Personality and intelligence

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Peter Salovey and John D. Mayer

The area of inquiry concerned with the recursive influences of personality and intelligence represents fertile ground for collaborative efforts between cognitive–developmental and personality–social psychologists. Volumes such as the present one provide an enormous service to the field of psychology by facilitating interaction among members of subfields who may increasingly find themselves isolated from like-minded colleagues located either physically or psychologically at great distance. As Martin Ford notes in his chapter, "There is a tendency to focus narrowly on particular components of human functioning rather than to frame problems in terms of broader issues that emphasize the meanings and significance of these component processes in people's everyday lives. As a result, there is a critical and growing need for broad, integrative theorizing in psychology." We could not agree more. The systematic study of personality and intelligence fosters intersubdisciplinary collaboration despite such boundaries to the benefit of the collaborators themselves and to the larger field of psychology.

The present volume is concerned with a number of important contributions to the study of intelligence. In this commentary, we shall review the ten chapters of the volume, organizing them around four levels of analysis in the study of personality and intelligence: (a) personality traits and intelligence; (b) personality development and intelligence; (c) theoretically broader inquiries concerning personality and the manifestations of intelligence; and (d) personality and intelligence in their cultural context.

The second half of this concluding chapter describes an area of inquiry honored primarily by its absence in the first ten chapters: emotion and intelligence. Although the emotional system constitutes one of the two primary divisions of personality, investigators of intelligence have remained largely uninterested in emotion, with a few exceptions that we shall point out. In this context, we discuss our recent thinking about a framework that we call *emotional intelligence.*

Levels of analysis in the study of personality and intelligence

Let us first, however, turn to the chapters that constitute the present volume and discuss them at the level of personality traits, personality development, and personality theories, respectively.

Personality traits and intelligence

For decades, investigators of personality trait–intelligence relationships have conducted correlational studies attempting to identify purportedly stable aspects of personality – self-consciousness, field independence, need for cognition, and the like – thought to be associated with intelligence. In many cases, relationships that seemed intuitively plausible could not be confirmed empirically. Eysenck presents a compelling case that in the instance of examining personality–intelligence relations, we must discard simple, atheoretical investigations of trait–IQ associations. (For those readers unfamiliar with this literature, Eysenck's comprehensive review will be worth a look.) Eysenck painstakingly summarizes the considerable work on intercorrelations among personality traits and intelligence. Like others who have examined these studies, he concludes that the most striking thing about these efforts is the lack of significant correlations. For instance, it would seem reasonable to predict an inverse relationship between trait anxiety and intelligence; overly anxious individuals should perform more poorly on measures of intelligence. In fact, there is no reliable difference in intelligence between highly anxious and calmer individuals when anxiety is measured as a trait, although inductions of state anxiety do inhibit performance in predictable ways. There are, of course, a few simple empirical exceptions to the pattern of low correlations between traits and intelligence (e.g., between sociopathy and patterns of verbal versus performance IQ). But independence is the rule.

Can the question be asked in a more complex way? Might there be differences in the factorial structure of intelligence for groups differing on a personality trait, say, neuroticism? The evidence is mixed. Eysenck encourages these kinds of inquiries, noting that the more theoretically generated the prediction, the more likely it is confirmed.

The power of the theory-based approach can be seen in relations between introversion–extroversion and intelligence. The simple bivariate correlation between this trait and intelligence is not significant. However, one might predict differences in style of intellectual performance between introverts and extroverts, and, in fact, such a prediction is supported by the data. Extroverts work faster but less accurately on tasks than introverts, for example. Certainly, such findings provide interesting evidence supporting the construct validity of the underlying measures of introversion and extroversion. If the overall intellectual achievement of introverts and extroverts is about the same, some obvious next steps include uncovering the conditions under which differences between them in intellectual style might be of practical importance. A finding of potential relevance is that as children grow older, introversion becomes increasingly related to intelligence, perhaps because brighter children are encouraged more to study on their own.

Moreover, fascinating relations between personality and divergent thinking styles have been uncovered. Eysenck's review provides some tantalizing evidence that psychoticism might be related to the kinds of creativity represented by "divergent" cognition. Successful painters, for example, record higher psychoticism scores than

less successful painters or control groups. Similar relationships have been reported with scales of schizotypal behavior. Of course, such relationships between creativity and psychological disturbance require further exploration, lest we reinforce stereotypes about madness and artistic genius. It is certainly possible that beautiful works are created in spite of psychological disturbance rather than because of it.

Another theory-based examination of personality traits and intelligence that has produced promising findings emanates from factor-analytic studies of traits very closely related to intellectual function (Mayer, Caruso, Zigler, & Dreyden, 1989). These investigators first factor-analyzed personality measures closely related to intelligence (e.g., curiosity, interest) and concluded that there are three basic dimensions of intellectually related personality traits: intellectual absorption (similar to hypnotic absorption and Csikszentmihalyi's (1990) concept of *flow*), intellectual pleasure, and intellectual apathy. Gifted children score higher on intellectual absorption and intellectual pleasure than mental- and chronological-age matched control children.

