

CHAPTER SIXTEEN

Social Intelligence

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The capacity to know oneself and to know others is an inalienable part of the human condition as is the capacity to know objects or sounds, and it deserves to be investigated no less than these other "less charged" forms.

Howard Gardner (1983, p. 243)
Frames of Mind

Intelligence, as defined in standard dictionaries, has two rather different meanings. In its most familiar meaning, intelligence denotes the individual's ability to learn and reason. It is this meaning that underlies common psychometric notions such as *intelligence testing*, the *intelligence quotient*, and the like. In its less common meaning, intelligence refers to a body of information and knowledge. This second meaning is implicated in the titles of certain government organizations such as the Central Intelligence Agency in the United States and its British counterparts MI-5 and MI-6. Similarly, both meanings are invoked by the concept of social intelligence. As originally coined by E. L. Thorndike (1920), the term referred to the person's ability to understand and manage other people and to engage in adaptive social interactions. More recently, however, Cantor and Kihlstrom (1987) redefined social intelligence as the individual's fund of knowledge about the social world.

THE PSYCHOMETRIC VIEW

The psychometric view of social intelligence has its origins in E. L. Thorndike's (1920) division of intelligence into three facets: the ability to understand and manage ideas (abstract intelligence), concrete

objects (mechanical intelligence), and people (social intelligence). In his classic formulation: "By social intelligence is meant the ability to understand and manage men and women, boys and girls – to act wisely in human relations" (p. 228). Similarly, Moss and Hunt (1927) defined social intelligence as the "ability to get along with others" (p. 108). Vernon (1933) provided the most wide-ranging definition of social intelligence as the person's "ability to get along with people in general, social technique or ease in society, knowledge of social matters, susceptibility to stimuli from other members of a group, as well as insight into the temporary moods or underlying personality traits of strangers" (p. 44).

By contrast, Wechsler (1939, 1958) gave scant attention to the concept. He did acknowledge, however, that the Picture Arrangement subtest of the WAIS might serve as a measure of social intelligence because it assesses the individual's ability to comprehend social situations (see also Rapaport, Gill, & Shafer, 1968; Campbell & McCord, 1996). In his view, however, "social intelligence is just general intelligence applied to social situations" (1958, p. 75). This dismissal is repeated in Matarazzo's (1972, p. 209) fifth edition of Wechsler's monograph, in which "social intelligence" was deleted as an index term.

Defining social intelligence seems easy enough, especially by analogy to abstract intelligence. When it came to *measuring* social intelligence, however, E. L. Thorndike (1920) noted somewhat ruefully that convenient tests of social intelligence are hard to devise.... Social intelligence shows itself abundantly in

the nursery, on the playground, in barracks and factories and salesroom (*sic*), but it eludes the formal standardized conditions of the testing laboratory. It requires human beings to respond to, time to adapt its responses, and face, voice, gesture, and mien as tools (p. 231).

Nevertheless, true to the goals of the psychometric tradition, the abstract definitions of social intelligence were quickly translated into standardized laboratory instruments for measuring individual differences in social intelligence (for additional reviews, see Taylor, 1990; Taylor & Cadet, 1989; Walker & Foley, 1973).

The George Washington Social Intelligence Test

The first of these was the George Washington Social Intelligence Test, (GWSIT; Hunt, 1928; Moss, 1931; Moss & Hunt, 1927; Moss, Hunt, Omwake, & Ronning, 1927; for later editions, see Moss, Hunt, & Omwake, 1949; Moss, Hunt, Omwake, & Woodward, 1955). Like the Stanford-Binet Intelligence Test or Wechsler Adult Intelligence Scale, the GWSIT was composed of a number of subtests, that can be combined to yield an aggregate score. The subtests are as follows:

Judgment in Social Situations
 Memory for Names and Faces
 Observation of Human Behavior
 Recognition of the Mental States Behind Words
 Recognition of Mental States from Facial Expression
 Social Information
 Sense of Humor.

The first four subtests were employed in all editions of the GWSIT. The Facial Expression and Social Information subtests were dropped, and the Humor subtest was added, in later editions.

Hunt (1928) originally validated the GWSIT through its correlations with adult occupational status, the number of extracurricular activities pursued by college students, and supervisors' ratings of employees' ability to get along with people. However, some controversy ensued about whether social intelligence should be correlated with personality measures of sociability or extraversion (e.g., Strang, 1930; R. L. Thorndike & Stein, 1937). Most important, however, the GWSIT came under immediate

criticism for its relatively high correlation with abstract intelligence. Thus, Hunt (1928) found that aggregate GWSIT scores correlated $r = .54$ with aggregate scores on the George Washington University Mental Alertness Test (GWMAT), an early IQ scale (see also Broom, 1928). A factor analysis by R. L. Thorndike (1936) indicated that the subtests of the GWSIT loaded highly on the same general factor as the subtests of the GWMAT. Woodrow (1939), analyzing the GWSIT with a much larger battery of cognitive tests, found no evidence for a unique factor of social intelligence. R. L. Thorndike and Stein (1937) concluded that the GWSIT "is so heavily loaded with ability to work with words and ideas, that differences in social intelligence tend to be swamped by differences in abstract intelligence" (p. 282).

The inability to discriminate between the social intelligence and IQ, coupled with difficulties in selecting external criteria against which the scale could be validated, led to declining interest in the GWSIT, and indeed in the whole concept of social intelligence as a distinct intellectual entity. Of course, Spearman's (1927) model of g afforded no special place for social intelligence.* Nor is social intelligence included, or even implied, in Thurstone's (1938) list of primary mental abilities.

Social Intelligence in the Structure of Intellect

After an initial burst of interest in the GWSIT, work on the assessment and correlates of social intelligence fell off sharply until the 1960s (Walker & Foley, 1973), when this line of research was revived within the context of Guilford's (1967) Structure of Intellect model. Guilford postulated a system of at least 120 separate intellectual abilities based on all possible combinations of five categories of

* Nevertheless, Spearman did sponsor a 1933 doctoral dissertation by Wedeck (cited in Wedeck, 1947) that documented "verbal" and "psychological" abilities separate from general abstract intelligence. Wedeck's findings were confirmed using more modern methods of factor analysis (O'Sullivan et al., 1965). Jensen (1998), operating squarely within the tradition of g founded by Spearman, also noted that measures of social intelligence "show remarkably low correlations with psychometric abilities, both verbal and quantitative" (p. 576), indicating that social intelligence is distinct from g . However, Jensen preferred to label these abilities *social competence* – perhaps to preserve the unity of general intelligence.

operations (cognition, memory, divergent production, convergent production, and evaluation), with four categories of content (figural, symbolic, semantic, and behavioral) and six categories of products (units, classes, relations, systems, transformations, and implications). Interestingly, Guilford considered his system to be an expansion of the tripartite classification of intelligence originally proposed by E. L. Thorndike. Thus, the symbolic and semantic content domains correspond to abstract intelligence, the figural domain to practical intelligence, and the behavioral domain to social intelligence.

Within Guilford's (1967) more differentiated system, social intelligence is represented as the 30 (5 operations \times 6 products) abilities lying in the domain of behavioral operations. In contrast to its extensive work on semantic and figural content, Guilford's group addressed issues of behavioral content only very late in their program of research. Nevertheless, of the 30 facets of social intelligence predicted by the Structure of Intellect model, actual tests were devised for six cognitive abilities (O'Sullivan, Guilford, and deMille, 1965; Hoepfner & O'Sullivan, 1969) and six divergent production abilities (Hendricks, Guilford, & Hoepfner, 1969).

