31 Social Intelligence

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The term *social intelligence* was first used by Dewey (1909) and Lull (1911) but the modern concept has its origins in Thorndike's (1920) division of intelligence into three facets pertaining to the ability to understand and manage ideas (abstract intelligence), concrete objects (mechanical intelligence), and people (social intelligence). In Thorndike's 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 "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) gave scant attention to social intelligence in the development of the Wechsler Adult Intelligence Scale (WAIS). He did acknowledge 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 (Campbell & McCord, 1996). In Wechsler's (1958) view, however, "social intelligence is just general intelligence applied to social situations" (p. 75). This dismissal was repeated in Matarazzo's (1972, p. 209) fifth and final edition of Wechsler's monograph, in which *social intelligence* dropped out as an index term.

Measuring Social Intelligence

Defining social intelligence seems easy enough, especially by analogy to abstract intelligence. When it came to *measuring* social intelligence, however, 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, 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, researchers quickly translated the abstract definitions of social intelligence into standardized laboratory instruments for measuring individual differences in social intelligence (Landy, 2006; Taylor, 1990; 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). Like the WAIS (which it preceded), the GWSIT was composed of a number of subtests, which could be combined to yield an aggregate score. Hunt (1928) originally validated the GWSIT through its correlations with adult occupational status, the number of extracurricular activities pursued by college students, and supervisor ratings of employees' ability to get along with people. There was some controversy about whether social intelligence should be correlated with personality measures of sociability or extraversion.

However, the GWSIT came under immediate criticism for its relatively high correlation with abstract intelligence. 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 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. Spearman's (1927) *g* afforded no special place for social intelligence, of course; nor was social intelligence included, or even implied, in Thurstone's list of primary mental abilities.

Social Intelligence in Guilford's Structure of Intellect

Work on social intelligence fell off sharply until the 1960s, when interest was revived within the context of Guilford's Structure of Intellect model of intelligence. Guilford postulated a system of at least 120 separate intellectual abilities, based on all possible combinations of five categories of *operations* (cognition, memory, divergent production, convergent production, and evaluation), four categories of *content* (figural, symbolic, semantic, and behavioral), and six categories of *products* (units, classes, relations, systems, transformations, and implications). Within this system, social intelligence was represented by behavioral contents. Of the thirty facets of social intelligence predicted by the Structure of Intellect model (five operations × six products), however, actual tests were devised for only six cognitive abilities (Hoepfner & O'Sullivan, 1969) and six divergent production abilities (Hendricks, Guilford, & Hoepfner, 1969).

In constructing tests of behavioral cognition, O'Sullivan, Guilford, and deMille (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). Their study yielded six factors clearly interpretable as cognition of behavior, which were not contaminated by nonsocial semantic and spatial abilities. However, 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 and colleagues (1971) conceded that the correlations obtained were not

strong enough to warrant Wechsler's assertion that social intelligence is nothing more than general intelligence applied in the social domain.

Hendricks and colleagues (1969) attempted to develop tests for coping with other people, not just understanding 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 and diverse behavioral ideas, these investigators labeled these divergent-thinking abilities *creative social intelligence*. Scoring divergent productions proved considerably harder than scoring cognitions, as there are by definition no best answers and responses must be evaluated by independent judges for quality as well as quantity. Factor analysis yielded six factors clearly interpretable as divergent production in the behavioral domain, which were essentially independent of both divergent semantic production and (convergent) cognition in the behavioral domain (see also Chen & Michael, 1993; Romney and Pyryt, 1999; Snyder & Michael, 1983). In neither domain is there much evidence for the ability of any of these tests to predict external criteria of social intelligence.

Tests of the remaining three Structure of Intellect domains had not been developed by the time the Guilford program came to a close. Hendricks and colleagues (1969) noted that "these constitute by far the greatest number of unknowns in the [Structure of Intellect] model" (p. 6). However, O'Sullivan and colleagues (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), while *behavioral evaluation* was defined as the ability to judge the appropriateness of behavior.

