be characterized by its annual rainfall or its oil reserves, it can also be characterized by the distribution of personality traits in its citizens. From this perspective, traits form part of the ecology to which cultures adapt. It is, however, easier to measure rainfall than to assess personality, and the meaningfulness of mean trait scores depends on the viability of a series of assumptions that McCrae (2001, 2002) attempted to show were reasonable.

The cross-cultural invariance of the factor structure of the NEO-PI-R (McCrae & Costa, 1997) supports the use of the instrument within cultures, but for comparisons among cultures, methodologists have argued that it must also be shown that the scales show scalar equivalence (Van de Vijver & Leung, 1997) across cultures. That is an arduous process, particularly for a large set of languages or cultures. In response, McCrae (2001) argued that it was reasonable to assume that whatever differences translation introduced

into the meaning of individual items were likely to be averaged out among a large set of items, such as the 48 items in each of the five NEO-PI-R domain scales. In support of this argument, he offered partial evidence. Studies of bilinguals who completed the questionnaire in two different languages (English as well as Chinese, Spanish, Shona, or Korean) showed little or no mean-level differences between the two administrations. Independent samples who completed one of two Norwegian translations showed similar personality profiles, as did independent Filipino samples who completed English or Filipino versions. These case studies suggest that the language in which the NEO-PI-R is administered does not have much effect on mean levels.

Scalar equivalence, however, requires more than equivalence of the translation. Response sets may differ among cultures (Smith, in press), leading to artifactual differences. The scales of the NEO-PI-R have balanced keying, however, so acquiescence is unlikely to be a systematic problem. Patterns of mean levels also suggest that extreme responding is not a significant concern (McCrae, 2002). There might be cultural differences in self-presentational strategies, but one study replicated self-report results with observer rating data (McCrae, Yik, Trapnell, Bond, & Paulhus, 1998). All these findings suggest that scalar equivalence can be tentatively assumed for NEO-PI-R data.

But valid comparisons must also be made on samples that are comparable. One of the strengths of Hofstede's (2001) IBM studies was that the IBM employees assessed in each country were very similar in education and vocational experience. By contrast, McCrae (2001) worked with samples made available to him by colleagues around the world who had collected data for their own purposes. Samples differed in age, education, and representativeness. To determine whether personality scores were reasonably generalizable to the culture as a whole, McCrae (2001) correlated pairs of means stratified by culture and age group, and showed that men and women from a given culture tended to have similar trait levels. Similarly, college-age and adult samples showed parallel profiles across cultures.

One question remained: Were the constructs represented by the five factors meaningful at the culture level? To say that a culture is extraverted is to say that it is high on the traits that define E. But do mean levels of traits co-vary among cultures so as to define an extraversion factor? An ecological factor analysis (Hofstede, 2001, p. 32) using mean values of the 30 NEO-PI-R facets from 114

subsamples from 36 cultures replicated the individual-level Five-Factor Model (McCrae, 2002), supporting the meaningfulness of cross-cultural comparisons. Furthermore, a hierarchical cluster analysis, plotting the 36 cultures in a dendrogram charting their proximity on the same 30 facets, showed clear similarities between geographically or historically close cultures (Allik & McCrae, in press). These results showed a striking resemblance to those of a corresponding analysis based on the four IBM Study dimensions (Hofstede, 2001, p. 64).

Of McCrae's (2002) 36 samples, 11 were from Asia, 3 from Africa, 4 from the Americas, and 18 from Europe. To correct for age and gender differences, raw facet score means were standardized using the age- and gender-appropriate U.S. norms (Costa & McCrae, 1992). NEO-PI-R factor scores were calculated from these standardized facets. McCrae (2002) reported correlations with IBM culture scores among 35 cultures or subcultures. We repeated this analysis but excluded not only Hispanic Americans but also Black South Africans, for whom no really adequate culture dimension scores were available, and averaged the two Indian (Marathi- and Telugu-speaking) samples. This left us with 33 common cases. The differences between the two analyses are minimal.

The zero-order correlations are listed in Table 1. All five personality factors were significantly associated with at least one dimension of culture, and all four culture dimensions were related to at least one personality factor. We left out the fifth Hofstede dimension, long-term orientation. First, long-term orientation scores (derived from different sources than the IBM survey) were available for only 24 of the 33 countries (Hofstede, 2001, app. 5). Second, among these 24 countries, long-term orientation was strongly correlated with individualism, $r = 0.72$, $p < .001$. Its only correlation with personality was with extraversion, $r = 0.56$, $p < .01$, but the correlation between extraversion and individualism was stronger. Long-term orientation, therefore, added nothing to our analysis.

Our correlations reveal a distinct pattern of associations between two sets of data of entirely different origins. On one hand are country-level scores on five personality factors collected from very diverse samples, each answering in their local language, and mostly collected in the 1990s. On the other hand are country scores on four culture dimensions, mostly based on survey answers by employees of local subsidiaries of the IBM Corporation, most also answering in their local language, collected around 1970. The use

**TABLE 1**
**Zero-Order Correlations Between Mean NEO-PI-R Factors**
**and Culture Scores Across 33 Countries**

|  | NEO-PI-R Factor | | | | |
|---|---|---|---|---|---|
| *IBM Culture Dimension Score* | *E* | *C* | *O* | *N* | *A* |
| Individualism | 0.64*** | | | | |
| Power distance | −0.57** | 0.52** | −0.39* | | |
| Masculinity | | | 0.40* | 0.57** | −0.36* |
| Uncertainty avoidance | | | | 0.58** | −0.55** |

NOTE: E = extraversion; C = conscientiousness; O = openness to experience; N = neuroticism; A = agreeableness.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

of local languages in both sources could lead to the suspicion that the correlations are due to language effects, but the IBM data were also replicated in international populations in which everyone answered in English, and the culture patterns found go across language families (Hofstede, 2001, pp. 49, 62-65).

