Saarni, C. (1999). *The development of emotional competence.* New York: Guilford Press.

Schultz, D., Izard, C. E., & Ackerman, B. P. (1999). Children's anger attribution biases: Relations to family environment and social adjustment. *Social Development, 9,* 284–301.

Shields, A., Dickstein, S., Seifer, R., Guisti, L., Magee, K. D., & Spritz, B. (2001). Emotional competence and early school adjustment: A study of preschoolers at risk. *Early Education and Development, 12,* 73–96.

Smith, M. (2001). Social and emotional competencies: Contributions to young African-American children's peer acceptance. *Early Education and Development, 12,* 49–72.

Stifter, C., & Fox, N. (1987). Preschoolers' ability to identify and label emotions. *Journal of Nonverbal Behavior, 10,* 255–266.

Strayer, J. (1986). Children's attributions regarding the situational determinants of emotion in self and others. *Developmental Psychology, 22,* 649–654.

Wellman, H. M., & Banerjee, M. (1991). Mind and emotion: Children's understanding of the emotional consequences of beliefs and desires. *British Journal of Developmental Psychology, 9,* 191–214.

Wellman, H. M., & Woolley, J. D. (1990). From simple desires to ordinary beliefs: The early development of everyday psychology. *Cognition, 35,* 245–275.

Wiggers, M., & Van Lieshout, C. F. (1985). Development of recognition of emotions: Children's reliance on situational and facial expressive cues. *Developmental Psychology, 21,* 338–349.

Wintre, M., Polivy, J., & Murray, M. A. (1990). Self-predictions of emotional response patterns: Age, sex, and situational determinants. *Child Development, 61,* 1124–1133.

Wintre, M., & Vallance, D. D. (1994). A developmental sequence in the comprehension of emotions: Multiple emotions, intensity and valence. *Developmental Psychology, 30,* 509–514.

CHAPTER 11

Complexity of Emotion Representations

RICHARD D. LANE
BRANKA ZEI POLLERMANN

Wisdom connotes intelligence, the ability to differentiate and understand the relationships between things in the world, tempered by the refinement in one's understanding based on real-life experiences. As such, wisdom can be acquired only through hard-won experience and the recognition that conventional beliefs may be misleading. From this perspective, emotional responses are inherently wise. Emotional responses result from a complex cognitive process consisting of an evaluation of the extent to which goals are being met in interaction with the environment. The usefulness and adaptive value of emotions derives from their phylogenetic origin as rapid and automatic solutions to common problems in adaptation (Tooby & Cosmides, 1990). In this sense, emotions reflect experience across the evolutionary time scale. Furthermore, one's emotional responses may be surprising, as they may be inconsistent with one's own conscious beliefs or expectations. Major life decisions may best be made by relying on one's gut feelings. In this sense, emotions (in contrast to feelings or conscious emotional experiences) are wise because they represent a rapid integration of multiple sources of information and provide an instantaneous assessment about the significance to a person of his or her actual or anticipated interactions with the environment.

The degree to which the inherent wisdom of emotions can be put to purposeful use, however, is a function of the degree to which emo-

tional responses are consciously experienced, attended to, and reflected upon. The autonomic, neuroendocrine, musculoskeletal, perceptual, and mnemonic processes that are automatically set in motion during an emotional response may not be consciously experienced or recognized. Even if an emotional response is associated with a conscious experience or feeling, the person having the emotional response may not attend to it. In that case, the information inherent in the emotional response (e.g., the inherent desire to correct a wrong implicit in an anger response) cannot be explicitly incorporated into conscious thought. In the absence of reflective thought, emotional learning can certainly still occur, but it will necessarily proceed automatically and influence one's future behavior and emotional responses in a manner that is not within one's conscious control.

If the subjective experience or feeling associated with an emotional response *is* attended to, however, there will be considerable variability across individuals in the nature of the information extracted from the experience during off-line reflection. In this chapter we propose that the complexity of the conceptual framework that one has for one's own emotional life will determine both the degree to which that experience can be represented mentally in a complex fashion and the complexity of the on-line emotional experience. As such, the degree to which feelings are informative and can serve as a useful guide in adaptive behavior will be a function of the complexity of the conceptual framework that one has created for one's own emotional life. A primary goal of this chapter is to explain this idea in greater detail.

We begin by reviewing the theoretical background of a cognitive–developmental framework called "levels of emotional awareness." An extension of the theory is presented that places the original model in a somewhat broader context by demonstrating how levels of emotional awareness constitute one manifestation of a larger phenomenon involving the conceptual organization of emotion. Next, empirical data supporting the levels of emotional awareness framework are presented. We then conclude by addressing the implications of this new perspective for emotion research. One major implication is that the conceptual organization of emotions is the primary determinant of the wisdom in feelings.

THE ORIGIN OF COMPLEX REPRESENTATIONS OF EMOTIONAL STATES

In this section, we expand on previous theoretical formulations of the emotional awareness construct to place it in a broader and more up-to-date context. Inherent in this approach is the concept that the complexity of the representations of emotional states increases developmentally. The goals of this section are to describe what is meant by complexity, explain how it arises, and explain why a conceptual framework of one's own emotional life includes what it does.

One can begin by asking a very simple question. How does a child come to know what he or she is feeling and what other people may be feeling? Emotional responses are highly complex phenomena including autonomic, neuroendocrine, musculoskeletal, perceptual, mnemonic, and experiential processes that are automatically set in motion during an emotional response. Any or all of these phenomena may serve as a substrate for cognitive processing. But early in development, emotional responses are relatively undifferentiated whole-body responses that are sensorimotor in character. Since Piaget discovered that intelligence (Piaget, 1936) derives from a general coordination of sensorimotor patterns, it seemed reasonable to hypothesize that understanding of the internal world of emotions develops according to classic principles of the development of intelligence.

Piaget's fundamental epistemological position is that awareness of the subject's own actions/reactions (like any other knowledge) is constructed; that is, it results from cognitive processes in general and metacognition in particular (Piaget, 1974). By virtue of a developmental process, a person can become aware of the full complexity of his or her own and others' emotional responses.

Lane and Schwartz (1987) proposed that an individual's ability to recognize and describe emotion in oneself and others, called emotional awareness, is a cognitive skill that undergoes a developmental process similar to that which Piaget described for cognition in general. A fundamental tenet of this model is that individual differences in emotional awareness reflect variations in the degree of differentiation and integration of the schemata used to process emotional information, whether that information comes from the external world or the internal world through introspection.

