Emotions

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Topic Editor :
Michael Lewis, PhD, Institute for the Study of Child Development, UMDNJ-Robert Wood Johnson Medical School, USA

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Synthesis

How important is it?

Emotional competence (EC) is a developmental process that comprises three interrelated competencies: 1) emotion expression; 2) emotion knowledge; and 3) emotion regulation (i.e., being aware of one's emotions and modifying them when necessary). At a young age, children already display a range of emotions in social situations through non-verbal messages (e.g., giving a hug, sulking). Then, advances in cognitive development allow children to identify their own and others' emotions, and the circumstances that lead to their expression. This emotional understanding, in turn, allows children to monitor and to modify their emotions in order to cope with difficult situations.

Emotional development in infancy and early childhood is important for several interrelated skills. In comparison to children with deficits in emotional development, children with a developed EC are more likely: 1) to sustain learning; 2) to engage in empathic and prosocial behaviours; 3) to express appropriate emotions in various contexts; 4) to use adaptive strategies to deal with negative/upsetting emotions (e.g., anger); and 5) to reduce several risk factors associated with psychopathology. Taken together, these abilities predict children's early school success and positive interpersonal relationships with peers and family members.

What do we know?

Emotion related competencies vary with age. They are also manifested differently across cultures. The culture wherein children grow up tends to influence the intensity and the type of emotions expressed. Specifically, emotion expression and understanding are likely to vary among children depending on the way children are socialized, the presence of comfort of objects, the proximity with parental figures, and situational contexts.

Emotions do not all emerge at the same time. Primary emotions (e.g., fear, anger, sadness, interest, and joy) appear in the first year whereas secondary emotions (e.g., embarrassment, guilt, and shame) are usually expressed by the end of the 2nd year of life. Children's mental representation about the "self" is acquired around the age of two and the standards, rules, and goals (SRGs) conveyed by their entourage set the stage for self-conscious emotions, such as embarrassment.

Along with environmental factors, emotional competence is also influenced by child factors including cognitive development, temperament, and approach/withdrawal behaviours. Approach refers to behaviours and facial expressions that move a child towards stimuli. Withdrawal refers to behaviours that move a child away from stimuli. Approach emotions (i.e., interest, smiling, joy, and anger) are related to positive aspects of behaviours, such as sustained efforts when minor difficulties are encountered, and they predict emotional competence in children. In contrast, the expression of withdrawal emotions (i.e., sadness and fear) in face of negative events is associated with behavioural difficulties, poor emotion regulation, and helplessness. Withdrawal behaviours are also a risk factor for childhood depression.

Emotions play an important role in the onset of psychopathologies in childhood. Children with a history of negative social experiences, such as maltreatment or insecurity attachment, have a tendency to be hyper vigilant for signs of threats. Accordingly, they display anxiety, and aggressive and fear behaviours as a mean of self-protection. Their negative affectivity, poor emotion regulation, and imbalances in the different emotional systems in the brain (e.g., the fear, the care, the seeking systems) predict both internalizing and externalizing disorders (e.g., depression and aggression, respectively).

What can be done?

In order to promote emotional competence in children, parents are encouraged to model various emotional expressions. Given that the emotions displayed at home largely influence those expressed by children with their peers and the larger school setting, positive parent-child interactions are valued. Specifically, parents are encouraged to engage in positive parenting practices and to play a supportive role when children encounter challenges. Early interventions aimed at improving emotional control and the goodness of fit between the parent's and child's emotional state are strongly encouraged. Examples of such programs include Parent-Child Interaction therapy and the Incredible Years program.

Although few studies have directly examined the contribution of school context in children's emotional competence (EC) development, policies encourage teachers to be trained in intervention programs, such as PATHS, to be able to foster children's emotional understanding. Not only children will benefit from these skills across social and learning contexts, but also teachers will be more likely to teach in harmonious classroom environments.

The Self-Conscious Emotions

Michael Lewis, PhD

Institute for the Study of Child Development, UMDNJ-Robert Wood Johnson Medical School, Child Health Institute, USA

September 2011

Introduction

Until recently, the self-conscious emotions have been poorly studied.[1] Little research on their meaning, how they develop, and how individual differences arises have been conducted, even though Charles Darwin discussed them in some detail as far back as his book, The Expression of the Emotions in Man and Animals.[2] Darwin's observations were not followed up by neither psychoanalysis nor developmental psychopathology until about 40 years ago. In part, this was due to Freud's focus on guilt and on the confusion between such self-conscious emotions as embarrassment, guilt and shame. In fact, Darwin's observations and theorizing were not able to differentiate these different self-conscious emotions, in large part due to his measurement of the self-conscious emotions, where he used blushing behaviour. While blushing is a useful behaviour to measure, many people do not blush. Moreover, blushing is a measure of self reflection in the presence of other people, most noticeable embarrassment, but is not a measure of all the other self-conscious emotions such as shame, guilt or pride. While Darwin recognized the role of a person's thoughts, especially around the emotion of embarrassment, he did not use cognitive capacities as a way to differentiate between them.