The Magdeburg Test of Social Intelligence

Given the difficulties in constructing and validating performance-based tests of social intelligence, as illustrated by the Guilford program, it is not surprising that many investigators have turned to self-report inventories such as the Tromso Social Intelligence Scale (Grieve, 2013; Silvera, Martinussen, & Dahl, 2001) and the Trait Social Intelligence Questionnaire (Petrides, Mason, & Sevdalis, 2011).

A renewed attempt to develop a performance-based assessment yielded the Magdeburg Test of Social Intelligence (MTSI; Conzelmann, Weis, & Süss, 2013), based on a model of social intelligence proposed by Weis and Süss (2007). The MTSI is an extensive battery of tests consisting of a variety of verbal, pictorial, audio, and video materials assessing various aspects of *social perception* (the ability to quickly perceive social information in complex settings), *social memory* (the ability to store and recall social information), and *social understanding* (the ability to understand social stimuli presented in a situational context). Unfortunately, exploratory factor analysis showed that the various measures of social perception did not converge on a single construct. The measures of social memory and social understanding, however, did show substantial convergent and discriminant validity, supporting the hypothesis that social intelligence is multidimensional in nature. None of these

dimensions correlated with any of the "Big Five" personality traits. Two other aspects of social intelligence hypothesized by the Weis-Süss model, *social flexibility* (the ability to produce many and diverse solutions in a social situation) and *social knowledge* (the individual's fund of knowledge about the social world), are not assessed by the current version of the MTSI.

Convergent and Discriminant Validity in Social Intelligence

Following the Guilford studies, a number of investigators continued the attempt to measure social intelligence and determine its relation to general abstract intelligence. Most of these studies explicitly employed the logic of the multitrait-multimethod matrix, employing multiple measures of social and nonsocial intelligence and examining the convergent validity of alternative measures within each domain and discriminant validity across domains (e.g., Sechrest & Jackson, 1961; Lee et al., 2000; Weis & Süss, 2007).

Marlowe (1986) and his colleagues assembled a large battery of personality measures tapping various aspects of social intelligence, including interest and concern for other people, social performance skills, empathic ability, emotional expressiveness and sensitivity to others' emotional expressions, social anxiety, and lack of social self-efficacy and self-esteem. These scales were essentially unrelated to verbal and abstract intelligence but this apparent independence of social and general intelligence may be at least partially an artifact of method variance: Marlowe's measures of social intelligence were all self-report scales, whereas his measures of verbal and abstract intelligence were the usual sorts of objective performance tests.

Keeping the methods constant, Conzelmann and colleagues (2013) examined the correlations between the MTSI subscales and "academic" intelligence (the Berlin Intelligence Structure Test). Both social perception and social memory were correlated with academic intelligence, perhaps owing to the complexity of the MTSI tasks. Although social understanding proved to be unrelated to measures of academic reasoning, the distinction between social intelligence and intelligence in general remains problematic.

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 naïve, intuitive concepts of intelligence. Sternberg and his colleagues asked subjects to list the behaviors that they considered characteristic of intelligence, academic intelligence, everyday intelligence, and unintelligence; other subjects then rated each of 250 of these in terms of how "characteristic" each was of the ideal person possessing each of the three forms of intelligence (Sternberg et al., 1981). Factor analysis of ratings provided by laypeople yielded a factor of "social competence." Prototypical behaviors reflecting social competence were these: 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 separate group of experts on intelligence. Rather, the experts focused on verbal intelligence and problem-solving ability, with social competence expressly emerging only in the ratings of the ideal "practically intelligent" person. Perhaps these experts shared Wechsler's dismissive view of social intelligence.

Similar studies were conducted by Kosmitzki and John (1993) and by Schneider, Ackerman, and Kanfer (1996), with similar results. In the Schneider and colleagues study, factor analysis revealed seven dimensions of social competence that were essentially uncorrelated with quantitative and verbal/reasoning ability. On the basis of these findings, Schneider and colleagues 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.