Although McCrae's (2001, 2002) analyses were frankly exploratory, as early as 1993, Smith and Bond had speculated about correlations between McCrae's personality scores and Hofstede's culture scores. They correctly predicted three of the strongest correlations: individualism with extraversion, uncertainty avoidance with neuroticism, and power distance with conscientiousness. Clearly, these correlations are conceptually meaningful.

Because there are some associations within both sets of variables, it makes statistical sense to use multiple regression to predict one from the other, but that raises a deeper, substantive question: Which variables are to be taken as the predictors, and which as the criteria? Do dimensions of culture explain mean levels of traits, or do mean levels of traits explain features of culture? Of course, these correlational data do not necessarily imply either of these causal orderings, and the authors of this article disagree on their preferred interpretation of the data. In the remainder of the article, we offer both arguments and let the reader choose.

The hypothesized causal pathways we will sketch are, of course, incomplete. Hofstede does not claim that trait levels are completely determined by cultural influences, and McCrae does not suppose that cultural values are merely a reflection of personality. Values and perhaps traits are also influenced by sociological forces,

such as the occupation of East Germany by the Soviet Union (Oettinger & Maier, 1999). Both the human species and cultural institutions have been shaped over millennia by adaptive pressures, and evolutionary psychologists have begun to address these distal causes of individual and cultural differences (e.g., Buss, 2001; McDonald, 1998).

## HOFSTEDE'S INTERPRETATION: CULTURE'S CONSEQUENCES FOR TRAITS

The correlations between the two sets of data demonstrate that national levels of personality factor scores are not random but correspond to established and reasonably stable differences in national value systems, held to be expressions of national cultures. This means that self-report measurements of the five personality factors, besides reflecting individual differences in personality, contain a collective component common to respondents from the same country.

This common component can be explained by one or more of the following three causes: (a) Between national populations, the distribution of genetically determined personality factors differs systematically; (b) children growing up in a country acquire common personality characteristics in the process of their development; and (c) national cultures affect the way people respond to a personality test. Any respondent will measure herself against a social norm: She compares herself to others around her. In addition, any respondent describes herself as she would like to be seen: Answers contain a component of social desirability. How others are perceived and what is socially desirable differ between cultures.

The fact that countries populated by inhabitants from very different ethnic origins (like the United States) produce stable and recognizable national culture scores proves that explanation (a) by itself is insufficient, (b) and/or (c) must at least play a role. The role of (c), cultural effects on the way of responding to a test, is especially difficult to deny. Poortinga, van de Vijver, and van Hemert (2002) even suggested that the correlations between personality and culture scores can be entirely due to artifacts of measurement. Because both types of scores derive from self-reports, acquiescence, socially desirable responding, or varying standards of comparison or norms of self-presentation might account for the observed differences. Smith (in press) analyzed acquiescence biases

among six large-scale cross-cultural surveys and concluded that there is substantial convergence between the biases in these studies. He also, however, showed that these biases have substantial cultural meaning and cannot be ignored as mere artifacts of measurement. Also, the extensive validation of both personality and cultures scores against objective criteria, described earlier in this article, makes the artifacts explanation improbable.

Assuming that culture explains levels of trait scores rather than the other way round, Hofstede carried out a stepwise regression of the NEO-PI-R country means against the four IBM culture scores (Table 2).

In the multiple-regression pattern, again all four culture dimensions appear: Uncertainty avoidance and masculinity each appear three times, power distance twice, and individualism once. Note that despite their strong mutual negative correlation, power distance and individualism each have their own link to specific personality factors. The percentage of variance in the country scores for the personality factors that can be explained by the culture dimensions ranges from 55% for neuroticism to 24% for conscientiousness; it decreases in the order N, E, O, A, and C.

The validations of the culture dimensions in Hofstede (2001) as a matter of routine include national wealth (gross national product, or GNP, per capita) as a control variable: If wealth predicted a phenomenon better than culture, an explanation from culture was considered redundant. In supplementary analyses, Hofstede also included wealth in the correlations with the personality dimensions, trying GNP per capita data for 1970, 1980, and 1990. Among the 33 countries, wealth in all three years was significantly correlated with extraversion, but the correlations were weaker than those between extraversion and individualism; in a stepwise regression, only individualism survived. Wealth in all 3 years was also significantly and negatively correlated with conscientiousness (respondents in poorer countries were more conscientious). For all 3 years, wealth proved a better predictor of country conscientiousness scores than culture (power distance). The strongest correlation was with 1980 GNP per capita: $r = 0.60$ ($p < .001$).

From the NEO-PI-R factor scores, neuroticism showed the closest relationship with the culture dimensions (55% of variance in country levels explained): Neuroticism scores are higher in uncertainty avoiding, masculine cultures. The relationship of neuroticism score levels with uncertainty avoidance explains 31% of the variance. One of the earliest validations of the

**TABLE 2**
**Stepwise Regression Results of Mean NEO-PI-R Factor Scores**
**Against the Four Culture Scores Across 33 Countries**

| Criterion | Predictors | Cumulative Adj. $R^2$ |
|---|---|---|
| Neuroticism | + Uncertainty avoidance | 0.31 |
|  | + Masculinity | 0.55 |
| Extraversion | + Individualism | 0.39 |
|  | – Masculinity | 0.46 |
| Openness to experience | + Masculinity | 0.13 |
|  | – Power distance | 0.29 |
|  | + Uncertainty avoidance | 0.36 |
| Agreeableness | – Uncertainty avoidance | 0.28 |
| Conscientiousness | + Power distance | 0.24 |

uncertainty avoidance dimension was a 0.73 Spearman rank correlation ($p < .001$) with the neuroticism factor identified by Lynn and Hampson (1975) in medical and related statistics for 18 countries (Hofstede, 1980, pp. 168-170). Hofstede (2001, pp. 155-157) reviewed a number of other studies linking stronger uncertainty avoidance to stress, anxiety, and the expression of emotions. For example, across 25 countries, uncertainty avoidance rank correlated 0.44 ($p < .05$) with national means for the neuroticism scale of the Eysenck Personality Questionnaire (Lynn & Martin, 1995). Using data from the ISEAR study on reported emotions (Scherer & Wallbott, 1994, plus later information on Internet), significant correlations were found across 14 countries between uncertainty avoidance and the self-reported expression of anger by men and of guilt by women and by men.

