PART ONE

FOUNDATIONS OF ORGANIZATIONAL CONSULTING PSYCHOLOGY

CHAPTER ONE

Individual-Level Variables in Organizational Consultation

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Organizational consulting psychologists work at multiple levels: directly with individuals, as with executive coaching, with dysfunctional or functional groups, or with the organizational system as a whole. Fundamentally, however, organizations are composed of individuals. Consulting psychologists—whatever their level of expertise at the group and organizational levels—are wise to understand people at the individual level if they wish to be effective in their various roles.

THE CONCEPT OF INDIVIDUAL-LEVEL VARIABLES

This chapter therefore identifies individual-level variables that we feel organizational consulting psychologists should understand. These dimensions are relevant, for example, in conducting assessments or individual coaching. For example, individuals tend to congregate and interact in their work lives with other people who in important psychological respects are similar to themselves (see Holland, 1997; Lowman, 1991, 1993a, 1993b). To some extent, the nature of an organization or occupation is determined by the predominant types of individuals within it, because the types of people (for example, whether intellectual or mechanical, or exuberant and open versus rigid and conservative) will help create the tone and values of the organization. Perhaps of single

greatest importance are the individual characteristics of those in leadership roles in the organization (Boudreau, Boswell, & Judge, 2001; Roberts & Hogan, 2001). In addition, individual-level variables retain importance as background or contextual information when working at the group or organizational level, as different change approaches will work either better or worse with different types of individuals or groups of individuals.

Specific aspects of consulting that focus primarily at the individual level, and for which an understanding of individual-level variables are particularly important, include:

- Individual assessment for purposes of selection
- Individual evaluation of fitness for duty
- Interventions to change problematic individual behavior
- Interventions designed to improve or optimize individual-level functioning
- Assessment for purposes of career assessment and counseling

Other chapters in this book (for example, Kilburg, 2002) address specific aspects of the applications of consulting psychology at the individual level. In this introductory chapter, we map the basic variables, or ingredients, demonstrated to have work and organizational relevance in the practice of consulting psychology. Not every individual-level variable will be equally important in each application, but a broad understanding of individual differences—how individuals differ on individual-level variables—will generally make for more effective applications.

This chapter therefore serves as a general introduction on the stable characteristics of people that affect both work adjustment and how individuals seek to fit into groups and organizations. We will discuss these variables in two sets: traits rooted in the structure of personality, and presumably with a relatively larger influence from biological or even genetic factors, and those that appear to have a relatively larger cultural component and are aspects of character. In practice, it is difficult to draw a firm dividing line between these sets of variables. Even so, it is useful for the consulting psychologist to conceptualize a distinction between these two groups of variables, because traits are more difficult to modify, while character may—with effective interventions or policies—change or be changed, at least in its behavioral expressions.

INDIVIDUAL TRAITS

Over a century of research on differential psychology (see Hough, 2001; Lowman, 1991) has focused on four domains of traits that are relevant for vocational and organizational selection: interests, abilities, personality, and features of

psychopathology not already part of these domains. Ability traits have been shown to determine whether one *can* do something (see Carroll, 1993), personality traits the manner of *how* one does something, and interest traits the degree to which one is drawn or naturally motivated to do something. Abilities refer to performance, dimensions of personality to style, and interests to motivation. We shall address the first three areas; those interested in the nature of psychopathology and how it affects work adjustment can refer to Lowman (1989, 1993a).

Much of what we know about the dimensions of individual difference traits derives from factor analytic methods. Our reliance on factor analysis and related methods to identify traits is to some degree ironic and has some limitations. The irony is that the methods to identify psychological variables presumed to be important for specific individuals depend on identifying what is in common *across* individuals. This is not paradoxical, however, since individual uniqueness derives from the idiosyncratic combinations of sets of variables at the individual level that collectively define who a person is. Such variables may also be relevant to organizational behavior and vocational adjustment, but it is difficult for an organizational consulting psychologist to identify them except through careful assessment or finely tuned clinical sensitivities. Other limitations of the methods arise from their inability to identify their relations to, say, biological or social causes. The methods are correlational and simply identify variables that hang together. Also, overly zealous advocates of the methods assume that broad factors identified through the methods are necessarily the most important and represent all the important variables in a domain. Neither is necessarily the case. It may be that particular facets of a broad factor are, in some applied contexts, more important to know and work with than the broad factor itself. Additionally, some important variables may be relatively rare but still important, and factor analytic methods will generally miss these.

Character and Memes

Characteristics of individuals also exist that are more likely to mature given particular cross-domain or iterative combinations of primary characteristics. Such characteristics also develop only through interaction with, and through acquiring ideas provided by, the groups, organizations, and the wider culture in which the individual matures. Examples include identity, leadership, creativity, entrepreneurial character, and values (and particularly complex combinations of values, such as religious or philosophical beliefs).

Many of these variables may function as memes (see Blackmore, 1999; Brodie, 1996), that is, as "elements of a culture that may be considered to be passed on by non-genetic means, especially imitation" (*Oxford English Dictionary,* cited in Blackmore, p. viii). A term originally coined by Dawkins (1976),

memes serve, within individuals, as the means of storage, replication, and transfer of complexes of ideas active at the cultural level. They act as a bridge between the individual, group, and organization. Of course, one might argue that memes constitute an interaction of two ability factors—crystallized intelligence and memory—but advocates of meme theory might argue that memes merely exploit such ability and other resources as a means of replicating themselves across individuals. For example, memes that direct individuals to act in creative ways might be more likely to copy into individuals with particular personality traits (high on openness, and high on the facets of aesthetics, ideas, and fantasy) and interests (artistic). Once incorporated by the individual, a creativity-related meme might serve to maximize behaviors that make use of particular abilities (for example, cultural literacy, ideational fluency, associational fluency, expressional fluency, originality/creativity), which would in turn increase the likelihood of the meme's transmission to others.