A clever personality–intelligence connection is represented in the present volume by Haslam and Baron's construct of *prudence*. They introduce prudence as an intelligent way for the individual to behave rather than as a trait related to intelligence as measured by intelligence tests. Haslam and Baron believe that the prudent individual essentially behaves altruistically toward one's future self. As the authors admit at the outset, prudence is a matter of intelligent character rather than intelligence per se. The authors take a normative approach to intelligent behavior rather than intellectual performance, and their well-written chapter is fascinating and stimulating. Of course, it does raise more questions that it answers. We wonder why so many of the intelligent (in the sense of *g*) individuals that we know behave so imprudently?

Ruzgis and Grigorenko write that according to Irvine, the Mashona (of Zimbabwe) word for intelligence "means to be *prudent* and cautious, particularly in social relationships . . . ." Must we accept this as a definition of intelligence at all? It certainly doesn't bear any relationship to the intelligence that psychologists have traditionally studied (i.e., *g*); rather, it sounds like cautiousness. If one wants to call it intelligence, fine. But in such an instance, perhaps we should reserve some other term for what researchers in the intelligence tradition have formerly considered intelligence (e.g., some variation of problem-solving or abstract reasoning).

Personality development and intelligence

In considering personality and intelligence, we can move to a different level of analysis by considering personality development more holistically and its relationship to intelligence. Such an approach characterizes the chapter by Maciel, Heckhausen, and Baltes. One of the most significant contributions of Maciel, Heckhausen, and Baltes's work is their application of Cattell (1971) and Horn's (1968) distinction

between fluid and crystallized intelligence to the problem of maturation. These authors argue that as a people mature, they focus their intellectual energy on increasingly narrow domains of thought. Research by Baltes and his colleagues indicates that frequently challenged domain-specific mental activities remain intact and perhaps even grow with age.

For example, if a person entered a legal career, he or she would remain adept, and perhaps improve in legal problem-solving abilities. Such intellectual pursuits require extensive commitments of time and concentration, with resulting tradeoffs in other areas. Thus, a person selectively optimizes those tasks required by the individual's goals while losing ability to problem-solve in other domains in which the individual is increasingly less involved. As such, fields of mastery become narrowed, and the person may compensate in other areas using a variety of strategies.

We wrote this chapter at the time of the presidential debates prior to the 1992 election. One presidential candidate remarked that the average American will change jobs eight times during his or her adult life-span. With such rapidity of occupational change, it is not clear whether the advantages of the crystallization of intelligence within particular areas will be lost to individuals who are forced late in life to switch careers.

Perhaps one of the major challenges facing the university today is the termination of mandatory retirement for faculty members. Although this issue poses problems for provosts worrying about the financial costs of maintaining professors on the payroll well into their 80s or beyond, the Maciel et al. chapter suggests that we also concern ourselves with the selective optimization of the skills of such senior colleagues. Although most of the positive attributes encompassed in the Big Five personality structure are thought to decline with age, we nevertheless expect such individuals to be wise – as defined here to have special insights and to be empathic, introspective listeners. Why not create roles that optimize these particular attributes? Rather than ask the most junior members of the faculty to serve as residence-hall advisors, freshman counselors, career consultants, ombudsmen and mediators, instead turn to those wise colleagues thought to be especially well qualified for these jobs. We expect Maciel et al.'s provocative research on the relationship between wisdom and intelligence, creativity, and personality to be directly applicable to utilizing the particular intellectual talents of the elderly with the most benefit to society.

A major finding reported in Maciel et al.'s chapter is that there is life-span growth on selected intellectual capacities in a general context of decline. This pattern of intellectual performance over the life-span is also represented in lay theories of intelligence and aging. Toward the conclusion of their chapter, Maciel et al. discuss the possibly complex interactions between goal pursuit and intellectual development. For example, while repeated functioning in an area may preserve performance, greater *life satisfaction* may increase for those people who have flexible life goals.

A focus on lay theories of intelligence is also characteristic of the chapter by Chiu, Hong, and Dweck, who present interesting evidence about how one's conception of one's own intelligence may influence intellectual performance. They distinguish

between a belief that intelligence is malleable and under instrumental control – an *incremental* theory of intelligence – versus a belief that intelligence is a fixed or unpredictable attribute – an *entity theory.* This new framework nicely incorporates Diener and Dweck's (1978, 1980) earlier work on mastery-oriented versus helpless response patterns in problem solving. In that earlier research, children were administered attributional measures associated with helplessness versus persistence in the face of failure. Mastery-oriented children use failure as an opportunity to teach themselves, whereas helpless children report a number of task-irrelevant thoughts.