Subject

Michael Lewis, in his studies of the origins of the self-conscious emotions, makes the point that to understand the *ontogenesis* of these emotions in children, it is necessary to consider the cognitive development of the child which likely give rise to them.[3,4] Indeed, using the evolution of the cognitive capacity to represent the self, he has suggested that the emergence, both *phylogenetically* and *ontogenically*, of the mental representation of "me" or self-reflected awareness, provides the capacities most necessary for the emergence of these self-conscious emotions.[4] It is the capacity to think about the self (self reflection or awareness) along with other emerging cognitive capacities that provides the basis for these emotions starting at the end of the second year of life. Thus, while primary emotions such as fear, anger and joy emerge in the first year of life, some even in the early months of life, it is not until self reflection/awareness – or what Lewis has called "consciousness," the mental representation of "me," – emerges in the second half of the second year of life that we see the earliest of these self-conscious emotions.[5]

Problem

What are the Self-Conscious Emotions?

The set of the self-conscious emotions include embarrassment, jealousy, empathy as well as shame, guilt,

hubris and pride. I have called the first group the exposed self-conscious emotions since they require the cognitive ability to reflect on the self but do not require elaborate cognitive capacities such as the understanding of rules and standards. These first self-conscious emotions appear in the second half of the second year of life when the emergence of self awareness gives rise to such emotions as embarrassment, empathy and jealousy.

Embarrassment is a complex emotion that first emerges when self awareness allows for the idea of "me." At this point the child comes to understand that "she/he" is the object of another's attention. The attention of others acts as an elicitor of embarrassment. So, for example, complimenting a toddler may cause the child embarrassment; even pointing to the child and saying his/her name can produce this effect. Empathy also emerges at this time since the child can now place himself/herself in the role of the other.[6] Finally, jealousy also appears since, again, the child is capable of knowing that another has what she/he wants. These early self-conscious emotions appear during at age 15-24 months. They are not the consequence of the child's knowledge of the standards, rules and goals (SRGs) of the people around him/her, they are the direct consequence of children's ability to consider themselves in their interactions with others.

In the third year of life, the child begins to incorporate the SRGs of his/her family and peers. This new capacity gives rise to a new set of emotions, one which I have called self-conscious evaluative emotions.[7] They include a new form of embarrassment as well as guilt, shame, pride and hubris. Embarrassment now occurs as a less intense form of shame. The child experiences embarrassment when in the company of others it violates the SRG of the culture. At this point, the child's embarrassment can occur both as a function of being the object of another's attention in and of himself/herself, and also because of being the object of other's attention because of a failure of some SRG.

Shame is the product of a complex set of cognitive activities: the evaluation of individual's actions in regard to their SRGs and their global evaluation of the self. The phenomenological experience of the person having shame is that of a wish to hide, disappear or die.[1,8] It is a highly negative and painful state which also results in the disruption of ongoing behaviour, confusion in thought and an inability to speak. There are specific actions people employ when shamed[1] such as reinterpreting the causes of the shame, self-splitting (multiple personalities), or forgetting (repression). Shame is not produced by any specific situation but rather by the individual's interpretation of the event.

The emotion of guilt or regret is produced when individuals evaluate their behaviour as failure but focus on the specific features of the self, or on the self's action which led to the failure. Unlike shame, where the focus is on the global self, here the individual focuses on the self's actions and behaviours which are likely to repair the failure. Because the cognitive attributional process focuses on the action of the self rather than on the totality of self, the feeling that is produced – guilt – is not as intensely negative as shame and does not lead to confusion and to the loss of action, but is associated with it a corrective action which the individual can do to repair the failure.

Because in guilt the focus is on a specific attribution, individuals are capable of ridding themselves of this emotional state through action. The corrective action can be directed toward the self as well as toward the other; thus, unlike shame which is a melding of the self as subject and object, in guilt the self is differentiated from the object. As such, the emotion is less intense and more capable of dissipation.

Hubris is defined as exaggerated pride or self-confidence often resulting in retribution. It is an example of pridefulness, something dislikeable and to be avoided. Hubris is a consequence of an evaluation of success at one's standards, rules and goals where the focus is on the global self. In this emotion, the individual focuses on the total self as successful. It is associated with such descriptions as "puffed up." In extreme cases, it is associated with grandiosity or with narcissism.[9] Mueller and Dweck[10] have shown that too much praise of children may result in negative performance, the assumed mechanism may be in the enhancement of hubris in the children so treated. In fact, hubristic is defined as to be insolent or contemptuous.

From the outside, other people observe the individual having hubris with some disdain. Prideful people have difficulty in their interpersonal relations since their own hubris is likely to interfere with the wishes, needs and desires of others, in which case there is likely to be interpersonal conflict. Moreover, given the contemptuousness associated with hubris, the "other" is likely to be shamed by the nature of the actions of the person having this emotion. The three problems associated with the prideful person are (1) it is a transient but addictive emotion; (2) it is not related to a specific action and, therefore, requires altering patterns of goal-setting or evaluation around what constitutes success; and (3) it interferes with interpersonal relationships because of its contemptuous and insolent nature.

Pride is the consequence of a successful evaluation of a specific action. The phenomenological experience is "joy over an action, thought or feeling well done." Here, again, the focus of pleasure is specific and related to a particular behaviour. In pride, the self and object are separated as in guilt. Unlike shame and hubris, where subject and object are fused, pride focuses the organism on its action. The organism is engrossed in the specific action which gives it pride. Because this positive state is associated with a particular action, individuals have available to themselves the means by which they can reproduce the state. Notice that, unlike hubris, pride's specific focus allows for action. Because of the general use of the term "pride" to refer to "hubris," "efficacy," and "satisfaction," the study of pride as hubris has received relatively little attention. Dweck and Leggett[11] similarly have approached this problem through the use of individuals' implicit theories about the self which are cognitive attributions that serve as the stimuli for the elicitation of the self-conscious emotion of mastery.