With those cautions in mind, we will briefly outline the characteristics of traits identified through research. Readers interested in a systematic treatment beyond this discussion can consult Lowman (1991).

INTERESTS

Interests refer to individual differences that govern the degree to which one feels that one must do something. Interests therefore relate to the element of motivation (or perhaps compulsion) regarding approach-avoidance behavior. Strong (1955), one of the pioneers of the measurement of interests, stated that they direct us toward "activities for which we have liking or disliking and which we go toward or away from, or concerning which we at least continue or discontinue the status quo; furthermore, they may or may not be preferred to other interests and they may continue varying over time. Or an interest may be defined as a liking/disliking state of mind accompanying the doing of an activity, or the thought of performing the activity" (pp. 138). Interests do not require conscious thought; Strong (1943) said, "they remind me of tropisms. We go toward liked activities, go away from disliked activities" (p. 7).

Types of Interest Patterns

Holland (1997) extended earlier findings of basic factors of interests into a very popular theory of six main personal orientations, or interest structures. Some authors have challenged the criticality of the six factors, and suggest instead that the number of factors is essentially arbitrary, or that there might exist more important underlying, second-order, or meta-factors (see Lowman & Carson, in press). However, the six factors persist both in the research literature and in most popular treatments. Our present concern is therefore with the six

personal orientations (Holland, 1959) that focus on interests, and not with his subsequently proposed vocational personality types (Holland, 1997), which are superordinate constructs that subsume interests as well as abilities, temperaments, values, and other variables. However, we shall refer to the six orientations by the same terms used for vocational personality types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. A brief discussion of these variables follows.

Realistic interests lead people to engage in mechanical activities, which extend to technical, hands-on, and outdoor activities that somehow involve mechanical operations, broadly considered. The essential question driving this interest pattern is: how can one manipulate the physical world to make things happen? Realistic interests are satisfied through opportunities to build, to manipulate objects, and to improve or work within the physical world.

Investigative interests lead people to be motivated by and to engage in scientific activities, which include research, mathematics, and related development of novel products. The essential question driving Investigative interests is: why are things (or people) the way they are and how does one know that the answer is correct? Investigative interests are satisfied by opportunities to understand and call for analytical abilities.

Artistic interests lead people to engage in creative activities across a wide range of specific content areas. They include the creation of works of art (visual, musical, literary, or dramatic) and related applications. The essential question driving Artistic interests is: how can one create something beautiful that has never before existed and bring it to the attention of others? Artistic interests are satisfied by opportunities to create.

Social interests motivate people to be involved in people-oriented activities, such as those that may involve teaching, ministering, and especially helping others who are in difficulty. Essentially, Social interests promote behavior that holds the promise of providing the satisfaction that comes with assisting others. The essential question driving Social interests is: how can one help reduce human suffering, regardless of its cause? Social interests are satisfied by opportunities to help, to be involved with people, and to engage others constructively.

Enterprising interests influence people to enjoy and seek out leadership or persuasive roles, and to engage in activities that involve taking charge of groups, setting ambitious goals and persuading others to achieve them. Activities that involve adventure, striving, and clear and measurable outcomes are particularly interesting. The essential question driving Enterprising interests is: how can one realize important ambitions through bringing into alignment the energies of others? Enterprising interests are satisfied by opportunities to influence, persuade, and manage.

Conventional interests, the final of the six patterns, direct people toward activities that involve precise, meticulous, and methodical activities. Such work

often involves mathematical or computational tasks, the goal being to create a program or system that, used many times, promotes productive efficiency. The essential question driving Conventional interests is: what are the abstracted requirements of a situation that, properly understood and acted upon, most efficiently reach goals? Conventional interests are satisfied by opportunities to save (as in resources, money, or time).

Holland's interest model is far more sophisticated than the identification of six factors of interests. His carefully researched model looks at a variety of constructs such as interest factor groupings, employment census, and techniques for judging the degree of fit between a person's interest patterns and the work or avocational environment. See Holland (1997) for his complete statement of the theory. Interests have demonstrated marked permanence across a person's life and marked constancy across a variety of cultures. This is probably an artifact of the fact that they have a sizable genetic component (see Gottfredson, 1999; Moloney, Bouchard, & Segal, 1991).

ABILITIES

Abilities are individual difference characteristics that affect how well one can do something; they predict quality and level of maximal performance (see, for example, Dennis & Tapsfield, 1996). More specifically, abilities sequence and organize thoughts and other abilities to produce behaviors that lead to the effective completion of desired tasks.

Because abilities may speak to what is possible and what potentially obstructs progress toward goal achievement, individuals who wish to believe that only personal will and motivation (or perhaps the quality of educational opportunities) restrain advancement understandably can find the concept of abilities limiting. Out of this concern, among other sources, has emerged a promising literature on skill acquisition that seeks to deconstruct complex achievements into a series of more delimited competencies that can be analyzed and presumably taught. Ericsson (1996), among others (for example, Howe, 1999), has demonstrated this approach to be an alternative at least to the notion of abilities as fixed and delimiting.