Higher masculinity explains another 24% of the variance in country neuroticism levels. Within IBM, employees in masculine countries scored higher on job stress than those in feminine countries (Hofstede, 1980, p. 281). Lynn and Martin's (1995) data on national means for the neuroticism scale of the Eysenck Personality Questionnaire, mentioned in the previous paragraph, also showed a significant second-order correlation with masculinity (Hofstede, 2001, p. 297). Cultural masculinity stands for a focus on ego, money, things, and work; cultural femininity for a focus on relationships, people, and quality of life. The latter is more conducive to emotional stability (lower neuroticism). Arrindell, Steptoe, and Wardle (2002) reported that depressive symptoms among

5,000 students (assessed with the short-scale Beck Depression Inventory; Beck & Beck, 1972) were lower in feminine than in masculine European countries.

Extraversion produced the single highest correlation of any personality factor with any culture dimension, $r = 0.64$ ($p < .001$), 39% of variance explained, with individualism: Extraversion scores were higher in individualist cultures. Hofstede (2001, p. 236) showed on the basis of correlational studies that higher individualism scores stand for "I" (rather than "we") consciousness and that individualist cultures value autonomy, variety, and pleasure over expertise, duty, and security. The former suggests more extraverted behavior, the latter more introverted behavior. Gudykunst, Yang, and Nishida (1987) found students from the United States (individualist) to score significantly higher on an extraversion scale than students from Japan and South Korea (more collectivist). Although power distance is correlated with extraversion in Table 2, it is also related to individualism and does not contribute independently in the regression analysis. Another 7% of the variance in extraversion score levels was, however, explained by femininity: Respondents in feminine cultures tended to score themselves as slightly more extraverted than in masculine cultures.

Openness to experience presented the most complex relationship with the culture dimensions. High masculinity, low power distance, and high uncertainty avoidance together explained 36% of the variance in a country's openness to experience factor score levels. Respondents in masculine cultures tended to rate themselves more open to experience than in feminine cultures (13% of variance explained). Hofstede (2001, p. 304) has shown that in a seven-country Organization for Economic Cooperation and Development (1995) study, students from masculine cultures tended to overrate their own performance whereas those from feminine cultures tended to underrate it. Respondents in low power distance countries tended to score higher on openness to experience than in high power distance countries (another 16% of variance explained). Low power distance cultures stimulate independent exploration more than high power distance cultures; as evidence, low power distance countries produced more Nobel Prizes in sciences per capita than high power distance countries (Hofstede, 2001, p. 101). Finally, high uncertainty avoidance cultures tended to score higher on openness to experience than low uncertainty avoidance cultures (another 7% of variance explained). This looks paradoxical:

Uncertainty avoidance suggests closed rather than open minds. But, in this case, uncertainty avoidance appeared in the stepwise regression after the variance due to power distance differences had been accounted for. A combination of low power distance plus high uncertainty avoidance (countries like Germany and Switzerland) produced higher openness scores; high power distance plus low uncertainty avoidance (countries like China and India) produced lower openness scores. In the zero-order correlations (see Table 2), openness was not significantly related to uncertainty avoidance.

Factor score levels on agreeableness are only associated with low uncertainty avoidance (28% of variance explained). In cultures that tolerate uncertainty more, respondents scored themselves as more agreeable. Uncertainty avoidance is associated with lower subjective well-being and higher xenophobia (Hofstede, 2001, pp. 160,180), suggesting less agreeable mindsets.

Conscientiousness, finally, was associated with high power distance (24% of variance explained), but as we saw in a previous section, conscientiousness is even more strongly associated with national poverty: 1980 GNP per capita explains 36% of the variance and makes power distance as an explanatory dimension redundant. Respondents from poor countries tended to describe themselves as more conscientious than those from wealthier countries. Prosperity allows people to behave less conscientiously or more wastefully.

## McRAE'S INTERPRETATION: PERSONALITY'S CONSEQUENCES FOR VALUE SYSTEMS

A radically different interpretation of these associations is suggested by the Five-Factor Theory (McCrae & Costa, 1996, 1999). In that theory, personality traits are construed as *basic tendencies* that are rooted in biology and that interact with *external influences*, including culture, in shaping the skills, habits, tastes, and values—the *characteristic adaptations*—of the individual (see Figure 1). It is not unusual for personality theories to recognize the contribution of biological influences in shaping traits; often, the word *temperament* is used to describe this part of personality. Five-Factor Theory is unique in asserting that traits have *only* biological bases. Cultures shape the expression of traits but not their levels.

That postulate is based on two well-established lines of research within cultures (mostly the United States). The first line of evidence comes from behavior genetic studies, which show a strong influence of genes on traits and virtually no influence of the shared environment (Bouchard & Loehlin, 2001). Because heritability estimates reflect proportions of variance accounted for in a given population, they cannot be generalized across populations; high heritability within cultures does not rule out strong environmental effects across cultures. Nevertheless, the within-culture data are consistent with the hypothesis of solely biological bases. The second line of evidence comes from longitudinal studies, which show that personality traits are highly stable in adulthood and largely impervious to the influence of life experience (McCrae & Costa, 2003). Together, these findings suggest that external influences have no real impact on the level of traits in the individual. If that is true, then cultural influences in childhood or in adult life should have no effect on trait levels.

