

## Fitness, Adaptation, and Survival: The Role of Socio-Anthropic Characteristics, Personality, and Intelligence in Work Behavior

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### INTRODUCTION

Many pioneers of modern psychology—Francis Galton, William James, William McDougall, G. Stanley Hall, Sigmund Freud—were enthusiastic Darwinians who believed the study of human behavior should begin with identifying the key biological tendencies underlying each behavior, tendencies that are themselves rooted in our evolutionary history as a species. Although many modern psychologists believe evolutionary psychology is largely speculative, we believe progress in understanding the behavior of people in organizations will require framing that behavior in an evolutionary context. In fact, we would argue that the workplace is often a compacted microculture wherein human behavior reflects behavior from evolutionarily earlier social settings. The elements are similar between the modern workplace and ancient groups of people: a need to gather into packs for survival, competition within and between packs, threats from outside the organization, and a need for leadership for survival. When it comes to the workplace, then, it seems we are all animals, some of us more evolved than others. A study of the evolution of human society can illuminate many of our work-behavior tendencies and suggest how to survive and thrive.

A review of the literature in sociology, anthropology, and primate field research (Chapais 2008) reveals four broad themes running through every society, and these themes point to the existence of important in-

nate drivers of human behavior. The first and most important theme is that people evolved as animals living in groups (Wade 2006). About this generalization there is no dispute: we are social animals. This allows the inference that, at a deep and unconscious level, people are innately responsive to other people; we need social acceptance/approval and fear criticism/rejection (Baumeister and Leary 1995). Since there are, by nature, individual differences in this need, we can draw an interesting conclusion: people at the low end of the distribution (those low in need for social acceptance) will lack social support. While evolutionary study concludes that these individuals are therefore less likely to find life partners and, from an evolutionary perspective, reproduce—a catastrophic outcome for that line of the species—the more subtle but equally telling implications for organizational behavior are clear, since any organization is a study in group living.

The second theme running through every society is that throughout the course of our evolutionary history, human groups have been involved in almost constant warfare (Bowles 2009; Bowles and Gintis 2011; Keeley 1996; McNeill 1982). Although the level of intragroup violence in the last century has been severe, research proves that modern combat has not been as disastrous to our species as were earlier conflicts. In fact, violence actually is lower in modern society than in ancient times (Pinker 2010). Keeley (1996) estimates that if the wars of the twentieth century were as vicious as those “before civilization,” there would have been more than two billion casualties as opposed to 180 million. While group living and warfare were probably the two most powerful influences on earlier stages of human evolution, the residue of those experiences has important implications for understanding peoples’ behavior in organizations. For example, people need more than mere social acceptance from others; in the face of deadly external threats, they depend on the cooperation of others for their sheer survival. In addition, the natural history of leadership can be traced to our group history of violence, showing that effective leadership and membership cooperation have always been responsible for the survival of groups, whether on the battlefield or on the streets (see Van Vugt, Hogan, and Kaiser 2008).

But most importantly, in our view, human history of continuous tribal warfare provides a concrete path to understanding organizational effectiveness. Organizational effectiveness has been traditionally conceptualized in three ways: (1) as the match with an ideal type (e.g., Max Weber’s bureaucracy); (2) as the match between organizational characteristics and environmental demands; or (3) as the match between organizational performance and the values of key constituencies (e.g., the

quality movement)—see Whetton and Cameron (1994). Note that each of these definitions involves comparisons of certain aspects of organizations, wherein effectiveness is determined by harmonious fit. Yet, human history shows that human groups have been in continuous competition with one another, which suggests an alternative but perfectly straightforward definition of organizational effectiveness—the effective organization is a winner, not a loser, in competition (Kaiser, Hogan, and Craig 2008). In evolutionary history, the stakes were high—losers disappeared from the gene pool; in modern organizations, corporations face similar extinction with bankruptcy.

The third theme running through every society, as revealed by a review of sociology, anthropology, and ethnography literature, is that every human group has a status hierarchy, no matter what the purpose of the group. Since status differences have foundationally powerful implications for the ability to reproduce (Eibl-Eibesfeldt 1989; Marmot 2004), which is the ultimate test of species survival, we can conclude that status has been an innate human motivator since the earliest evolution of our species. While the reasons or outcomes may not be procreation, the motivation for status is ingrained. This suggests that, at a deep, unconscious level, people need power, status, and the control of resources, tendencies that most people associate with “ambition.” With few exceptions (see Ashby and Schoon 2010; Hansson et al. 1983; Hogan and Holland 2003; Jansen and Vinkenbunrg 2006), ambition has been rarely studied in industrial-organizational psychology and management research. Nonetheless, the fundamental dynamic in every organization is the individual search for power (Hogan 2006). Of course, there are substantial individual differences in people’s need for power and in their ability to acquire it. It is also important to note that the need for social acceptance, discussed above, and the need for status are antagonistic: to maximize acceptance, one must conform and comply; to maximize status, one must outperform others. Life in human groups requires a careful balancing act, and all human relationships are fundamentally ambivalent. That is, every human relationship contains a mixture of two opposing impulses: (1) the desire to form a bond with the other person; and (2) the desire to outperform the other person.