More recently, Dweck and her colleagues have shown that people who believe intelligence is malleable (incremental theorists) choose more demanding problems to work on (thereby presumably taking more opportunity to learn) as well. Chiu, Hong, and Dweck present evidence that entity theorists, identified in grade school, show pronounced declines in their relative standing in the seventh grade, compared to the sixth grade. These differences between entity and incremental theorists may have more to do with coping with success versus failure than with actual success or failure. It may be that over the long term, better copers increase their intellectual performance to a greater degree, but to date, there is little convincing evidence for this idea.

Personality and the manifestations of intelligence

A very promising avenue toward understanding relationships between personality and intelligence concerns work on fundamental theories of personality that are rooted in individual differences in intellectual and problem-solving abilities, styles, and goals. Prototypic of this exciting style of inquiry is work on a cognitive theory of personality by Cantor and Kihlstrom (1987). Cantor and her colleagues' theory of social intelligence is both a theory of personality *and* a theory of intelligence. It is not surprising, then, that the chapter by Cantor and Harlow is one of the most integrative vis-à-vis the theme of this volume. Social intelligence theory suggests that individual uniqueness – personality – is rooted in the characteristic ways in which people go about solving representative problems of daily living. Often these problems are organized around a dominant life-task at a particular juncture – adjusting to college, finding a romantic partner, raising a family, planning retirement, and the like.

We wonder what kind of intelligence is it that is so domain specific? With no reference to a general ability or even a "social IQ," it may be at times difficult to distinguish such intelligence from luck, a societal rising tide of prosperity, or other such "confounds." For example, can theories of social intelligence distinguish between a genuinely high-ability (let's say, to be provocative about it, high IQ) person who writes a superb book and makes a modest amount of money from it versus a drunken professor who at the end of every week buys a lottery ticket and one week wins big? Each person has behaved adaptively at his or her given life task and come out a winner. Cantor and Harlow raise the issue of expertise, which may be used to answer some of these questions. Flexibility, attunement to, and discrimination among

opportunities may distinguish between the drunken lottery winner and the book author. But expertise across such areas *is* intelligence (i.e., is highly related to traditional measures of IQ).

Cantor and Harlow raise an interesting point in light of the theme of Maciel et al.'s chapter discussed earlier. They worry that the skills displayed and tasks pursued by individuals are constrained by what is considered normative for someone of a particular age. As Cantor and Harlow note, "The contingencies for social feedback and social comparison are set against . . . standards of what a person *should* be doing at each point in their lifecourse." Cantor and Harlow thankfully view deviations from these social expectations as a core component of social intelligence, allowing them to take a constructive approach (rather than a deficit-based one) to the talents that an individual contributes to society. It is no accident that flexibility is the hallmark of intelligent behavior in this view.

A very different but equally grand model is suggested by Sternberg, who proposes a government metaphor to understand different thinking styles and the most advantageous ways to assess them. For instance, monarchs stick to a single way of accomplishing a task while oligarchic thinkers juggle multiple goals. Similarly, legislative thinkers develop rule systems, executives carry them out with fidelity, and judicial thinkers judge the adequacy of such systems. This metaphor is provocative in its application here and builds on other government metaphors in psychology such as Freud's (1917/1966, p. 139) discussion of the ego as a government censor, Greenwald's (1980) totalitarian ego, Murray and Kluckhohn's (1956) idea that personality is a superordinate government institution, as well as government metaphors found in contemporary philosophical discussions of cognitive organization, such as Minsky's (1986) *Society of Mind* and Dennett's (1978) comparison of cognitive functions to the various heads of executive-branch agencies. Fox (1992) even proposes that introductory social psychology courses can be organized around the government metaphor provided by an anarchist political framework – a decentralized stateless society in which communal individuality is promoted.

Ford also proposes a metatheoretical framework for understanding the interrelations of personality and intelligence based primarily on Living Systems Theory that he calls Motivational Systems Theory. Like Cantor and Harlow's chapter (and several of the others), Ford, too, sees goals as the linking construct between personality and intelligence (an idea with which we are also sympathetic; cf. Singer & Salovey, 1993). The *behavior episode,* a goal-directed pattern of behavior in a particular context, is the unit of analysis. In many ways, then, intelligence is the accuracy with which required behavior episodes are mentally represented, something like *behavior episode schemas* (defined here as including thoughts, feelings, perceptions, actions, biological processes, and contexts – one wonders what would not be included in such a representation) and the resulting pattern of effective functioning that should follow. And personality is part-and-parcel the individual's repertoire of characteristic behavior episode schemas. (We prefer *schemas* as the plural of *schema*; Ford prefers *schemata.* We are reminded of a particularly vitriolic reviewer of one of our journal

submissions who opened his comments to us with "You say schemas; I say schemata. Let's call the whole thing off."). We have always found models of personality based on systems and control theories elegant and useful. At the same time, they must be stated carefully so that they are falsifiable and testable as wholes.