Social intelligence played little role in Sternberg's (1977) early componential view of human intelligence, 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, 1988), according to which 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) – though it also includes such nonsocial skills as arithmetic and route-planning abilities. 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 through experience. "Successful" intelligence marshals all three kinds of abilities in pursuing goals and solving problems encountered along the way (Sternberg, 2018). For Sternberg, these abilities, and thus their underlying components, may well be somewhat independent of each other; but the actual relation among various intellectual abilities is an open, empirical question. Answering this question, of course, requires that we have psychometrically adequate instruments for assessing social intelligence – which brings us back to our starting point: How is social intelligence to be measured?

The Development of Social Intelligence

While psychometric research has focused on adults, there is also a long-standing interest in social intelligence among developmental psychologists (Greenspan & Love, 1997) – particularly those concerned with the assessment,

treatment, and growth of children (and adults) with developmental disorders such as intellectual disability and autism.

Moral Reasoning

One stimulus for revived interest in social intelligence was the upsurge of interest in moral reasoning following the publication of Kohlberg's Piagetian theory of moral reasoning (e.g., Kohlberg, 1963). As Turiel (2006) notes, Piaget himself had viewed moral reasoning within the wider context of the child's knowledge and judgment of social relationships. So, just as Thorndike raised the question of how social intelligence related to academic intelligence, the Piaget-Kohlberg tradition raises the question of how age differences in moral reasoning are related to social reasoning in general. One view is that moral reasoning, while obviously related to social reasoning and to reasoning in general, constitutes a separate cognitive domain that might follow its own unique principles, developmental trajectory, and the like.

According to *social-cognitive domain theory* (Turiel, Killen, & Helwig, 1987; Smetana, 2006), morality is only one of several aspects of the social world about which children and adults acquire knowledge and engage in reasoning, judgment, and decision-making. The "conventional" domain of social knowledge has to do with norms of social behavior that vary from one context to another. The "personal" domain has to do with our understanding of individual persons as psychological entities, including the attributions that we make for our own and others' behaviors, and our ability to infer meaning in social situations. The "moral" domain concerns universally applicable and obligatory concepts of harm, welfare, fairness, and rights.

Most of the focus in social-cognitive domain theory has been on the moral domain and on children's developing the ability to understand moral concepts and render judgments of right and wrong. As a developmental theory, social-cognitive domain theory assumes that social-cognitive abilities are heterogeneous – that children's (and adults') abilities to reason about the social world and the trajectory of their development may well differ from one domain to another. But, for present purposes, social-cognitive domain theory offers an alternative description of the domains in which children and adults apply distinctively social intelligence.

Culture and Social Intelligence

While acknowledging that different aspects of social intelligence may have different developmental trajectories, the Piagetian tradition generally assumes that there is some objectively valid standard of morality (or, more broadly, social propriety) that individuals can identify through the application of rigorous, logical thought. On the other hand, increasing appreciation of cultural differences in mind and behavior suggests that there might not be such a single, universal standard (Shweder et al., 1998). In a discussion of the implications of multiculturalism for social intelligence, Shweder (2017) has suggested that "a highly developed social intelligence is one that is able to understand and sympathize with the unfamiliar and even ego-alien perspectives and attachments of the members of different cultural communities without

shedding the attitudes, judgments, and feelings that give definition to one's own distinctive but culturally contoured and refined sense of self" (p. 321). At the very least, those who wish to construct assessments of social intelligence must attend to their own cultural biases; they may even wish to take up the challenge of devising "culture-fair" tests – or to consider the proposition that standards for intelligent social behavior may vary so much from one culture to the next as to require culture-specific tests.