The fourth and final theme in society is that every human group has a religion.<sup>1</sup> This suggests that a need to find structure and order in reality serves important psychological functions (Hamer 2004) that have roots in human evolutionary history. Research shows that being required to perform in ambiguous or unpredictable environments is highly stressful for animals at every level in the phylogenetic sequence, and we are no

exception: people have created societal structures since the beginning. In fact, the argument can be made that the very reinforcement throughout the ages for constant human group living, in light of the complicating factors of warfare and jostling for status while looking for acceptance, is the underlying need for survival, attainment, and communion, none of which are feasible when living in isolation. Even in the modern world, where priorities are perhaps more sociologically refined, it is rare for individuals to live removed from society. Culture in all its manifestations—religion, art, technology—is driven by (or satisfies) the powerful human need for predictability and order, a need that plays out in organizational life—which consists of a sequence of role performances in accordance with well-defined norms (see Hogan and Blicke, in press). By looking to our evolutionary past, we can understand the powerful role that organizations play in our lives and shape these organizations to better meet human innate needs.

So what do these four themes important to human society since its inception mean, taken together? From an evolutionary perspective, they mean the following. We live our lives in groups in which we strive to maximize the amount of respect and status we can receive while minimizing the loss of these same resources. We do this by means of ingratiation and competition within the context of established cultural rules of behavior. Our ability to do this has consequences for our reproductive success. The issue of intergroup aggression (attacking or being attacked by other groups) will arise periodically, and this may threaten the existence of the groups in which we live or earn our livelihoods. Our ability to deal with external threats has consequences for our collective reproductive success. All of this means that other people are the most consequential and often the most dangerous forces in our lives. And this brings us to the subject of modern personality.

Personality is defined in two ways (MacKinnon 1944). We refer to these two definitions as: (1) how people think about themselves (their *identity*); and (2) how others think about them (their *reputation*). There are very few reliable generalizations about identity to report, and the reason seems obvious—to study identity, we need to rely on people's reports regarding how they think about themselves, but these reports are, by definition, unverifiable. Identity is very difficult to study.

In contrast, reputation is easy to study using rating forms, Q sorts, 360-degree appraisals, and assessment-center exercises. Reputation is immensely consequential—it is the basis on which people marry you, hire you, promote you, loan you money, confide in you, or reject you. Smart organizational players care about their reputations and try to maintain

them. The best predictor of future behavior is past behavior; reputation is a summary of past behavior and is the best data source available regarding a person's future behavior. In addition, we have a robust taxonomy of reputation—the Five-Factor Model (FFM; Wiggins 1996), which is based on the factor-analytic study of observer ratings (by definition, observer ratings are the litmus test of reputation, since reputation is in the eye of the beholder, after all). Research organized in terms of the FFM has been highly enlightening in identifying the unique blends of the five pillars of human personality: emotional stability/neuroticism, conscientiousness, agreeableness, openness, and extraversion.

The FFM seems to be a cultural universal; it is found in every language that has been studied. Why might this be the case? The answer, we believe, is also the point of this chapter: our evolutionary history as social animals is encoded in our modern behavioral repertoire in various ways. One of these involves cognitive prototypes—mental maps or ways of perceiving the world—that allow us to organize experiences and navigate the social landscape. We believe the FFM is a cultural universal because it concerns key characteristics that make people more or less valuable members of their groups. For example, observable performance reflecting an individual's emotional stability ranges from fearfulness and cowardice at the low end to serenity and courage at the high end.

The FFM dimension of conscientiousness concerns performance that ranges from deceitfulness, carelessness, and delinquency at the low end to probity and reliability at the high end. Research has shown that conscientiousness is perhaps the single greatest predictor of job performance. We can expect that individuals at the high end of conscientiousness may be perceived as the most valuable members of their groups. Conversely, the individual exhibiting conscientiousness at the low end (deceitfulness, carelessness, and delinquency) is likely to be considered a less valuable member of the group and, from an evolutionary perspective, the group could distance itself from this individual, whose traits may endanger survival. Yet, like the highly neurotic individual, this person may have much to contribute in knowledge and skill. Organizations can benefit by understanding individual tendencies and employing organizational behavior techniques to increase, in this case, accountability.

The dimension of agreeableness concerns behavior that ranges from irritability and hostility at the low end to tact, diplomacy, and charm at the high end. In many groups, although irritability and hostility may have evolutionary advantages in terms of willingness to compete, disagreeable individuals are not valued for exhibiting that tendency. In fact, as we discussed, this is particularly true in the modern workplace, where

the need for status and the competition necessary to achieve it are often best described by the advice to “walk softly and carry a big stick.” Yet research conflicts with the idea that high agreeableness predicts workplace success: almost the opposite is true. As Judge, Livingston, and Hurst (2012) found, individuals lower in agreeableness are often more successful, particularly in terms of extrinsic success (of which perhaps the best marker is earnings). The reasons for this may be complex, but then again, they may be rooted in evolutionary history, as human beings acknowledge inherently the need for fight.

The dimension of openness concerns performance that ranges from literal-mindedness and intellectual self-satisfaction at the low end to curiosity and creativity at the high end. The implications of high openness versus low openness are perhaps more difficult to relate to a group’s perception of a member’s value than the implications of high or low emotional stability, conscientiousness, and agreeableness. Indeed, research has not shown openness to be a strong predictor of job performance. On the surface, it would be easy to conclude that a group would not therefore consider this a valuable trait for an individual; perhaps, though, it is a matter of evolutionary theory principles.

The significance of the FFM dimension of extraversion is perhaps hardest to grasp—some argue that it concerns shyness versus exhibitionism; others argue it reflects needs for social attention; still others maintain that its core is reward sensitivity. In any case, people at the low end may be perceived as less valuable to the group simply because they are not “out there” broadcasting a need for social acceptance and status or exhibiting a willingness to fight. Research does support the theory that strong extraverts are initially regarded as capable by groups. Whether or not extraversion is actually helpful in meeting the need for status and acceptance depends in part upon how extraversion is defined, but from an evolutionary history perspective, it may be reasonable to conclude that high extraversion confers an advantage at the starting gate, while other traits determine long-term success. Our global point is that there must be a reason that we find the dimensions of the FFM in most languages of the world. The reason is that the FFM codes personalities for behavior that contributes to group functioning, behavior that makes a person an attractive and useful member of a group, or makes a person a candidate for transfer. Without a doubt, there are evolutionary anchors for the cross-culturally validated dimensions of reputation known as the FFM. Yet there are other factors to consider in evaluating the realities of group and organizational success, perhaps best illustrated by cognitive prototypes that illuminate certain truths to provide a full picture.