That argument might suggest that there should be no relationship between features of culture and mean levels of traits. Angleitner and Ostendorf (2000) provided some provocative evidence in support of that position. They compared mean levels of NEO-PI-R scores from former East and West Germans. Despite decades of enforced communism in East Germany that included control of law, education, and mass communications, the only difference between the two samples was that West Germans were slightly higher in openness than East Germans.

How, then, can one explain the association of mean trait levels with Hofstede's culture dimensions? Aside from shared artifacts, there appear to be only two ways consistent with Five-Factor Theory: Selective migration and reverse causation.

The *selective migration* hypothesis suggests that individuals may move in or out of a social group to find a niche appropriate for their personality traits.[3] For example, in high power distance cultures, positions of leadership are available only to a few people; most people must be submissive. This situation would be more easily tolerated by introverts than extraverts, and the latter might choose to emigrate (a testable hypothesis). Over time and across cultures, power distance could become associated with low mean levels of extraversion.

The *reverse causation* hypothesis suggests that culture may be shaped by the aggregate personality traits of its members (Allik & McCrae, 2002) and that value systems and their associated
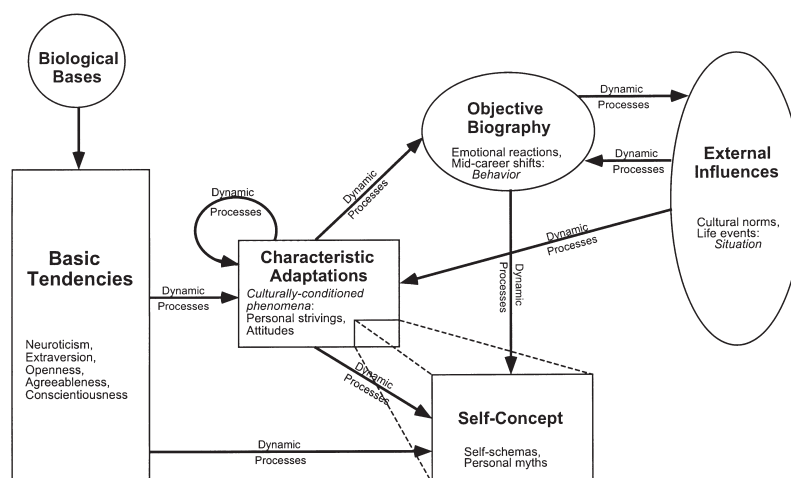
**Figure 1:  A Representation of the Personality System With Categories of Variables, Specific Examples, and Arrows Indicating Causal Pathways. Adapted From McCrae and Costa (1999).**

institutions can be seen as social adaptations to the psychological environment that a distribution of personality traits represents. It is plausible that traits might be among the causes of culture-level differences in Hofstede's dimensions, which deal with values, interpersonal relations, and the control of affect. Certainly, personality traits are relevant to these phenomena at the individual level (e.g., Sagiv & Roccas, 2000; Watson & Clark, 1992). This hypothesis justifies regressing culture dimensions on personality scores.

Table 3 suggests that higher neuroticism and lower agreeableness predict higher uncertainty avoidance. Consider a group of people who are temperamentally prone to these personality characteristics.[4] They will, in general, be tense and irritable, and interpersonal interactions will be difficult. Each new decision will be a potential source of distressing conflict. Such people may find that they can coexist only if they adopt a rigid set of rules and screen out new situations that would require new decisions—in other words, they would develop the values and institutions that typify high uncertainly avoidance countries. Hofstede (2001) hypothesized that Latin countries are high in power distance because they inherited the stress on laws that characterized the Roman Empire, but it is possible that Latin peoples have, since antiquity, been high

in neuroticism and low in agreeableness, and these collective traits themselves necessitated the Roman emphasis on law and order.

How might one interpret the strong association of extraversion with individualism (see Table 3)? It may seem strange that introverts would band together in tight groups, but it must be recalled that these are groups of familiar people—one's family or work group. Social interaction of some kind is essential for the survival of any group; collectivism facilitates social exchanges in groups of individuals—introverts—who are personally disinclined to make new social contacts. Conversely, individualism allows the freer social interactions that come naturally to groups of extraverts.

The associations of neuroticism and openness to experience with masculinity are not so easily explained. Men around the world consistently score lower than women on measures of neuroticism (Costa et al., 2001), so the positive association of culture-level neuroticism and Hofstede's masculinity appears to be a case of divergent results at different levels of analysis. It is not clear why either chronic negative affect (neuroticism) or an intrinsic interest in experience (openness) would lead men to adopt competitive and agentic work values.

McCrae (in press) offered a possible explanation for the association of power distance with introversion and conscientiousness. If a society consisted chiefly of people who were introverted and conscientious, there would be few natural leaders among them, so the few would easily rise to positions of authority and keep them, and the rest would accept their dominance. Because, in this scenario, most people are conscientious, they would dutifully obey the orders they received, and the system would be stable and productive. The evolution of such a system might begin at a small scale, in families or local communities, which might become a model for larger social organizations.