Nonetheless, the field of psychology is not yet ready to abandon the construct of abilities. Indeed, psychologists for many decades have sought to discover a reasonably small number of core abilities that appear to support learning and performance across a wide variety of activities. This has led to a debate as to whether abilities arise due to either underlying aptitudes or achievements (with achievements driven by practice, and practice in turn driven largely by interests; Snow, 1998). If abilities arise from aptitudes, then there exists a set of underlying (and presumably cognitive) abilities that affect

the ease and rate of learning new material, and perhaps set caps on total learning ability. If abilities arise from achievements, then they are limited directly by practice, and ultimately by interests (motivation). Regardless of their ultimate origin, research has identified several basic abilities that are of interest to the consulting psychologist. Carroll (1993) reviewed the literature on cognitive or intellectual abilities, and, following a reanalysis of a large number of datasets, proposed a structure of such abilities that has proven broadly influential, particularly among those responsible for developing intelligence and ability tests. Although this model largely derived from academic research and has yet to be applied widely to industrial or consulting applications, the model is useful and suggestive. Carroll proposed a three-stratum, hierarchical model of the structure of abilities, with narrow abilities, that is, those that affect a small number of real-life performances at stratum I, broader abilities at stratum II, and general cognitive ability, or *g*, perhaps the most influential of all abilities, at stratum III. The following discussion draws heavily from an adaptation of Carroll's theory by McGrew and Flanagan (1998), who sought to integrate Carroll's theory with those of Cattell (1941, 1957) and Horn (1994). In addition to the broad ability factors discussed here, Table 1.1 lists many of the facets of these abilities as proposed by Carroll, and McGrew and Flanagan, along with related social abilities for which there exists empirical support (social reasoning, business knowledge, psychological knowledge, autobiographical knowledge, biographical knowledge, name-face matching, interpersonal process recall, and reading affect in voice, body language, and facial expressions). These social abilities may be of particular importance in organizational consulting. Rather than create a separate category such as emotional intelligence for such variables, we integrate them directly into the model derived from Carroll's work.

Intelligence and *g*

General intelligence (popularly called IQ) remains one of, if not the, most important individual difference variables in psychology. It is "a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience" (Gottfredson, 1994/1997). More than any other single measurable human trait, it predicts important outcomes in the areas of education, work, and general life experience. Intelligence is so important because of the critical importance to a variety of occupational performances of reasoning and decision-making. It becomes even more critical as the settings in which work behavior occurs become more complex, as they are in almost every area of modern life. However, intelligence is not a guarantee of success on the stage of life, and other personal characteristics—such as nonability factors discussed in this chapter—can affect success.

Table 1.1 Individual-Level Ability Traits Important in Consulting.

Factor	Facet[a]	Facet definition
g (general cognitive ability)		
Fluid (reasoning)	Induction	Discover underlying rule across instances
	Deduction	Given rules and logical steps, solve problem
	Quantitative	Use mathematical concepts to reason inductively and deductively
Crystallized intelligence	Language development	General development of native language
	Foreign language proficiency	General development of foreign language
	Foreign language aptitude	Ease of learning foreign language
	Lexical knowledge	Vocabulary knowledge via word meanings
	Listening	Listen to and understand speech
	Communication (real-life)	Speak in real-life situations
	Grammatical sensitivity	Understand grammar of native language
	General (verbal) information	Range of general knowledge
	Cultural literacy	For example, art, music, literature, history
	General (science) information	For example, geology, physics, biology, electronics
	Business knowledge[b]	For example, marketing, finance, personnel
	Psychological knowledge[b]	For example, personality, social, cognitive
	Autobiographical knowledge[b]	Of one's own life history
	Biographical knowledge[b]	Of eminent individuals, including quotations
Memory, short- and long-term	Memory span (short-term)	Immediate recall after a single presentation
	Meaningful memory	Ability to remember paired items through meaningful relations
	Free-recall memory	Recall unrelated items when presented in long list
	Ideational fluency	Produce lots of ideas related to condition or object
	Associational fluency	Produce many words or phrases meaningfully related to given concept
	Expressional fluency	Rapidly generate and organize words meaningfully into complex ideas

	Naming fluency	Rapidly produce names for concepts
	Sensitivity to problems	Rapidly generate solutions to practical problems
	Originality/creativity	Rapidly produce clever or original responses to tasks
	Name-face matching[b]	Recall names associated with faces, and vice versa
	Interpersonal process recall[b]	Recall flow of interchanges with others, including one's thoughts and affective states
Quantitative knowledge	Mathematical knowledge	General knowledge about mathematics
	Mathematical achievement	Measured math achievement
Visual	Visualization	Mentally manipulate objects to see how they would appear under other conditions
	Spatial relations (nonsocial)	Maintain orientation with respect to objects in space or manipulate visual patterns
	Reading facial affect[b]	Perceive affect in facial expressions
	Reading body language[b]	Perceive affect or meaning in body poses and movement
Auditory	Reading voice affect[b]	Perceive affect in voices
Reading/writing	Print comprehension	General literacy, measured by reading vocabulary and reading comprehension tests
	Writing ability	Write clearly, with good organization
	English usage knowledge	For example, punctuation, spelling, usage
Processing speed	Perceptual speed	Rapidly search and compare visual symbols presented contiguously
Reaction time	Semantic processing speed	Reaction time for decisions requiring encoding and thinking about information

[a]Does not include all facets of factors identified through research (see McGrew and Flanagan, 1998); only those especially relevant to organizational consulting are listed.

[b]Facets related to social abilities were not part of Carroll's theory (1993); their inclusion here is therefore provisional.

Intelligence is important but is not the only ability that matters in organizational consulting contexts. One problem is how to distinguish intelligence from other abilities, and whether such other abilities in some sense also constitute intelligences. Researchers usually operationalize intelligence as consisting of psychometric *g* (also called general cognitive ability; see Spearman & Jones, 1950), following Spearman's distinction between *g* and specific abilities. Some researchers then define non-*g*, specific abilities, as the variance associated with ability tests once the *g* variance has been removed (Carson, 1998). Other researchers, such as Carroll (1993), Cattell (1957; see McGrew & Flanagan, 1998), and Horn (1994), instead consider specific abilities as facets that are admixtures of *g* and non-*g* specific abilities. Our present discussion follows the latter approach.