A significant cognitive prototype is evident in Odysseus's comment at the end of *The Iliad*, as he watched Achilles fall in battle: "So much for Greek courage, now for Greek cunning." The army of Agamemnon ultimately relied on the cunning of Odysseus, not the courage of Achilles, to conquer Troy, and this captures an important point. The success of any group enterprise depends on the existence of group members with a talent for strategic thinking and innovation. In modern psychology, talent for strategy and innovation is assumed to covary with intelligence, so the group or team with the most intelligent members is the one most likely to outthink the competition.

Our other example of important cognitive prototypes derived from our evolutionary history, in which decisive group action often determined survival against the threats of animals, nature, and other groups, appears in our current implicit theories of leadership (Lord, Foti, and DeVader 1984). As Van Vugt et al. (2008) argued, leadership is a resource for group survival in the face of hostile incursions. Because leadership is so important for group survival, people have prototypes for evaluating the leadership claims of "candidates." The relevant dimensions of leadership evaluation include (1) integrity—can the person be trusted? (2) good judgment—can the person's judgment be trusted? (3) competence—can the person contribute productively to group functioning? and (4) vision—does the person have an inspiring view of the group's past history and possible future?

This discussion of evolutionary history informs our contemporary human organizational experience in terms of four points. First, success in life (potential for reproductive success) can be defined in terms of two criterion variables: (1) how well a person is liked, respected, and accepted in his group, tribe, or culture; and (2) the amount of status, power, and control of resources a person enjoys in her group, tribe, or organization. We believe that an important goal for psychological research is to explain individual differences in people's performance in terms of these two dimensions. Second, explanations of the links between our evolutionary history and contemporary observations are initially framed in terms of surface-level characteristics such as the FFM and anthropometric variables; this is a descriptive or predictive level of analysis. Third, we will frame more profound explanations of the carryover of traits from our evolutionary roots in terms of certain deep-level traits or characteristics whose epistemological status is less clear-cut but is nonetheless vital and interesting. Finally, we believe an analysis from this perspective is cross-culturally valid in a manner that other approaches have failed to provide.

## ANTHROPOMETRIC, OR SURFACE-LEVEL, TRAITS

Modern culture often seems banal and superficial—a fleeting captivation with celebrities, entertainment, and appearances, based on attributes no one explicitly admits valuing, despite ample evidence to the contrary. The most salient individuals in culture—movie stars, television celebrities, and professional athletes—are rarely the best or the brightest that society has to offer when judged by the values society professes to hold. The work on which their fame rests is rarely as important as the work of social workers, company leaders, health-care providers, and educators. Indeed, when comparing fame and egotism with real accomplishment, it is easy to caricature celebrities as self-centered identities forged from and depending on trivialities.

So why are celebrities so influential and well compensated? Their fame chiefly rests on surface characteristics: Celebrities tend to be young, attractive, and physically fit (lean and athletic).<sup>2</sup> To a lesser but still important degree, other leaders (in government or business) are similarly promoted based on surface-level traits. For instance, Gladwell (2005) shows that 58% of *Fortune 500* CEOs are more than six feet tall, compared to 14.5% of the general population. Culture tends to confer fame, fortune, and influence on those who *look good*, often at the expense of those who *do good*. As one of many examples, consider Norman Borlaug. Borlaug is credited with saving the lives of more than one million people because of his invention of semi-dwarf wheat, a grain that greatly increased food production (up to sevenfold in some countries) and fed starving populations in impoverished, heavily populated, and now rapidly progressing countries like Mexico, China, and India. Judging by the values America espouses, Borlaug should have been a household name, a veritable superstar. Yet Borlaug died in 2009 after a lifetime of service for which he never gained worldwide notoriety, sums of money worth his stature, or influence on the world stage. This is in stark contrast to the status and media coverage of celebrities who have raised funds for the relief of world hunger, often to promote themselves as much as to promote the cause.

Surface-level characteristics are important for both forms of evolutionary fitness: (1) reproductive fitness and (2) survival fitness. First, animal mating decisions happen very quickly. Given that, genetically speaking, humans resemble other primates, human mating decisions also happen quickly and are based, especially for males, on surface-level characteristics (Hill and Buss 2008). Second, accurate “fight or flight” responses often depend on quick impressions. Early in human evolution, tall hunter-gatherers would, for example, find it easier to see predators



(or prey) on the savannah. Also, the perception of height or strength in others might provide important input into accurate fight or flight decisions in human-to-human and human-to-animal confrontations. This would help people who possessed the surface-level anthropometric trait of physical tallness to survive, and it would also make them most likely to be chosen as group leaders.

Humans, like other animals, evolved to act after brief (fast and frugal) appraisals of available information. The fact that society (and reality) is intricate and complex does not change the fact that we survived and evolved by making decisions rapidly on the basis of available (surface) information. It is possible that this conflict in contemporary culture—between, on the one hand, disavowing the primacy of surface-level characteristics while, on the other hand, placing high value on them in actual decision making—will be resolved by the slow hand of natural selection. Have the advantages of surface-level processing been diminished by changes in the environment (technology, social mores, etc.)? Or have these environmental changes simply provided a complementary context for natural selection to occur based on the same surface-level traits? The ultimate answer, of course, is provided by natural selection.