Personality and intelligence in their cultural context

Rather than using metaphors like social intelligence, governmental structure and functioning, or systems theory to understand personality and intelligence, Smirnov chooses instead to say simply that intelligence *is* thinking, no more, no less, and then assumes that personality is an inherent component of all thought processes. Personality, however, need not be necessarily incorporated into the popular models of thinking of late, which are rooted in neural networks and parallel processing at a neuronal level of analysis modeled in computational terms. Smirnov, however, notes that thinking – both in process and content – is motivated by individual personality differences.

Smirnov is in agreement with many of the other authors of this volume that the precise way that intelligence is expressed is determined by an individual's personality, in particular, his or her goals. The fact that personality is viewed as a moderator of the expression of intelligence shows that Russian and American psychologists are conceiving of the relation between personality and intelligence quite similarly. The chapter concludes with a nice summary of trait relations to IQ that is consistent with the American data on the subject.

Whereas to date there is little evidence in American research on the relation between mood and intelligence, there appear to be some provocative findings in the Russian literature. For example, Smirnov reports that sad people have higher performance than verbal IQs. In addition, the Russian literature points to some possible relationships between positive emotions and verbal intelligence, because both may be lateralized in the left hemisphere. When we discuss emotional intelligence later in this chapter, we shall return to these findings.

In their nicely written chapter, Ruzgis and Grigorenko argue that no matter what our favorite metaphor for intelligence (and personality) may be, both intelligence and personality are bound by culture. In particular, what is thought to be intelligent behavior is often behavior that allows the individual to adapt successfully in a cultural context. Ruzgis and Grigorenko adopt a view of intelligence as adaptation. Although provocative, there is always a concern when departing from the traditional, information-processing definitions of intelligence. So long as intelligence is defined as the ability to learn, remember, manipulate symbols, and reason abstractly, then it seems that most of the traditional research in intelligence (i.e., Galton, Spearman, Cattell, Eysenck, etc.) can be applied cross-culturally. By defining intelligence as adaptation, we require that its measurement be culture-bound, which is fine, so long as there is broad agreement about what is adaptive in a particular cultural context. For example, does protesting against an authoritarian government in China represent high or low

intelligence from the adaptation point of view? An adaptation view of intelligence is not sufficiently worked out to answer such a question. Further, many plants and animals adapt to their situation. Sunflowers move their petals so as to face the sun. Is this intelligence? Well, no, because it doesn't require conceptual abstraction. The sunflower neither knows what the sun is nor could it change from sun to moon. The problem is, the sunflower is quite adaptive, as is the porcupine, squirrel, and urban rat. None of these creatures are especially intelligent, however.

Ruzgis and Grigorenko state "For example, studying hard to achieve good grades in school may have very different meanings in different cultural settings. For the independent self, the behavior is likely to reflect personal goals . . . whereas for the interdependent self the same behavior is performed to achieve the goals of the ingroup . . . ." Granted, but it is precisely the information-processing definition of intelligence that avoids this problem. Intelligence, as defined by Western psychology, is the property of the individual, and that individual, idiocentric or allocentric, can have his or her intelligence gauged by abilities at manipulating symbols. Certainly intelligence can exist at a group level. Ants are often said to be very intelligent, as, presumably, certain cultures are more intelligent than others (or, at least differently intelligent). But this collective intelligence is disparate in its meaning from individual intelligence, and the loose slippage between the two ideas points up some of the advantages of rigorous (and not necessarily culturally relativistic) definitions.

These debates, in the end, come down to one's definition of intelligence. And controversy about such definitions is not new. In fact, the broader definition proposed by Wechsler (1958) that intelligence is the aggregate capacity of the individual to act purposefully, think rationally, and deal effectively with the environment would probably be acceptable to those individuals working in social intelligence or culturally based frameworks. Investigators of relationships between personality traits and intellectual skills would probably be happier with the more restrictive definition of intelligence proposed by Terman (1916), focusing primarily on the ability to think abstractly.

Perhaps a useful solution to these issues is a more precise demarcation between the constructs of *intelligence,* on the one hand, and *social competence,* on the other. There are many situations in which cultural expectations dictate appropriate behavior. In Japan one bows upon greeting another person, especially a social superior. If one were not to bow, we might assume that such a person lacked social competence. At the same time, we would probably not devise an intelligence test that scored someone as highly intelligent if he or she regularly bowed in appropriate social circumstances. Culture surely influences the situations in which intelligent behavior can be manifested, and so we cannot assume that it can be accurately measured the same way across all cultural contexts. Social competence, however, *is* knowledge of the reinforcement structure of one's culture and the ability to adapt behavior to it. Separating intelligence and social competence may provide greater conceptual clarity in this context.