O'Sullivan et al. (1965) defined the category of behavioral cognition as representing the "ability to judge people" (p. 5) with respect to "feelings, motives, thoughts, intentions, attitudes, or other psychological dispositions which might affect an individual's social behavior" (O'Sullivan et al., p. 4). They made it clear that one's ability to judge individual people is not the same as his or her comprehension of people in general, or "stereotypic understanding" (p. 5), and bears no a priori relation to one's ability to understand oneself. Apparently, these two aspects of social cognition lie outside the standard Structure of Intellect model.

In constructing their tests of behavioral cognition, O'Sullivan et al. (1965) assumed that "expressive behavior, more particularly facial expressions, vocal inflections, postures, and gestures, are the cues from which intentional states are inferred" (p. 6). While recognizing the value of assessing the ability to decode these cues in real-life contexts with real people serving as targets, economic constraints forced the investigators to rely on photographs, cartoons, drawings, and tape recordings (the cost of film was prohibitive); verbal materials were avoided

wherever possible, presumably in order to avoid contamination of social intelligence by verbal abilities. In the final analysis, O'Sullivan et al. developed at least three different tests within each product domain, each test consisting of 30 or more separate items – by any standard, a monumental effort at theory-guided test construction. The following are the six cognitive abilities defined by O'Sullivan et al.:

Cognition of behavioral units: the ability to identify the internal mental states of individuals;

Cognition of behavioral classes: the ability to group other people's mental states on the basis of similarity;

Cognition of behavioral relations: the ability to interpret meaningful connections among behavioral acts;

Cognition of behavioral systems: the ability to interpret sequences of social behavior;

Cognition of behavioral transformations: the ability to respond flexibly in interpreting changes in social behavior; and

Cognition of behavioral implications: the ability to predict what will happen in an interpersonal situation.

After devising these tests, O'Sullivan et al. (1965) conducted a normative study in which 306 high-school students received 23 different social intelligence tests representing the 6 hypothesized factors along with 24 measures of 12 nonsocial ability factors. A principal factor analysis with orthogonal rotation yielded 22 factors, including the 12 nonsocial reference factors and 6 factors clearly interpretable as cognition of behavior. In general, the six behavioral factors were not contaminated by nonsocial semantic and spatial abilities. Thus, O'Sullivan et al. apparently succeeded in measuring expressly social abilities that were essentially independent of abstract cognitive ability. However, echoing earlier findings with the GWSIT, later studies found substantial correlations between IQ and scores on the individual Guilford subtests as well as various composite social intelligence scores (Riggio, Messamer, & Throckmorton, 1991; Shanley, Walker, & Foley, 1971). Still Shanley et al. conceded that the correlations obtained were not strong enough to warrant the conclusion (e.g., Wechsler, 1958) that social

intelligence is nothing more than general intelligence applied in the social domain.

In one of the last test-construction efforts by Guilford's group, Hendricks et al. (1969) attempted to develop tests for coping with other people, not just understanding them through their behavior—what they referred to as “basic solution-finding skills in interpersonal relations” (p. 3). Because successful coping involves the creative generation of many diverse behavioral ideas, these investigators labeled these divergent-thinking abilities *creative social intelligence*. The following six divergent production abilities were defined by Hendricks et al.:

Divergent production of behavioral units: the ability to engage in behavioral acts that communicate internal mental states;

Divergent production of behavioral classes: the ability to create recognizable categories of behavioral acts;

Divergent production of behavioral relations: the ability to perform an act that has a bearing on what another person is doing;

Divergent production of behavioral systems: the ability to maintain a sequence of interactions with another person;

Divergent production of behavioral transformations: the ability to alter an expression or a sequence of expressions; and

Divergent production of behavioral implications: the ability to predict many possible outcomes of a setting.

As with the behavioral cognition abilities studied by O'Sullivan et al. (1965), the very nature of the behavioral domain raised serious technical problems for test development in the behavioral domain, especially with respect to contamination by verbal (semantic) abilities. Ideally, of course, divergent production would be measured in real-world settings in terms of actual behavioral responses to real people. Failing that, testing could rely on nonverbal behaviors such as drawings, gestures, and vocalizations, but such tests could well be contaminated by individual differences in drawing, acting, or public-speaking ability that have nothing to do with social intelligence per se.

Still, in accordance with the pattern of O'Sullivan et al. (1965), a battery of creative social intelligence tests, 22 for divergent production of behavioral products and another 16 representing 8 categories of (convergent) cognition of behavior and divergent

production in the semantic domain, was administered to 252 high school students. As might be expected, scoring divergent productions proved considerably harder than scoring cognitions, for in the former case there is no one best answer, and the subject's responses must be evaluated by independent judges for quality as well as quantity. Principal-components analysis yielded 15 factors, 6 of which were clearly interpretable as divergent production in the behavioral domain. Again, the divergent production abilities in the behavioral domain were essentially independent of divergent semantic production and (convergent) cognition in the behavioral domain.

A later study by Chen and Michael (1993), employing more modern factor-analytic techniques, essentially confirmed these findings. In addition, Chen and Michael extracted a set of higher order factors that largely conformed to the theoretical predictions of Guilford's (1981) revised Structure of Intellect model. A similar reanalysis of the O'Sullivan et al. (1965) data has yet to be reported.

In summary, Guilford and his colleagues were successful in devising measures for two rather different domains of social intelligence: understanding the behavior of other people (cognition of behavioral content), and coping with the behavior of other people (divergent production of behavioral content). These component abilities were relatively independent of each other within the behavioral domain, and each was also relatively independent of the non-behavioral abilities, as predicted (and required) by the structure of intellect model.

Despite the huge amount of effort that the Guilford group invested in the measurement of social intelligence, it should be understood that the studies of O'Sullivan et al. (1965) and Hendricks et al. (1969) went only part of the way toward establishing the construct validity of social intelligence. Their studies described essentially established convergent and discriminant validity by showing that ostensible tests of the various behavioral abilities hung together as predicted by the theory and were not contaminated by other abilities outside the behavioral domain. As yet, there is little evidence for the ability of any of these tests to predict external criteria of social intelligence.

Tests of the remaining three structures of intellect domains (memory, convergent production, and

evaluation) had not developed by the time the Guilford program came to a close. Hendricks et al. (1969) noted that "these constitute by far the greatest number of unknowns in the [structure of intellect] model" (p. 6). However, O'Sullivan et al. (1965) did sketch out how these abilities were defined. *Convergent production* in the behavioral domain was defined as "doing the right thing at the right time" (p. 5) and presumably might be tested by a knowledge of etiquette. *Behavioral memory* was defined as the ability to remember the social characteristics of people (e.g., names, faces, and personality traits), whereas *behavioral evaluation* was defined as the ability to judge the appropriateness of behavior.

Convergent and Discriminant Validity in Social Intelligence

Following the Guilford studies, several investigators continued the attempt to define social intelligence and determine its relation to general abstract intelligence. Most of these studies explicitly employed the logic of the multitrait-multimethod matrix (Campbell & Fiske, 1959), using multiple measures of social and nonsocial intelligence and examining the convergent validity of alternative measures within each domain and their discriminant validity across domains (e.g., Sechrest & Jackson, 1961).