The importance of anthropometric characteristics can also be explained on the basis of behavioral genetic evidence. It is not surprising that surface characteristics are highly heritable, and indeed are among the most heritable of all individual differences (Bouchard 2004). As anthropometric traits, they are also observable and measurable. In contrast, not only are deep-level traits less observable/measurable, which complicates the study of evolutionary effects, but genetic effects are somewhat less strong for individual differences such as intelligence, personality, values, and attitudes. Moreover, it is easier to bolster one's standing by feigning to hold a particular value or attitude than by manipulating surface-level traits (it is easier to falsely profess a value or attitude than to undergo cosmetic surgery to manipulate the appearance of age). However, even for these variables, genetic effects are so strong and pervasive that Turkheimer (2000) has labeled the proposition "All human characteristics are heritable" as the First Law of Genetics. In short, we may be culturally predisposed to *value* surface-level characteristics, but there remain enduring individual differences in deep-level traits that are largely genetic. In evolutionary terms, then, survival has always been determined by more than physically measurable advantages. The deep-level trait differences go a long way toward explaining why there are genetic differences in career and life success and other outcomes. A whole host of organizational behavior variables have been found to be heritable, including job satis-

faction (Arvey et al. 1989; Arvey et al. 1994), work values (Keller et al. 1992), job and occupational switching (McCall et al. 1997), entrepreneurship (Zhang et al. 2009), and leadership emergence (Arvey et al. 2007). Very little research has been focused on why these genetic effects exist, but more should be done. As noted by Ilies, Arvey, and Bouchard (2006), “Specific operational models explaining the mechanisms through which genetics influence certain organizational outcomes can and should be developed and tested” (135). Although, of course, some of these mediated effects are likely to be explained by outside variables, such as personality and intelligence, we would also argue that anthropometric characteristics play an important explanatory role.

Our hypothesizing notwithstanding, how important are these anthropometric or surface-level traits? Surprisingly so, the literature suggests. Below, we review four anthropometric characteristics: age, height, weight, and physical attractiveness. Of course, these are not the only measurable surface characteristics that subconsciously affect our perception of others, and many of our instant judgments may have evolutionary roots. These traits include masculine and feminine features, vocal characteristics, gait, and various proportional measurements drawn from what we consider as ideals of the human form. Research shows that people have strong preferences for stereotypical ideals, but conforming to them does not always bring success in organizations. For instance, male facial structure predicts cooperation (Stirrat and Perrett 2012); as we have discussed, the perception of agreeableness by others can be an asset or a liability for the individual in the workplace. A growing research literature on the subject has also shown that male facial structure predicts winning elections (Todorov et al. 2005) and organizational financial success among male CEOs (Rule and Ambady 2008; Wong, Ormiston, and Haselhuhn 2011). We do not include gender or race here due to the exhaustive literatures on these variables, as well as to the “reason for being,” or ontological controversies, surrounding them.

## Age

Age, of course, is a multifaceted concept—true chronological age is purely temporal, but individuals age differently, and individuals of the same chronological age may be perceived as being of different ages. Here, we consider age as an anthropometric characteristic in terms of its surface qualities—how old someone looks or acts as judged by others. Like the aging process itself, the role of age in career success and employment decisions is complex. Although age is weakly related to job performance

(McEvoy and Cascio 1989; Waldman and Avolio 1986), there is ample evidence that older employees are less likely to engage in counterproductive behaviors at work (Rhodes, 1983). Age is positively related to extrinsic career success, in that older employees reliably earn more and occupy higher-level positions than do younger employees (Judge, Klinger, and Simon 2010). Nonetheless, the evidence suggests that organizational decision makers are often biased against hiring or promoting older employees (Bennington 2001). How can these pieces of evidence be reconciled?

To integrate these phenomena, we need two related distinctions. First, we must decouple age from experience. The two are highly correlated, but in this case it is critical not to confound them. As employees gain experience, their pay generally increases, particularly when merit raises are progressively applied to the current salary. However, that does not mean that age per se is a career advantage. To make that distinction, one would need to perform two different comparisons: (1) two employees of the same age working in the same field—one with considerable experience, the other with little experience; (2) two employees with the same experience in the field—one older than the other. If we made these comparisons, we suspect the employee's age would not be an advantage.<sup>3</sup>

For example, assume that we work in an economy with no real wage growth (a reasonable assumption over the past generation in Western democracies), and wherein a manager received annual merit raises based on performance in the previous year. If we further assume that the manager started her career with a salary of \$66,000, and received an annual merit raise of 4% per year (high in the 2008–12 economy, but a reasonable historical average), her pay would be \$180,000 after twenty-five years in that same position. Compared to a younger employee, newly hired at the opening \$66,000 mark, the older employee would be earning a dramatically higher salary than the younger employee—for the same position—simply through the compounding interest applied to salaries over time. Even if the annual inflation rate is taken into account, and is, say, 1.5%, pay will still double in real terms.<sup>4</sup>

Second in integrating the effect of age on workplace outcomes, we must separate stocks from flows (trajectories). If we compare an older employee to a younger employee, it may well be true that the older employee has greater career success than the younger. However, generally our interest is in prediction (predicting future career success). In that case, we would predict that the future is brighter for the younger employee, and indeed may be relatively dim for the older. Yet our point of perspective is mismatched for the two.