The reverse causation hypothesis implies that there are innate temperamental differences between ethnic populations that give rise to cultural differences. The idea of innate differences in psychological characteristics among groups is unpalatable to many social scientists, because it has historically been used as a basis for racism. It is, however, a legitimate scientific hypothesis, and an honest and responsible investigation of the idea can contribute to a better understanding of cultural differences. An ethical approach to this topic requires caution in making claims and a clear statement of alternative interpretations (see Hofstede's interpretation); an assessment of the magnitude of the group differences,

**TABLE 3**
**Stepwise Regression Results of Culture Scores Against the**
**Mean NEO-PI-R Factor Scores Across 33 Countries**

| Criterion | Predictors | Cumulative Adj. $R^2$ |
|---|---|---|
| Uncertainty avoidance | + Neuroticism | 0.31 |
|  | – Agreeableness | 0.45 |
| Power Distance | – Extraversion | 0.31 |
|  | + Conscientiousness | 0.43 |
| Individualism | + Extraversion | 0.39 |
| Masculinity | + Neuroticism | 0.30 |
|  | + Openness to experience | 0.37 |

which tend to be small in comparison to individual differences within culture; and a reminder that even in the individual case, behavior has many causes beyond personality traits, and that is likely to be even more true at the culture level (Allik & McCrae, 2002).

## FUTURE RESEARCH

In view of the potential artifacts associated with self-reports, it is clear that assessments of personality traits and their associations with features of culture need to supplement self-reports with alternative methods. Large-scale studies of peer-rated personality traits are in progress that can test the personality-and-culture associations discussed here. Some artifacts, however—such as culture-related acquiescent responding (Smith, in press)—may be shared by self-reports and peer ratings. For that reason, assessments by participant observers (e.g., Leininger, 2002) are particularly useful because they can use the insights of someone viewing the culture from another perspective, an observer who is unlikely to share the same response biases.

### The Causal Order

Assuming that the associations between dimensions of culture and mean personality traits are real and robust, research can turn to tests of the causal ordering. It would be possible to conduct

experimental studies of the effects of personality on organizational culture within small groups or organizations. If individuals high in neuroticism and low in agreeableness were assigned to work together on a project, would they develop rigid rules of interaction, approximating an uncertainty avoidance culture? Would a dormitory of introverts evolve a collectivistic structure in which loyalty to one's roommates combined with indifference to outsiders satisfied both their need for social exchange and their preference for privacy? It must be recalled, however, that societies exist at a higher level than organizations, and results of such studies might or might not generalize to nations.

It is less likely that short-term exposure to an organizational structure would affect traits, which are generally quite stable in adulthood (McCrae & Costa, 2003), but immersion in a real culture over a period of years, particularly in childhood, might. Acculturation studies can provide great insight here, because many immigrant groups tend to intermarry for several generations in their new home country, preserving their ethnic gene pool. If mean personality traits are solely a reflection of genetic variation, then life in a new country should have little impact on traits; if culture shapes traits and if most immigrants follow strategies of cultural integration or assimilation (Berry & Sam, 1997), then each successive generation should more closely resemble the profile of the host country. Hofstede's interpretation offers specific hypotheses: For example, immigrants to cultures high in power distance ought to become more conscientious and less open to experience relative to their counterparts at home.

### Culture-Level Correlates of Traits

The Five-Factor Model of personality and the IBM Study dimensions of culture represent the broadest summaries currently available of individual and cultural differences, and correlations between these two give a useful overview of how personality relates to culture. But using the new model of personality and culture advocated here (see also McCrae, 2000) and the evidence that culture-level traits can be legitimately operationalized as the mean of individual trait levels, personality can be related to almost any feature of culture. One could ask, for example, if patriarchal and matriarchal cultures have different personality profiles or if traits are associated with different styles of art or folklore.

More detailed analyses of personality and culture could also be made by examining the specific traits or facets that define each of the five factors. McCrae (2002) provided facet-level personality data for 36 cultures, and showed that, for example, power distance is chiefly related to the achievement striving and deliberation facets of conscientiousness (rather than the competence, order, dutifulness, and self-discipline facets). Because these analyses examine subtle distinctions with less-reliable short scales, the sample of cultures should be as large as possible. Cross-cultural psychologists who gather facet-level personality data in a variety of nations could contribute to this enterprise.

It has not yet been demonstrated that personality traits can be validly assessed in preliterate societies, but there is every reason to expect they could be. Anthropologists could administer the NEO-PI-R just as they once administered the Rorschach—and with a much stronger scientific foundation. Many cultures intensively studied by anthropologists have disappeared in their original form, but their members remain as recognizable ethnic groups. If Five-Factor Theory is correct that mean personality trait levels are determined by the gene pool, then personality assessments of contemporary groups could shed light on the personality of their ancestors. Personality measures collected in Guatemala today might provide insight into the psychological basis of the Classic Maya culture; assessment of modern Hawaiians and Fijians might help explain the Polynesian migration. Such assessments might be made on many or perhaps most of the cultures in the Human Relations Area Files, opening vast new possibilities for research on personality and culture.

**The Interaction of Traits with Culture**

Whatever their origins, individual differences in the traits of the Five-Factor Model have been found in every culture so far studied, and it seems likely that they are indeed human universals. It is therefore feasible to ask a set of questions about the joint influences of personality and culture on a host of outcomes.

Ethnographically, one can ask how traits are typically expressed in a given culture. For example, Benet-Martínez and John (2000) showed that Spanish trait names associated with openness to experience emphasize a Bohemian unconventionality that is a relatively minor aspect of American openness. In search of more

general principles, one could consider the expression of each factor in cultures defined by each pole of Hofstede's culture dimensions. For example, is extraversion seen chiefly as assertiveness in masculine cultures and as warmth in feminine cultures?

To the extent that aggregate personality traits are congruent with the value systems and customs of a culture, it is reasonable to ask how individuals who differ from the norm adapt. Ward and Chang (1997) addressed the issue of cultural fit and sojourner adjustment, and found that sojourners whose personality profiles resembled that of the host culture aggregate had lower levels of depression (although this effect was apparently not replicated in a second study; Ward, Leong, & Low, in press). Similar analyses might, of course, be done for native members of the culture. We know that extraverts are happier than introverts (Costa & McCrae, 1980) and that individualistic cultures have higher mean levels of happiness than collectivistic cultures (cf. Steel & Ones, 2002). But would introverted individuals be happier in collectivistic than in individualistic cultures?