For example, Keating (1978) measured social intelligence with a battery of instruments including Rest's (1975) Defining Issues Test, derived from Kohlberg's (1963) theory of moral development; Chapin's (1942) Social Insight Test, which asks the subject to resolve various social dilemmas; and Gough's (1966) Social Maturity Index, a self-report scale derived from the California Psychological Inventory measuring effective social functioning (see also Sipps, Berry, & Lynch, 1987). Applying a multitrait-multimethod analysis, Keating found no evidence that social intelligence, so defined, was discriminable from academic intelligence. Thus, the average correlation between tests within each domain was actually *lower* than the corresponding average across domains. Although a factor analysis produced two factors, each of these factors consisted of a mix of the two types of intelligence test. Finally, Keating found that the three measures of abstract intelligence were actually better predictors of Gough's (1966) Social Maturity Index than were the remain-

ing two measures of social intelligence. However, it should be noted that Keating's putative measures of social intelligence are highly verbal in nature, and thus some contamination by abstract verbal and reasoning ability may be expected.

In response to Keating's (1978) study, Ford and Tisak (1983) conducted an even more substantial study involving over 600 high school students. Four measures of verbal and mathematical ability were derived from school records of grades and standardized test scores. Social intelligence was measured by self-, peer-, and teacher-ratings of social competence, Hogan's (1969) empathy test, self-reports of social competence, and a judgment based on an individual interview. In contrast to Keating's (1978) results, Ford and Tisak found that the measures of academic and social intelligence loaded on different factors. Moreover, the three ratings of social competence and Hogan's empathy scale were more highly predictive of the interview ratings of social competence than were the academic measures. Ford and Tisak attributed these results to the selection of social intelligence measures according to a criterion of behavioral effectiveness in social situations rather than cognitive understanding of them. Put another way, measures of verbal ability, including standard measures of IQ, are likely to correlate highly with verbal, but not nonverbal measures of social intelligence.

Similar findings were obtained by several other investigators (e.g., Brown & Anthony, 1990), including Marlowe (1986; Marlowe & Bedell, 1982), who assembled a large battery of personality measures ostensibly tapping various aspects of social intelligence. Factor analysis of these instruments yielded five dimensions of social intelligence: interest and concern for other people, social performance skills, empathic ability, emotional expressiveness and sensitivity to others' emotional expressions, and social anxiety and lack of social self-efficacy and self-esteem. Factor scores on these dimensions of social intelligence were essentially unrelated to measures of verbal and abstract intelligence.

In evaluating studies like Marlowe's (1986), however, it should be noted that the apparent independence of social and general intelligence may be at least partially an artifact of method variance. Unlike the GWSIT and the batteries of cognitive and divergent production measures devised by the Guilford

group, Marlowe's ostensible measures of social intelligence are all self-report scales, whereas his measures of verbal and abstract intelligence were the usual sorts of objective performance tests. The difference in data collection methods alone may explain why the social and verbal-abstract dimensions lined up on different factors. In any event, the measurement of individual differences in social intelligence by means of self-report scales is a major departure from the tradition of intelligence testing, and it seems important to confirm Marlowe's findings using objective performance measures of the various facets of social intelligence.*

For example, Frederickson, Carlson, and Ward (1984) employed an extensive behavioral assessment procedure along with a battery of performance tests of scholastic aptitude and achievement and medical and nonmedical problem solving. In addition, each subject conducted 10 interviews with simulated medical patients and nonmedical clients. On the basis of codings of their interview behavior, each subject received ratings for organization, warmth, and control. None of the measures of aptitude, achievement, or problem-solving behavior correlated substantially with any of the interview-based ratings of social intelligence. Lowman and Leeman (1988), employing a number of performance measures, obtained evidence for three dimensions of social intelligence: social needs and interests, social knowledge, and social ability. Interestingly, the correlations of all three dimensions with grade point average, a proxy for academic intelligence, were either null or negative.

On the other hand, Stricker and Rock (1990) administered a battery of performance measures of social intelligence and found that subjects' accuracy in judging a person and a situation portrayed in a videotaped interview was correlated with verbal ability. Wong, Day, Maxwell, and Meara (1995) constructed measures of social perception (accuracy in decoding verbal and nonverbal behavior), social insight (accuracy in interpreting social behavior), and social knowledge (awareness of the rules of etiquette). Factor analysis showed that social percep-

tion and insight were closely related, neither of these dimensions was closely related to social knowledge, and none of the social abilities was related to traditional academic ability.

Expanding on the study by Wong et al., Jones and Day (1997) based their analysis on Cattell's (1971) distinction between fluid and crystallized intelligence. In the social domain, crystallized intelligence reflects the individual's accumulated fund of knowledge about the social world, including his or her vocabulary for representing social behaviors and situations; fluid intelligence, by contrast, reflects the individual's ability to solve problems posed by novel social situations quickly and accurately. Jones and Day assembled four measures of each kind of ability, including verbal and pictorial performance measures, self-ratings, and teacher ratings. They also had multiple measures of academic ability. Confirmatory factor analyses testing various specific models of the relations between social and academic intelligence indicated that crystallized social intelligence was discriminable from fluid social intelligence but not from academic intelligence.

Clearly, more studies employing performance-based measures are needed before any definitive conclusions can be drawn about the relations among various aspects of social intelligence (convergent validity) and the relations between social intelligence and other intellectual abilities (discriminant validity).

Social Intelligence as a Cognitive Module

An exception to the general rule that social intelligence plays little role in scientific theories of intelligence is the theory of *multiple intelligences* proposed by Gardner (1983, 1993). Unlike Spearman (1927) and other advocates of general intelligence (e.g., Jensen, 1998), Gardner has proposed that intelligence is not a unitary cognitive ability but that there are seven (and perhaps more) quite different kinds of intelligence, each hypothetically dissociable from the others, and each hypothetically associated with a different brain system. Although most of these proposed intelligences (linguistic, logical-mathematical, spatial, musical, and bodily-kinesthetic) are "cognitive" abilities somewhat reminiscent of Thurstone's primary mental abilities, two are explicitly personal and social in nature. Gardner defines *intrapersonal intelligence* as the

* By contrast, two of Keating's (1978) three measures of social intelligence were performance measures. Ford and Tisak (1983) employed a mix of self-ratings and judgments by other people.

person's ability to gain access to his or her own internal emotional life and *interpersonal intelligence* as the individual's ability to notice and make distinctions among other individuals.

Although Gardner's (1983) multiple intelligences are individual differences constructs in which some people, or some groups, are assumed to have more of these abilities than others, Gardner does not rely on the traditional psychometric procedures—scale construction, factor analysis, multitrait—multimethod matrices, external validity coefficients, and so on—for documenting individual differences. Rather, his preferred method is a somewhat impressionistic analysis based on a convergence of signs provided by eight different lines of evidence.