Fluid Intelligence (Reasoning)

This ability helps people reason through problems requiring concentrated attention and careful reasoning of a logical nature. The ability benefits individuals performing novel tasks that cannot be performed automatically; essentially, the individual must create a mental representation of the set of variables or concepts important for completion of the task, and then initiate a set of steps required to successfully perform the task, presumably relying on this mental model in doing so. This ability includes both major approaches to reasoning (inductive and deductive), drawing inferences and considering implications (and making extrapolations), thinking about concepts, and recognizing relationships between elements of problems (and then solving the problems). This ability is broadly important in many work settings, particularly when the worker cannot rely on tried-and-true routines and established skills to get the job done. Organizational consulting psychologists must be high in this ability to succeed, because they constantly confront novel problems that often depend on understanding the relations of many factors for their solution.

Crystallized Intelligence (Knowledge)

This ability refers to an individual's deep, broad knowledge of a culture and its effective application. In addition to helping people win on televised trivia game shows, this ability provides the raw information materials that support the successful application of more complex behaviors. For example, knowledge enhances leadership and creativity, as discussed later in this chapter.

We suggest that four facets of crystallized intelligence might be especially important in helping individuals contribute and adjust to organizations: business knowledge, psychological knowledge, autobiographical knowledge, and biographical knowledge. That business knowledge is important in business success almost goes without saying. Psychological knowledge, too, aids individuals in both collaborating and competing to attain goals. Autobiographical

knowledge helps individuals recall both past actions that worked and those that did not. Finally, biographical knowledge helps individuals do the same through the study of others' lives; one sees this form of knowledge even in the memorization of famous quotations by famous innovators and leaders, a penchant of many business executives. Biographical knowledge is especially important in the creation of paragons, in which one closely studies the biographies of individuals whose characteristics one seeks to emulate through one's own vocational behavior. The consultant may be wise to gain an understanding of the set of paragons that individuals have created, for they serve as important resources guiding individual behavior.

Memory, Short- and Long-Term

Although Carroll (1993) separates memory processes into short- and long-term broad factors, we combine them for the present discussion, because his short-term factor includes only two facets, memory span and learning abilities, of which only the first is well understood, with the second facet also being associated with the long-term memory factor. Short-term memory is a limited-capacity system; individuals can hold only about seven (plus or minus two) units of information at a time. The ability involves retaining information in immediate awareness for use within a few seconds; an example of its use is remembering phone numbers. People use this ability hundreds of times a day without (generally) realizing it, and any relative deficits can prove irksome, and may require close attention to information and the development of compensatory strategies, such as immediately writing new information down.

Long-term memory, also called long-term storage and retrieval, represents a set of abilities that collectively are like having a good librarian in your mind; the librarian effectively indexes (encodes) information when initially received, stores it in the proper place (long-term memory), and then can help you easily find it when needed (retrieval). Extending the metaphor, the ability does not depend on the size of the library (crystallized or quantitative intelligence), but rather the quality of the librarian. Closely related to this ability might be ideational or associational fluency, likely to be important to creativity.

In addition to the facets of memory discussed by Carroll (1993) and McGrew and Flanagan (1998; see Table 1.1), we suggest two facets of memory that might be important for individuals in organizations but which are not yet well studied in that context: name-face matching, and interpersonal process recall. Some individuals are relatively better at learning associations between names and faces, which provides an advantage in many types of tasks and settings. Interpersonal process recall refers to the ability to encode and recall the process of interactions between individuals, including one's own thoughts and affective states. This is an ability that many counselors and psychologists excel at, but that will also aid managers working through others.

Quantitative Knowledge

This ability helps one solve math problems correctly. It involves the individual's store of acquired quantitative declarative knowledge (the rules) and procedural knowledge (how to apply the rules in practice). Many jobs require substantial quantitative knowledge.

Visual (Spatial) Processing

This ability subsumes the variety of narrow abilities that relate to thinking about visual images, including the facets of the generation, storage, retrieval, and transformation of images. Individuals high in this ability might be more likely to think in terms of images rather than, say, words, and can manipulate shapes visually as might be needed by architects, engineers, and electricians. Such individuals might be more likely to draw pictures (or doodle) to represent their thoughts than to put them into words, serving also as an aid to spur further visual thinking. Without some visual imagery to focus and hold their thoughts, individuals high in this ability may be prone to losing their attentional focus.

We suggest two facets of this ability that relate to social skills: reading facial affect and reading body language (see also Robins, 2002). Both can facilitate responsiveness in social interaction and the reception of emotional cues beyond those conveyed by communication through speech.

Auditory Processing

This ability depends on sound and our sense of hearing. Its exercise involves the production, storage, retrieval, and transformation of sounds. Individuals high in this ability will generally find it easy to acquire and remember information obtained through hearing. We suggest one additional facet of this ability, perceive affect in voices, that enhances the quality of communication through speech.

Reading/Writing

This ability is not well-defined or researched in the context of broad arrays of abilities, but appears to subsume a number of very narrow component abilities (for example, reading, decoding, and spelling) that, at more complex levels, support such activities as comprehending written passages and writing stories. As with quantitative knowledge, this ability includes both declarative and procedural aspects. Lack of ability in this area can impose steep limitations on advancement through many careers, and some research suggests that an alarmingly high proportion of the American public possesses levels of literacy that are marginal.

Processing Speed

This is the first of two broad speed abilities, and refers to mental quickness and performing cognitive tasks automatically and efficiently in ways that make

minimal demands on mental capacity, especially important when an individual must focus attention and concentration. Processing speed does not refer to simple reactions, but rather to sustaining an efficient and rapid mental process over some duration.

Decision/Reaction Time or Speed

This second broad speed ability relates to an individual's quickness in making decisions or reacting quickly. It facilitates the speediness of immediate reactions.

Clearly, it will rarely be possible or even desirable to measure all abilities in a particular organizational consulting application. Still, this review of job-relevant abilities implies that it would be very naïve to assume that a single ability trait, even one as broad as intelligence, would be universally applicable. As importantly, occupations, and therefore organizations, are not created tabula rasa. When theories are proposed of such sweeping concepts as organizational learning, it should not be forgotten that organizations, among other things, are the sum (or is it multiplier?) of their individual ability patterns. Some organizations select for and retain only the highest end of the ability spectrum; for others, abilities are less important and the array of talent is more limiting. Such individual difference variables are rarely considered when measuring organizational-level variables that might de facto be influenced by the ability constellation of employees.