Implications

All of emotional life takes place in a social environment. From the beginning of life the early emotions such as joy, sadness, fear, anger, disgust and interest, are affected by the social world. The situations that illicit these emotions and their expressions are affected by the rules of their parents, siblings and peers. Thus, it is safe to conclude that even these early emotions are socialized. Even so, there is some reason to believe that these emotions themselves are not learned but have an evolutionary adaptive significance for the species.[12]

What is clear is that as we move from these early emotions to self-conscious emotions, socialization plays an increasing role in determining what situation elicit what emotions, as well as how they are expressed. One might think of development of emotional life as requiring an ever increasing socialization influence.

In our cognitive-attributional model of the development of the self-conscious emotions, we see that the SRGs the child incorporates as part of its socialization. Standards, rules and goals have to be learned by the child, both through direct learning or through indirect observation.[13] The SRGs constitute the information the child

acquires through culturalization to a particular society and family. How the child evaluates his/her actions, thoughts and feelings is learned. In one family the child's action, for example, in getting a "B" on an exam, is considered a success while in another, a failure. Evaluations are culturally determined, success and failure are cultural artifacts. Moreover, how the child evaluates himself/herself or his/her self attribution, whether he/she sees himself/herself in a global fashion or in a specific fashion is also learned. Global attributions give rise to shame and hubris while specific attribution give rise to guilt and pride.

Our discussion of self-conscious emotions requires us to note that in order to understand them we must keep in mind that the biology of the species, and the cultural rules that surround the child, along with the child's specific dispositional functions like temperament, are all necessary for the understanding of their development. The emergence of the self-conscious evaluative emotions, also called the moral emotions, truly marks the human condition and which sets us apart from the rest of the animal world.

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Emotional Development in Childhood

Carolyn Saarni, PhD

Sonoma State University, USA
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Introduction and Subject

Theoretical Perspective

The theoretical perspective taken toward emotional development in childhood is a combination of functionalist theory and dynamical systems theory[1]: A child's encounters with an environment can be seen as dynamic transactions that involve multiple emotion-related components (e.g., expressive behaviour, physiological patterning, action tendencies, goals and motives, social and physical contexts, appraisals and experiential feeling) that change over time as the child matures and in response to changing environmental interactions. Emotional development reflects social experience, including the cultural context. Elsewhere I have argued that emotional development should be considered from a bio-ecological framework that regards human beings as dynamic systems embedded within a community context.[2] Table 1 summarizes noteworthy descriptive markers of emotional development in relation to social interaction.

Table 1. Noteworthy Markers of Emotional Development in Relation to Social Interaction

Age Period	Regulation/Coping	Expressive Behavior	Relationship Building
Infancy: 0 - 12 mos.	Self-soothing and learning to modulate reactivity. Regulation of attention in service of coordinated action. Reliance on caregivers for supportive "scaffolding" during stressful circumstances.	Behavior synchrony with others in some expressive channels. Increasing discrimination of others' expressions. Increasing expressive responsiveness to stimuli under contingent control. Increasing coordination of expressive behaviors with emotion-eliciting circumstances.	Social games and turn-taking (e.g., "peek-a-boo"). Social referencing. Socially instrumental signal use (e.g., "fake" crying to get attention).

Age Period	Regulation/Coping	Expressive Behavior	Relationship Building
Toddlerhood: 12 mos.-2½ years	Emergence of self-awareness and consciousness of own emotional response. Irritability due to constraints and limits imposed on expanding autonomy and exploration needs.	Self-evaluation and self-consciousness evident in expressive behavior accompanying shame, pride, coyness. Increasing verbal comprehension and production of words for expressive behavior and affective states.	Anticipation of different feelings toward different people. Increasing discrimination of others' emotions and their meaningfulness. Early forms of empathy and prosocial action.
Preschool: 2-5 years	Symbolic access facilitates emotion regulation, but symbols can also provoke distress. Communication with others extends child's evaluation of and awareness of own feelings and of emotion-eliciting events.	Adoption of pretend expressive behavior in play and teasing. Pragmatic awareness that "false" facial expressions can mislead another about one's feelings.	Communication with others elaborates child's understanding of social transactions and expectations for comportment. Sympathetic and prosocial behavior toward peers. Increasing insight into others' emotions.
Early Elementary School: 5-7 years	Self-conscious emotions (e.g., embarrassment) are targeted for regulation. Seeking support from caregivers still prominent coping strategy, but increasing reliance on situational problem-solving evident.	Adoption of "cool emotional front" with peers.	Increasing coordination of social skills with one's own and others' emotions. Early understanding of consensually agreed upon emotion "scripts."