Chief among these signs are *isolation by brain damage* (such that one form of intelligence can be selectively impaired, leaving other forms relatively unimpaired) and *exceptional cases*, individuals who possess extraordinary levels of ability in one domain against a background of normal or even impaired abilities in other domains (alternatively, a person may show extraordinarily low levels of ability in one domain against a background of normal or exceptionally high levels of ability in others). So, for example, Gardner (1983) argued from neurological case studies that damage to the prefrontal lobes of the cerebral cortex can selectively impair personal and social intelligence, leaving other abilities intact. The classic case of Phineas Gage may serve as an example (Macmillan, 1986). The opposite phenomenon is illustrated by Luria's (1972) case of Zazetsky, "the man with a shattered world," who sustained damage in the occipital and parietal lobes that severely impaired most of his intellectual capacities but left his personal and social abilities relatively intact. Gardner also noted that, although Down's syndrome and Alzheimer's disease have severe cognitive consequences but little impact on the person's ability to get along with other people, Pick's disease spares at least some cognitive abilities while severely impairing the person's ability to interact with others. In related work, Taylor and Cadet (1989) have proposed that three different brain systems provide the neurological substrate of social intelligence: a balanced or integrated cortical subsystem that relies on long-term memory to make complex social judgments; a frontal-dominant subsystem that organizes and generates social be-

haviors; and a limbic-dominant subsystem that rapidly produces emotional responses to events. However, it should be noted that, with the exception of emotion (for an authoritative summary, see LeDoux, 1996; see also Kihlstrom, Mulvaney, Tobias, & Tobis, 1999), research on the neurological underpinnings of social cognition and behavior is highly impressionistic and speculative (for a review of neuropsychological approaches to social cognition and social intelligence, see Klein & Kihlstrom, 1998).

With respect to exceptional individuals, Gardner offered Sigmund Freud and Marcel Proust as "prodigies" in the domain of intrapersonal intelligence, and Mohandas Gandhi and Lyndon Johnson as their counterparts in the domain of interpersonal intelligence. Each of these individuals, Gardner claimed, displayed high levels of personal and social intelligence against a background of more "normal" abilities in other domains. On the negative side, Gardner noted that infantile autism (Kanner's syndrome, Williams' syndrome, etc.) severely impairs the individual's ability to understand other people and navigate the social world.

In addition, Gardner postulated several other signs suggesting different types of intelligence. Among these are *identifiable core operations*, coupled with *experimental tasks* that permit analysis of these core operations and *psychometric tests* that reveal individual differences in ability to perform them. With respect to social intelligence, of course, the core operations are those that form the core of research on social cognition: person perception and impression formation, causal attribution, person memory, social categorization, impression management, and the like. The social cognition literature offers numerous paradigms for studying these operations, of course, and sometimes these experimental procedures have been translated into techniques for the analysis of individual differences (e.g., Kihlstrom & Nasby, 1981; Nasby & Kihlstrom, 1986). For example, Kaess and Witryol (1955) studied memory for names and faces; Sechrest and Jackson (1961) examined individual differences in the ability to predict other people's behavior in various kinds of situations; and Sternberg and his colleagues (Barnes & Sternberg, 1989; Sternberg & Smith, 1985) have assessed individual differences in the ability to decode nonverbal communications.

Whether the core operations involved in social cognition differ qualitatively from those involved in nonsocial cognition is, however, an open question. Although perceiving emotion in a face may appear to differ qualitatively from mentally rotating an image of the letter **R**, a working assumption in most social cognition research is that the underlying mental processes are the same as those deployed in nonsocial cognition. Thus, for example, Cantor and Mischel's (1979) research on prototypes in person perception was intended as a fairly direct translation of Rosch's (1978) pioneering work on fuzzy-set approaches to nonsocial categories. And although it is quite plausible to suggest that the perception of faces, those most social of stimuli, follows special rules and is mediated by a special brain area (e.g., Farah, 1996), recent experimental and neuroimaging evidence indicates that face recognition is simply an instance of a broader expertise for identifying objects at subordinate levels of categorization (Gauthier, 1998).

One potentially important difference between the social and nonsocial domains, of course, is that in social cognition the object (i.e., the person) represented in the observer's mind is intelligent and conscious. Thus, the person being perceived may try to control the impression formed by the perceiver through a variety of impression-management strategies (Goffman, 1959; Jones and Pittman, 1982). To complicate things further, the perceiver may well be aware of the possibility of strategic self-presentation and thus adjust his or her perceptions accordingly, and the person being perceived may modulate his or her impression-management activities so as to minimize these corrections. Such *interaction rituals* (Goffman, 1967) are not likely to occur in nonsocial perception and cognition.

In addition to experimental and psychometric evidence, Gardner (1983) also assumed that qualitatively different forms of intelligence will show *distinctive developmental histories*. From an *ontogenetic* point of view, then, the hypothesis is that the acquisition and mastery of competencies in the social domain follows a different developmental trajectory, from infancy through adolescence and adulthood to old age, than other abilities.* Similarly, from a

phylogenetic point of view, the hypothesis would be that personal and interpersonal abilities trace different evolutionary pathways as well.* Thus, Gardner (1983) cites Gallup's (1970, 1998; Gallup, Marino, & Eddy, 1997) finding that humans and chimpanzees, but not other primates (and not other mammals), pass the mirror-image test of self-recognition.

Finally, Gardner argued that each form of intelligence is encoded in a *unique symbol system* by which the ability in question can be manipulated and transmitted by a culture. For some of his proposed intelligences, the existence of the symbol system is fairly obvious: written language, mathematical symbols, and musical notation are clear examples. As evidence suggestive of special personal symbol systems, Gardner cited Geertz's (1975) ethnographic work in Java, Bali, and Morocco, which revealed considerable cultural diversity in the means by which people maintain a sense of self and the rules that govern their social relations – personal and social intelligence that is acquired through socialization. Certainly, the English language contains a large vocabulary of words – 17,953 by one count (Allport & Odbert, 1937) – which can represent people's cognitive, emotional, and motivational states, behavioral dispositions, and other psychosocial characteristics. And within Western culture, structures like the classic fourfold classification of temperament (melancholic, phlegmatic, choleric, and sanguine; Kant, 1798/1978) and the Big Five personality dimensions (neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience; John, 1990) are commonly employed to

* See the concluding section on the development of social intelligence.

* A similar notion has been promoted by Byrne and Whiten (1988; Whiten & Byrne, 1997) in their concept of Machiavellian intelligence. Following Humphrey (1976), these authors have proposed that the special demands of cooperation and competition have led social animals (especially primates) to evolve forms of intelligence that are not found in nonsocial species. In fact, Whiten and Byrne (1997) have gone so far as to suggest that social intelligence evolved in advance of "object intelligence," or the ability to deal with the nonsocial physical world, and that the evolution of general intellectual abilities was driven by natural selection for manipulative social expertise within groups. In a very real sense, the notion of Machiavellian intelligence reverses Wechsler's doctrine that social intelligence is just general intelligence applied to social problems. According to Whiten and Byrne, general intelligence is derived from social intelligence. See also Premack and Woodruff (1978) and Worden (1996).

capture and communicate the gist of another person's personality.