PERSONALITY TRAITS

Personality traits refer to the way people view the world and the manner and style in which they do things, and therefore predict the style as well as the content of behavior. Although some early theorists and researchers (for example, Allport, 1937) discussed the importance of this domain for education, work, and everyday life, most of the discussion of personality was, until the last few decades, primarily focused on psychopathology. Hogan and Roberts (2001) credit the rising importance of personality psychology within organizational psychology to several causes. First, the use of cognitive ability testing may result in adverse impact for some protected classes of job seekers under U.S. law (due mainly to group differences in *g*; see Herrnstein & Murray, 1994), while well-constructed measures of personality generally do not. Second, the rise of factor-analytically based taxonomies of personality—and especially the five-factor model (probably starting with Tupes & Christal, 1961)—provided a way to organize thousands of different personality measures within a handful of broad groups of traits, which helped to rationalize an otherwise unwieldy literature. Third, various content- and meta-analytic reviews of the literature on personnel and selection demonstrated the important roles that personality traits could play in the prediction of job performance and adjustment. Thus, personality traits,

like abilities, predict important work and organizational outcomes, and, like abilities, one may classify them into one of a few broad categories.

Personality Variables with Consulting Relevance

A major question in discussing the personality variables relevant for organizational consulting psychology is whether one need only focus on the big five personality traits, or whether focus should also extend to the facets, or components, of the big five, and perhaps to other traits as well. Paunonen and Nicol (2001) argue that in many practical applications, one can obtain greater benefits from using the facets instead of focusing only on the broad, overarching factors. However, there is no universally agreed on list of these facets, to parallel the consensus on the big five factors; different authors have proposed different sets (or at least names) of these facets and narrow personality traits. For example, Lowman (1991) describes the organizational importance of such additional personality traits, including achievement orientation, need for power, and masculinity-femininity (or its underlying and more socially acceptable derivatives). Our present discussion of the big five traits and their facets draws from that used in the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992). Although both the measure and its ability to measure facets are not without criticism (see Block, 1995), Piedmont (2001) favorably reviews the empirical support for both the general domain and facet scales, also citing Costa and McCrae's discussion (1995) of the conceptual relations of the domains and their facets. Tinsley (1993) speculated that the personality factor and facet scores of the NEO-PI might overlap with some of the personality and adjustment constructs thought to be important to work adjustment. However, we are mindful that just because the authors of the NEO-PI-R report the existence of a particular facet does not necessarily mean that the facet is viewed as critical for organizational behavior, or that there exists any degree of consensus around its practical usefulness. Therefore, we will note which of these facets have received the most empirical support in organizational research.

Conscientiousness. This might be the most important of the big five traits in terms of impact on work performance and adjustment to organizations (Barrick, Mount, & Judge 2001). Costa and McCrae (1992) report that important facets include competence, order, dutifulness, achievement striving, self-discipline, and deliberation, all characteristics that managers generally value in their employees (Fallon, Avis, Kudisch, Gornet, & Frost, 2000; Organ, 1988). Dutifulness is an important construct in the study of organizational issues related to military personnel (for example, Helme, Willemin, & Day, 1971).

Extraversion/Introversion. Many authors also describe this trait as being important to organizational adjustment, and for the prediction of job tenure and

for influencing how one tries to accomplish work (see, for example, Caldwell & Burger, 1997). Costa and McCrae (1992) report that facets include warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions. Many organizational theorists and researchers refer to the constructs warmth (Bass, Valenzi, Farrow, & Solomon, 1975), gregariousness (Hughes, 1956), assertiveness (McNamara & Delamater, 1985), activity (Magee & Hojat, 1998), excitement-seeking (Schroeder, Broach, & Young, 1993), and positive emotions (see Fredrickson, 2000; Staw, Sutton, & Pelled, 1994). Extraversion/introversion describes personality variables of temperament that reflect not so much social gregariousness as need for time to oneself and seeking stimulation internally versus externally (see Zuckerman, 1997).

Agreeableness. Although the evidence for its prediction of work-related outcomes is limited (see Barrick et al., 2001) except for jobs involving interpersonal interactions, the personality trait of agreeableness is included in most big five models of personality. Individuals high in this trait are easy to get along with and trust, while individuals low in the trait leave others on edge and wary of direct contact. Researchers and scientists typically are low on the trait, and may express the trait through skepticism and lack of faith that something is so just because someone says so. There are many other ways to express disagreeableness, just as there are many types of vinegar. Organizational consulting psychologists may encounter this trait (on the low, disagreeable end) through individuals who, for a variety of reasons, seem to have a hard time fitting in. However, individuals at the high end of the trait may, depending on the demands of their role and position, also face difficulties. For example, executives of charitable foundations that give grants find themselves being asked repeatedly for money and faith; if the executive is too agreeable, and cannot learn to say no without regret, he or she will experience enormous stress and ultimately fail. According to Costa and McCrae (1992), facets of the trait include trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness. Most of these constructs have been of interest to organizational researchers, including trust (Coleman & Riley, 1970), straightforwardness (Colyer, 1951), altruism (MacKenzie, Podsakoff, & Fetter, 1991; Magee & Hojat, 1998), compliance (Wicks, 1998), and modesty (Wosinska, Dabul, Whetstone-Dion, & Cialdini, 1996).