As a result of these factors, age is often a double-edged sword as far

as employment is concerned. Due to the compounding value of merit raises, older employees usually earn more than younger employees; this is true even if their level of job performance is the same. However, if an older employee competes against a younger employee for a position, there is reason to believe that the advantage rests with the younger employee. Here society seems to suffer from a neurosis: we advertise to and about youth, and we may favor younger individuals in hiring decisions, and yet we pay older individuals more and limit access to certain positions on the basis of age.

## Height

It is surely uncontroversial to state that, given the choice, many more people would choose to be taller than would choose to be shorter. Research confirms that height is a socially desirable asset (Roberts and Herman 1986). Taller people are seen as more persuasive (Young and French 1996), considered more attractive and desirable as mates (Freedman 1979; Harrison and Saeed 1977; Lerner and Moore 1974), and are more likely to emerge as leaders of groups (Higham and Carment 1992; Stogdill 1948). Indeed, it has been well more than a century since US citizens have elected a president whose height was below average (William McKinley, 5 feet, 7 inches tall and ridiculed in the press as a “little boy,” was elected president in 1896 despite being slightly shorter than average).

In a quantitative review of forty-four studies, Judge and Cable (2004) found that height was positively related to extrinsic career success. Analyzing data from several large American and British data sets, they found that, controlling for gender, weight, and many other human-capital characteristics, each inch in height led to a predicted increase of \$786 in annual earnings. The effect was somewhat stronger for men, but it was significant and nearly as strong for women. The positive effect of height was not due to higher self-esteem, suggesting that height may work primarily through the perceptions of others. The importance placed on height in contemporary society is interesting because one would be hard-pressed to find jobs in which height was a bona fide occupational qualification. Moreover, Judge and Cable (2004) found no evidence for a diminishing returns relationship—height appeared to positively predict earnings as well at the high end of the height distribution as at the low end.

Like most values, and in accord with the idea that greater height would benefit survival for early humans, the value placed on height even today convincingly shows evolutionary origins. Like human beings, animals use height as an index for power and strength when making fight-

or-flight decisions. As noted by Freedman (1979), “Throughout nature the rule is the bigger, the more dangerous” (92). Thus, from a sociobiological perspective, height equals power and therefore demands respect, which translates to group behavior in any organizational setting, however misplaced. Added to the perceived fitness advantage, there is evidence that height has reproductive fitness advantages as well (Shepperd and Strathman 1989). Tall men, in particular, are more likely to be seen as attractive, are more likely to marry, and more likely to have children when they do marry (Pawlowski, Dunbar, and Lipowicz 2000). As with the idea that height and power inherently require respect, the application of reproductive fitness to the workplace is perhaps limited and controversial, but the clear implications for contemporary organizational behavior of our evolutionary realities invite us to identify the roots of phenomena we universally acknowledge as factors.

## **Weight**

Despite evidence that 80% of the variation between individuals in body mass index (BMI) is heritable (Bouchard et al. 1998), Roehling’s (1999) comprehensive review suggests that obese individuals are rated as less desirable as subordinates, coworkers, and bosses, and they are viewed as less conscientious, less agreeable, less emotionally stable, and less extraverted than their “normal-weight” counterparts. Even though these stereotypes are inaccurate (Roehling, Roehling, and Odland 2008), it appears that obese employees are seen by employers as lazy and lacking self-discipline (Puhl and Brownell 2003). Roehling’s (1999) review also revealed that overweight women are consistently judged more harshly in the workplace than overweight men, and Griffin (2007) reported that 60% of overweight women and 40% of overweight men describe themselves as having been discriminated against in the course of employment.

Why does being obese lead to negative evaluations by employers and other employees? From the perspective of evolutionary psychology, being overweight may lead to lower estimated reproductive fitness by others, a phenomenon that appears to exist for both men and women (Barber 1995). Thus, overweight individuals may be viewed in generally negative terms by others, and this negative appraisal generalizes to nonmating decisions (a process of generalization that may apply to other anthropometric characteristics as well).

Culture may also play a role here. Judge and Cable (2011) reviewed evidence showing that, over time, models, actors, and celebrities—especially female ones—have been portrayed as increasingly thin. In two large sam-

ples of individuals from the United States and Germany, they showed that the negative effect of weight on earnings was stronger for women than for men and that the effects were particularly strong as women moved off of the “model thin” standard. The highest-earning men were those who were above-average in weight but not obese, whereas the highest-earning women were very thin.<sup>5</sup> This exposes a cultural neurosis—although society gets progressively fatter, it continues to worship thinness and punish those who deviate from a standard few people actually meet.

### **Physical Attractiveness**

Ratings of physical attractiveness are highly consensual within cultures. But what is physical attractiveness? Here, various cultures differ, which may explain the debate between researchers. Some researchers have argued that facial symmetry underlies attractiveness judgments. Others argue that other aspects of facial structure are more important, such as eye size, baby-facedness, and so on. Still others investigate body shape, hair color, and other characteristics. While these studies are important for understanding what causes perceived attractiveness, as far as implications for organizational behavior are concerned, the causes of those judgments may not be critical, since people tend to agree in their attractiveness ratings.

That attractiveness positively affects income has been well established in research. In their meta-analysis, Langlois et al. (2000) revealed that 68% of attractive adults were above the mean on occupational success—which included income—versus 32% of unattractive adults. Other research provides further support for the relationship between attractiveness and earnings (Harper 2000). Judge, Hurst, and Simon (2009) found that independent evaluations of physical attractiveness were positively related to later-career earnings, and the effects for men and women did not differ significantly. This is good news for women, who were not afforded leadership and workplace opportunities equal to those available to men throughout time and therefore struggled to define workplace competence. Why is attractiveness so valuable in the labor market? We can offer two explanations: (1) how attractiveness influences people’s self-image and (2) how it affects others’ perceptions of them.