The model posited five "levels of emotional awareness," which share the structural characteristics of Piaget's stages of cognitive development (Piaget, 1937). The five levels of emotional awareness are, in ascending order, (1) awareness of physical sensations, (2) action tendencies, (3) single emotions, (4) blends of emotions, and (5) blends of blends of emotional experience (the capacity to appreciate complexity in the experiences of self and other). The hierarchical relationship between the levels is depicted in Figure 11.1.

Emotional awareness is considered to be a separate line of cognitive development that may proceed somewhat independently from

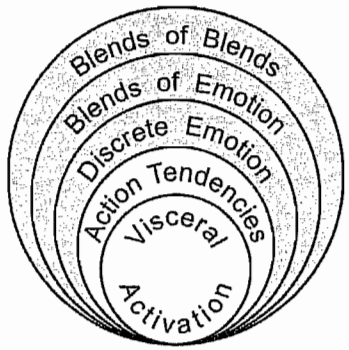

FIGURE 11.1. The hierarchical relationship between the five levels of emotional awareness.

other cognitive domains. The concept that development can proceed at different rates in different domains of knowledge is known as *horizontal decalage.* In principle, it is entirely possible that a developmental arrest can occur in one domain while development in other domains of intelligence continues unabated.

The relationship between awareness and experience requires comment. Awareness involves directing attention to the contents of experience and retrospectively creating representations off-line. These representations are then automatically used as assimilatory schemes when emotional responses occur on-line. The contents of conscious experience will therefore be determined by these representational schemata.

The five levels therefore describe the cognitive organization of emotional experience. They describe traits, although they may also be used to describe states. The levels are hierarchically related, in that functioning at each level adds to and modifies the functions of previous levels but does not eliminate them. For example, level 4 experiences should be associated with more differentiated representations of somatic sensations (level 1) than level 2 experiences. The feelings associated with a given emotional response can be thought of as a construction consisting of each of the levels of awareness up to and including the highest level attained.

The development of representational schemata is facilitated by the language or other semiotic mode used to describe emotion. This perspective draws on the work on symbol formation by Werner and Kaplan (1963), who maintained that the way the world becomes known to an observer is influenced by the way in which it is represented symbolically. Thus, the nature of conscious emotional experience, and the ability to

appreciate complexity in one's own experience and that of others, is influenced by how emotion is represented.

This position is also consistent with that of Piaget's followers such as Karmiloff-Smith (1992), who holds that the development of knowledge proceeds through a process called "representational redescription." In essence, cognitive development from this theoretical perspective consists of the transformation of knowledge from implicit (procedural, sensorimotor) to explicit (conscious thought) representations through the use of language or another semiotic mode. This transformation renders thought more flexible, adaptable, and creative. This viewpoint is consistent with the theory that the way language is used to describe emotion modifies what one knows about emotion and how emotion is experienced consciously.

FROM SENSORIMOTOR TO CONCEPTUAL REPRESENTATIONS

The cognitive "instruments" that allow for the transformation of sensorimotor schemes to conceptual representations are of two kinds (Piaget & Garcia, 1983): empirical abstraction and reflective abstraction (in the sense of reflecting upon). Each abstraction mechanism leads to qualitatively different types of knowledge.

Applied to the knowledge and awareness of emotion, the first type of knowledge is constructed through "empirical abstraction," that is, from direct perception/ proprioception of emotional arousal. In this process a person selects one or several features from the whole global event. The abstracted features depend on which assimilatory schemata have been used as well as on his or her level of coding capacities (establishing relations, correspondences, etc.). At this level a person typically describes successive actions as observational facts. Such a nonreflective level of consciousness includes a person's actions and/or action tendencies, possibly including expressive reactions (voice, face, muscular tensing, etc.).

Assuming functional continuity between sensorimotor intelligence and conceptual thought, Piaget (1972, p. 253) gives four conditions for the transformation of sensorimotor schemes into conceptual schemes: (1) a general acceleration of movements (which is a sign of the beginning of interiorization, that is, of an anticipatory representation of an action scheme); (2) awareness of the structure of the anticipatory scheme, which involves generalization, hierarchical classification, and serial ordering; (3) a system of signs allowing the construction of general concepts necessary for categorizations and serial ordering; and (4)

the socialization of representations by virtue of the use of language, which places individual thought into an objective and socially shared reality.

The second type of knowledge is constructed through "reflective abstraction" (Piaget, 1977). The latter involves meta-cognitive treatment of lower-level representations, their relationships, and their coordinations. Such reflecting upon one's own first-level representations includes understanding, deductions (causal explanations, necessities), and drawing inferences (implications, logical connections). At this level a person may typically say, "I am sure I saw and felt . . . , then I told myself . . . , I then had the idea . . . , I concluded that. . . .") "Reflective abstraction" (*abstraction réfléchissante*) is considered to be the main mechanism of conceptualization.

To a large extent the verbalization of emotional experiences can be considered a consciousness-raising process that elevates the procedural dimension of emotion onto a representational level, allowing for more flexible mental handling of emotional contents. The shifting of sensorimotor contents onto a representational level requires conceptualization, which in turn involves reconstruction. The latter follows the same stages as those observed on the practical sensorimotor level: for example, from egocentrism to decentration, from subjectivity to objectivity, from nondifferentiation and noncoordination to differentiation and coordination. Conceptualization is facilitated by the use of language as a semiotic system that "translates" concepts into communicable and conventionalized entities. Linguistic signs facilitate the representational redescription of sensorimotor action schemes through the mechanism of generalization, thus allowing the construction of abstract representational entities free of any concrete content.

Ferdinand de Saussure's (1949/1972) theory of language considers language as a categorizing principle in that the concepts it denotes are by definition categories that the mind has constructed (through extralinguistic and/or linguistic experience) and that the speaking community has conventionalized. Language is also a form of socialized thought in the sense that the precise semantic value of each linguistic sign is conditioned and/or limited by the coexistence of all the other signs available in a given language used by a given speaking community in a given culture.

Verbal description of one's emotions necessarily involves reflecting upon one's own internal experience and expressing it by means of a culturally shared semiotic system. The mere use of language in describing or expressing emotions helps establish a network of differences and similarities between various emotional representations and concepts.