Age Period	Regulation/Coping	Expressive Behavior	Relationship Building
Middle Childhood: 7-10 years	Problem-solving preferred coping strategy if control is at least moderate. Distancing strategies used if control is appraised as minimal.	Appreciation of norms for expressive behavior, whether genuine or dissembled. Use of expressive behavior to modulate relationship dynamics (e.g., smiling while reproaching a friend).	Awareness of multiple emotions toward the same person. Use of multiple time frames and unique personal information about another as aids in the development of close friendships.
Preadolescence: 10-13 years	Increasing accuracy in appraisal of realistic control in stressful circumstances. Capable of generating multiple solutions and differentiated strategies for dealing with stress.	Distinction made between genuine emotional expression with close friends and managed displays with others.	Increasing social sensitivity and awareness of emotion "scripts" in conjunction with social roles.
Adolescence: 13+ years	Awareness of one's own emotion cycles (e.g., guilt about feeling angry) facilitates insightful coping. Increasing integration of moral character and personal philosophy in dealing with stress and subsequent decisions.	Skillful adoption of self-presentation strategies for impression management.	Awareness of mutual and reciprocal communication of emotions as affecting quality of relationship.

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Recent Research Results

The Development of Emotional Competence

A productive way to look at emotional functioning is the degree to which it serves the adaptive and self-efficacious goals of the individual. The construct emotional competence[3] has been proposed as a set of affect-oriented behavioural, cognitive and regulatory skills that emerge over time as a person develops in a social context. Individual factors, such as cognitive development and temperament, do indeed influence the development of emotional competencies; however, the skills of emotional competence are also influenced by past social experience and learning, including an individual's relationship history, as well as the system of

beliefs and values in which the person lives. Thus, we actively create our emotional experience, through the combined influence of our cognitive developmental structures and our social exposure to emotion discourse. Through this process, we learn what it means to feel something and to do something about it. Table 2 lists the 8 skills of emotional competence.

Table 2. Skills of Emotional Competence

1. Awareness of one's emotional state, including the possibility that one is experiencing multiple emotions, and at even more mature levels, awareness that one might also not be consciously aware of one's feelings due to unconscious dynamics or selective inattention.

2. Skills in discerning and understanding others' emotions, based on situational and expressive cues that have some degree of consensus as to their emotional meaning.

3. Skill in using the vocabulary of emotion and expression in terms commonly available in one's subculture and at more mature levels to acquire cultural scripts that link emotion with social roles.

4. Capacity for empathic and sympathetic involvement in others' emotional experiences.

5. Skill in realizing that inner emotional state need not correspond to outer expression, both in oneself and in others, and at more mature levels the ability to understand that one's emotional-expressive behavior may impact on another and take this into account in one's self-presentation strategies.

6. Capacity for adaptive coping with aversive or distressing emotions by using self-regulatory strategies that ameliorate the intensity or temporal duration of such emotional states (e.g., "stress hardiness").

7. Awareness that the structure or nature of relationships is in part defined by both the degree of emotional immediacy or genuineness of expressive display and by the degree of reciprocity or symmetry within the relationship; e.g., mature intimacy is in part defined by mutual or reciprocal sharing of genuine emotions, whereas a parent-child relationship may have asymmetric sharing of genuine emotions.

8. Capacity for emotional self-efficacy: The individual views her- or himself as feeling, overall, the way he or she wants to feel. That is, emotional self-efficacy means that one accepts one's emotional experience, whether unique and eccentric or culturally conventional, and this acceptance is in alignment with the individual's beliefs about what constitutes desirable emotional "balance." In essence, one is living in accord with one's personal theory of emotion when one demonstrates emotional self-efficacy that is integrated with one's moral sense.

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The attachment relationship with caregivers is the initial context in which a child's emotional life unfolds. If the caregivers typically meet the infant's needs, the infant comes to internalize the notion that the world is a safe place and that others are trustworthy and responsive. The infant is then secure in his or her attachment to the caregiver. The caregiver-child relationship establishes the foundation for the development of emotional skills,

and sets the stage for future social relationships. A secure attachment leaves the child free to explore the world and engage with peers. Affirmation that the world is responsive, predictable and reliable aids in the child's developing ability to self-regulate. In a study of preschoolers, Denham and her colleagues[4] found a positive association between security of attachment to mothers and security of attachment to teachers. Furthermore, security of attachment to both mother and teacher related positively to emotion understanding and regulated anger.

In contrast, a child who experiences the world as unpredictable, unresponsive and/or hostile must expend a tremendous amount of energy self-managing emotional arousal. Insecure attachment is associated with emotional and social incompetence, particularly in the areas of emotion understanding and regulated anger.[4] Furthermore, perceptions of an indifferent or unfriendly social world influence subsequent emotional responses and interpersonal behaviour. For example, a child who experiences maltreatment may develop primary emotional responses such as anxiety or fear.[5] Ever vigilant for signs of threat, the child may display aggressive or submissive behaviours as a means of self-protection, and such behaviours may place the child at risk for future status as a bully or victim. Cognitive-affective structures associated with maltreatment may promote emotional constriction or peculiar emotional responsiveness, interfering with a child's ability to engage successfully with peers.[6]

The development of emotional competence skills is a developmental process such that a particular skill manifests differently at different ages. With young children, emotion knowledge is more concrete, with heightened focus on observable factors. Young children's emotion expression and emotion regulation are less well-developed, requiring more support and reinforcement from the social environment. Elementary school children advance in their ability to offer self-reports of emotions, and to use words to explain emotion-related situations. As children mature, their inferences about what others are feeling integrate not only situational information, but also information regarding prior experiences and history. Older children are also more able to understand and express complex emotions such as pride, shame or embarrassment. By adolescence, issues of identity, moral character and the combined effects of aspiration and opportunity are more explicitly acknowledged as significant by youth.