First, attractive people may simply be more self-confident, and the self-confidence translates into career success. Harter (1993) described the correlations between appearance and self-esteem throughout life as “staggeringly high” (95). Langlois et al. (2000) found a more modest relationship, but attractiveness was still positively related to observed

self-confidence/self-esteem in children and self-reported self-confidence, competence, and mental health in adults. In longitudinal samples of adolescents and adults, Zebrowitz, Collins, and Dutta (1998) found that men judged as attractive in their thirties were more emotionally stable than those judged as average or unattractive, although they did not find the same results for adult women or for adolescents of either gender. Judge, Hurst, and Simon (2009) found that core self-evaluations (CSE) mediated a significant part of the relationship between attractiveness and income, further supporting the positive influence of attractiveness on self-esteem, in that feedback from self and others that one is attractive (or not) can raise (or lower) CSE.

Second, the way others perceive attractive individuals affects how they treat them. Hosoda, Stone-Romero, and Coats (2003) showed in their meta-analysis that decision makers are biased against unattractive people in employment contexts such as interviews, performance evaluations, and so forth. Mulford et al. (1998) found that others are more likely to cooperate with attractive people, partly because the latter are expected to be more cooperative. Attractive people tend to be seen as higher in intelligence (Jackson, Hunter, and Hodge 1995), despite the fact that the actual relationship between attractiveness and intelligence is nonexistent ( $r = .03$ ; Langlois et al. 2000). The answer to this apparent riddle—why do people perceive and react positively to attractive people, even when their ascriptions are inaccurate?—likely lies in evolutionary history.

## DEEP-LEVEL PERSONALITY CHARACTERISTICS

Successful group living, status-seeking, and group defense depend on how people perceive and relate to one another. Because other people are such consequential forces in human lives, we have acquired certain cognitive prototypes (height, attractiveness, the FFM, implicit leadership theory) that we use to evaluate other people in an automatic and unconscious way. Within each person's group, the most important criteria concern how much respect and affection a person enjoys, as well as how much power and resources he controls, and these criteria are related to reproductive success. A person's reputation is an index of her standing on these outcome variables. Between groups, the most important criteria concern team, group, or organizational effectiveness, and the coordination needed to bring about such effectiveness is largely a function of leadership (Spisak, Nicholson, and Van Vugt 2011). Within the group, personality matters; between groups, leadership matters.

We use surface-level traits (height, the FFM, etc.) to describe and predict other people's behavior. This section puts forth our best guesses regarding the deep-level individual-difference characteristics that explain these observed tendencies. Specifically, we suggest that key life outcomes (getting along and getting ahead) can be explained in terms of three deep-level personality traits that are also rooted in biology and our evolutionary history: (1) relations to authority; (2) social sensitivity; and (3) competitiveness.

### **Relations to Authority**

The ability of infants of all mammalian species to survive depends on their willingness to comply with adult commands (alarm calls, etc.). The ability of human infants to acquire language depends on acquiring adult rules of speech. Hogan and Henley (1970) suggested that the socialization process, which occurs during the critical ages of three to five, depends on the existence of a hypothetical rule-acquisition device. This device is potentiated by a child's relationship with parents/caregivers, and the process parallels Freud's discussion of the origins of the superego.

Parents who are warm and restrictive—who love their children but put firm limits on their behavior (as contrasted with warm and permissive, cold and permissive, or cold and restrictive parents)—produce children who accommodate easily to adult authority, quickly acquire the rules of their culture and, in the developed world, do well in school and in life (Roberts et al. 2007).<sup>6</sup> Children who can accommodate easily to authority are able to fit in with their social group and family, find adult protectors, acquire mentors, and learn the rules of the culture. Children who do not make this accommodation are at serious risk for social failure. Individual differences in relations to authority are captured by any well-validated measure of conscientiousness, and these measures are powerful predictors of positive life outcomes (Roberts et al. 2007).

### **Social Sensitivity**

George Herbert Mead (1934), an avid Darwinian, argued that role-taking ability—the ability to anticipate another person's expectations—is the “g-factor,” or general intelligence, in social life. According to him, role-taking ability accounts for language acquisition, the socialization process, the development of a self-concept, and moral conduct. In short, Mead used the development of role-taking ability to explain exactly the



same phenomena that Freud explained with the development of the superego. Social sensitivity is a combination of the dimensions of the FFM; Hogan (1969) developed a psychometric measure based on Mead's ideas about role-taking, and the scale is a robust predictor of a wide range of positive career outcomes (Hogan and Grief 1973). The employability literature (e.g., Hogan and Chamorro-Premuzic 2011) indicates that employers place a high value on interpersonal sensitivity for any job requiring social interaction. In addition, Woolley et al. (2010), in a study of team performance, show that the effectiveness of problem-solving teams is directly related to the average level of social sensitivity of the team members.

The literature on mirror neurons (Rizzolatti and Craighero 2004) suggests that there is a reasonably well defined neural architecture underlying the human capacity for role-taking ability or empathy (De Waal 2006) and that social sensitivity has played a key role in human evolution and group functioning (Ramachandran 2006). Ramachandran argues, for example, that social sensitivity based on mirror neurons is the factor responsible for the so-called great leap forward in human evolution. The reality and potency of this deep-level trait is beyond dispute.