At the highest level, which is the result of reciprocal assimilations

of the contents of the second level, a person is able to elaborate operations on operations. The full combinatorial capacity consists of the operations involving four possible transformations, the so-called INCR group, consisting of Identical, Inverse (or Negation), Reciprocal, and Correlative transformations. The INCR group is considered to be a form of equilibrium (or stable level) of a person's operational behaviors. A person is able to have a theory and envisage several different explanatory models for a problem.

Thus, the cognitive "instruments" that make abstract thought possible are essential for the transformation of sensorimotor aspects of emotion into differentiated, conscious experiences. At the highest level, by virtue of the INCR group, emotional information can be manipulated freely independent of the original interoceptive or exteroceptive stimuli.

CONCEPTUAL ORGANIZATION OF EMOTION

Through the process of reflective abstraction involving verbal representations, a framework of emotion knowledge develops. It is a conceptual framework in the sense that each emotion becomes a conceptual entity in its own right, with its own associated features. These include what the experience of having the feeling is like and how it feels in the body, what the outward signs of the emotion are, what causes the feeling, what enhances or diminishes the feeling, how the emotional state is related to overt behavior, and how social context influences what is (or should be) expressed. With development, more and more of these features become part of each individual emotion concept and more distinctions are made between different emotions, leading to an expansion in the conceptual repertoire of emotions. *In essence, a network of interrelated schemata for processing emotional information develops.*

As noted earlier, the process of developing complex mental representations of emotional states proceeds off-line. However, the schemata that develop constitute the "programs" for processing emotional information on-line, which includes the orchestration of each emotional response. As such, the entire panoply of functions involved in emotion gets coordinated into more and more complex schemata. Thus, phenomena that will covary in terms of their degree of differentiation and complexity include the ability to recognize emotion stimuli (either verbally or nonverbally), the range of emotional experience, the extent of one's emotional vocabulary, the capacity for accurate empathy, and the capacity for emotion self-regulation in the service of adaptive social behavior (see also Denham & Kochanoff, Chapter 10, this volume).

THE LEVELS OF EMOTIONAL AWARENESS SCALE: PSYCHOMETRIC FINDINGS

The Levels of Emotional Awareness Scale (LEAS) is a written performance measure that asks a person to describe his or her anticipated feelings and those of another person in each of 20 scenes described in two to four sentences (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990). Scoring is based on specific structural criteria aimed at determining the degree of differentiation in the use of emotion words (the degree of specificity in the terms used and the range of emotions described) and the differentiation of self from other. The scoring involves essentially no inference by raters. Because the scoring system evaluates the structure of experience and not its content, individuals cannot modify their responses to enhance their scores, as is the case with some self-report instruments. A glossary of words at each level was created to guide scoring.

Each of the 20 scenes receives a score of 0 to 5, corresponding to the cognitive–developmental theory of emotional awareness that underlies the LEAS (Lane & Schwartz, 1987). A score of 0 is assigned when nonaffective words are used or when the word "feel" is used to describe a thought rather than a feeling. A score of 1 is assigned when words indicating physiological cues are used in the description of feelings (e.g., "I'd feel tired"). A score of 2 is assigned when words are used that convey relatively undifferentiated emotion (e.g., "I'd feel bad") or when the word "feel" is used to convey an action tendency (e.g., "I'd feel like punching the wall"). A score of 3 is assigned when one word conveying a typical differentiated emotion is used (e.g., happy, sad, angry, etc.). A score of 4 is assigned when two or more level 3 words are used in a way that conveys greater emotional differentiation than would either word alone. Respondents receive a separate score for the "self" response and for the "other" response, ranging from 0 to 4. In addition, a total LEAS score is given to each scene equal to the higher of the self and other scores. A score of 5 is assigned to the total when self and other each receive a score of 4 and are differentiated from one another; thus, a maximum total LEAS score of 100 is possible.

To date, eight separate psychometric studies have been conducted with the LEAS. The first study in Yale undergraduates ($N = 94$) enabled us to examine the reliability of the LEAS and its correlation with other psychological tests (Lane et al., 1990). The second study involved students at Chicago Medical School (CMS) ($N = 57$) and focused on the correlation with the Levy Chimeric Faces Test (Lane, Kevley, DuBois, Shamasundara, & Schwartz, 1995). The third study, in Arizona and Minnesota ($N = 385$), established norms for the scale (Lane et al., 1996). A fourth study with University of Arizona undergraduates ($N = 215$) involved additional psychometric and psychophysiologic assessments. The fifth and sixth studies were conducted in collaboration with Lisa Feldman Barrett at Boston College. In addition, two international studies were conducted: a study of 331 German students (Wrana et al., 1998) and a Canadian study of 30 subjects with borderline personality disorder and 40 control subjects (Levine, Marziali, & Hood, 1997). The findings from these studies are selectively reviewed here.

The LEAS has consistently been shown to have high interrater reliability and internal consistency (Lane et al., 1998). The test–retest reliability at 2 weeks has been recently shown to be quite good ($N = 135$, Spearman–Brown $r = .67$, $p < .001$). Norms for age, sex, and socioeconomic status have been established based on the study completed in Arizona and Minnesota.

In the Yale study we administered two instruments that, like the LEAS, are cognitive–developmental measures based on Piaget's model: the Sentence Completion Test of Ego Development by Loevinger (Loevinger & Wessler, 1970; Loevinger, Wessler, & Redmore, 1970) and the cognitive complexity of the description of parents by Blatt and colleagues (Blatt, Wein, Chevron, & Quinlan, 1979). The LEAS correlated moderately ($r = .37$ and $r = .36$, respectively) and significantly ($p < .01$) in the predicted direction in both cases. These results support the claim that the LEAS is measuring a cognitive–developmental continuum and that the LEAS is not identical to these other measures.

A key question is whether the LEAS is simply another measure of verbal ability. In the Yale sample the LEAS correlated $r = .38$ ($p < .001$) with the vocabulary subtest of the Wechsler Adult Intelligence Scale (WAIS). In the CMS study the LEAS correlated $r = .17$ (NS) with the Shipley Institute of Living Scale (Shipley, 1940), a multiple-choice measure of verbal ability. These data suggest that verbal ability may contribute to LEAS performance. However, several studies have now been conducted demonstrating that when verbal ability is controlled, significant effects are still observed. For example, LEAS scores in men and women could be compared in all eight studies. In three of these studies measures of verbal ability, including the WAIS vocabulary subtest and the Shipley Institute of Living Scale, were also obtained. In each study women scored higher than men on the LEAS ($p < .01$), even when controlling for verbal ability ($p < .05$) (Barrett, Lane, Sechrest, & Schwartz, 2000). Thus, the finding that women score higher than men on the LEAS is a highly stable and generalizable finding.