The Prototype of Social Intelligence

Although social intelligence has proved difficult for psychometricians to operationalize, it does appear to play a major role in people's naive, intuitive concepts of intelligence. Following up on earlier work by Rosch (1978), Cantor (Cantor & Mischel, 1979; Cantor, Smith, French, & Mezzich, 1980), and Neisser (1979), Sternberg and his colleagues asked subjects to list the behaviors they considered characteristic of intelligence, academic intelligence, everyday intelligence, and unintelligence; two additional groups of subjects rated each of 250 behaviors from the first list in terms of how "characteristic" each was of the ideal person possessing each of the three forms of intelligence (Sternberg, Conway, Ketron, & Bernstein, 1981). Factor analysis of ratings provided by laypeople yielded a factor of "social competence" in each context. Prototypical behaviors reflecting social competence were the following:

- Accepts others for what they are;
- Admits mistakes;
- Displays interest in the world at large;
- Is on time for appointments;
- Has social conscience;
- Thinks before speaking and doing;
- Displays curiosity;
- Does not make snap judgments;
- Makes fair judgments;
- Assesses well the relevance of information to a problem at hand;
- Is sensitive to other people's needs and desires;
- Is frank and honest with self and others; and
- Displays interest in the immediate environment.

Interestingly, a separate dimension of social competence did not consistently emerge in ratings made by a group of experts on intelligence. Rather, the experts' dimensions focused on verbal intelligence and problem-solving ability, and social competence expressly emerged only in the ratings of the ideal "practically intelligent" person. Perhaps these experts shared Wechsler's (1939) dismissive view of social intelligence.

A similar study was performed by Kosmitzki and John (1993). On the basis largely of prior research by Orlik (1978), these investigators assembled a list of

18 features that make up people's implicit concept of social intelligence. When subjects were asked to rate how necessary each feature was to their own personal understanding of social intelligence, the following dimensions emerged as most central to the prototype:

- Understands people's thoughts, feelings, and intentions well;
- Is good at dealing with people;
- Has extensive knowledge of rules and norms in human relations;
- Is good at taking the perspective of other people;
- Adapts well in social situations;
- Is warm and caring; and
- Is open to new experiences, ideas, and values.

In another part of the study, subjects were asked to rate someone they liked on each of these attributes. After statistically controlling for differential likability of the traits, a factor analysis yielded a clear dimension of social intelligence defined by the attributes listed above. The remaining two factors were named social influence and social memory.

A recent psychometric study of social intelligence used a methodology similar to that employed by Sternberg et al. (1981) and Kosmitzki and John (1993). Schneider, Ackerman, and Kanfer (1996) asked subjects to generate descriptions of socially competent behavior. These descriptors were then collated and reduced to form a Social Competence Questionnaire on which subjects were asked to rate the extent to which each item described their typical social behavior. A factor analysis revealed seven dimensions of social competence: extraversion, warmth, social influence, social insight, social openness, social appropriateness, and social maladjustment. Composite scores on these dimensions were essentially uncorrelated with measures of quantitative and verbal reasoning ability. On the basis of these findings, Schneider et al. concluded that "it is time to lay to rest any residual notions that social competence is a monolithic entity, or that it is just general intelligence applied to social situations" (p. 479). As with Marlowe's (1986) study, however, the reliance on self-report measures of social intelligence compromises this conclusion, which remains to be confirmed using objective performance measures of the various dimensions in the social domain.

Sternberg et al. (1981) have noted that in contrast to explicit theories of intelligence, which attempt to explain what intelligence is, implicit theories attempt to capture people's views of what the word *intelligence* means. Social intelligence played little role in Sternberg's early componential view of human intelligence (Sternberg, 1977, 1980; but see Sternberg, 1984b), which was intended to focus on reasoning and problem-solving skills as represented by traditional intelligence tests. However, social intelligence is explicitly represented in Sternberg's more recent *triarchic* view of intelligence (Sternberg, 1984a, 1985, 1988). According to the triarchic theory, intelligence is composed of analytical, creative, and practical abilities. Practical intelligence is defined in terms of problem solving in everyday contexts and explicitly includes social intelligence (Sternberg & Wagner, 1986). According to Sternberg, each type of intelligence reflects the operation of three different kinds of component processes: performance components, which solve problems in various domains; executive metacomponents, which plan and evaluate problem solving; and knowledge-acquisition components by which the first two components are learned. To complicate things further, Sternberg (1985, 1988) argued that the measurement of all forms of intelligence is sensitive to the context in which it is assessed. This may be especially the case for practical and social intelligence; for example, the correct answer to a question of social judgment may well be different if it is posed in a corporate (Wagner & Sternberg, 1985) or military (Legree, 1995) context.

For Sternberg, these abilities, and thus their underlying components, may well be somewhat independent of each other. There is no implication, for example, that a person who is strong on analytical intelligence will also be strong in creative and practical intelligence. In any event, the relation among various intellectual abilities is an empirical question. Answering this question, of course, requires that we have adequate instruments for assessing social intelligence – tests that adequately sample the domain in question in addition to being reliable and valid. At present, these instruments do not appear to exist. However, future investigators who wish to make the attempt may be well advised to begin with the intuitive concept of social intelligence held in the mind of the layperson. After all, social intelligence is a social construct, not just an academic one.

PERSONALITY AS SOCIAL INTELLIGENCE

In contrast to the psychometric approaches reviewed above, the social intelligence view of personality (Cantor & Kihlstrom, 1987, 1989; Cantor & Fleeson, 1994; Cantor & Harlow, 1994; Kihlstrom & Cantor, 1989; see also Cantor & Kihlstrom, 1982; Cantor & Zirkel, 1990; Snyder & Cantor, 1998) does not conceptualize social intelligence as a trait, or group of traits, on which individuals can be compared and ranked on a dimension from low to high. Rather, the social intelligence view of personality begins with the assumption that social behavior is *intelligent* – that it is mediated by cognitive processes of perception, memory, reasoning, and problem solving rather than being mediated by innate reflexes, conditioned responses, evolved genetic programs, and the like. Accordingly, the social intelligence view construes individual differences in social behavior – the public manifestations of personality – to be the product of individual differences in the knowledge that individuals bring to bear on their social interactions. Differences in social knowledge cause differences in social behavior, but it does not make sense to construct measures of social IQ. The important variable is not *how much* social intelligence the person has but rather *what* social intelligence he or she possesses.

The Evolution of Cognitive Views of Personality

The social intelligence view of personality has its origins in the social-cognitive tradition of personality theory in which construal and reasoning processes are central to issues of social adaptation. Thus, Kelly (1955) characterized people as naive scientists generating hypotheses about future interpersonal events based on a set of personal constructs concerning self, others, and the world at large. These constructs were idiographic with respect to both content and organization. Individuals might be ranked in terms of the complexity of their personal construct systems, but the important issue for Kelly was knowing what the individual's personal constructs were. Beyond complexity, the idiosyncratic nature of personal construct systems precluded much nomothetic comparison.