Openness to Experience. This trait also has had mixed results in predicting occupational outcomes (see Barrick et al., 2001), and appears to be a complex trait (for example, Ferguson & Patterson, 1998). Presumably, the trait's importance will vary in importance depending on the nature of the organization's or work unit's mission. It may also predict more to career choice than to occupational performance issues (Tokar, Vaux, & Swanson, 1995). Individuals

low on the trait would be expected to be more likely to focus on the practical side and to eschew imagination; this can be very useful when the purpose of the organization is to focus on unexciting details and just get the job done. On the other hand, in organizations that require flexibility of response and must foster independent and creative problem solving, individuals high on the trait can prove very important. An interesting aspect of this trait is that it seems to be positively correlated to measures of intelligence (*g*) (Carson, Stalikas, & Bizot, 1997; Kline, 2001). Costa and McCrae (1992) describe the facets of this trait as fantasy, aesthetics, feelings, actions, ideas, and values. Although organizational researchers and theorists have explored issues related to many of these facets at an abstract or organizational level, or perhaps in terms of characteristics of the leaders of organizations (especially in relation to factors that support charismatic or transformative leadership), the facets (as traits) seem not to have been heavily researched among the general membership of organizations.

Neuroticism. Neuroticism, along with extraversion/introversion, was one of the earliest of the broad personality traits identified by researchers (Roberts & Hogan, 2001). People on the high end of the trait tend to be anxious, become depressed, have poor self-concept, and experience negative emotions. Work can be adversely affected by neuroticism (Lowman, 1989) except, to some extent, in certain creative occupations in which neuroticism may be both expected and, within limits, even enhance performance (Lowman, 1993a). Facets reported by Costa and McCrae (1992) include anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability. Anxiety (Davids & Mahoney, 1957) and self-consciousness (Buss, 1980) have served as a focus in organizational research. Although angry hostility per se has not received attention from organizational researchers, workplace violence and its causes certainly have (see Neuman & Baron, 1998), along with personality correlates of other hostile workplace behavior (Calabrese, 2000). Depression has been researched extensively in organizational contexts (see Lowman, 1993a), although apparently not as a dispositional style. Finally, impulsiveness seems to have received little attention from organizational consultants except as a feature of various disorders, such as narcissism (for example, Levinson, Sabbath, & Connor, 1992). Judge and Bono (2001) argue that neuroticism should be conceptualized even more broadly, also incorporating emotional stability and negative emotionality, along with other tendencies related to core self-evaluation, such as self-esteem, generalized self-efficacy, and locus of control.

Other Personality Issues. An unresolved question in the study of personality traits is the degree to which they rest on underlying temperaments, presumed to be present from birth. Strelau (1998) provides an excellent review of this

literature, essentially concluding that although there may be some evidence that each of the big five broad personality traits may rest to some degree on underlying temperamental variables, the strongest evidence points to just two areas of personality: extraversion and neuroticism. Because these traits have relatively strong linkages to underlying, physiologically determined temperaments, they might be especially resistant to modification in adulthood. Of course, any worker might act the part for a while (what Helmreich & Wilhelm, 1987, called the "honeymoon effect"), but perhaps especially in these traits, individuals will revert to temperamental type over time. Readers interested in learning more about the role of personality in organizations are directed to Lowman (1991) and Roberts and Hogan (2001).

As with occupational interests, complex patterns are as important as measuring individual variables (George & Zhou, 2001; Roberts and Hogan 2001). Configurations of personality traits and their patterns in relationships to particular organizational variables might help moderate the impact of single dimensions of personality. Similarly, most personality traits are not linear (for example, good to bad) in their influence on work outcomes: too much aggressiveness might, depending on the job, organization, or culture, be as problematic as too little.

INTERDOMAIN RELATIONSHIPS

If patterns of variables are important within a single domain (such as personality or interests), they are even more important—but far less studied—across domains. Pioneering work in examining, at the individual-level analysis, interdomain relationships has been offered by certain researchers (for example, Ackerman & Heggestad, 1997; Ackerman, Kyllonen, & Roberts, 1999; Carson, 1998; Lowman, 1991, 1993b). Much more research is needed before conclusions can reliably be drawn about the effects of interests, personality, and ability as they interact with each other. However, as new studies emerge, in time it will be possible to understand the nuances of interdomain relationships that, it would be expected, sometimes compensate for areas of relative weakness (for example, extraversion for limited intelligence), or that sometimes may add constraints (for example, disagreeableness combined with high intelligence in an interpersonally relevant occupation).

CONCLUSION

This chapter has served as a Cook's tour of individual-level variables relevant for the work of organizational consulting psychologists, with only brief stops in the various domains of ability, personality, interest, and character. Such a

brief survey cannot, of course, go into much depth for any given variable, and we have left out some important ones. For example, we have not addressed life history per se (except for autobiographical knowledge as a facet of crystallized intelligence), and the way that biographical data (biodata) might affect adjustment to work (see Stokes, Mumford, & Owens, 1994). However, we assume that life history achieves this effect mainly through its shaping of the various traits and aspects of character described in this chapter.

We also have not discussed how these individual qualities might appear when viewed through the stories that individuals tell about their work experience, reflecting the importance that many organizational consulting psychologists place on practical methods that are essentially forms of story-elicitation and interpretation. However, such qualitative approaches are methods for assessing the individual-level variables, and are not themselves the variables of interest; in particular, their use is unlikely to uncover any broadly applicable traits beyond those outlined in this chapter. Of course, we could be wrong, and as we have stated, there are likely to exist some traits that are unique or rare that lie outside of the present list.

Finally, although traits might themselves be important for understanding the behavior and experience of individuals in various settings, such as work and school, they do not tell the whole story. As Anne Anastasi (1937), a pioneer in differential psychology, put it, "the individual may be regarded partly as a resultant of his multiple group memberships" (p. 601), as other chapters in this volume will attest. It is therefore through efforts to better understand both the groups of which the individual is a member, as well as the organizations that subsume these groups, that the organizational consulting psychologist can ultimately enhance his or her effectiveness in working with individuals.

References

Ackerman, P. L., & Heggestad, E. D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin, 121,* 219–245.