Intellectual Disability

Social intelligence has always played a role in the assessment of intellectual disability (formerly known as mental retardation). This diagnosis requires not only evidence of subnormal intellectual functioning but also demonstrated evidence of "Deficits in adaptive functioning" that "limit functioning in one or more activities of daily life, such as communication, social participation, and independent living, across multiple environments, such as home, school, work, and community" (American Psychiatric Association, 2013). In other words, the diagnosis of intellectual disability 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 – it requires positive evidence of *both* forms of impairment, meaning that the presence of one cannot be inferred from the presence of the other.

While the conventional diagnostic criterion for intellectual disability places primary emphasis on IQ and intellectual functioning, Greenspan and Love (1997) argued that it should emphasize social and practical intelligence instead. They proposed a hierarchical model of social intelligence consisting 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 and Love 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 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). The Vineland has been recently revised (Sparrow, Balla, & Cicchetti, 1984) but its adequacy as a pure measure of social intelligence is compromised by the fact that linguistic functions, motor skills, occupational skills, self-care, and self-direction are assessed as well as social cognition.

As an alternative, Taylor (1990) proposed a semi-structured Social Intelligence Interview covering such domains as social memory, moral development, recognition of and response to social cues, and social judgment. Unfortunately, such an interview, being idiographically 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.

The Autism Spectrum

Another group of developmental disabilities, autistic spectrum disorders, also invokes the concept of social intelligence. Kanner's (1943) classic description of autism portrays children who do not seem to be capable of engaging in normal social behavior or of maintaining normal social relationships, and the diagnostic criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association, 2013) emphasize deficits in social relations: impairments in nonverbal behavior, failures to develop peer relationships, lack of spontaneous sharing and other aspects of social reciprocity; impairments in communication, including an inability to initiate or sustain conversations or social imitative play; and stereotyped patterns of behavior, including inflexibility in various behavioral routines. All of these features suggest that at least some cases of autism are characterized not just by social withdrawal and language impairment but by a specific impairment in the abilities that underlie effective social interaction.

Specifically, it has been proposed that autistic children and adults lack a "theory of mind" (ToM) by which they can attribute mental states to other people and reflect on their own mental lives (Bruner & Feldman, 1993; Tager-Flusberg, 2007). However, it is now recognized that autism lies on a spectrum, with Kanner's syndrome as an extreme case. This brings the problem of assessing social intelligence in intellectual disability and the autism spectrum directly in contact with a literature on the assessment of social intelligence in different cultures. Perhaps some autistic individuals lack some degree of social intelligence. On the other hand, perhaps their social intelligence is merely qualitatively different (Gernsbacher, 2015; Jaarsma & Welin, 2011). 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? How does diversity in social intelligence relate to diversity in general intelligence?

Primate Social Intelligence

While the ontogenetic view of development focuses on the acquisition of social intelligence by individual children, the phylogenetic view asks questions about the evolution of social intelligence – and, in particular, about the social intelligence of our closest primate relatives. Most of this research has focused on whether any

nonhuman species possess ToM, which might be taken as the most elementary aspect of social intelligence. Even though they fail nonverbal versions of the false belief test, laboratory studies confirm that chimpanzees, at least, possess the ability to understand the goals and intentions of others (Call & Tomasello, 2008). Studies of chimpanzees in more natural environments, as well as an appreciation of the complexities of primate societies, however, suggest a more expansive view of primate social intelligence, including the ability to understand the behavior of others in "human" terms of belief and desire (deWaal, 2016; deWaal & Ferrari, 2012; Seyfarth & Cheyney, 2015; Whiten & van de Waal, 2017).

Artificial Social Intelligence

Advances in artificial intelligence, robotics, and human-computer interaction, including Siri and other computer-based "virtual assistants," have led computer scientists to consider how incorporating various aspects of social cognition might enable machines to interact with humans more effectively (Bainbridge et al., 1994; Breazeal, 2002; Broadbent, 2017; Dautenhahn, 2007; Lepore, 2018). One possible approach would be to program various aspects of social intelligence directly, after the manner of Isaac Asimov's "Three Laws of Robotics." Another approach would be to employ powerful machine-learning algorithms to enable robots to acquire social intelligence from interactions with humans. Either approach will require establishing some consensus about what social intelligence is.