The skills of emotional competence do not develop in isolation from each other and their progression is intimately tied to cognitive development. For example, insight into others' emotions grows in interaction with expanding awareness of one's own emotional experience, with one's ability to empathize and with the capacity to understand causes of emotions and their behavioural consequences. Furthermore, as children learn about how and why people act as they do, they grow in their ability to infer what is going on for themselves emotionally.

Positive Development and Emotional Competence

Competent children and youth do not experience lives free of problems, but they are equipped with both individual and environmental assets that help them cope with a variety of life events. The skills of emotional competence are one set of resources that young people bring to life's diverse challenges. As with development in other domains, mastery of early skills related to emotional development, such as affective regulation, impacts a child's ability to navigate future developmental challenges.

Conclusions

Strengths in the area of emotional competence may help children and adolescents cope effectively in particular circumstances, while also promoting characteristics associated with positive developmental outcomes, including feelings of self-efficacy, prosocial behaviour and supportive relationships with family and peers. Furthermore, emotional competence serves as a protective factor that diminishes the impact of a range of risk factors. Research has isolated individual attributes that may exert a protective influence, several of which reflect core elements of emotional competence, including skills related to reading interpersonal cues, solving problems, executing goal-oriented behaviour in interpersonal situations, and considering behavioural options from both an instrumental and an affective standpoint.[7]

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Emotions and Psychopathology in the First 5 Years of Life

[1]Dione M. Healey, PhD, [2]Nathan S. Consedine, PhD

[1]University of Otago, New Zealand, [2]University of Auckland, New Zealand

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Introduction

From the cradle to the grave, emotions are central to human functioning, saturating our thoughts behaviour and experience in a manner so pervasive that we often forget their important role. They motivate our most important decisions, lie at the heart of social relatedness and are central to socialization and cultural processes. Core aspects of emotions appear pre-wired[1] and universal,[2,3] with aspects of expressive signalling, experience and recognition appearing on a consistent developmental schedule.[1] In early life, emotions may act as a "readout" of internal states,[4] with precursor emotions evident within a few months and increasing differentiation seeing a near-adult level expressive repertoire within three years.[1] Developments in emotion regulation are somewhat slower and appear more closely tied to cognitive and social development.

Current thinking regarding emotions emphasizes their functionality; they represent adaptations shaped by natural selection to facilitate responding to recurrent situational types,[5-7] promoting functional changes in cognition,[8] physiology,[9] expressive signals,[2] experience/motivation[4] and behaviour.[10] Evolution has likely designed emotions to "fit" early life challenges[5] and the means by which they facilitate adaptation is constrained by the capacities of the developing child.[11] Importantly, emotions and emotion regulation sometimes [mal]function.

The focus of this chapter is on the role of emotion in psychopathology from birth to five years, a period in which behavioural, cognitive and emotion regulatory skills interactively develop to influence child functioning. Developmentally, these years are focused on the acquisition of basic physical, cognitive and emotional skills and on ensuring the environment meets basic needs. Early life development is inherently social. Styles of relating (attachment) becomes increasingly evident during this time, and core relationships come to serve as the foundation for the development of more advanced skills such as emotion regulation.[12]

Subject

Given their ubiquity in developmental processes, it is unsurprising that imbalances or dysregulations within emotion systems are central to psychopathology among children[13] and adults.[14,15] Disturbances in emotional processes include issues with positive and negative emotions, the excess and absence of emotions, regulatory issues and disconnections among emotion sub-systems. Indeed, problems rooted in emotions are so pervasive that several writers have suggested the field should group disorders by emotional symptomatology.[16-18]

Emotions are central to the development and maintenance of psychopathology in early life. Research among children concentrates on links between temperament – a constellation of affective dispositions – and outcome, [19,20] particularly the roles of negative affectivity (NA)[21] and emotion regulation.[13] NA, a global measure of negative emotionality, incorporates experiences and expressions of sadness, fear, anger/frustration with high intensity[21] and predicts both internalizing and externalizing disorders.[22] Discrimination is somewhat better with emotion regulation; under-regulation manifests in externalizing disorders (e.g., hyperactivity, defiance and aggression) and over-regulation predicts internalizing disorders (e.g., anxiety and depression).[23,24]

Problems

Progress has been made in the conceptualization and measurement of mental disorders among children in recent years.[25] Rates of disorders among children aged 2-5 years are similar to those among older children, at 16.2% overall, 9% for externalizing/behavioural disorders and 10.5% for internalizing/emotional disorders.[20] However, despite improvements in the conceptualisation of the psychopathological subtypes, the specificity with which early risk factors link to outcomes remains poorly understood.[26]

In general, researchers conceptualize child psychopathology as having two broad classes of contributor – child temperament and environmental events/contexts. The two extremes of temperamental emotionality – behavioural inhibition (over-regulation) and disinhibition (under-regulation) have been linked to different patterns of biological arousal and reactivity and show some ability to discriminate mental health outcomes. Work examining environmental factors reveals a similarly mixed bag of global and specific indicators.[27] Poor supervision, sexual abuse, and peer problems predict externalising disorders while neglect may be a specific predictor for Oppositional Defiant Disorder (ODD). Exposure to violence and being friendless are both globally predictive of internalizing disorder development while being raised in a single parent family or foster care specifically predicts depression. In this study, harsh discipline was specific to Generalised Anxiety Disorder (GAD) and parental drug abuse and dangerous environments were associated with combined anxiety disorders indicators.[27]

In general then, both temperament and environmental contexts predict risk in general. Specificity is low and how the two interact to influence goodness-of-fit and the development of psychopathology is yet to be clearly determined.