Ackerman, P. L., Kyllonen, P. C., & Roberts, R. D. (Eds.). (1999). *Learning and individual differences: Process, trait, and content determinants.* Washington, DC: American Psychological Association.

Allport, G. W. (1937). *Personality: A psychological interpretation.* New York: Henry Holt.

Anastasi, A. (1937). *Differential psychology: Individual and group differences in behavior.* Old Tappan, NJ: Macmillan.

Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next. *International Journal of Selection and Assessment, 9,* 9–30.

Bass, B. M., Valenzi, E. R., Farrow, D. L., & Solomon, R. J. (1975). Management styles associated with organizational, task, personal, and interpersonal contingencies. *Journal of Applied Psychology, 60*(6), 720–729.

Blackmore, S. (1999). *The meme machine.* Oxford, England: Oxford University Press.

Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin, 117,* 187–215.

Boudreau, J. W., Boswell, W. R., & Judge, T. A. (2001). Effects of personality on executive career success in the United States and Europe. *Journal of Vocational Behavior, 58,* 53–81.

Brodie, R. (1996). *Virus of the mind: The new science of the meme.* Seattle, WA: Integral Press.

Buss, A. H. (1980). *Self-consciousness and social anxiety.* New York: Freeman.

Calabrese, K. R. (2000). Interpersonal conflict and sarcasm in the workplace. *Genetic, Social, and General Psychology Monographs, 126*(4), 459–494.

Caldwell, D. F., & Burger, J. M. (1997). Personality and social influence strategies in the workplace. *Personality and Social Psychology Bulletin, 23,* 1003–1012.

Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies.* Cambridge, England: Cambridge University Press.

Carson, A. D. (1998). The integration of interests, aptitudes, and personality traits: A test of Lowman's matrix. *Journal of Career Assessment, 6,* 83–105.

Carson, A. D., Stalikas, A., & Bizot, E. B. (1997). Correlations between the Myers-Briggs Type Indicator (MBTI) and measures of aptitudes. *Journal of Career Assessment, 5*(1), 81–104.

Cattell, R. B. (1941). Some theoretical issues in adult intelligence testing. *Psychological Bulletin, 38,* 592.

Cattell, R. B. (1957). *Personality and motivation structure and measurement.* New York: World Book.

Coleman, R. J., & Riley, M. J. (1970). The chief executive: His personality characteristics and the firm's growth rate. *Personnel Journal, 49*(12), 994–1001.

Colyer, D. M. (1951). The good foreman—as his men see him. *Personnel, 28,* 140–147.

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., & McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment, 64,* 21–50.

Davids, A., & Mahoney, J. T. (1957). Personality dynamics and accident proneness in an industrial setting. *Journal of Applied Psychology, 41,* 303–306.

Dawkins, R. (1976). *The selfish gene.* Oxford University Press.

Dennis, I., & Tapsfield, P. (1996). *Human abilities. Their nature and measurement.* Hillsdale, NJ: Erlbaum.

Ericsson, K. A. (1996). *The road to excellence. The acquisition of expert performance in the arts and sciences, sports, and games.* Hillsdale, NJ: Erlbaum.

Fallon, J. D., Avis, J. M., Kudisch, J. D., Gornet, T. P., & Frost, A. (2000). Conscientiousness as a predictor of productive and counterproductive behaviors. *Journal of Business and Psychology, 15,* 339–349.

Ferguson, E., & Patterson, F. (1998). The five factor model of personality: Openness a distinct but related construct. *Personality and Individual Differences, 24,* 789–796.

Fredrickson, B. L. (2000). Why positive emotions matter in organizations: Lessons from the broaden-and-build model. *The Psychologist-Manager Journal, 4*(2), 131–142.

George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach. *Journal of Applied Psychology, 86,* 513–524.

Gottfredson, L. S. (1997). Mainstream science on intelligence: An editorial with 52 signatories, history, and bibliography. *Intelligence, 24,* 13–23 (original work published 1994).

Gottfredson, L. S. (1999). The nature and nurture of vocational interests. In M. L. Savickas & A. R. Spokane (Eds.), *Vocational interests: Meaning, measurement, and counseling use* (pp. 57–85). Palo Alto, CA: Davies-Black.

Helme, W. H., Willemin, L. P., & Day, R. W. (1971). *Psychological factors measured in the Differential Officer Battery* (U.S. Army Behavior & Systems Research Lab Technical Research Report No. 1173).

Helmreich, R. L., & Wilhelm, J. A. (1987). *Human performance in aerospace environments: The search for psychological determinants.* Unpublished manuscript, University of Texas, Austin.

Herrnstein, R. J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life.* New York: Free Press.

Hogan, J. L., & Roberts, B. W. (2001). Introduction: Personality and industrial and organizational psychology. In B. W. Roberts & R. Hogan (Eds.), *Personality psychology in the workplace* (pp. 3–16). Washington, DC: American Psychological Association.

Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology, 6,* 35–45.

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd ed.). Odessa, FL: Psychological Assessment Resources.

Horn, J. L. (1994). Theory of fluid and crystallized intelligence. In R. J. Sternberg (Ed.), *Encyclopedia of human intelligence* (pp. 443–451). Old Tappan, NJ: Macmillan.

Hough, L. M. (2001). I/Owes its advances to personality. In B. W. Roberts & R. Hogan (Eds.), *Personality psychology in the workplace* (pp. 19–44). Washington, DC: American Psychological Association.

Howe, M.J.A. (1999). *Genius explained.* Cambridge, England: Cambridge University Press.

Hughes, J. L. (1956). Expressed personality needs as predictors of sales success. *Personnel Psychology, 9,* 347–357.

Judge, T. A., & Bono, J. E. (2001). A rose by any other name: Are self-esteem, generalized self-efficacy, neuroticism, and locus of control indicators of a common construct? In B. W. Roberts & R. Hogan (Eds.), *Personality psychology in the workplace* (pp. 93–118). Washington, DC: American Psychological Association.