Social sensitivity enables or potentiates altruism and cooperation, two of the most distinctive but puzzling human characteristics, when considered from the perspective of "the selfish gene." Bowles and Gintis (2011) argue that altruism and cooperation are best understood from the perspective of multilevel selection (Wilson, Van Vugt, and O'Gorman 2008), where group differences—in addition to and beyond individual differences—may be responsible for selection (e.g., cooperative groups may reproduce better and survive longer than uncooperative groups [Wilson and Sober 1994]). But, more importantly, they argue that the capacity for altruism and cooperation is a by-product of intergroup warfare—like Darwin, they found that groups whose members were better able to coordinate their actions and more willing to sacrifice themselves for the group had an adaptive advantage (Darwin 1871).

### **Competitiveness**

The tradition of *realpolitik*, as exemplified by Bismarck (Steinberg 2010), maintains that the fundamental question in human affairs is, "Who shall rule?" All social animals, including chickens, rhesus monkeys, and humans, organize their groups in terms of status hierarchies, and there are clear benefits to being at the top. High-status female chimpanzees,

for instance, forage in the best parts of the forest and kill the babies of low-status females. Genghis Khan fathered tens of thousands of children, and the offspring of high-status parents do much better in life than the children of low-status parents (Marmot 2004). Status hierarchies emerge very early in children's play groups—high-status children are the ones other children watch. Some form of status striving must be innate; William James, William McDougall, and even Charles Darwin speculated about the universality of “rivalrous tendencies.”

The Hogans developed psychometric measures of a competitiveness cluster (ambition, power, and recognition). The scales are not concerned with dominance or aggression; rather they concern desires to compete and win, desires to create a legacy and make a difference, and desires for status and control. The Hogans provide ample data to support the validity of these scales in predicting performance in managerial and leadership roles (J. Hogan and R. Hogan, 2010; R. Hogan and J. Hogan, 2007).

We think that individual differences in the ability to get along and get ahead can be partially accounted for in terms of individual differences in three deep traits: people's ability to adjust to authority, their sensitivity to the intentions of other group members, and their competitiveness. The three may come together under the rubric of the broad psychometric construct of core self-evaluations (Judge, Locke, and Durham, 1997). That is, the demonstrated predictive power of this construct may reflect the fact that core self-evaluations sample broadly from all three domains.

## **ANOTHER DEEP-LEVEL TRAIT: INTELLIGENCE**

One might argue, as did fifty-two prominent psychologists in the *Wall Street Journal*, that: “IQ is strongly related, probably more so than any other single measurable human trait, to many important educational, occupational, economic, and social outcomes” (Arvey et al. 1994a, A18). Little has changed with respect to the state of science regarding the practical importance of intelligence since then (e.g., Deary et al. 2007; Lubinski 2004). After studying general intelligence (general mental ability, or GMA) for more than one hundred years, psychologists from a variety of disciplines have identified many important correlates of this “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 1997, 13). Psychologists agree that general intelligence predicts educational and

occupational attainment, as well as performance within occupations or jobs (see Kuncel, Hezlett, and Ones 2004; Schmidt and Hunter 2004).

There is evidence that general intelligence is associated with physical and psychological health (e.g., subjective well-being), although the evidence for the former outcome is relatively recent and for the latter is tentative and mostly indirect (Campbell, Converse, and Rodgers 1976; Gottfredson 2004; Sigelman 1981). Perhaps the most impressive test of the relationship between GMA and health is a study that links the Scottish Mental Survey of 1932, which assessed intelligence in childhood, to health outcomes assessed later in life (see Deary et al. 2004; Gottfredson and Deary 2004). This study found a clear connection between GMA and health: GMA scores collected at eleven years of age influenced survival and hospital admissions for illnesses up to age sixty-five (Deary et al. 2004). Thus, as far as survival is concerned, it appears that intelligence helps individuals solve the adaptive problem of living longer.

The reason *why* general intelligence predicts a broad array of criteria is much less understood. Ostensibly, intelligence facilitates learning and decision making so that smart people learn more, and more quickly (about their jobs, health, crime and punishment), and use that knowledge to make better decisions. It is also possible that intelligence enhances motivation. If smart people perceive themselves as more able to execute a plan of action, or set more ambitious goals, they are likely to work harder. The motivational aspects of intelligence, however, are largely unexplored in research.

Notwithstanding the numerous advantages intelligence brings, alone it is insufficient for job, career, or leadership success. People must also be motivated to use their abilities, and, depending on the job, they also need social and self-management skills in order to leverage their abilities to their best advantage (Kaiser et al. 2008). Many promising careers have been undone by poor self-management skills. Organizations also too often assume that competence in a previous role assures success in a future role (which may have little to do with the skills of the previous role), or that the best leader is the “smartest person in the room.” Intelligence matters for career success and leadership effectiveness, but the correlation is not so strong as to assure it. Personality and social skills are just as important. Moreover, in contemporary society, intelligence is not helpful in either predicting subjective well-being or reproductive success (indeed, intelligent couples tend to have smaller, not larger, families). Thus, intelligence is quite important to some aspects of life and work, but it is not the only, nor always the most important, predictor of every criteria.

## Importance of General versus Specific Abilities

Research in industrial-organizational psychology shows rather conclusively that the variance attributable to the general mental ability or general intelligence factor overwhelms the variance contributed by more specific abilities in predicting job performance (Olea and Ree 1994; Ree, Earles, and Teachout 1994), training success (Ree and Earles 1991), and other criteria (Lubinski 2004). Although past research clearly supports the importance of general mental ability for predicting a host of consequential criteria, it does not render inconsequential the validity of specific abilities. As Lubinski (2009) notes, "Specific abilities add value to forecasts based on general cognitive ability in multiple real-world settings" (351). Gottfredson (2003, 119), in reviewing evidence demonstrating that "general ability, *g*, predicts performance to some extent in all jobs," also notes that "this is not to say that specific skills are unimportant. Far from it. This is to say only that more general abilities are more broadly useful across the great variety of tasks and settings that we encounter in the workplace." Certainly, there are cases where specific abilities matter, as shown in a recent study (Lang et al. 2010).