Although the LEAS captures important phenomena independent of verbal ability, it would be inappropriate to always covary verbal ability in any study involving the LEAS. As Weiskrantz (2000) discusses, it may

be that activation of the commentary system (as opposed to the actual production of the commentary response) generates awareness. As such, removing variance due to language-related ability may encroach upon the core of emotional awareness.

Lisa Feldman Barrett administered the LEAS and the Weinberger Adjustment Inventory to 63 subjects at Pennsylvania State University and 55 subjects at Boston College. In both samples the LEAS correlated significantly ($p < .05$, 2-tailed) with self-restraint, one of three superordinate dimensions of the scale. The LEAS also correlated significantly with impulse control, ($r = .35$, $p < .01$, 2-tailed, and $r = .30$, $p < .05$, 2-tailed), a component of self-restraint that involves the tendency to think before acting. Self-restraint refers directly to suppression of egoistic desires in the interest of long-term goals and relations with others. This replication in independent samples indicates that greater emotional awareness is associated with greater self-reported impulse control, and is consistent with the theory that functioning at higher levels of emotional awareness (levels 3–5) modulates function at lower levels (actions and action tendencies at level 2).

Evidence for the discriminant validity of the LEAS is provided by data from the Norms study and the Arizona undergraduate study. In both studies ($n = 385$ and $n = 215$, respectively) the Affect Intensity Measure (Larsen & Diener, 1987), a trait measure of the tendency to experience emotions intensely, did not correlate significantly with the LEAS despite the large sample sizes. Thus, inadequate statistical power cannot explain the lack of correlation. The LEAS also does not correlate significantly with measures of negative affect, such as the Taylor Manifest Anxiety Scale and the Beck Depression Inventory. These results are consistent with the view that the LEAS measures the structure or complexity and not the intensity or valence of affective experience.

BEHAVIORAL AND NEURAL CORRELATES OF THE LEAS

A key assumption in this work on emotional awareness is that language promotes the development of schemata for the processing of emotional information, whether that information comes from the internal or external world. Once the schemata are established, they should affect the processing of emotional information whether the information is verbal or nonverbal. Thus, the LEAS should correlate with the ability to recognize and categorize external emotional stimuli. Furthermore, this correlation should hold whether the external stimulus and the response are purely verbal or purely nonverbal.

These hypotheses were tested in the Norms study by use of the Perception of Affect Task (PAT), a set of four emotion recognition tasks (35 items each) developed by Jim Rau and Alfred Kaszniak at the University of Arizona (Rau, 1993). The first subtask consists of stimuli describing an emotional situation without the use of emotion words. For example, "The man looked at the photograph of his recently departed wife." The response involves choosing one from an array of seven terms ("happy," "sad," "angry," "afraid," "disgust," "neutral," "surprise") to characterize how the person in question was feeling. The fourth subtask is purely nonverbal. The stimuli consist of photographs of faces developed by Ekman (1982), each of which depicts an individual emotion. The response consists of selecting one from an array of seven photographs depicting emotional scenes without faces (e.g., two people standing arm-in-arm by a grave with their backs to the camera). The other two subtasks involve a verbal stimulus (sentence) and a nonverbal response (from an array of seven faces), and a nonverbal stimulus (face) and a verbal response (from an array of seven words).

Across the entire scale, the correlation between the LEAS and the PAT was high ($r = .43$, $n = 385$, $p < .001$), accounting for about 18% of the variance. Furthermore, significant correlations were observed between the LEAS and each of the PAT subtasks. When dividing the sample into upper (high), middle, and lower thirds on the LEAS, the high-LEAS subjects scored higher on each of the PAT subtasks than the low-LEAS subjects. Thus, high LEAS scores were associated with better emotion recognition no matter whether the task was purely verbal or purely nonverbal (Lane et al., 1996). Furthermore, when combining results for each of the seven emotion categories across the four subtasks (there were five stimuli of each emotion type in each subtask), the same findings for high-, moderate-, and low-LEAS subjects were observed (Lane, Sechrest, Riedel, Shapiro & Kaszniak 2000). These findings support the claim that the LEAS is: (1) a measure of the cognitive–developmental schemata used to process emotional information, whether the information is verbal or nonverbal, (2) a measure of the complexity of experience, and (3) not merely a measure of verbal ability.

To explore the underlying functional neuroanatomy of emotional awareness, we administered the LEAS to participants in a positron emission tomography (PET) study of emotion (Lane et al., 1998). Participants included 12 right-handed female volunteers who were free of medical, neurological, or psychiatric abnormalities. The LEAS and other psychometric instruments were completed prior to PET imaging. Happiness, sadness, disgust, and three neutral control conditions were induced by film and recall of personal experiences (12 conditions). Twelve PET images of blood flow were obtained in each person using the ECAT 951/31 scanner (Siemens, Knoxville, TN), 40 mCi intra-

venous bolus injections of ^{15}O-water, a 15-second uptake period, 60-second scans, and an interscan interval of 10 minutes.

To examine neural activity attributable to emotion generally, rather than to specific emotions, one can subtract the 3 neutral conditions from the 3 emotion conditions in a given stimulus modality (film or recall). This difference, which can be calculated separately for the 6 film and 6 recall conditions, identifies regions of the brain where blood flow changes specifically attributable to emotion occur. These blood flow changes, which indicate neural activity in particular regions, can then be correlated with the LEAS scores to identify regions of the brain that are associated with emotional awareness during emotional arousal.

Findings from this covariate analysis revealed one cluster for film-induced emotion with a maximum located in the right midcingulate cortex (Brodmann's area [BA] 23; coordinates of maximum = [16, –18, 32]; $z = 3.40$; $p < .001$ uncorrected). For recall-induced emotion, the most statistically significant cluster was located in the right anterior cingulate cortex (BA 24; coordinates of maximum = [16, 6, 30]; $z = 2.82$; $p < .005$ uncorrected). An analysis was then performed to identify areas of significant overlap between the two covariance analyses. With a height threshold of $z = 3.09$, $p < .001$, and an extent threshold of 5 voxels, a single cluster was observed in the right anterior cingulate cortex (BA 24) maximal at [14, 6, 30].