A final note on the issue of culture. We find ourselves in strong agreement with Elliot Turiel's worry that although many psychologists heeded Mischel's (1968) warnings about the validity of personality typing, they feel free to engage in "culture typing." The danger here is that the increasing emphasis on culture in 1990s psychology has motivated a tendency to characterize cultures as monolithic along some fundamental dimensions and then to assume vast homogeneity within the culture on this dimension. Although we welcome the reintroduction of culture into mainstream psychology, at the same time we suggest that every investigator interested in cultural constraints on thinking and behavior read Turiel's chapter.

What is missing?

As should be obvious by this point, the present volume represents a broad sweeping look at relations between intelligence and personality, with levels of analysis ranging from traits and intellectual-test performance (e.g., Eysenck's chapter) to whole cultures (e.g., Turiel's chapter). We are primarily investigators of emotion, and what seems to be missing, from our perspective, in nearly all of these accounts is a role for emotion in the intelligence–personality interface.

Emotion is not entirely excluded from this volume. In fairness, Chiu, Hong, and Dweck discuss the importance of affect, but use the language of needs, motives, and psychoanalysis, almost as if emotions do not play a role in more modern, cognitive conceptualizations of intelligence and/or personality. Certainly, Cantor and Harlow's discussion of optimism and pessimism is relevant to the self-regulation of emotion – a set of skills that probably would be included in an adaptation-oriented definition of intelligence. But it is only the chapter by Smirnov in which actual research on the impact of moods and emotional states on intellectual performance is discussed directly.

In the remainder of this chapter, we shall argue that emotion plays an important role in linking personality (i.e., individual differences in the ways in which people confront the challenges of the world) with intelligence (i.e., the accuracy, efficiency, and success with which they do so). We should be clear: we certainly do not fault the authors of the chapters of this volume for ignoring the emotional system. Indeed, emotions often have been viewed in psychology as antithetical to clear thinking. Young (1936, pp. 457–458) described them as causing a "complete loss of cerebral control" and containing no "trace of conscious purpose." And Woodworth (1940) suggested that a scale to measure intelligence should contain items demonstrating *not* being afraid, angry, grieved, or inquisitive about things that arouse the emotions of younger children. Instead, we view emotions as organized responses, crossing the boundaries of many psychological subsystems, and thus propose that the adaptive processing of emotionally relevant information is part of intelligence and, at the same time, individual differences in the skills with which such processing occurs constitute core aspects of personality (Salovey & Mayer, 1990).

Emotional intelligence

We have proposed a framework called *emotional intelligence* as a way of identifying and organizing the specific skills needed to understand and experience emotions most adaptively (Mayer & Salovey, 1993; Salovey & Mayer, 1990; Salovey, Hsee, & Mayer, 1993). More formally, we define emotional intelligence as the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions (Salovey & Mayer, 1990, p. 189).

A case study

Before presenting a more thorough description of our emotional-intelligence framework, however, we shall try to persuade you of the utility of such a construct by discussing a political candidate from the presidential campaign of five years ago. Recall that in the 1988 election, in contrast to 1992, George Bush rather soundly defeated Michael Dukakis, the rather lackluster Democratic nominee. But earlier in the campaign for the Democratic nomination, it looked as though the Democratic standard bearer was more likely to be Gary Hart, the former Colorado senator. Although the front-runner for the nomination at the time, Hart's candidacy collapsed when, in the face of rumors concerning adulterous relationships, he dared the press corps to produce evidence of illicit affairs. And so they did – by staking out his Washington, DC condominium and monitoring its nighttime visitors. We ask – recall the discussion of *prudence* earlier – how could a seemingly intelligent individual so efficiently orchestrate his own self-destruction?

We would argue that just as decrements in visual–spatial tasks on the WAIS may indicate lateralized brain injury (Lezak, 1983, pp. 251–252), so can decrements in particular aspects of emotional intelligence be indicative of characterological impairment. Gary Hart's ability to build a successful 1988 presidential campaign by inspiring staffers and voters probably indicated high overall emotional intelligence. However, one or more decrements in emotional-information processing probably destroyed his presidential campaign. Hart was often depicted in the press as an emotionally constricted technocrat, so much so that when his voice broke during a campaign stop in his home town, his staff was thrilled with this brief expression of emotion (Dowd, 1987). (Recall, also, the disappointment of Dukakis supporters when months later at a debate with Bush, Dukakis reacted with little emotion to a question concerning the hypothetical rape of his wife.)

Hart's campaign as the Democratic front-runner collapsed amidst newspaper accounts of sexual indiscretion and lapses in judgment. In the ensuing analyses of how this occurred, David Spiegel, a psychiatrist at Stanford University Medical School was quoted as saying:

> Such people come to feel that they can do no wrong and that they should be allowed to do whatever they want . . . it is only an educated inference on my part, but Gary Hart seemed to be so taken with himself and his accomplishments that he could not empathize, and he was so divorced from a sense of being involved that he could not consider the cost to his wife and to his supporters of not controlling his own impulses (Goleman, 1987, p. C-5).