There is not much dispute that general mental ability is of substantial importance to many spheres of life, but this does not preclude the potential importance of specific abilities for many narrower criteria. Rather than engaging in an infinite round of "either-or" thinking ("either general mental ability is important, or specific abilities are important"), it would be more productive to frame future research and understanding around "yes-and" thinking ("yes, general mental ability is important, and we have found that, in some cases, specific abilities add to prediction"). In fact, this "yes-and" thinking should be applied across the board to all the traits when predicting organizational outcomes. In an always-turning kaleidoscope of perceptions and feedback from anthropometric characteristics, personality dimensions, intelligence, and other factors influencing opportunity and performance in the workplace, it is always the interaction of these characteristics with the situation that determines an individual's success.

## Emotional Intelligence

In considering the implications of intelligence for evolutionary psychology and organizational behavior, the reader may wonder about social forms of intelligence. Some people have argued that "emotional intel-

ligence” is as important for career success as general mental ability. Although a careful review of the emotional intelligence literature is beyond the scope of this essay, a few comments are in order. First, unless one subscribes to the view that in order to justify a new concept, one must attack an existing one, there is nothing about emotional intelligence that challenges the importance of general mental ability. Depending on the measures used and aspects of emotional intelligence considered, there are some correlations between the measures, but their magnitude is not great (Joseph and Newman 2010). Being able to “read” others’ faces, for example, is correlated with general mental ability, but not very strongly (Wilhelm et al. 2010).

Furthermore, emotional intelligence is an ambiguous concept. Are “emotionally intelligent” individuals able to recognize facial expressions? Understand emotional undertones in social interaction, art, literature, and so forth? Successfully regulate their emotions? Provide supportive counsel to others? As Joseph and Newman’s (2010) important study shows, these are not the same processes. If one views specific aspects of emotional recognition and regulation as components of a more general ability, perhaps it is possible to argue for the importance of an overall ability. We suspect, however, that future research will show that the neural substrates governing emotion recognition are distinct from those underlying emotional regulation.

## CONCLUSION

The newfound interest in the biological foundations of organizational behavior represented by the contributors to this book is an important and innovative turn in applied psychology. The specific research topics in organizational behavior all share a common underlying concern—every topic concerns some aspect of human nature. Unless and until organizational researchers agree on the proper conceptual context for their research, that research will be little more than “stamp collecting,” pointillism, and ad hoc aggregation of empirical facts.

Many organizational researchers (and business managers) will agree with Frederick Winslow Taylor’s (1911) assumption that organizational processes (1) can and should be based on the needs of the organization and (2) that the motives and desires of employees can (even should) be ignored. But the emerging research on engagement (Harter, Schmidt, and Hayes 2002) indicates that paying attention to staff morale is the path to

enhanced productivity, customer satisfaction, and profitability—Taylor (1911) was simply wrong.

Research on employee engagement can be sharpened and focused by a better understanding of human nature. The first great challenge to Taylor (1911) came from precisely this perspective. Argyris (1960), Herzberg (1959), and especially McGregor (1960) criticized Taylor (1911) and existing management practices for ignoring, stultifying, or violating basic human needs. They then argued that better business results would be obtained by paying attention to human nature (i.e., personality—which concerns “the nature of human nature”). We agree with the formal thrust of their argument, but the three books ultimately fail for precisely the reasons that prompted the writing of the present book—they adopted an indefensible model of human nature. They were correct to ground their ideas on assumptions about personality and to argue that violating basic human needs would be bad for business. But they started with a wrong-headed model of human nature.

So, finally, although books such as this run the risk of engaging in fantasy theory, as Alfred North Whitehead once said, “To set limits to speculation is treason to the future.” Successful organizational practices must be based on the best understanding of human nature that we can possibly derive. For that, the wisest path is to begin at the beginning, when human beings first walked on Earth and learned to survive over many millennia. This book is an important first step toward understanding how the modern workplace has, in many ways, replaced the tribe and the savannah in how these forces play out.

## Notes

1. We define religion broadly here: “A particular system of faith and worship” or a collective “devotion to some principle” (*Oxford English Dictionary*, 2011, s. v. “religion.”). In many cases, this most fundamentally is a belief in God, gods, mysticism, and so forth, but that need not be the case. It could mean, for example, a shared belief and devotion to central aspects of one’s culture.

2. Following the diversity literature (see Bell 2007), we make a distinction between surface-level characteristics (e.g., height, weight, age, and attractiveness) that are easily seen and appraised, and deep-level characteristics (e.g., personality, intelligence, and values).

3. Of course, it is possible to make this distinction statistically by including separate measures of age and experience in predicting a criterion (e.g., career success).

4. Calculated using the formula:  $FW = PW(1 + mr)^Y$ , where  $FW$  = future value of wages,  $P$  = present wage,  $mr$  = merit raise annually, and  $Y$  = number of years.

5. In this case, results do not perfectly conform to evolutionary psychology;

evolutionary psychologists would expect a brawny, muscular man to be most desirable (for reproductive and protective purposes), whereas a fit or plump woman should be seen as most desirable (for reproductive fitness). In short, evolutionary psychology would predict that, for reproductive fitness, thinness is not highly desirable. That does not explain, however, contemporary Western cultures desire for thinness in mates.

6. We recognize that the possible transmission mechanism here may be genetic (“nature of nurture” [Plomin and Bergeman 1991]).

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