Traditionally, the anterior cingulate cortex was thought to have a primarily affective function (Papez, 1937; Vogt, Finch, & Olson, 1992). However, in addition to a role in emotion regulation, it is now recognized to play important roles in attention, pain, response selection, maternal behavior, vocalization, skeletomotor function, and autonomic control (Vogt & Gabriel, 1993). The multiple functions of the anterior cingulate cortex no doubt contribute to the significant changes in activation that have been observed in a variety of studies. How can these different functions be reconciled with the present findings involving emotional awareness?

One answer may be that these various functions of the anterior cingulate cortex may reflect its superordinate role in executive control of attention and motor responses (Lane et al., 1998). According to this view, emotion, pain, or other salient exteroceptive or interoceptive stimuli provide moment-to-moment guidance regarding the most suitable allocation of attentional resources for the purpose of optimizing motor responses in interaction with the environment. The conscious experience of emotion may occur concomitantly and automatically as attention is redirected by emotion. As such, a role of the anterior cingulate cortex in the conscious experience of emotion fits well with its other functions, but suggests that this role is not exclusive to emotion.

To the extent that people who are more emotionally aware attend more to internal and external emotion cues, the cognitive processing of this information can contribute to ongoing emotional development.

IMPLICATIONS FOR THEORY AND RESEARCH

Emotional Intelligence

Emotional intelligence may be broadly defined as the ability to use emotional information in a constructive and adaptive manner. Emotional information consists of one's own subjective emotional responses as well as the information conveyed by the emotional responses of others. This definition of emotional intelligence is consistent with that of the creators of the construct, who view emotional intelligence as a set of mental abilities (Salovey & Mayer, 1990; Mayer & Salovey, 1997; Mayer, Salovey & Caruso, 1999). These include the ability to perceive emotions, access and generate emotion to assist thought, understand and reason about emotion, and reflectively regulate emotions to promote emotional and intellectual growth.

It should be evident from the earlier discussion of theory that the conceptual organization of one's own emotional life is the core of emotional intelligence. The mental abilities associated with emotional intelligence are all derived from this core. Put in another way, the same principles and processes that govern cognition or intelligence in the usual sense apply to all other domains of intelligence as well, including emotional intelligence. The advantage of the perspective proposed here is that it provides a coherent explanation for the universe of phenomena that are captured by the concept of emotional intelligence. Furthermore, it explains their interrelationship and the principles that define and govern the degree to which someone is emotionally intelligent.

Assessment of the Conceptual Organization of Emotion

If the conceptual organization of one's emotional life is the core of emotional intelligence, this has implications for how emotional intelligence, and related phenomena, are assessed. Currently, emotional intelligence assessment consists of determining accuracy in emotion recognition judgments, making imaginative connections between emotions and concrete objects, assessing the ability to use emotions in decision making, and the like (Mayer, Salovey, & Caruso, 1999).

The first question is how best to assess the conceptual organization of emotion in any given person. Although a Piagetian approach has been used to chart the development of intelligence in a variety of cognitive do-

mains, the fact is that such an approach to emotions has never been undertaken with children or adults. Piaget's (1926/1947) clinical method consists of asking children questions and using their responses to tease out the extent of their conceptual understanding. It is reasonable to predict that the development of a conceptual system for emotions will follow the same principles that govern other areas of cognitive development.

The most efficient way to assess the conceptual organization of emotion remains to be determined. However, for practical reasons it would be ideal to develop specific tasks for this purpose and to develop tasks that would be applicable to adults. An example of such a task is an emotional verbal fluency task, in which the individual is asked to name as many emotion or emotion-related words as possible in a given time period (e.g., 1 or 2 minutes). The emotion terms generated are an indirect index of the conceptual distinctions that the individual has made in the emotion domain. Performance on this task would clearly be influenced by verbal ability. However, individual differences in this domain of intelligence are considerable, and, as demonstrated earlier, verbal ability accounts for only a part of the variance in emotional awareness. Creative nonverbal methods would be needed to explore the conceptual distinctions in emotion made by children in the first 1–2 years of life.

A corollary of this approach is that standard methods of assessing emotional experience may be misguided if one is interested in relating self-reported experience to emotional intelligence. Specifically, typical scales used to assess emotional experience specify the emotion terms in advance and request a rating of intensity or frequency. An important reason that such scales exist is that they are time-efficient and have face validity. What is lost in such an approach, such as the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegan, 1988) is that the conceptual structure of the emotion world is largely prespecified by the selection of the emotion terms, or conceptual distinctions, in advance. An enormous amount of information—information that may be critically important in detecting individual differences in emotional intelligence—is therefore lost. The LEAS was created with exactly this limitation in existing emotion measures in mind.

Alexithymia Revisited

Emotional intelligence is a powerful concept because there is such a wide range of function in this domain in adults. One of us (R. D. L.) has previously postulated that alexithymia, a clinical condition meaning lack of words (or symbols) for emotion, is fundamentally a developmental deficit consisting of a relative absence of emotional experience rather than a lack of words for emotion (Lane, Ahern, Schwartz & Kaszniak, 1997; see also Taylor, Bagby, & Luminet, 2000). One of the obstacles to having alexithymia recognized as a valid clinical entity is the difficulty in explaining exactly in what way a symbolization deficit is the core problem. For example, if on a self-report scale of emotional experience a subject scores in the normal range, does that exclude the possibility of alexithymia? The answer is no, but explaining why that is the case has been challenging. Leaders in this area of research discuss alexithymia as a deficit in the capacity to cognitively elaborate emotions (Taylor, Bagby, & Parker, 1997). The latter position is consistent with the view that the subjective experience of emotion is no different in alexithymic individuals as compared with other individuals, a view to which one of us (R. D. L.) has taken exception (Lane et al., 2000).

If one redefines alexithymia as a deficit in the conceptual organization of emotion, its multiple manifestations become much clearer. As noted earlier, a conceptual deficit is associated with a deficit in the complexity of subjective experience. It is also associated with a deficit in emotion recognition ability, a lack of empathy, a narrowed range of emotional expressions, a limited emotional vocabulary, deficits in the capacity for adaptive social behavior, and limitations in the capacity for emotion self-regulation. Perhaps this new conceptual understanding of alexithymia can lead to more accurate identification of alexithymic individuals and the ability to place the manifestations of alexithymia on a firmer empirical footing.

