

The Adaptive Significance of Personality Traits

It is clear that in order for a trait to have survived, it must have had some degree of functionality. This suggests that shifting environmental pressures, particularly social ones, encouraged a range of variation on a number of traits (Buss, 1991). Furthermore, traits that were at one time adaptive, may be maladaptive in the present environment. We shall now examine the three and five factor models to discuss how they might have been adaptive.

Neuroticism is associated with the ability to perceive and respond to environmental warnings associated with impending punishment. Being elevated on this trait makes people more vulnerable to spurious and inappropriate contingencies associated with being too sensitive to future punishment. A person who scores high on this trait, for example, might be more likely to develop a phobia.

In some situations persons who score high on this trait would have a reproductive advantage. They might be more likely to avoid dangers. On the other hand, persons who scored low might be more likely to engage in reproductive behaviors that were accompanied by a risk. Males low in neuroticism could also gain reproductive advantage by engaging in high risk behaviors that increased their social status and consequently their level of attractiveness to females.

Extraversion or surgency is related to the need for cortical stimulation (Eysenck, 1997). People who are extraverted become more bored more quickly. They also demonstrate faster habituation to a stimulus, especially intense stimuli. Being extraverted might be reproductively advantageous in males by motivating them to mate with many different partners, a quantitative strategy. On the other hand, more introverted males may be likely to develop and sustain more material resources and invest these resources in a single mate which may confer a reproductive advantage by producing high-status offspring, a qualitative strategy.

Similarly, psychoticism is related to interpersonal aggressiveness, which conveys a reproductive advantage in adverse social situations and perhaps during war (Zuckerman, 1999). Persons who score high on the measure of psychoticism are more likely to be aggressive with other humans. Their sexual behavior is more likely to be nondiscriminatory, promiscuous, and perhaps forceful (Eysenck, 1976). Their capacity to grab resources, often to the exclusion of others, may give them a reproductive advantage. During war, they may be more likely to benefit from the plunders of an enemy's resources. They may aggress against others in order to mate.

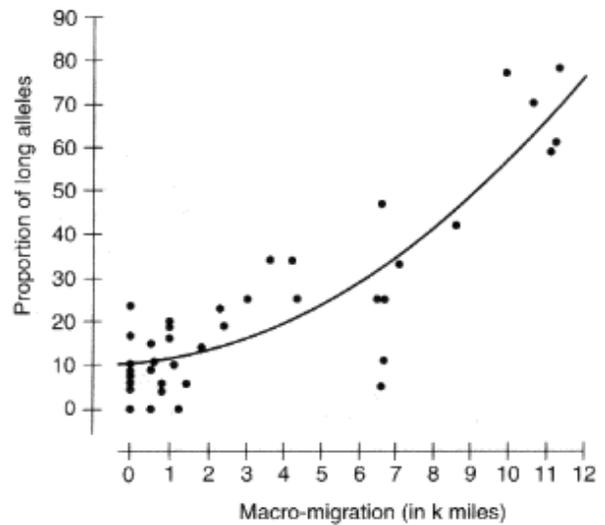
There are many circumstances in which psychoticism might also be a reproductive disadvantage. Psychoticism is associated with increasing criminality (Zuckerman, 1999). Being incarcerated for criminal behavior or ostracized by society probably limits reproductive

advantages. P is also associated with bizarre and cold behaviors that make a person less attractive as a sexual partner than someone whose P is in a more typical range. Presumably, people with elevated psychoticism are less nurturing parents, which may reduce their reproductive advantage. Depending upon the specific circumstances, different levels of P produce different reproductive payoffs. Continuous fluctuations in social stability over time probably maintain a wide distribution of P scores throughout any given population.

Openness to experience may be widely distributed within a population because of the labile nature of social groups. As long as conditions remain constant there is an advantage in being conservative and closed to newness and outside influences, i.e., low openness. When conditions radically change, holding on to old customs and being closed to new ideas becomes a liability. Under rapidly changing conditions, the individual high in openness has the advantage.

There is evidence that traits related to openness, such as novelty seeking, may be more prevalent in migratory societies or societies with a migratory history (Chen, C., Burton, M., Greenberger, E., & Dmitrieva, J., 1999). The long allele for dopamine D4 receptors (DRD4) has been linked to the trait of novelty seeking as well as hyperactivity. In a genetics study of 2,320 subjects from 39 populations it was found that compared to sedentary populations, migratory populations showed a higher proportion of long alleles for DRD4. The correlation between long-distance group migration and the proportion of long alleles of DRD4 was .85 (see Figure 8-1).

FIGURE 8.1 Scatter plot of proportion of long alleles for 39 populations by the distance of their macro-migration.
(Reprinted from "Population Migration and the Variation of Dopamine D4 Recept" by Chen, Burton, Greeberger, and Dmitieva, in *Evolution & Human Behavior*, 20(5), Fig. 1, p. 316, © 1999 by Elsevier Science; used by permission of Elsevier Science.)



The optimum level for conscientiousness and agreeableness probably depends upon the social environment. When social conditions are relatively stable, individuals high in these traits will be the ones most sought after as viable long-term mates. As we saw in the chapter on courtship and reproduction, both men and women rate these qualities very high in terms of what they are looking for in a long-term partner. These traits may be essential in maintaining a long-

term pair bond. Relatively high conscientiousness and agreeableness may also be necessary for the kind of strongly nurturing parental investment required in rearing high quality offspring.

Ashton, Paunonen, Helmes, and Jackson (1998) hypothesized that traits such as empathy and attachment mainly facilitate kin altruism, and that traits such as forgiveness and non-retaliation mainly facilitate reciprocal altruism. In a study of 118 participants it was found that the Empathy/Attachment factor (kin based altruism) was related positively to Agreeableness and negatively to Emotional Stability whereas the Forgiveness/Non-Retaliation factor (reciprocal altruism) was positively correlated with both Agreeableness and Emotional Stability.