Finally, personality may interact with the process of acculturation. Berry and Sam (1997) identified four strategies for psychological acculturation: integration, assimilation, separation, and marginalization. Characteristics of both individual immigrants and the host culture might affect the strategy chosen. Immigrants who are highly open to experience are likely to seek integration, because they can appreciate the values and perspectives of both the original and the acquired culture. But if the nation they find themselves in is high in uncertainty avoidance and deviations from the prescribed norm are perceived as threatening, then they may be forced to assimilate or face marginalization. In such ways are human lives shaped by the interaction of culture and personality.

## NOTES

1. Throughout this article, we use the term *culture* informally. Operationally, modern nations are used as the basic unit of analysis, although the data are not from representative samples. Future research on personality and culture would benefit from more careful characterizations of cultures and subcultures.

2. All translations were made by bilingual members of the culture, most of whom were psychologists. Independent back-translations were

reviewed by the original test authors, and the translations were revised until all items were judged satisfactory. In most cases, subsequent item analyses from pilot data lead to further refinements.

3. This hypothesis is more plausible in modern, Western societies in which the choice of where to live is determined more by individual preference than by social custom or economic necessity.

4. The arguments offered here reason from ideal cases in which the whole population can be characterized by a single trait level; in actuality, there is a distribution of trait levels in all societies.

## REFERENCES

Aberle, D. F., Cohen, A. K., Davis, A. K., Levy, M. J., Jr., & Sutton, F. X. (1950). The functional prerequisites of a society. *Ethics*, *60*, 100-111.

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York: Harper & Row.

Allik, J., & McCrae, R. R. (2002). A Five-Factor Theory perspective. In R. R. McCrae & J. Allik (Eds.), *The Five-Factor Model of personality across cultures* (pp. 303-322). New York: Kluwer Academic/Plenum Publishers.

Allik, J., & McCrae, R. R. (in press). Toward a geography of personality traits: Patterns of profiles across 36 cultures. *Journal of Cross-Cultural Psychology*.

Angleitner, A., & Ostendorf, F. (2000, July). *The FFM: A comparison of German-speaking countries (Austria, Former East and West Germany, and Switzerland)*. Paper presented at the 27th International Congress of Psychology, Stockholm, Sweden.

Arrindell, W. A., Steptoe, A., & Wardle, J. (2002). *Higher levels of state depression in masculine than in feminine nations*. Unpublished manuscript, Department of Clinical Psychology, University of Groningen, Country Heymans Institute.

Beck, A. T., & Beck, R. W. (1972). Screening depressed patients in family practice. *Postgraduate Medicine*, *52*, 81-85.

Benedict, R. (1959). *Patterns of culture*. Boston: Houghton Mifflin. (Original work published 1934)

Benet-Martínez, V., & John, O. P. (2000). Measuring *Los Cinco Grandes* in Spain with indigenous Castilian markers. *American Behavioral Scientist*, *44*, 141-157.

Berry, J. W., & Sam, D. (1997). Acculturation and adaptation. In J. W. Berry, M. H. Segall, & Ç. Kağitçibaşi (Eds.), *Handbook of cross-cultural psychology. Volume 3: Social and behavioral applications* (pp. 291-326). Boston: Allyn & Bacon.

Bohannan, P. (1971). *Social anthropology*. London: Holt, Rinehart & Winston. (Original work published 1963)

Boring, E. G. (1968). Wundt, Wilhelm. In D. L. Sills (Ed.), *International encyclopedia of the social sciences* (Vol. 16, pp. 581-86). New York: Macmillan and Free Press.

Bouchard, T. J., & Loehlin, J. C. (2001). Genes, evolution, and personality. *Behavior Genetics*, *31,* 243-273.

Braudel, F. (1958). *La longue dure. Annales: conomies, socits, civilisations*, 725-753.

Buss, D. M. (2001). Human nature and culture: An evolutionary psychological perspective. *Journal of Personality*, *69*, 955-978.

Cattell, R. B., Graham, R.K., & Woliver, R. E. (1979). A reassessment of the factorial culture dimensions of modern nations. *Journal of Social Psychology*, *108*, 241-258.

Costa, P. T., Jr., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, *38*, 668-678.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology*, *81*, 322-331.

D'Andrade, R. (2000). The sad story of anthropology 1950-1999. *Cross-Cultural Research*, *34*, 219-232.

De Mooij, M. (2004). *Consumer behavior and culture: Consequences for global marketing and advertising*. Thousand Oaks, CA: Sage Publications.

Digman, J. M. (1990). Personality structure: Emergence of the Five-Factor Model. *Annual Review of Psychology*, *41*, 417-40.

Douglas, M. (1973). *Natural symbols: Explorations in cosmology*. Harmondsworth, Middlesex, UK: Penguin.

Duijker, H. C. J., & Frijda, N. H. (1960). *National character and national stereotypes*. Amsterdam: North-Holland Publishing Company.

Erikson, E. H. (1950). *Childhood and society*. New York: Norton.

Eysenck, H. J. (1952). The effects of psychotherapy: An evaluation. *Journal of Consulting Psychology*, *16*, 319-24.

Eysenck, H. J. (1978). Superfactors P, E, and N in a comprehensive factor space. *Multivariate Behavioral Research*, *13*, 475-481.

Georgas, J., & Berry, J. W. (1995). An ecocultural taxonomy for cross-cultural psychology. *Cross-Cultural Research*, *29*, 121-157.

Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 2, pp. 141-165). Beverly Hills, CA: Sage.

Goody, J. (1977). *The domestication of the savage mind*. Cambridge: Cambridge University Press.