Another important aspect of the alexithymia construct is its central and peripheral physiological substrates. The concept of alexithymia arose in an attempt to understand the psychological traits that predispose an individual to somatic disease (Taylor, Bagby, & Parker, 1997). The way in which the physiology of emotion may differ in alexithymic compared to nonalexithymic individuals is not well understood, in part because findings have been contradictory. However, any such comparison is dependent upon the ability to classify individuals accurately as having or not having alexithymia. In our view, such methods based on the conceptualization of the condition described earlier have not yet been developed. Once they are, however, the study of alexithymia will permit the investigation of a question that is critical to affect science, namely, the relation between cortical and subcortical structures in the elaboration of emotional responses.

Neuroscience of Emotion and the Complexity of Emotion Representations

One of the challenges in the neuroscience of emotion is to understand how cortical and subcortical structures work together to elaborate

emotional responses. As noted previously, we have observed that greater emotional awareness is associated with greater activity in the dorsal anterior cingulate cortex. We have also observed in other studies that the rostral anterior cingulate cortex is preferentially activated while one is attending to one's own emotional states (Lane, Fink, Chua, & Dolan, 1997). We interpret the latter finding in light of Frith and Frith's notion of the paracingulate sulcus as a principal site where the capacity for mentalizing is instantiated (Frith & Frith, 1999). "Mentalizing" refers to the capacity to infer the mental states of others, a cognitive function that may be impaired or absent in patients with autism or autistic spectrum disorders (Baron-Cohen, 1997). One of us (R. D. L.) has previously hypothesized that emotional responses are generated outside of conscious awareness and that the process of experiencing and knowing one's own emotional responses involves higher cortical centers. Specific emphasis has been placed on the dorsal and rostral areas of the anterior cingulate cortex as having differential roles in the phenomenal and reflective awareness of emotions, respectively (Lane, 2000).

To the extent that the paracingulate sulcus participates in establishing mental representations of mental states, intriguing possibilities are raised by the question of how activity in this brain area may vary as a function of the level of one's conceptual framework for understanding one's own emotions. This question has not been addressed previously in empirical research; answers therefore must necessarily be speculative. Frith and Frith (1999) hypothesize that the ability to mentalize evolved from the action system for the purpose of identifying the *intensions* of conspecifics and anticipating their future actions. We know that emotional states may fundamentally consist of action tendencies (Frijda, 1986), which can be construed as equivalent to the intensions of the self. This dovetails beautifully with the Piagetian perspective on cognitive development in that all mental representations at the conceptual level are fundamentally derived from action schemes. It is therefore reasonable to consider, as a first approximation, that the paracingulate sulcus is a substructure within the prefrontal cortex that participates in mediating the representations of mental states (including emotional states) of both self and other. We do not yet know whether different areas of the paracingulate sulcus mediate representations of self or other, or whether the psychological capacity to differentiate between the mental states of self and other is reflected concretely in topographical differentiation of function within this region. Another possibility is that the same subregion within the paracingulate sulcus is responsible for the mental representation of one's own emotional states, but that the psychological differentiation of one's own emotional states may be

paralleled by differentiation in the structures with which the paracingulate sulcus receives and sends inputs at different moments in time. One may hypothesize, for example, that the neuroanatomical correlate of a more advanced conceptual framework of one's own emotional life is a greater variety of patterns of neural activity during emotional arousal that have activation of the paracingulate sulcus as a common denominator.

The relation between cortical and subcortical structures in the elaboration of emotional responses raises a fundamental issue, and an important difference, in the epistemology of the external material world and the internal world of emotion. A Piagetian perspective tells us that the outer world becomes known as a function of the assimilatory capacity of one's schemata. The degree to which one has simple or complex schemata for processing exteroceptive stimuli in no way alters the nature of the stimuli to be perceived. However, in the case of the internal world of emotions, the "material reality" that is to be perceived consists of activity in the subcortical generators of emotional responses, the visceral responses that they engender, and the proprioceptive feedback from these responses. According to the model described earlier, this information is processed by cortical structures that have bidirectional connections with the subcortical generators of emotional responses. As such, a dynamic equilibrium between bottom-up and top-down processes may be established between the activity of cortical and subcortical structures so that *the nature of subcortical function is modulated by the cortical structures.* As such, in the case of knowledge about the internal world of emotion, that which is perceived is fundamentally altered by the perceptual apparatus. The difference between exteroceptive and interoceptive cognition, however, is that in the former case the mere act of perception does not constitute an intervention upon the external world, whereas in the latter case of the internal world of emotion it does. In any case, an implication of this line of thought is that the pattern of subcortical activity observed during a given type of emotional arousal varies across individuals as a function of the developmental level of their conceptual organization of their own emotional lives. Furthermore, it may not be that there is one absolute pattern characteristic of each individual level, but rather that the relative patterns of activation across different emotional states vary (become more differentiated) across developmental levels.

Conceptual Organization Is Culture Dependent

Current evidence suggests that there is both commonality and variability across cultures in the emotions that are considered "basic" or funda-

mental (Schweder, 1993). One way of understanding cross-cultural differences in emotion is that cultures differ in the conceptual framework with which emotional information is processed. The neuroscientific considerations just discussed therefore raise the possibility that fundamental emotions vary across cultures because subcortically generated emotional responses are filtered through higher cortical centers, which are likely highly modifiable through cultural influences. The similarities and differences across cultures may therefore correspond to subcortical and cortical mechanisms, respectively. The nature of the culturally specific stimuli that do or do not evoke emotions may also be learned and may involve plasticity of the neural centers that feed into those areas that generate emotional responses.

An example of the complex questions raised in this area of research is determining whether neurasthenia (a 19th-century diagnosis very similar to the current chronic fatigue syndrome) and depression are the same psychobiological entity. The former has been interpreted by Kleinman as a somatic presentation of depression that is characteristic of non-Western cultures (Kleinman, 1986). An important empirical question is whether the functional neuroanatomy of neurasthenia is equal to depression minus its cortical components (a failure to incorporate cortical mechanisms in the distress network), depression plus different cortical components (e.g., anterior insula, an area that specializes in visceral interoception [Augustine, 1996], rather than ventromedial prefrontal cortex [Damasio, 1994]), or differing cortical *and* subcortical activity based on cortical–subcortical interactions that are bidirectional, reflecting both bottom-up and top-down influences. As noted earlier, we favor the third alternative. Determining whether neurasthenia and depression are different diseases would require addressing issues such as natural history, family history, response to treatment, and the like. Nevertheless, neuroimaging research would be informative in this regard and would be highly relevant to broader questions about the universality of emotional processes.