The Fall and Rise of Social Intelligence

Reviewing the literature published up to 1983, Landy (2006) characterized the search for social intelligence as "long, frustrating, and fruitless." Certainly it has been long and frustrating. Decade by decade, Landy traces a record of "disappointing empirical results and substantial theoretical criticism" (p. 82). This record did not, however, diminish the enthusiasm of both basic and applied social psychologists for the concept of social intelligence. Landy's review essentially stopped at 1983 and for good reason – for, very soon, events were to give social intelligence a new lease of life.

The Theory of Multiple Intelligences

The milestone event here was the theory of *multiple intelligences* proposed by Gardner (1983, 1993, 1999, 2006; see also Davis et al., 2011). Gardner proposed that intelligence is not a unitary cognitive ability but that there were at least seven (in the original formulation; later expanded to eight) quite different kinds of intelligence, each hypothetically dissociable from the others. While most of these proposed intelligences (linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, and naturalistic) are "cognitive" abilities somewhat reminiscent of Thurstone's primary mental abilities, two are explicitly personal and social in nature.

Intrapersonal intelligence is the ability to gain access to one's own internal emotional life and *interpersonal intelligence* is the ability to notice and make distinctions among other individuals. Gardner (1997) has also considered whether there is a specifically *moral* form of intelligence, which would count as another form of social intelligence.

Although Gardner's multiple intelligences are individual-differences constructs, in which some people or some diagnostic groups are assumed to have more of these abilities than others, Gardner does not rely entirely on the traditional psychometric procedures for documenting individual differences. Rather, his preferred method is a somewhat impressionistic analysis based on a convergence of signs provided by seven additional lines of evidence – *isolation by brain damage, exceptional cases, identifiable core operations, experimental tasks, distinctive developmental histories*, and a *unique symbol system* by which the ability in question can be manipulated and transmitted by a culture. For social intelligence, this symbol system is, at least in part, the language of traits – the thousands of terms that we use to describe each other's mental states but that do not apply to nonsentient objects. Gardner did not offer any new tests of social intelligence, nor did he provide compelling evidence that his multiple intelligences were really qualitatively different from each other. Still, claims for a neuropsychological dissociation between interpersonal intelligence and other forms of intelligence offer new life to the notion that social intelligence can be distinguished from linguistic, logical-mathematical, and spatial intelligence.

Emotional Intelligence

The idea of social intelligence also received a boost from arguments in favor of individual differences in *emotional* intelligence, defined as "the ability to monitor one's own and others' feelings, to discriminate among them, and to use this information to guide one's thinking and action" (Salovey & Mayer, 1990, p. 189; see also Mayer, Roberts, & Barsade, 2008; Mayer, Salovey, & Caruso, 2008). Emotional intelligence subsumes four component abilities: the ability to perceive emotions in oneself and others; to use emotions in the service of thinking and problem-solving; to understand emotions and the relations among them; and to manage emotions in oneself and others. Emotion is frequently evoked in a social context and many social interactions are laced with emotion. So emotional intelligence and social intelligence do share a sort of family resemblance and it would not be surprising to find that they are correlated. For example, the ability to decode nonverbal expressions of emotion (Rosenthal et al., 1979) is an important aspect of the ability to "read" social situations in general (e.g., Barnes & Sternberg 1989). On the other hand, emotional intelligence and social intelligence are not the same thing: There is nothing particularly social about snake phobia and there are many aspects of social cognition where emotion plays little or no role.