Although Kelly's theory was somewhat iconoclastic, similar developments occurred in the evolution

of social learning theories of personality. The initial formulation of social learning theory (Miller & Dollard, 1941), a combination of Freudian psychoanalysis and Hullian learning theory, held that personality is largely learned behavior and that understanding personality requires understanding the social conditions under which it was acquired. However, the slow rise of cognitive theories of learning (e.g., Tolman, 1932) soon lent a cognitive flavor to social learning theory itself. Thus, habit and drive played little role in Rotter's (1954) cognitive social learning theory. In contrast to earlier behaviorist conceptions of organismal responses to environmental stimuli controlled by objective contingencies of reinforcement (e.g., Skinner, 1953; Staats & Staats, 1963), Rotter argued that people's behavior reflects choices that follows from their *goals* in a particular situation and their *expectations* of the outcomes of their behavior. Similarly, Bandura (Bandura & Walters, 1963; Bandura, 1973) argued for the acquisition of social knowledge through precept and example rather than the direct experience of rewards and punishment and later (1986) distinguished between the outcome expectancies emphasized by Rotter (1954) and expectancies of self-efficacy – the individual's judgment of belief concerning his or her ability to carry out the actions required to achieve control over the events in a situation. Self-efficacy provides the cognitive basis for motivation, but it should be understood that judgments of self-efficacy are highly context specific. Although Rotter (1966) proposed an individual difference measure of internal versus external locus of control, it would never occur to Bandura to propose a nomothetic instrument for measuring individual differences in generalized self-efficacy expectations. The important consideration is not whether an individual is relatively high or low in self-perceptions of competence but rather whether the person feels competent to perform a particular behavior in some particular situation.

The immediate predecessor to the social intelligence view of personality is Mischel's (1968, 1973) cognitive social-learning reconceptualization of personality. Although sometimes couched in behaviorist language, Mischel's (1968) provocative critique of the trait approach to personality was explicitly cognitive in nature: "[O]ne must know the . . . meaning

that the stimulus has acquired for the subject. Assessing the acquired meaning of stimuli is the core of social behavior assessment" (p. 190). Thus, understanding individual differences in social behavior requires understanding individual differences in the meaning given to behavior, its outcome, and the situation in which it takes place.

This emphasis on the *subjective meaning* of the situation marked Mischel's early theory as cognitive in nature. Since that time, Mischel (1973) has broadened his conceptualization of personality to include a wide variety of different constructs, some derived from the earlier work of Kelly, Rotter, and Bandura, and others reflecting the importation into personality theory of concepts originating in the laboratory study of human cognitive processes. All are construed as modifiable individual differences, products of cognitive development and social learning that determine how features of the situation will be perceived and interpreted. Thus, they contribute to the construction of the meaning of the stimulus situation – in other words, to the cognitive construction of the situation itself – to which the person ultimately responds.

From Mischel's (1973) point of view, the most important product of cognitive development and social learning is the individual's repertoire of *cognitive and behavioral construction competencies* – the ability to engage in a wide variety of skilled, adaptive behaviors, including overt action and covert mental activities. These construction competencies are as close as Mischel gets to the psychometric notion of social (or, for that matter, *nonsocial*) intelligence.

The importance of perception and interpretation of events in Mischel's system calls for a second set of person variables having to do with *encoding strategies* governing selective attention and *personal constructs* – Kelly-like categories that filter people's perceptions, memories, and expectations. Then, of course, following Rotter and Bandura, Mischel also stressed the role of stimulus-outcome, behavior-outcome, and self-efficacy *expectancies* concerning the outcomes of environmental events and personal behaviors as well as self-efficacy expectancies. Also in line with Rotter's theory, Mischel noted that behavior will be governed by the *subjective values* associated with various outcomes. A final set of relevant variables consists of *self-regulatory systems and plans*, self-defined goals and consequences that govern

behavior in the absence (or in spite) of social monitors and external constraints.

The Intelligence Model

From a cognitive point of view, Mischel's "cognitive-social learning person variables" all represent the person's knowledge and expertise – *intelligence* – concerning him- or herself and the surrounding social world. Following Winograd (1975) and Anderson (1976), this social intelligence (Cantor & Kihlstrom, 1987) is classified into two broad categories: *declarative knowledge*, consisting of abstract concepts and specific memories, and *procedural knowledge*, consisting of the rules, skills, and strategies by which the person manipulates and transforms declarative knowledge and translates knowledge into action. The individual's fund of declarative knowledge, in turn, can be broken down further into context-free *semantic* memory about the world in general and *episodic* memory for the events and experiences, each associated with a unique spatiotemporal context, that make up the person's autobiographical record (Tulving, 1983). Similarly, procedural knowledge can be subclassified in terms of cognitive and motor skills. These concepts, personal memories, interpretive rules, and action plans are the cognitive structures of personality. Together, they constitute the expertise that guides an individual's approach to solving the problems of social life.

The cognitive architecture of social intelligence will be familiar from the literature on social cognition (for overviews, see Cantor & Kihlstrom, 1982; Fiske & Taylor, 1991; Kihlstrom & Hastie, 1997) – a literature which, interestingly, had its beginnings in early psychometric efforts to measure individual differences in social intelligence. Thus, for Vernon (1933) one of the characteristics of a socially intelligent person was that he or she was a good judge of personality – a proposition that naturally led to inquires into how people form impressions of personality (Asch, 1946) or engage in person perception (Bruner & Tagiuri, 1954) as well as to the implicit theories of personality (Bruner & Tagiuri, 1954; Cronbach, 1955) that lie at the base of such impressions and perceptions. Specifically, Cronbach argued that one's implicit theory of personality consists of his or her knowledge of "the generalized Other" (1955, p. 179): a mental list of the important dimensions of personality, and estimates of the mean and

variance of each dimension within the population, as well as estimates of the covariances among the several dimensions. Cronbach argued that this intuitive knowledge might be widely shared and acquired as a consequence of socialization and acculturation processes, but he also assumed that there would be individual and cultural differences in this knowledge, leading to individual and group differences in social behavior. Studies of impression formation, implicit personality theory, and, later, causal attributions (e.g., Kelley, 1967), social categories (Cantor & Mischel, 1979; Cantor, Mischel, & Schwartz, 1982b), and scripts (Schank & Abelson, 1977), and person memories (Hastie et al., 1980) provided the foundation for the social intelligence analysis of personality structures and processes.

Following Kelly (1955) and Mischel (1973), Cantor and Kihlstrom (1987) accorded *social concepts* a central status as cognitive structures of personality. If the purpose of perception is action, and if every act of perception is an act of categorization (Bruner, 1957), the particular categories that organize the people's perception of themselves, others, interpersonal behavior, and the social world in which behavior takes place assume paramount importance in a cognitive analysis of personality. Some of these concepts concern the world of other people and the places we encounter them: knowledge of personality types (e.g., achievers and altruists; Cantor & Mischel, 1979) and social groups (e.g., women and WASPS; Hamilton, 1981), and situations (e.g., blind dates and job interviews; Cantor, Mischel, & Schwartz, 1982a). Other concepts concern the personal world: knowledge of the kind of person we are, both in general and in particular classes of situations (e.g., an achiever at work but an altruist at home; Kihlstrom & Klein, 1994; Kihlstrom, Marchese, & Klein, 1997), and our theories of how we got that way (e.g., an adult child of alcoholics or a survivor of child sexual abuse; Ross, 1989). On the basis of studies of categorization in nonsocial domains (e.g., Rosch, 1978; Ross & Spalding, 1994), social concepts may be viewed as being structured as fuzzy sets around summary prototypes, perhaps along with representative exemplars that epitomize the category, and as being related to each other through tangled hierarchies reflecting conceptual relations. Some of these conceptual relations may be universal, and others may be

highly consensual within the individual's culture; but, as Kelly (1955) argued, some may be quite idiosyncratic. Regardless of whether they are shared with others, the individual's conceptual knowledge about the social world forms a major portion of his or her declarative social intelligence.