Another important question is whether the somatizing, neurasthenic pattern would be associated with a lower level of emotional awareness using the LEAS. Although the norm in cultures like Bali is for adults to seek a more uniform rather than a more differentiated experience (R. Schweder, personal communication, November 2000), that may simply illustrate the plasticity and dependence on environmental input of cortical circuitry. To the extent that greater psychological differentiation is acquired through practice, the cultural norm in Bali may be an expression of the general principle that one must "use it or lose it."

Promoting Emotional Growth

In this chapter we have proposed a model of emotional development that places primary emphasis on the development of a conceptual framework of one's own emotional life. To the extent that this is the core of emotional intelligence, with all of its implications for emotion regulation, it is worthy of serious consideration as an approach that can be taught and promoted at the elementary school level. It may also be used to formulate "how to" guides for parents about how best to assist their children with the emotional challenges they face (Elias et al., 1997).

A somewhat more complicated question is how to promote the emotional growth of adults who manifest a delay in this domain of cognitive development. Alexithymia may be the prime example of such a developmental delay. The literature indicates that alexithymic individuals are notoriously difficult to treat in traditional forms of psychotherapy (Taylor, Bagby, & Parker, 1997). In fact, no effective treatments of alexithymia have been reported. This may be because it is first necessary to understand the nature of the deficit before an effective intervention method can be implemented. Specifically, our model suggests that a therapeutic program for alexithymia consists of facilitating the development of complex representations of the subject's emotional life at the conceptual level. This will involve much more than simply finding verbal labels for emotional states; rather, it will consist of transforming representations of emotion that are fragmentary and stuck at the sensorimotor level into a framework of more complex conceptual representations. This will involve developing an appreciation of what different emotional states feel like, how they differ from one another, what kinds of situations bring them on in general, and for alexithymic individuals in particular, the external indicators of such states, the factors that amplify or attenuate them, the behavioral or mental actions that can be taken to modify the intensity of such states, and the proper handling of the expression of such states as a function of the social circumstances of the individual.

CONCLUSION

In this chapter we have extended the theory of levels of emotional awareness by describing how the levels constitute one manifestation of a larger phenomenon involving the conceptual organization of emotion. This extension places the emotional awareness framework square-

ly within the domain of intelligence more broadly construed, and at the same time helps to clarify how it is related to emotional intelligence. The conceptual organization of emotion helps to explain variability in a wide variety of phenomena related to emotion, including the complexity of subjective emotional experience, the ability to recognize emotions, the range of emotional expressions, the extent of a person's emotional vocabulary, and the capacities for empathy, adaptive social behavior, and emotion self-regulation. This viewpoint also provides a new perspective on a variety of issues, including the neural substrates of emotion, cross-cultural differences in the manifestations of emotion, the process of normative emotional development, and the conceptualization and treatment of clinical phenomena such as alexithymia.

REFERENCES

Augustine, J. R. (1996). Circuitry and functional aspects of the insular lobe in primates including humans. *Brain Research Reviews, 22,* 229–244.

Baron-Cohen, S. (1997). *Mindblindness: An essay on autism and Theory of Mind.* Cambridge, MA: MIT Press.

Barrett, L. F., Lane, R. D., Sechrest, L., & Schwartz, G. E. (2000). Sex differences in emotional awareness. *Personality and Social Psychology Bulletin, 26,* 1027–1035.

Blatt, S. J., Wein, S. J., Chevron, E., & Quinlan, D. M. (1979). Parental representations and depression in normal young adults. *Journal of Abnormal Psychology, 88,* 388–397.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain.* New York: Putnam's.

Ekman, P. (1982). *Emotion in the human face* (2nd ed.). New York: Cambridge University Press.

Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., Kessler, R., Schwab-Stone, M. E., & Shriver, T. P. (1997). *Promoting social and emotional learning: Guidelines for educators.* Alexandria, VA: Association for Supervision and Curriculum Development.

Frijda, N. (1986). *The emotions.* Cambridge, UK: Cambridge University Press.

Frith, C. D., & Frith, U. (1999). Interacting minds: A biological basis. *Science, 286*(5445), 1692–1695.

Karmiloff-Smith, A. (1992). *Beyond modularity: A developmental perspective on cognitive science.* Cambridge, MA: MIT Press.

Kleinman, A. (1986). *The social origins of distress and disease.* New Haven, CT: Yale University Press.

Lane, R. D. (2000). Neural correlates of conscious emotional experience. In R. Lane, L. Nadel, G. Ahern, J. Allen, A. Kaszniak, S. Rapscak, & G. E. Schwartz (Eds.), *Cognitive neuroscience of emotion* (pp. 345–370). New York: Oxford University Press.

Lane, R. D., Ahern, G. L., Schwartz, G. E., & Kaszniak, A. W. (1997). Is alexithymia the emotional equivalent of blindsight? *Biological Psychiatry, 42,* 834–844.

Lane, R. D., Fink, G. R., Chua, P. M. L., & Dolan, R. J. (1997). Neural activation during selective attention to subjective emotional responses. *Neuroreport, 8*(18), 3969–3972.

Lane, R. D., Kevley, L. S., DuBois, M. A., Shamasundara, P., & Schwartz, G. E. (1995). Levels of emotional awareness and the degree of right hemispheric dominance in the perception of facial emotion. *Neuropsychologia, 33,* 525–528.

Lane, R. D., Quinlan, D. M., Schwartz, G. E., Walker, P. A., & Zeitlin, S. B. (1990). The Levels of Emotional Awareness Scale: A cognitive–developmental measure of emotion. *Journal of Personality Assessment, 55*(1&2), 124–134.

Lane, R. D., Reiman, E. M., Axelrod, B., Yun, L.-S., Holmes, A., & Schwartz, G. E. (1998). Neural correlates of levels of emotional awareness: Evidence of an interaction between emotion and attention in the anterior cingulate cortex. *Journal of Cognitive Neuroscience, 10*(4), 525–535.