Kilburg, R. R. (2002). Individual interventions in consulting psychology. In R. L. Lowman (Ed.), *Handbook of organizational consulting psychology* (pp. 109–138). San Francisco: Jossey-Bass.

Kline, P. (2001). Ability and temperament. In J. M. Collis & S. Messick (Eds.), *Intelligence and personality: Bridging the gap in theory and measurement* (pp. 113–118). Hillsdale, NJ: Erlbaum.

Levinson, H., Sabbath, J., & Connor, J. (1992). Bearding the lion that roared: A case study of organizational consultation. *Consulting Psychology Journal: Practice and Research, 44,* 2–16.

Lowman, R. L. (1989). *Pre-employment screening for psychopathology: A guide to professional practice*. Sarasota, FL: Professional Resource Exchange.

Lowman, R. L. (1991). *The clinical practice of career assessment: Interests, abilities, and personality*. Washington, DC: American Psychological Association.

Lowman, R. L. (1993a). *Counseling and psychotherapy of work dysfunctions.* Washington, DC: American Psychological Association.

Lowman, R. L. (1993b). The inter-domain model of career assessment and counseling. *Journal of Counseling and Development, 71,* 549–554.

Lowman, R. L., & Carson, A. D. (in press). Assessment of interests. In J. Graham & J. Naglieri (Eds.), *Handbook of comprehensive psychological assessment.* New York: Wiley.

MacKenzie, S. B., Podsakoff, P. M., & Fetter, R. (1991). Organizational citizenship behavior and objective productivity as determinants of managerial evaluations of salespersons' performance. *Organizational Behavior & Human Decision Processes, 50*(1), 123–150.

Magee, M., & Hojat, M. (1998). Personality profiles of male and female positive role models in medicine. *Psychological Reports, 82*(2), 547–559.

McGrew, K. S., & Flanagan, D. P. (1998). The intelligence test desk reference (ITDR): Gf-Gc cross battery assessment. Boston: Allyn & Bacon.

McNamara, J. R., & Delamater, R. J. (1985). Note on the social impact of assertiveness in occupational contexts. *Psychological Reports, 56*(3), 819–822.

Moloney, D. P., Bouchard, T. J., Jr., & Segal, N. L. (1991). A genetic and environmental analysis of the vocational interests of monozygotic and dizygotic twins reared apart. *Journal of Vocational Behavior, 39,* 76–109.

Neuman, J. H., & Baron, R. A. (1998). Workplace violence and workplace aggression: Evidence concerning specific forms, potential causes, and preferred targets. *Journal of Management, 24*(3), 391–419.

Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome.* Lexington, MA: Heath.

Paunonen, S. V., & Nicol, A. A. M. (2001). The personality hierarchy and the prediction of work behaviors. In B. W. Roberts & R. Hogan (Eds.), *Personality psychology in the workplace* (pp. 161–191). Washington, DC: American Psychological Association.

Piedmont, R. L. (2001, May 3). *Test review: The NEO-PI-R.* Retrieved December 14, 2001, from http://aac.ncat.edu/newsnotes/y97fall.html

Roberts, B. W., & Hogan, R. (Eds.). (2001). *Personality psychology in the workplace.* Washington, DC: American Psychological Association.

Robins, S. (2002). A consultant's guide to understanding and promoting emotional intelligence in the workplace. In R. L. Lowman (Ed.), *Handbook of organizational consulting psychology* (pp. 159–184). San Francisco: Jossey-Bass.

Schroeder, D. J., Broach, D., & Young, W. C. (1993). *Contribution of personality to the prediction of success in initial air traffic control specialist training* (Report FAA-AM-93–4 29). Washington, DC: Federal Aviation Administration, Office of Aviation Medicine.

Snow, R. E. (1998). Abilities as aptitudes and achievements in learning situations. In J. J. McArdle & R. W. Woodcock (Eds.), *Human cognitive abilities in theory and practice* (pp. 93–112). Hillsdale, NJ: Erlbaum.

Spearman, C., & Jones, L.L.W. (1950). *Human ability.* Old Tappan, NJ: Macmillan.

Staw, B. M., Sutton, R. I., & Pelled, L. H. (1994). Employee positive emotion and favorable outcomes at the workplace. *Organization Science, 5*(1), 51–71.

Stokes, G. S., Mumford, M. D., & Owens, W. A. (Eds.). (1994). *Biodata handbook: Theory, research, and use of biographical information in selection and performance prediction.* Palo Alto, CA: CPP Books.

Strelau, J. (1998). *Temperament.* New York: Plenum.

Strong, E. K. (1943). *Vocational interests of men and women.* Palo Alto, CA: Stanford University Press.

Strong, E. K. (1955). *Vocational interests 18 years after college.* Minneapolis, MN: University of Minnesota Press.

Tinsley, D. J. (1993). Extensions, elaborations, and construct validation of the theory of work adjustment. *Journal of Vocational Behavior, 43*(1), 67–74.

Tokar, D. M., Vaux, A., & Swanson, J. L. (1995). Dimensions relating Holland's vocational personality typology and the five-factor model. *Journal of Career Assessment, 3,* 57–74.

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

Wicks, D. (1998). The dynamics of compliance: Influences on individual responses to institutional expectations (Doctoral dissertation York University, 1998). *Dissertation Abstracts International, 58*(10-A), 3997.

Wosinska, W., Dabul, A. J., Whetstone-Dion, R., & Cialdini, R. B. (1996). Self-presentational responses to success in the organization: The costs and benefits of modesty. *Basic and Applied Social Psychology, 18*(2), 229–242

Zuckerman, M. (1997). The psychobiological basis of personality. In H. Nyborg (Ed.), *The scientific study of human nature: Tribute to Hans J. Eysenck at eighty* (pp. 3–16). New York: Pergamon Press.