Gudykunst, W. B., Yang, S. M., & Nishida, T. (1987). Cultural differences in self-consciousness and self-monitoring. *Communication Research*, *14*, 7-36.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.

Hofstede, G. (1995). Multilevel research of human systems: Flowers, bouquets and gardens. *Human Systems Management*, *14*, 207-217.

Hofstede, G. (2001). *Cultures consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.

Hofstede, G., & Bond, M. H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics*, *16*(4), 4-21.

Hofstede, G., Bond, M. H., & Luk, C. L. (1993). Individual perceptions of organizational cultures: A methodological treatise on levels of analysis. *Organization Studies*, *14*, 483-503.

House, R. J., Javidan, M., Hanges, P., & Dorfman, P. (2002). Understanding cultures and implicit leadership theories across the globe: An introduction to project GLOBE. *Journal of World Business*, *37*, 3-10.

Ibn Khaldûn. (1968). *Al-Muqaddima (Discours sur l'histoire universelle), Tome 1*. Paris: Sindbad. (Original work published 1377)

Inglehart, R. (1997). *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*. Princeton, NJ: Princeton University Press.

Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review*, *65*, 19-51.

Inglehart, R., Basañez, M., & Moreno, A. (1998). Human values and beliefs: A cross-cultural sourcebook: Political, religious, sexual, and economic norms in 43 societies. In *Findings from the 1990-1993 World Values Survey*. Ann Arbor: University of Michigan Press.

Inkeles, A. (1997). *National character: A psycho-social perspective*. New Brunswick: Transaction.

Inkeles, A., & Levinson, D. J. (1969). National character: The study of modal personality and sociocultural systems. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology IV* (pp. 418-506). New York: McGraw-Hill. (Original work published 1954)

Javidan, M., & House, R. J. (2001). Cultural acumen for the global manager: Lessons from project GLOBE. *Organizational Dynamics*, *29*, 289-305.

Kardiner, A., Linton, R., Du Bois, C., & West, J. (1945). *The psychological foundations of society*. New York: Columbia University Press.

Kluckhohn, F. R., & Strodtbeck, F. L. (1961). *Variations in value orientations*. Westport, CT: Greenwood Press.

Lee, Y.-T., McCauley, C. R., & Draguns, J. G. (Eds.). (1999). *Personality and person perception across cultures*. Mahwah, NJ: Erlbaum.

Leininger, A. (2002). Vietnamese-American personality and acculturation: An exploration of relationships between personality traits and cultural goals. In R. R. McCrae & J. Allik (Eds.), *The Five-Factor Model of personality across cultures* (pp. 189-218). New York: Kluwer Academic/ Plenum Publishers.

LeVine, R. A. (2001). Culture and personality studies, 1918-1960: Myth and history. *Journal of Personality*, *69*, 803-818.

Lilienfeld, S. O., Wood, J. M., & Garb, H. N. (2000). The scientific status of projective techniques. *Psychological Science in the Public Interest*, *1*, 27-66.

Lynn, R. (1971). *Personality and national character*. Oxford: Pergamon Press.

Lynn, R. (1981). Cross-cultural differences in neuroticism, extraversion and psychoticism. In R. Lynn (Ed.), *Dimensions of personality: Papers in honour of H. J. Eysenck* (pp. 263-286). Oxford: Pergamon Press.

Lynn, R. (1991). *The secret of the miracle economy: Different national attitudes to competitiveness and money*. London: The Social Affairs Unit.

Lynn, R., & Hampson, S. L. (1975). National differences in extraversion and neuroticism. *British Journal of Social and Clinical Psychology*, *14*, 223-240.

Lynn, R., & Martin, T. (1995). National differences for 37 nations in extraversion, neuroticism, psychoticism and economic, demographic and other correlates. *Personality and Individual Differences*, *19*, 403-06.

Magat, I. N. (1999). Israeli and Japanese immigrants to Canada: Home, belonging, and the territorialization of identity. *Ethos*, *27*, 119-144.

Mayr, E. (1982). *The growth of biological thought: Diversity, evolution, and inheritance*. Cambridge, MA: Belknap Press of Harvard University Press.

McClelland, D. C. (1961). *The achieving society*. Princeton, NJ: Van Nostrand Reinhold.

McCrae, R. R. (2000). Trait psychology and the revival of personality and culture studies. *American Behavioral Scientist*, *44*, 10-31.

McCrae, R. R. (2001). Trait psychology and culture: Exploring intercultural comparisons. *Journal of Personality*, *69*, 819-846.

McCrae, R. R. (2002). NEO-PI-R data from 36 cultures: Further intercultural comparisons. In R. R. McCrae & J. Allik (Eds.), *The Five-Factor Model of personality across cultures* (pp. 105-125). New York: Kluwer Academic/Plenum Publishers.

McCrae, R. R. (in press). Human nature and culture: A trait perspective. *Journal of Research in Personality*.

McCrae, R. R., & Costa, P. T., Jr. (1985). Updating Norman's adequate taxonomy: Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology*, *49*, 710-721.

McCrae, R. R., & Costa, P. T., Jr. (1996). Toward a new generation of personality theories: Theoretical contexts for the Five-Factor Model. In J. S. Wiggins (Ed.), *The Five-Factor Model of personality: Theoretical perspectives* (pp. 51-87). New York: Guilford.

McCrae, R. R., & Costa, P. T., Jr. (1997). Personality trait structure as a human universal. *American Psychologist*, *52*, 509-516.

McCrae, R. R., & Costa, P. T., Jr. (1999). A Five-Factor Theory of personality. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research*. (2nd ed., pp. 139-153). New York: Guilford.

McCrae, R. R., & Costa, P. T., Jr. (2003). *Personality in adulthood: A Five-Factor Theory perspective* (2nd. ed.). New York: Guilford.