Lane, R. D., & Schwartz, G. E. (1987). Levels of emotional awareness: A cognitive–developmental theory and its application to psychopathology. *American Journal of Psychiatry, 144,* 133–143.

Lane R. D., Sechrest, L., Riedel, R., Shapiro, D., & Kaszniak, A. (2000). Pervasive emotion recognition deficit common to alexithymia and the repressive coping style. *Psychosomatic Medicine, 62,* 492–501.

Lane, R. D., Sechrest, L., Reidel, R., Weldon, V., Kaszniak, A., & Schwartz, G. E. (1996). Impaired verbal and nonverbal emotion recognition in alexithymia. *Psychosomatic Medicine, 58,* 203–210.

Larsen, R. J., & Diener, E. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in Personality, 21,* 1–39.

Levine, D., Marziali, E., & Hood, J. (1997). Emotion processing in borderline personality disorders. *Journal of Nervous and Mental Disease, 185*(4), 240–246.

Loevinger, J., & Wessler, R. (1970). *Measuring ego development: Vol. I. Construction and use of a sentence completion test.* San Francisco: Jossey-Bass.

Loevinger, J., Wessler, R., & Redmore, C. (1970). *Measuring ego development: Vol. II. Scoring manual for women and girls.* San Francisco: Jossey-Bass.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), *Emotional development and emotional intelligence* (pp. 3–31). New York: Basic Books.

Mayer, J. D., Salovey, P., & Caruso, D. (1999). Models of emotional intelligence. In R. J. Sternberg (Ed.), *Handbook of human intelligence* (2nd ed., pp. 396–421). New York: Cambridge University Press.

Papez, J. W. (1937). A proposed mechanism of emotion. *Archives of Neurology and Psychiatry, 38,* 725–734.

Piaget, J. (1936). *La naissance de l'intelligence chez l'enfant.* Neuchâtel: Delachaux et Niestlé.

Piaget, J. (1937). *La construction du réel.* Neuchâtel: Delachaux et Niestlé.

Piaget, J. (1947). *La représentation du monde chez l'infant.* Paris: Presses Universitaires de France. (Original work published 1926)

Piaget, J. (1972). *La formation du symbole chez l'enfant.* Neuchâtel: Delachaux et Niestlé. [English translation: (1951). *Play, dreams and imitation in childhood* (C. Gattegno & F. M. Hodgson, Trans.). New York: Norton, 1962 (Reprint).]

Piaget, J. (1974). *La prise de conscience.* Paris: Presses Universitaires de France. [English translation: (1976). *The grasp of consciousness: Action and concept in the young child* (S. Wedgwood, Trans.). Cambridge, MA: Harvard University Press.]

Piaget, J. (1977). *Recherches sur l'abstraction refléchissante, Ire partie: l'abstraction des relations logico-arithmétiques.* Paris: Presses Universitaires de France.

Piaget, J., & Garcia, R. (1983). *Psychogenèse et histoire des sciences.* Paris: Flamarion. [English translation: (1983). *Psychogenesis and the history of science* (H. Feider, Trans.). New York: Columbia University Press.]

Rau, J. C. (1993). Perception of verbal and nonverbal affective stimuli in complex partial seizure disorder. *Dissertation Abstracts International (B), 54,* 506-B

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9,* 185–211.

Saussure, de, F. (1972). *Cours de linguistiques générale [A course in general linguistics].* (4th ed.). Paris: Payot. (Original work published 1949)

Schweder, R. A. (1993). The cultural psychology of the emotions. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 417–431). New York: Guilford Press.

Shipley, W. (1940). A self-administering scale for measuring intellectual impairment and deterioration. *Journal of Psychology, 9,* 371–377.

Taylor, G. J., Bagby, R. M., & Luminet, O. (2000). Assessment of alexithymia: Self-report and observer-rate measures. In R. Bar-On & J. D. A. Parker (Eds.), *The handbook of emotional intelligence* (pp. 310–319). San Francisco: Jossey-Bass.

Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (1997). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness.* Cambridge, UK: Cambridge University Press.

Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environment. *Ethology and Sociobiology, 11,* 375–424.

Vogt, B. A., Finch, D. M., & Olson, C. R. (1992). Functional heterogeneity in cingulate cortex: The anterior executive and posterior evaluative regions. *Cerebral Cortex, 2*(6), 435–443.

Vogt, B. A., & Gabriel, M. (1993). *Neurobiology of cingulate cortex and limbic thalamus.* Boston: Birkhauser.

Watson, D., Clark, L. A., & Tellegan, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54,* 1063–1070.

Weiskrantz, L. (2000). Blindsight: Implications for the conscious experience emotion. In R. Lane, L. Nadel, G. Ahern, J. Allen, A. Kaszniak, S. Rapscak, & G. E. Schwartz (Eds.), *Cognitive neuroscience of emotion* (pp. 277–295). New York: Oxford University Press.

Werner, H., & Kaplan, B. (1963). *Symbol formation: An organismic-developmental approach to language and the expression of thought.* New York: Wiley.

Wrana, C., Thomas, W., Heindichs, G., Huber, M., Obliers, R., Koerfer, A., & Köhle, K. (1998, March). *Levels of Emotional Awareness Scale (LEAS): Ein beitrag zur empirischen überprüfung von validität und reliabilität einer deutschen fassung.* Postervortrag bei der 47 Arbeitstagung des Deutschen Kollegiums für Psychosomatische Medizin, Leipzig.

The Wisdom in Feeling

Psychological Processes in Emotional Intelligence

Edited by

LISA FELDMAN BARRETT
PETER SALOVEY

Foreword by John D. Mayer

THE GUILFORD PRESS
New York London

A Division of Guilford Publications, Inc.
72 Spring Street, New York, NY 10012
www.guilford.com

Printed in the United States of America

This book is printed on acid-free paper.

Last digit is print number: 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data

The wisdom in feeling : psychological processes in emotional intelligence / edited by Lisa Feldman Barrett, Peter Salovey.
p. cm. – (Emotions and social behavior)
Includes bibliographical references and index.
ISBN 1-57230-785-4
1. Emotional intelligence. I. Barrett, Lisa Feldman. II. Salovey, Peter. III. Series.
BF576 .W57 2002
152.4–dc21

2002006983