Hart seemed unable to perceive or calculate the emotional reactions of his wife, family, and the public. He may also have been impaired in introspections about his own guilt and shame as evidenced in his speech that ended his campaign. According to William Schneider, a political analyst at the American Enterprise Institute:

> Gary Hart had a blind spot . . . he thought his passions and foibles were irrelevant; he did not sense how important the character of the president is. The word around Washington was that Hart felt special and invulnerable (Goleman, 1987, p. C-5).

Further, as Louis Jolyon West, chairman of the Department of Psychiatry at UCLA, indicated:

> [Hart] had a self-deceptive sense of invulnerability; he seemed to believe he would not be found out no matter the risks he took. In that way he seems similar to Ivan Boesky [the Wall Street broker who confessed to insider trading] (Goleman, 1987, p. C-5).

Thus, individuals may be high in emotional intelligence, others uniformly low, but a third, more interesting group show great abilities on some aspects of emotional intelligence but profound deficits in others.

The emotional-intelligence framework

In the next section of this chapter, we shall discuss the various aspects of emotional intelligence and the personalities of people skilled or unskilled on each of these dimensions. Although, historically, scientists of human intelligence often contrasted rational thought with emotional experience (Schaffer, Gilmer, & Schoen, 1940; Woodworth, 1940; Young, 1936), modern investigators recognize that emotions can serve as a source of information to individuals (Schwarz, 1990), and individuals are more or less skilled at processing this information.

Gardner (1983) has described what he calls personal intelligence in part as "access to one's own feeling life – one's range of affects or emotions: the capacity instantly to effect discriminations among these feelings and, eventually, to label them, to enmesh them in symbolic codes, to draw upon them as a means of understanding and guiding one's behavior" (p. 239). Our view of emotional intelligence encompasses these clearly adaptive skills, and more. Briefly, emotional intelligence can be described in three primary domains: the accurate appraisal and expression of emotion in self and in other people, the adaptive regulation of emotions in self and in other people, and the utilization of emotions to plan, create, and motivate action.

Accurate appraisal and expression of emotion. The ability to recognize, identify, and label what one is feeling is clearly the precursor to the adaptive use of the information that emotions convey. Work with young children suggests that the ability to recognize accurately the facial expressions of emotions increases linearly with age.

Children as young as three years are able to pose facial expressions suggested to them by an adult (Lewis, Sullivan, & Vasen, 1987). At about four years of age, children can identify correctly the emotion suggested by about half of the faces that they see. By six years of age, they are correct 75% of the time. For some emotions, such as happiness and disgust, correct identification on nearly every presentation is seen in children as young as four years (Profyt & Whissell, 1991).

At the same time, we are all familiar with adults who seem oblivious to their own feelings and insensitive to those of others (Salovey & Mayer, 1991). Some individuals have great difficulty identifying the feelings communicated to them through the facial expressions of other people (Buck, 1984; Campbell, Kagan, & Krathwohl, 1971; Kagan, 1978; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979). People also vary in their ability to use their own facial expressions (and other nonverbal behaviors) in order to communicate what they are feeling (Buck, 1979; Friedman, Prince, Riggio, & DiMatteo, 1980). Moreover, there are vast differences in the ability to articulate feelings into words. Children begin to learn emotion words at quite a young age (Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986; Whissell & Nicholson, 1991). Despite such fluency with emotional language demonstrated by children, some adults grope wildly with the affective lexicon when trying to report on their feelings. Others, of course, are much more facile, and perhaps gravitate toward professions that reward these skills such as psychotherapy, authoring novels, advertising, and the like.

Although the construct has yet to be measured in ways that would make psychometrists happy, there seems to be a group of individuals who are simply unable to use words to describe feelings at all. Labeled *alexithymics* (literally, "no words for feelings"), these individuals are thought to be at risk for a variety of psychological disorders, especially psychosomatic illnesses (Apfel & Sifneos, 1979; Krystal, Giller, & Cicchetti, 1986; Sifneos, 1972, 1973; Taylor, 1984). In some of our studies, we have examined people who replace emotional with nonemotional words. Such individuals seem to have reduced empathy for the feelings of others (Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991). We also have been able to identify individuals who vary with respect to how much attention they pay to and the clarity with which they perceive their moods (Mayer & Gaschke, 1988; Salovey, Mayer, Goldman, Turvey, & Palfai, 1992). Such perceptions may be related to the tendency to ruminate after distressing experiences and the frequency with which physical symptoms are reported in stressful situations (Goldman, Kraemer, Salovey, & Mayer, 1992).

Adaptive regulation of emotion. Although not studied systematically until recently, people engage in all kinds of activities to regulate their moods. They may try to control their thoughts, drink alcohol, seek the company of others, or jog (see Morris & Reilly, 1987, or Parrott, 1993, for reviews). Children as young as four years recognize their ability to regulate their feelings. Brown, Covell, and Abramovitch (1991) asked children to listen to stories in which they might experience happy, sad, or angry emotions. They then indicated various cognitive (e.g., "try to think to

yourself, 'it wasn't as bad as all that' ") and behavioral (e.g., "go and do something that you would really like to do") strategies they would use in order to regulate that emotional experience. Four-to-six-year-old children in this study were as likely to recognize effective emotion control strategies as teenagers.