The idea of emotional intelligence quickly caught on in both academic and applied psychology (e.g., Goleman, 1995). Whereas Thorndike (1920) postulated social intelligence as the third member of a triad of intelligences, along with mechanical and abstract intelligence, it seems possible that, as suggested by Mayer, "Emotional intelligence could be . . . the replacement member of the triumvirate where social

intelligence failed" (quoted in Goleman, 2006, p. 330). The explosion of interest in emotional intelligence probably has much to do with what might be called the "affective counterrevolution" in psychology – the feeling that, since the cognitive revolution of the 1950s and 1960s, psychology had gone overboard in emphasizing epistemology and needed to pay more attention to feelings and desires. Certainly there is little reason to think that emotional intelligence is a clearer concept than social intelligence or any easier to measure (Murphy, 2006). Whatever the reason, the upsurge of interest in emotional intelligence seems to have carried other "hot" or "personal" intelligences along with it, so that we can look forward to a revival of research interest in this topic (Mayer, Caruso, & Salovey, 2016).

Social Intelligence and Social Neuroscience

All the more so, perhaps, now that Goleman (2006) has done for social intelligence what he did earlier for emotional intelligence. Because rewarding social relationships are the key to happiness and health, and the key to rewarding social relationships is social intelligence, Goleman argued that we need new tools for the assessment of individual differences in social intelligence as well as educational programs that will enable people to learn how to increase their social intelligence in order to become happier and healthier. Whereas Gardner had postulated a single social intelligence, or perhaps two (counting *intra*personal as well as *inter*personal), Goleman argues for a highly differentiated set of social intelligences, grouped under two major headings. *Social awareness* includes the ability to perceive other people's internal mental states, to understand their feelings and thoughts, and to comprehend the demands of complex social situations. It includes modules dedicated to primal empathy, empathic accuracy, attunement, and social cognition. *Social facility*, or relationship management, "builds on social awareness to allow smooth, effective interactions" (p. 84) and includes interaction synchrony, self-presentation, influence, and concern for others.

Goleman (2006) provocatively characterizes previous work on social intelligence as a "scientific backwater" (p. 330) in need of total rethinking. Taking a cue from Gardner, who relied more on neuropsychology than on psychometrics, as well as the doctrine of modularity as it has developed in contemporary cognitive and social neuroscience, Goleman hypothesizes that social intelligence is mediated by an extensive network of neural modules, each dedicated to a particular aspect of social interaction. But, more than that, Goleman asserts that "new neuroscientific findings have the potential to reinvigorate the social and behavioral sciences," just as "the basic assumptions of economics … have been challenged by the emerging 'neuroeconomics,' which studies the brain during decision-making" (p. 324). On the other hand, it is a matter of historical fact that the real revolution in economics – the advances that garnered the Nobel Prizes – flowed from observational field studies (Simon, 1955) and paper-and-pencil questionnaires (Tversky & Kahneman, 1974). An argument can be made that, in personality and social psychology as in other areas of the field, psychological theory leads advances in neuroscience, not the other way around (Kihlstrom, 2010). Nevertheless, neuropsychological and brain-imaging research has

already identified a number of brain modules or circuits that appear to be specialized for social cognition (Fiske & Prentice, 2011; Lieberman, 2007). Individual differences in the functioning of these areas may well prove to be related to individual differences in various aspects of social intelligence (Jimenez et al., 2013).

The Knowledge View of Social Intelligence

Intelligence, as defined in standard dictionaries, has two rather different meanings. In its most familiar meaning, intelligence has to do with 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. As originally coined by E. L. Thorndike (1920) and pursued in the studies reviewed so far, *social intelligence* referred to the person's ability to understand and manage other people and to engage in adaptive social interactions. In its less common meaning, intelligence has to do with 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 MI5 and MI6. Both meanings are invoked by the concept of social intelligence. But, from Thorndike and Guilford to Gardner and Goleman and beyond, social intelligence research and theory have been predicated almost exclusively on what might be called the *ability view.*

Cantor and Kihlstrom offered an alternative *knowledge view* of social intelligence that refers simply to the individual's fund of knowledge about the social world (Cantor & Kihlstrom, 1987, 1989; Kihlstrom & Cantor, 1989, 2000, 2011). In contrast to the ability view of social intelligence, the knowledge view 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 knowledge view begins with the assumption that social behavior is *intelligent* – that it is mediated by what the person knows and believes to be the case and 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 – what the individual knows about himself or herself, other people, the situations in which people encounter each other, and the behaviors they exchange when they are in them.