Another important set of declarative social knowledge structures represents the individual's autobiographical memory (Conway, 1990; Rubin, 1996; Thompson, 1996, 1998). In the context of social intelligence, autobiographical memory includes a narrative of the person's own actions and experiences, but it also includes what he or she has learned through experience about the actions and experiences of specific other people (Hastie et al., 1980), and the events that have transpired in particular situations. Although social concepts constitute more or less abstract and context-free *semantic* memory, autobiographical memory is *episodic* memory – each piece of the narrative is tied to a specific location in space and time (Tulving, 1983). In addition, every piece of conscious autobiographical memory is linked to a mental representation of the self as the agent or patient of some action or the stimulus or experiencer of some state (Kihlstrom, 1997). As part of this connection to the self, each fragment of autobiographical memory is, at least in principle, also connected to knowledge about the person's emotional and motivational states at the time of the event in question. Thus, autobiographical memory is rich in content and complicated in structure – so rich and complicated that it is no wonder that most cognitive psychologists fall back on laboratory tasks involving memory for words and pictures.

On the procedural side, a substantial portion of the social intelligence repertoire consists of interpretive rules for making sense of social experience: for inducing social categories and deducing category membership, making attributions of causality, inferring other people's behavioral dispositions and emotional states, forming judgments of likability and responsibility, resolving cognitive dissonance, encoding and retrieving memories of our own and other people's behavior, predicting future events, and testing hypotheses about our social judgments. Some of these procedures are algorithmic, whereas others are heuristic shortcuts (Nisbett & Ross, 1980). Some are enacted deliberately, whereas others are enacted automatically without much atten-

tion and cognitive effort on our part (for summaries, see Bargh, 1994; Kihlstrom, 1987, 1996a, 1996b; Wegner & Bargh, 1998). But they are all part of the procedural repertoire of social intelligence.

Given this summary, it should be clear that, from the point of view of the social intelligence theory of personality, the assessment of social intelligence has quite a different character than it does from the psychometric point of view. From a psychometric point of view, the questions posed have answers that are right or wrong: Are smart people also friendly? How do you know when a person is happy or sad? Is it proper to laugh at a funeral? In this way, it is possible, at least in principle, to evaluate the accuracy of the person's social knowledge and the effectiveness of his or her social behaviors. However, as noted at the outset, the social intelligence approach to personality abjures such rankings of people. Rather than asking how socially intelligent a person *is*, compared with some norm, the social intelligence view of personality asks what social intelligence a person *has* with which he or she can guide his or her interpersonal behavior. In fact, the social intelligence approach to personality is less focused on assessing the individual's repertoire of social intelligence than in seeking to understand the general cognitive structures and processes out of which individuality is constructed, how these develop over the life course of the individual, and how they play a role in ongoing social interactions. For this reason, Cantor and Kihlstrom (1987, 1989; Kihlstrom & Cantor, 1989) have not proposed any individual difference measures by which a person's social intelligence can be assessed.*

Social Intelligence in Life Tasks

Although the social intelligence view of personality diverges from the psychometric approach to social intelligence on the matter of assessment, it agrees with some contemporary psychometric

* One exception to this rule is PERSPACE, a microcomputer software system designed for the assessment of the individual's context-specific self-concepts and other aspects of interpersonal space (Kihlstrom & Cunningham, 1991; Kihlstrom et al., 1997). However, like Kelly's (1955) Role Construct Repertory Test, PERSPACE is intended as a purely ideographic instrument and cannot be used to rank individuals or compare them with normative standards of performance.

views that intelligence is context-specific. Thus, in Sternberg's (1985, 1988) triarchic theory, social intelligence is part of a larger repertoire of knowledge by which the person attempts to solve the practical problems encountered in the physical and social world. According to Cantor and Kihlstrom (1987), social intelligence is specifically geared to solving the problems of social life, and in particular managing the *life tasks, current concerns* (Klinger 1977) or *personal projects* (Little, 1989) the person selects for him- or herself or that other people impose on him or her from outside. Put another way, one's social intelligence cannot be evaluated in the abstract but only with respect to the domains and contexts in which it is exhibited and the life tasks it is designed to serve. And even in this case, "adequacy" cannot be judged from the viewpoint of the external observer but rather from the point of view of the subject whose life tasks are in play.

Life tasks provide an integrative unit of analysis for the analysis of the interaction between the person and the situation. They may be explicit or implicit, abstract or circumscribed, universal or unique, enduring or stage-specific, rare or commonplace, ill-defined or well-defined problems. Whatever their features, they give meaning to the individual's life and serve to organize his or her daily activities. They are defined from the subjective point of view of the individual: they are the tasks which the person perceives him- or herself as "working on and devoting energy to solving during a specified period in life" (Cantor & Kihlstrom, 1987, p. 168).^{*} First and foremost, life tasks are articulated by the individual as self-relevant, time-consuming, and meaningful. They provide a kind of organizing scheme for the individual's activities and are embedded in the individual's ongoing daily life. And they are responsive to the demands, structure, and constraints of the social environment in which the person lives. Many life tasks are normative for a particular life period

^{*} A friend of ours once laid out her life tasks candidly and explicitly: "First I'll get tenure, and then I'll get married." This was probably not her life task as a child, nor even, perhaps, in college or graduate school; and once she got tenure and married, no doubt she would take up some other life task. Her age peers among university junior faculty may have had one task or the other, or neither, or had both tasks but reversed the order in which they were to be accomplished, or added other tasks (like bearing and raising children, or taking care of aged or infirm parents) to the mix.

(e.g., retirement) or other life content (e.g., divorce), and the ways in which they are approached may be constrained by sociocultural factors. However, unlike the stage-structured views of Erikson (1950) and his popularizers (e.g., Levinson, 1978; Sheehy, 1976), the social intelligence view of personality does not propose that everyone at a particular age is engaged in the same sorts of life tasks. Instead, periods of transition in which the person is entering into new institutions are precisely those times when individual differences in life tasks become most apparent.

For example, Cantor and her associates have chosen the transition from high school to college as a particularly informative period in which to investigate life tasks (Cantor, Acker, and Cook-Flanagan, 1992; Cantor & Fleeson, 1991, 1994; Cantor & Harlow, 1994; Cantor & Langston, 1989; Cantor & Malley, 1991; Cantor et al., 1991; Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Zirkel & Cantor, 1990). Freshman year is more than just convenient for academic researchers to study: The transition from high school to college and adulthood is a critical developmental milestone in which many individuals leave home for the first time to establish various independent habits and lifestyles. And although the decision to attend college may have been made for them (or may not have been a *decision* at all but just a fact of life), students still have a great deal of leeway to decide for themselves what they are going to do with the opportunity – what life tasks will occupy them for the next 4 years. Accordingly, when college students are asked to list their life tasks, they list social life tasks (e.g., *making friends* or *being on my own*) as often as they list academic ones (e.g., *getting good grades* or *carving a future direction*). And although the majority of students' life tasks could be slotted into a relatively small number of common categories, their individual construals of these tasks were quite unique and led to equally unique strategies for action.^{*}

The intelligent nature of life-task pursuit is clearly illustrated by the strategies deployed in its service.