Emotional intelligence, however, includes more than just an ability to regulate feelings in oneself. It also pertains to the ability to regulate adaptively the feelings of other people. We have all had the experience of being moved by a stirring orator, finding ourselves impressed by the professional demeanor of a job candidate, or becoming attracted to someone we hardly know. Some people seem to know how to create emotions in others that serve them in adaptive ways.

In the extreme, manipulating the feelings of another person for one's own gain may seen sociopathic or Machiavellian. But in less extreme situations, we may simply label such individuals as "charismatic" or, merely, charming (Wasielewski, 1985). A most advantageous strategy is to focus on the feelings of other people and inhibit a display of one's true emotional reactions to some situation. For example, Hochschild (1983) has studied the ways in which certain professionals, such as airline flight attendants, strongly regulate their displays of feelings and focus on and attempt to regulate the feelings of others. Emotional regulation may be accentuated among helping professionals, which may account for their high incidence of burnout.

Utilization of emotion-based knowledge. Individuals also differ in their ability to harness their own emotions in order to solve problems. Moods, generally, influence problem-solving outcomes. For instance, changes in feelings may facilitate the generation of multiple options (Mayer, 1986). And certain emotions may facilitate different kinds of problem-solving tasks (reviewed by Isen, 1987). For instance, creative and inductive reasoning may be improved by happy moods (Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985), while tasks requiring deductive reasoning and the careful consideration of multiple options may be facilitated by sad moods. In a recent set of studies, Palfai and Salovey (1993) found that happy moods interfered with performance on a deductive-reasoning task (such as those found on the LSAT exam), whereas sad moods led to slower performance on inductive reasoning problems, such as analogies.

It may be that happy and sad moods are associated with distinct information-processing styles that can affect performance on different kinds of problem-solving tasks. Emotions that signal danger, such as sadness, fear, shame, and guilt may switch individuals into a focused, sequential analytic mode of processing that leads to enhanced attention and reduced error on some kinds of problems (Kuhl, 1983). Anger and joy, on the other hand, may create a state of mind that allows for the diffuse, multiple processing characteristic of more intuitive and holistic tasks. An intuitive awareness of the kinds of cognitive tasks facilitated by different affective states may characterize the emotionally intelligent individual.

Mood also may facilitate problem solving by virtue of its impact on the organization and utilization of information in memory. Individuals find it easier to categorize

aspects of problems as related or unrelated when happy (Isen & Daubman, 1984), which may facilitate creative thinking. It seems that when feeling good, individuals are better able to discover category-organizing principles and then use these principles to integrate and remember new information (Isen, Daubman, & Gorgoglione, 1987). This may account for their greater connectedness to and altruism toward other people (Salovey, Mayer, & Rosenhan, 1991). Finally, the positive impact that pleasant moods have on creative problem-solving tasks may be mediated by changes in persistence. Happy individuals feel more confident about their abilities (Kavanagh & Bower, 1985; Salovey & Birnbaum, 1989) and so may be more likely to continue to work even in the face of obstacles.

Conclusion

The contributors to this volume have made important advances to our understanding of personality and intelligence. Throughout the volume, as they trace the relations between discrete traits and IQ, intelligence in personality development, and theoretical discussions of the place of intelligence in models of personality, they have drawn together much of the diverse and widespread treatment of these topics that can be found in the literature today. To this enlightening discussion, we have tried to add one additional contribution concerning emotion. *Emotional intelligence* is an organizing framework for cataloguing abilities related to understanding, managing, and using feelings. Included in this array are abilities to recognize emotions in oneself and others and express emotion-laden concepts in words. Moreover, the individual functioning in an emotionally intelligent manner is able to regulate feelings in him or herself and in other people and to utilize emotions to aid in problem solving and decision making. It is our belief that the adaptive use of emotion-laden information is a significant aspect of what is meant by anyone's definition of intelligence, yet it is not studied systematically by investigators of intelligence. Moreover, individual differences in understanding, regulating, and using feelings constitute major aspects of personality. Emotions, we believe, provide an important keystone to understanding the personality–intelligence connection.

References

Apfel, R. J., & Sifneos, P. E. (1979). Alexithymia: Concept and measurement. *Psychotherapy and Psychosomatics, 32,* 180–190.

Bretherton, I., Fritz, J., Zahn-Waxler, G., & Ridgeway, D. (1986). Learning to talk about emotions: A functionalist perspective. *Child Development, 57,* 529–548.

Brown, K., Covell, K., & Abramovitch, R. (1991). Time course and control of emotion: Age differences in understanding and recognition. *Merrill-Palmer Quarterly, 37,* 273–287.