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 naïve 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.

The initial formulation of social learning theory held that personality was largely learned behavior and that understanding personality required understanding the social conditions under which it was acquired (Miller & Dollard, 1941). Quite quickly, however, social learning slipped from its behaviorist roots and acquired a distinctly cognitive flavor (Bandura & Walters, 1963; Rotter, 1954). Bandura (1973) argued for the acquisition of social knowledge through precept and example rather than the direct experience of rewards and punishment and, later (Bandura, 1986), distinguished between the outcome expectancies emphasized by Rotter and individuals' "self-efficacy" expectancies concerning their ability to carry out the actions required to control the events in a situation. Although Rotter (1966) proposed a measure of generalized locus of control, Bandura argued that the important consideration is not whether an individual is relatively high or low in self-perceptions of social competence, or even actual social competence, but rather whether the person *believes* that he or she is 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, an emphasis on the *subjective meaning* of the situation marked even Mischel's early (1968) theory as cognitive in nature. Since that time, Mischel 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 imported from the study of human cognitive processes. From Mischel's (1973) point of view, the most important product of 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 both overt action and covert mental activities. These construction competencies are as close as Mischel gets to the ability view of social (or, for that matter, *non*social) intelligence.

On the other hand, 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 Kellian personal *constructs* that filter people's perceptions, memories, and expectations. Following Rotter and Bandura, Mischel also stresses the role of stimulus-outcome, behavior-outcome, and self-efficacy *expectancies*. Also in line with Rotter's theory, Mischel notes 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-imposed goals and consequences that govern behavior in the absence (or in

spite) of social monitors and external constraints. These variables are more in line with the knowledge view of social intelligence.

Social Intelligence as Social Knowledge

Following Winograd (1975) and Anderson (1976), Cantor and Kihlstrom (1987) classified social intelligence into two broad categories: *declarative social knowledge*, consisting of abstract concepts and specific memories, and *procedural social knowledge*, consisting of the rules, skills, and strategies by which the person manipulates and transforms declarative knowledge and translates knowledge into action. Following Tulving (1983), the individual's fund of declarative social knowledge, in turn, can be broken down further into context-free *semantic* social knowledge about the social world in general and *episodic* social memory for the particular events and experiences that make up the person's autobiographical record. Similarly, procedural knowledge can be subclassified in terms of cognitive and motoric social 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 (Carlston, 2013; Fiske & Macrae, 2012; Fiske & Taylor, 2007) – a literature that, interestingly, had its beginnings in early psychometric efforts to measure individual differences in social intelligence. For example, Vernon (1933) argued that 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 inquiries into how people form impressions of personality. Research on person perception, in turn, led to an inquiry into the intuitive or implicit theories of personality that provide the cognitive basis for impression formation. Specifically, Cronbach (1955) argued that one's implicit theory of personality consisted of his or her knowledge of "the generalized Other" (p. 179) – 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 them. 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.

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 people's perception of the social world 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, social groups, and social situations. Other concepts concern the *intra*personal world: the kinds of people we are, both in general and in particular classes of situations, and our theories of how we got that way. 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 knowledge.

Another important set of declarative social knowledge structures represents the individual's autobiographical memory (Kihlstrom, 2009; McAdams & Manczak, 2015). 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 direct and vicarious experience about the actions and experiences of specific other people and the events that have transpired in particular situations. 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, Beer, & Klein, 2002).

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 in nature, while others may entail heuristic shortcuts (Nisbett & Ross, 1980). Some are enacted deliberately, while others may be evoked automatically, without much attention and cognitive effort on our part (Bargh, 1997; but see also Kihlstrom, 2008). They are all part of our repertoire of procedural social knowledge.