^{*} College students, of course, are not the only ones who have life tasks. Harlow and Cantor (1996) found that participation in life tasks such as *servicing the community* and *having a social life* were important predictors of life satisfaction after retirement – especially for men who, in this cohort, had left behind the life tasks involved with work and career.

People often begin to comprehend the problem at hand by simulating a set of plausible outcomes and relating them to previous experiences stored in autobiographical memory. They also formulate specific plans for action and monitor their progress toward the goal, taking special note of environmental factors that stand in the way and determining whether the actual outcome meets their original expectations. Much of the cognitive activity in life-task problem solving involves forming causal attributions about outcomes and in surveying autobiographical memory for hints about how things might have gone differently. Particularly compelling evidence of the intelligent nature of life-task pursuit comes when, inevitably, plans go awry or some unforeseen event frustrates progress. Then, the person will map out a new path toward the goal or even choose a new goal compatible with a superordinate life task. Intelligence frees us from reflex, tropism, and instinct in social life as in nonsocial domains.

THE DEVELOPMENT OF SOCIAL INTELLIGENCE

Although the psychometric and personality views of social intelligence are opposed on many important points, such as the matter of comparative assessment of individuals, they come together nicely in recent work on the development of social intelligence (for reviews, see Greenspan, 1979; Greenspan & Love, 1997). Of course, social intelligence has always played a role in the concept of mental retardation. This psychiatric diagnosis requires not only evidence of subnormal intellectual functioning (i.e., $IQ < 70$) but also demonstrated evidence of impairments in "communication, self-care, home living, social and interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, and safety" (American Psychiatric Association, 1994, p. 46). In other words, the diagnosis of mental retardation involves deficits in social as well as academic intelligence. Furthermore, the wording of the diagnostic criteria implies that social and academic intelligence are not highly correlated; the diagnosis requires positive evidence of *both* forms of impairment, meaning that the presence of one cannot be inferred from the presence of the other.

Although the conventional diagnostic criterion for mental retardation places primary emphasis on

IQ and intellectual functioning, Greenspan (1979) has argued that it should emphasize social and practical intelligence instead. To this end, Greenspan proposed a hierarchical model of social intelligence. In this model, social intelligence consists of three components: *social sensitivity*, reflected in role taking and social inference; *social insight*, including social comprehension, psychological insight, and moral judgment; and *social communication*, subsuming referential communication and social problem solving. Social intelligence, in turn, is only one component of *adaptive intelligence* (the others being *conceptual intelligence* and *practical intelligence*), which, in turn joins *physical competence* and *socioemotional adaptation* (temperament and character) as the major dimensions of personal competence broadly construed. Greenspan did not propose specific tests for any of these components of social intelligence but implied that they could be derived from experimental procedures used to study social cognition in general.

All this is well and good, but while the criterion for impaired intellectual functioning is clearly operationalized by an IQ threshold, there is as yet no standard by which impaired social functioning – impaired *social intelligence* – can be determined. The Vineland Social Maturity Scale (Doll, 1947) was an important step in this direction: this instrument, which yields aggregate scores of *social age* (analogous to mental age) and *social quotient* (by analogy to the intelligence quotient, calculated as social age divided by chronological age). However, it is a telling point that this instrument for evaluating social intelligence and other aspects of adaptive behavior was introduced almost a half century after the first IQ scale was introduced by Binet and Simon.* The Vineland has been recently revised (Sparrow, Balla, & Cicchetti, 1984), but its adequacy as a measure of social intelligence is compromised because linguistic functions, motor skills, occupational skills, and self-care and self-direction

* It is also a telling point that despite the fact that adaptive behavior has played a role in the diagnosis of mental retardation at least since the 1950s (Heber, 1961), the first edition of Ellis's (1963) *Handbook of Mental Deficiency, Psychological Theory, and Research*, a standard text in the field, had no chapter devoted to social intelligence – an omission corrected in subsequent editions by Greenspan (1979) and Greenspan and Love (1997).

are assessed as well as social relations. As an alternative, Taylor (1990) has proposed a semistructured social intelligence interview covering such domains as social memory, moral development, recognition of and response to social cues, and social judgment. However, Taylor concedes that such an interview, being ideographically constructed to take account of the individual's particular social environment, cannot easily yield numerical scores by which individuals can be compared and ranked. More important than ranking individuals, from Taylor's point of view, is identifying areas of high and low functioning within various environments experienced by the individual and determining the goodness of fit between the individual and the environments in which he or she lives. This latter goal, of course, is a primary thrust of the social intelligence view of personality espoused by Cantor and Kihlstrom (1987).

A further step away from the psychometric emphasis on ranking toward the social-cognitive emphasis on general processes is illustrated by recent trends in research on autism. Specifically, it has been proposed by Leslie (1987) and Baron-Cohen (1995), among others, that autistic children and adults lack a "theory of mind" (Premack & Woodruff, 1978; see also Flavell, Green, & Flavell, 1995; Gopnik & Meltzoff, 1997; Wellman, 1990) by which they can attribute mental states to other people and reflect on their own mental life (for a summary review, see Klein & Kihlstrom, 1998). For example, Baron-Cohen, Leslie, and Frith (1985) suggested that the core deficit in autism is that the affected children are unable to appreciate that other people's beliefs, attitudes, and experiences may differ from their own. This hypothesis brought the problem of assessing social intelligence in disabled populations (including mental retardation and learning disability as well as autism; see Greenspan & Love, 1997) directly in contact with a literature on the development of social cognition in normal children that had been emerging since the 1970s (Flavell, 1974; Flavell & Ross, 1981; Shantz, 1975). In this way, scientific understanding of social cognition *in general* began to influence research and theory on individual differences in social cognition.

Still, the problem remains. Is the core deficit in autism one of social intelligence, as Baron-Cohen (1995) claims? In this respect, it is interesting to

note, along with Gardner (1983), that autistic individuals can show an impaired ability to understand others' mental states but retain abilities to deal cognitively with nonsocial objects and events as well as to comprehend social situations in which they are not required to understand another person's knowledge, belief, feelings, and desires. On the other hand, Bruner and Feldman (1993) have proposed that these deficits in social cognition are secondary to deficits in general cognitive functioning. Thus, although research on normal and abnormal development is more closely in contact with general social-cognitive theory than before, the fundamental questions endure: Is social cognition a separate faculty from nonsocial cognition? Is social intelligence anything different from general intelligence applied to the social domain?

As psychologists are fond of saying, further research is needed to answer these questions. However, we can hope that future research on social intelligence will have a different character than it has had in the past. One of the most salient, and distressing, features of the history of intelligence is how little contact there has been between the instruments by which we assess individual differences in intellectual ability and our understanding of the processes that supply the cognitive substrate of intellectual ability (Sternberg, 1977). The IQ test, once touted as "psychology's most telling accomplishment to date" (Herrnstein, 1973, p. 62), is almost entirely atheoretical, having been pragmatically constructed to model the sorts of things children do in school. So too with social intelligence, which all too often has been conceptualized informally and assessed by means of a jury-rigged assortment of tests (Walker & Foley, 1973). Perhaps new theoretical approaches, such as the social-intelligence view of personality and the "theory of mind" view of development, will change this situation so that future reviews of this sort will be able to describe assessments of social intelligence grounded in an understanding of the general social-cognitive processes out of which individual differences in social behavior emerge.

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