Research Context

As noted, developmental work examining the predictors of child psychopathology has emphasized the role of broad risk characteristics in either the child or the caregiving environment. Both internalizing and externalizing problems have been linked with the temperamental trait of negative emotionality,[19,28,29] while any disruption in the development of attachment or self-regulatory ability (including behavioural, cognitive, and emotional) seems to predict increased risk.[30] "Goodness-of-fit" between child dispositions and parental characteristics are critical to the development of attachment and regulatory processes which, in turn, predict psychopathology.[31,32]

Key Research Questions

The most pressing questions regarding the links between emotions and early psychopathology regard the

specificity of the links between temperament, environmental events, and outcomes. The particular aspects of child temperament that predict specific outcomes need to be illuminated; it may be that to understand temperament's links to child mental health outcomes, we need to develop a more sophisticated understanding of what temperament is and why we have it. One approach that might extend understanding is to explicitly examine temperament-linked dysfunctions as they occur within the experiential versus expressive aspects of the emotions systems. Although the visible aspects of emotions may index internal states,[4] emotion signals may or may not correspond to them in all instances and have their own distinct functions.[33] Similarly, work addressing the specificity of the links between environmental characteristics and child outcomes is urgently needed.

Recent Research Results

Some recent work attempting to "deconstruct" the general negative affect risk factor has been conducted. In one attempt, while both internalizing and externalizing children were rated higher on the emotions of anger, fear and sadness than controls, there were few differences between the two groups, with internalizers slightly sadder and marginally less angry than externalizers.[34] Such a finding suggests we have some way to go in seeking to understand how risk characteristics result in children being differentially "shunted" down externalizing versus internalizing pathways.

Research Gaps

Although progress has been made in the last few decades of research, gaps remain. First, despite an increase in the specificity with which environmental[27] and temperamental[35] characteristics are being measured as predictive of specific childhood disorders,[27] the search for specificity in the links between risk factors and outcomes has some way to go. Second, given the ubiquity of emotional processes to child psychopathology, it is surprising that the literature has yet to examine the possible utility of a transdiagnostic approach (classification by common process rather than phenomenology or, in children, by behavioural manifestation).

Conclusions

This chapter highlights the centrality of emotions to human functioning and how disruptions or imbalances in the development of emotion and emotion regulation increase the risk of psychopathology. While links between early global aspects of temperament (i.e., negative affectivity) and subsequent psychopathology are established, the specificity of the relations seen thus far is marginal and further investigation is required. Additionally, while child temperament and environmental characteristics impact risk (both alone and in interaction), research examining the "fit" between disposition and environmental factors is scanty and further work examining how factors such as caregiver characteristics, socioeconomic class, trauma, and societal context interact with child temperament is sorely needed.

Implications for Parents, Services, and Policy

Although there are gaps, the centrality of emotion and emotion regulatory processes in the development and maintenance of psychopathology is clear – inborn temperament sets the stage for the individual's emotional profile and thus influences how environments interact with them. Data regarding these two key characteristics

underscore the importance of the "fit" between child and environmental factors and provide some guidance regarding possible interventions. Work regarding hyperactive preschoolers, for example, highlights the protective role that positive parenting and parent-child synchrony may have among at-risk children.[31,32] Such work suggests that early interventions should focus on programs that improve parent-child emotional synchrony and foster effective emotional control. Examples of such work includes Parent-Child Interaction Therapy[36] and the Incredible Years program.[37]

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Culture and Emotions in the First 5 to 6 Years of Life

Amy G. Halberstadt, PhD, Fantasy T. Lozada, BS

North Carolina State University, USA
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Introduction

Emotional development in infancy and early childhood are important for a host of interrelated skills, including cognitive development and interpersonal relations. For example, the ability to regulate one's emotions in challenging situations enables children to sustain learning; the ability to communicate one's own feelings to others effectively increases the chances of one's needs being met; and the ability to understand what others are feeling enables children to modify their behaviour so as to sustain harmonious relations with others.[1,2] Although these three basic emotion-related competencies (experiencing, expressing, and understanding) must be achieved by every child, the culture in which the child develops may govern how these competencies are achieved and manifested.

In every culture, children's and parents' experience, expression and understanding of emotion are embedded in the physical and social structures within which they live and the beliefs, values and practices of the culture.[3,4] For example, the physical and social structures of the culture might influence children's emotional development via the number of adults living proximally enough to hold a child throughout the day and night, or whether comfort objects, such as stuffed animals, are available in the culture. And beliefs, values and practices of the culture might influence development via caregivers' encouragement of exploration versus comfort seeking in response to children's distress, and whether caregivers achieve those goals with objects versus family members. A consideration of children's age may be relevant as well; cultures likely vary considerably in what they deem appropriate at different stages of development.[5]

Problems

First, despite recognition of the direct and indirect ways that children's emotional experiences, expression and understanding are differentially socialized across culture, knowledge and advice-giving about children's early emotional experiences is still largely based on samples of European American children. Generalizing about children's emotional experiences cross-culturally from studies based on European American populations should only be done with the utmost caution.