Buck, R. (1979). Individual differences in nonverbal sending accuracy and electrodermal responding: The externalizing–internalizing dimension. In R. Rosenthal (Ed.), *Skill in nonverbal communication: Individual differences.* Cambridge, MA: Olegeshlager, Gunn, & Hain.

Buck, R. (1984). *The communication of emotion.* New York: The Guilford Press.

Campbell, R. J., Kagan, N. I., & Krathwohl, D. R. (1971). The development and validation of a scale to measure affective sensitivity (empathy). *Journal of Counseling Psychology, 18,* 407–412.

Cantor, N., & Kihlstrom, J. F. (1987). *Personality and social intelligence.* Englewood Cliffs, NJ: Prentice Hall.

Cattell, R. B. (1971). *Abilities: Their structure, growth, and action.* Boston: Houghton-Mifflin.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience.* New York: Harper and Row.

Dennett, D. C. (1978). Toward a cognitive theory of consciousness. In D. C. Dennett (Ed.), *Brainstorms: Philosophical essays on mind and psychology* (pp. 149–173). Cambridge, MA: Bradford Books.

Diener, C. I., & Dweck, C. S. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. *Journal of Personality and Social Psychology, 36,* 451–462.

Diener, C. I., & Dweck, C. S. (1980). An analysis of learned helplessness: 2. The processing of success. *Journal of Personality and Social Psychology, 39,* 940–952.

Dowd, M. (1987). With tears and revelation, '88 contenders soften images. *New York Times,* April 26, 1987, p. 1, 28.

Fox, D. R. (1992). A political framework for the introductory social psychology course. *Contemporary Social Psychology, 16,* 37–39.

Freud, S. (1917/1966). *Introductory lectures on psychoanalysis.* (trans. J. Strachey). New York: Norton.

Friedman, H. S., Prince, L. M., Riggio, R. E., & DiMatteo, M. R. (1980). Understanding and assessing nonverbal expressiveness: The Affective Communication Test. *Journal of Personality and Social Psychology, 39,* 333–351.

Gardner, H. (1983). *Frames of mind.* New York: Basic Books.

Goleman, D. (1987). Sex, power, failure: Patterns emerge. *New York Times,* May 19, 1987, p. C-1, 5.

Goldman, S., Kraemer, D., Salovey, P., & Mayer, J. D. (1992). *Emotional intelligence and the reporting of physical symptoms in stressful situations.* Submitted for publication.

Greenwald, A. (1980). The totalitarian ego: Fabrication and revision of personal history. *American Psychologist, 35,* 603–618.

Horn, J. L. (1968). Organization of abilities and the development of intelligence. *Psychological Review, 75,* 242–259.

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feeling.* Berkeley, CA: University of California Press.

Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203–253). San Diego: Academic Press.

Isen, A. M., & Daubman, K. A. (1984). The influence of affect on categorization. *Journal of Personality and Social Psychology, 47,* 1206–1217.

Isen, A. M., Daubman, K. A., & Gorgoglione, J. M. (1987). The influence of positive affect on cognitive organization: Implications for education. In R. Snow and M. Farr (Eds.), *Aptitude, learning, and instruction: Affective and cognitive factors.* Hillsdale, NJ: Erlbaum.

Isen, A. M., Daubman, K. A., & Nowicki, G. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology, 52,* 1122–1131.

Isen, A. M., Johnson, M. S., Mertz, E., & Robinson, G. F. (1985). The effects of positive affect on the unusualness of word associations. *Journal of Personality and Social Psychology, 48,* 1413–1414.

Kagan, N. (1978, September). *Affective sensitivity test: Validity and reliability.* Paper presented at the meeting of the American Psychological Association, San Francisco.

Kavanagh, D. J., & Bower, G. H. (1985). Mood and self-efficacy: Impact of joy and sadness on perceived capabilities. *Cognitive Therapy and Research, 9,* 507–525.

Krystal, J. H., Giller, E. L., & Cicchetti, D. V. (1986). Assessment of alexithymia in post-traumatic stress disorder and somatic illness: Introduction of a reliable measure. *Psychosomatic Medicine, 48,* 84–91.

Kuhl, J. (1983). Emotion, cognition, and motivation, II. *Sprache und Kognition, 4,* 228–253.

Lewis, M., Sullivan, M. W., & Vasen, A. (1987). Making faces: Age and emotion differences in the posing of emotional expressions. *Developmental Psychology, 23,* 690–697.

Lezak, M. D. (1983). *Neuropsychological assessment.* New York: Oxford University Press.

Mayer, J. D. (1986). How mood influences cognition. In N. E. Sharkey (Ed.), *Advances in cognitive science* (Vol. 1, pp. 290–314). Chichester: Ellis Horwood.

Mayer, J. D., Caruso, D., Zigler, E., & Dreyden, J. (1989). Intelligence and intelligence-related personality traits. *Intelligence, 13,* 119–133.