Social Intelligence in Life Tasks

From the knowledge view of social intelligence, the assessment of social intelligence has quite a different character than it does from the ability view. From a psychometric point of view, the questions posed have answers that are right or wrong: Is someone smart or not? Are smart people also friendly? Is it proper to giggle 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, the knowledge view, like the social intelligence approach to personality in general, abjures such rankings of people (Cantor, 2003). Rather than asking how socially intelligent people *are*, compared to some norm, the social intelligence view of personality asks what social intelligence people *have*, which they use to guide their interpersonal behavior. In fact, the social intelligence approach to personality is less interested in 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-differences measures by which the person's social intelligence can be assessed.

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 theorists that intelligence is context-specific (e.g., Sternberg, 1988). Social intelligence is specifically geared to solving the problems of social life and, in particular, managing the *life tasks, current concerns* (Klinger & Cox, 2011), or *personal projects* (Little, Salmela-Aro, & Phillips, 2007) that people select for themselves or that other people impose on them from outside. 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 must come from the point of view of the particular person whose life tasks are in play.

Life tasks provide an integrative unit of analysis for studying the interaction between the person and the situation (e.g., Cantor, 1990, 2000, 2003; Cantor & Fleeson, 1994; Cantor & Harlow, 1994; Cantor et al., 2002; Snyder & Cantor, 1998). They may be explicit or implicit, abstract or circumscribed, universal or unique, enduring or stage-specific, rare or commonplace, poorly defined or well defined. Whatever their features, they give meaning to the individual's life and serve to organize his or her daily activities. Defined from the subjective point of view of the individual, they are the tasks that the person perceives himself or herself as "working on and devoting energy to solving during a specified period in life" (Cantor & Kihlstrom, 1987, p. 168). 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 they are embedded in the individual's ongoing daily life. They are responsive to the demands, structure, and constraints of the social environment in which the person lives. While often willingly undertaken, life tasks can also be imposed from outside and the ways in which they are approached may be constrained by sociocultural factors. Unlike the stage-structured views of Erikson and his popularizers, 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, when the person is entering into epochs in the life cycle, are precisely those times when individual differences in life tasks become most apparent.

The intelligent nature of life-task pursuit is illustrated by the strategies deployed in its service. People often begin to comprehend the problem at hand by simulating a set of plausible outcomes, relating them to previous experiences stored in autobiographical memory. They formulate specific plans for action and monitor their progress toward their goals, taking special note of obstacles 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 surveying autobiographical memory for hints about how things might have gone differently. When plans go awry or some unforeseen event frustrates progress, 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, taxis, and instinct in social life as in nonsocial domains.

Development of Social Intelligence Revisited

From the knowledge view, with its emphasis on specific declarative and procedural social knowledge, the development of social intelligence is a matter of social learning rather than genetic endowment or mental maturation. Post-Piagetian views of cognitive development emphasize the child's construction and refinement, through experience, of various intuitive theories concerning the mind, physics, and biology (e.g., Gopnik, 2003, 2011). To this list we can add theories about self, others, and the social world – intuitive theories of personality, self, and society that capture our understanding of the way people interact and shape our interactions with other people.

Quo Vadis?

It is possible that the concept of social intelligence has outlived its usefulness and will be supplanted by emotional intelligence or some other variant on personal intelligence. Alternatively, it is possible that neuroscientific analyses will give new life to the study of social intelligence, as they promise to do in other areas of psychology. On the other hand, perhaps we should abandon the "ability" model of social intelligence completely, along with its psychometric emphasis on developing instruments for the measuring of individual differences in social competencies of various sorts – tests intended to rank people and on which some people must score high and others must score low. Instead of focusing on *how people compare*, perhaps we should focus on *what people know* and how they bring their social intelligence to bear on their interactions with other people, on the tasks life has set for them, and on the tasks they have set for themselves. In this way, we would honor the primary idea of the cognitive view of social interaction, which is that interpersonal behavior is intelligent, based on what the individual knows and believes – no matter how smart or stupid it may appear to other people.

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