Second, when children and their parents are studied across cultures, researchers often depend on procedures that have been developed in one culture only, and so may convey particular meanings that are not shared across other cultures, making interpretation of cross-cultural studies difficult.[6,7] One important solution to ethnocentric research is to create multicultural research teams that can help identify culturally-specific

meanings within the research setting.

Research Context

Many methodologies are used to examine infants' and children's experience, expression and understanding of emotion. To assess emotional experience, for example, frustration is induced by arm restraint or visible toys which cannot be accessed, distress by caregivers' expressionless faces or ignoring behaviours, and fear by toy spiders or approaching strangers. To assess emotion understanding, children view faces or gestures of other children or adults and then report what emotions are represented. To assess emotional expressiveness or skill in communicating emotions, researchers investigate infants' and children's emotional expressions when they know children are having feelings or they ask children to pose various emotions. As noted above, researchers struggle with whether procedures evoke or mean the same thing across cultures.[7]

Key Research Questions

1. What are the ways in which cultures differentially affect children's experience, expression and interpretation of emotion?

2. What contexts associated with different cultural experiences impact children's emotional development?

3. What are the cultural similarities and differences in how parents and caregivers teach children about emotion across cultures?

Recent Research Results

Cross-cultural differences have been increasingly documented in children's experience, expression and interpretation of emotion.[8] Below we list some examples to highlight the variety of differences.

With regard to children's emotional experience, in one study, Japanese female toddlers experienced more distress than German female toddlers to a broken toy, with German toddlers showing more positive and less negative regulation than Japanese toddlers.[9] Although a second study found similar levels of distress intensity among preschoolers, distress ebbed more quickly for German preschoolers' responding to another child's loss, but more slowly to their own loss, compared to Japanese preschoolers; these differences are consistent with acculturation regarding self- versus other-focused responses.[10] In a sample of older children, Tamang children in Nepal reported that they would feel more shame and less anger in interpersonal conflict situations than Brahman children in Nepal or children in the United States.[11] And, Japanese preschoolers expressed less shame, pride and embarrassment but more embarrassment than both African American and European American children in achievement contexts.[12]

When it comes to children's emotion expression, 3-year-old Chinese girls were more expressive in response to evocative pictures than European American girls, however, the children did not differ in their responses to sensory stimuli (odor). This may indicate that expressiveness may vary more across culture specific contexts and socialization than physiological reactivity.[12] In another study, 4- and 7-year-old Chinese American children reacted with more negative and less positive expression in response to a disappointment than European American children.[13]

Concerning emotion understanding, accuracy seems to vary by culture as well, with greater accuracy for sadness and disgust by Europeans than Asians, fitting with themes of emotional suppression of these emotions in Asian culture.[14] Additionally, decoding strategies seem to vary by culture, with East Asians gazing less at the mouth region than Europeans, suggesting that not only skill but detection processes are influenced by cultural differences in where people look for emotional information. Cultural norms and expectations for emotion understanding may also be moderated by gender. In the United States, where girls are taught more explicitly about emotion than boys,[15] females are consistently more skilled at judging others' emotions throughout the lifespan.[16]

These differences may be understood within the context of individuals' particular cultural models, which govern the perceptions, meanings, and expectations they assign to social situations.[14] Differences in children's emotions can be further understood and classified within five broad cultural frameworks: collectivism/individualism, power distance (the extent to which societies expect inequality in status relationships and emphasize obedience according to these expectations), children's place in family and culture, ways children learn, and value of emotional experience and expression.[3,17]

Research Gaps

Although cross-cultural research is increasing, greater multi-culturalism in the research endeavor is warranted. First, the dimension of collectivism-individualism and the frameworks that help organize cultures need to be further tested across and within cultures.Second, attention to specific emotions and different emotion-related skills across different cultures is needed. For example, it is useful to know that anger is treated quite differently in the Tamang and Brahman cultures;[18] shame varies in the degree to which it is perceived positively among Chinese, Japanese and European American families;[19] and exuberant expression of positive emotion is valued differently by European American versus Taiwanese Chinese culture.[20] Third, process-oriented studies are needed to show how parental or cultural values directly lead to children's differential experience, expression and understanding.

Conclusion

Consideration of children's emotional development and specifically their skills in experiencing, expressing, and understanding emotion[1] needs to be embedded within an understanding of the goals and values of the family culture in which children are developing, and the host culture as well, when these differ. The greater the insight into the norms and values of the culture, the greater the ability to strengthen the emotion-related characteristics which are desirable for that culture. Further, understanding children's emotional development through the lens of culture also cultivates an acceptance of differences without evaluating which culture's emotional lives are better.

Implications for Parents, Services and Policy

As the world becomes increasingly multicultural, sensitivity to the norms, values, and emotion-related strategies of both family and host cultures becomes increasingly important for caregivers. Because research has just begun in this field, collaboration between researchers, parents, service providers and policy makers is even more important for developing empirically-informed policies that can be used in education, social services and

other policy domains.[21] In the meantime, there is a need for caregivers to be recognizing, supporting and expanding children's skills within their family and cultural styles, as well as preparing them for emotional competence in their host culture. Additionally, when children are not performing as expected within daycare or educational settings, a consideration of family and cultural styles of experiencing, expressing and understanding emotion is warranted before determinations of deficit are suggested. In particular, the meanings of behaviours, both engaged in by children and by caregivers with children, needs to be considered within the cultural context.