McCrae, R. R., Costa, P. T., Jr., Lima, M. P., Simões, A., Ostendorf, F., Angleitner, A., et al. (1999). Age differences in personality across the adult life span: Parallels in five cultures. *Developmental Psychology*, *35*, 466-477.

McCrae, R. R., Yik, M. S. M., Trapnell, P. D., Bond, M. H., & Paulhus, D. L. (1998). Interpreting personality profiles across cultures: Bilingual,

acculturation, and peer rating studies of Chinese undergraduates. *Journal of Personality and Social Psychology*, *74*, 1041-1055.

McDonald, K. (1998). Evolution, culture, and the Five-Factor Model. *Journal of Cross-Cultural Psychology*, *29*, 119-149.

Miller, J. G. (1999). Cultural psychology: Implications for basic psychological theory. *Psychological Science*, *10*, 85-91.

Mouritzen, P. E., & Svara, J. H. (2002). *Leadership at the apex: Politicians and administrators in Western local governments*. Pittsburgh, PA: University of Pittsburgh Press.

Murdock, G. P. (1957). World ethnographic sample. *American Anthropologist*, *59*, 664-687.

Oettingen, G., & Maier, H. (1999). Where political system meets culture: Effects on efficacy appraisal. In Y.-T. Lee, C. R. McCauley, & J. G. Draguns (Eds.), *Personality and person perception across cultures* (pp. 163-190). Mahwah, NJ: Erlbaum.

Organization for Economic Cooperation and Development (OECD). (1995). *Literacy, economy and society: Results of the First International Adult Literacy Survey*. Paris: Author.

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking Individualism and Collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, *128*, 3-72.

Parsons, T., and Shils, E. A. (1951). *Toward a general theory of action*. Cambridge, MA: Harvard University Press.

Peabody, D. (1985). *National characteristics*. New York: Cambridge University Press.

Pettigrew, T. F. (1997). Personality and social structure: Social psychological contributions. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 417-38). San Diego, CA: Academic Press.

Poortinga, Y. H., van de Vijver, F., & van Hemert, D. A. (2002). Cross-cultural equivalence of the Big Five: A tentative interpretation of the evidence. In R. R. McCrae & J. Allik (Eds.), *The Five-Factor Model of personality across cultures* (pp. 273-294). New York: Kluwer Academic/ Plenum Publishers.

Robinson, W. S. (1950). Ecological correlations and the behavior of individuals. *American Sociological Review*, *15*, 351-357.

Sagiv, L., & Roccas, S. (2000, July). *Traits and values: The Five-Factor Model and the Schwartz Value Theory*. Paper presented at the 27th International Congress of Psychology, Stockholm, Sweden.

Scherer, K. R., & Wallbott, H. G. (1994). Evidence for universality and cultural variation of differential emotion response patterning. *Journal of Personality and Social Psychology*, *66*, 310-328.

Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim, H. C. Triandis, Ç. Kağitçibaşi, S. C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 85-119). Thousand Oaks, CA: Sage.

Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology: An International Review*, *48*, 23-47.

Smith, P. B. (in press). Acquiescent response bias as an aspect of cross-cultural communication style. *Journal of Cross-Cultural Psychology*.

Smith, P. B., & Bond, M. H. (1993). *Social psychology across cultures: Analysis and perspectives*. New York: Harvester Wheatsheaf.

Smith, P. B., Dugan, S., & Trompenaars, F. (1996). National culture and the values of organizational employees: A dimensional analysis across 43 nations. *Journal of Cross-Cultural Psychology*, *27*, 231-264.

Smith, P. B., & Schwartz, S. H. (1997). Values. In J. W. Berry, M. H. Segall, & Ç. Kağitçibaşi (Eds.), *Handbook of cross-cultural psychology* (2nd ed., pp. 77-118). Boston: Allyn & Bacon.

Smith, P. B., Trompenaars, F., & Dugan, S. (1995). The Rotter Locus of Control Scale in 43 countries: A test of cultural relativity. *International Journal of Psychology*, *30*, 377-400.

Steel, P., & Ones, D. S. (2002). Personality and happiness: A national-level analysis. *Journal of Personality and Social Psychology*, *83*, 767-781.

Theophrastus. (2003). *The characters*. Boston: Harvard University Press. (Original work in Greek, 300 B.C.)

Thorndike, E. L. (1939). On the fallacy of imputing the correlations found for groups to the individuals or smaller groups composing them. *American Journal of Psychology*, *3*, 122-124.

Trompenaars, F. (1993). *Riding the waves of culture: Understanding cultural diversity in business*. London: The Economist Books.

Tupes, E. C., & Christal, R. E. (1992). Recurrent personality factors based on trait ratings. *Journal of Personality*, *60*, 225-251. (Original work published 1961)

Van de Vijver, F. J. R., & Leung, K. (1997). Methods and data analysis of comparative research. In J. W. Berry, Y. H. Poortinga, & J. Pandey (Eds.), *Handbook of cross-cultural psychology. Vol. 1: Theory and method* (pp. 257-300). Boston: Allyn & Bacon.

Van Nimwegen, T. (2002). *Global banking, global values: The in-house reception of the corporate values of ABN Amro*. Delft, the Netherlands: Eburon.

Ward, C., & Chang, W. C. (1997). Cultural fit: A new perspective on personality and sojourner adjustment. *International Journal of Intercultural Relations*, *21*, 525-533.

Ward, C., Leong, C.-H., & Low, M. (in press). Personality and sojourner adjustment: An exploration of the Big Five and the cultural fit proposition. *Journal of Cross-Cultural Psychology*.

Watson, D., & Clark, L. A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the Five-Factor Model. *Journal of Personality*, *60*, 441-476.

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