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Approach and Withdrawal in Early Emotional Development

Margaret W. Sullivan, PhD

Institute for the Study of Child Development, UMDNJ-Robert Wood Johnson Medical School, Child Health Institute, USA

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Introduction

The capacity to approach or withdraw from stimulation is a key aspect of emotional life. Approach and withdrawal have been studied since Darwin initially described them in 1872.[1] They are core systems of emotional behaviour and personality.[2-5] Individual differences in approach and withdrawal underlie children's emotional behaviour.[6-7] This article describes approach and withdrawal emotion in infancy and the role of individual differences in these core aspects for young children's subsequent functioning.

Relevance

Approach behaviours and emotion can be observed in the first months of life and become more elaborated with development. Facial expressions and behaviours that move the child toward stimuli index approach. Newborns will turn their eyes and head toward novel stimulation of moderate intensity. Interest and smiling are examples of approach emotion, as are anger expressions to blocked goals.[7-9] Anger, supported by increased heart rate, facilitates action toward regaining goals via persistent approach. Thus, anger, with the same directional valence as the positive emotion expressions of interest and enjoyment, is part of the approach system.[5] In contrast, low activity toward goals, increased cortisol response, expressions of sadness or fear, and behaviour promoting movement away from a stimulus index withdrawal.[10-11]

Approach and withdrawal differences may persist over time and thus have importance for understanding emotional risk and resilience.[12] Withdrawal is a risk factor for childhood depression.[13] Greater fear, sadness and behavioural inhibition to negative events have been linked to behavioural difficulties and poor emotion regulation.[13-15] Differences in withdrawal in novel stimulus contexts are thought to reflect temperament differences resulting from gene by environment interaction.[13,16] Less is known about early differences in approach, but "exuberance" or sociable temperaments have been proposed to reflect strong approach tendencies.[17-18] Individual differences in approach and withdrawal are clearly important features in young children's emotional competence.

Problems

Developmental theorists have been slow to adopt a view of emotions as neuro-biological processes rather than feeling states. Rather than viewing anger and sad expressions as read-outs of discrete negative states or as

assembled facial "attractor patterns,"[19-20] viewing them as approach or withdrawal responses offers a contextually sensitive and functional approach to early individual differences in emotion.

Past work on negative emotion in infancy also tended to focus on the specificity of emotions to eliciting contexts. It is clear by now that such specificity does not exist for most of the contexts studied.[21-22] Approach and withdrawal allows a functional categorization of contexts based on children's action and physiological responses. Contexts that elicit positive emotions and orienting (interest and enjoyment) and anger to blocked goals are all classed as approach activating, while those eliciting fear, sadness and cortisol increases are classed as withdrawal. The degree to which any context promotes approach or withdrawal can be examined empirically so research can now focus on describing specific contexts and the variation in the approach or withdrawal behavior and emotion observable within them.

Research Context

The study of approach and withdrawal to goal blockage has revealed the early onset of these emotions as well as individual differences. When goals are blocked, most babies act to regain what was lost, and appear angry. Others become passive and appear sad. Observable in 2- to 6-month-olds, these individual differences are stable across the first year of life.[9] Infants learn to expect an event (goal) followed by briefly blocked access: they activate a musical slide show by pulling a ribbon attached to the wrist. A baseline of two minutes allows infants to acclimate to the standard setting. During learning, pulling triggers the brief slideshow. Infants must tug repeatedly to regain access. Infants learn this contingency within 6 minutes, the majority within one session. Approach emotions of interest and enjoyment occur during this period and set the stage for assessment of response to goal blockage when the slideshow is unexpectedly turned off.

Among babies who learn, reactivity to goal loss is either approach or withdrawal.[11] Babies who appear angry actively try to get the slideshow back. Their heart rates increase, but despite being aroused, they are not distressed. Cortisol, a stress hormone measured in saliva remains stable. They remain interested in obtaining the goal and smoothly re-engage when access is returned to them.[23] A smaller group of babies show sad facial expressions and decreased heart rate. These babies tend to slow their pulling and show increased cortisol response, suggesting that they are more stressed by goal blockage.[11] They appear to give up easily and when access is restored, they show less interest and enjoyment.[23]

Key Questions

- Does maternal caregiving influence the emergence of individual differences in early goal blockage responses? Sensitive maternal behaviour between birth and 4 months attunes infants to social contingencies and promotes a generalized expectancy of a responsive world and should therefore greater approach emotions.[24-25]

- How are approach and withdrawal related to subsequent adaptive and dysregulated behaviour? Vulnerability to behavioural inhibition is only one axis along which emotional difficulties may develop. Helplessness or hostility in response to challenges are problem behaviours likely to be linked to difficulty in regulating approach and withdrawal emotions. Approach emotion, including anger, should be related to positive aspects of behaviour including sustained effort when minor difficulties are encountered, but be unrelated to, such as tantrums and other forms of dysregulated behaviour. Sadness, if adaptive, might be related to greater help-seeking, although it may be associated with greater helplessness and passivity.[26]

Recent Results

Studies considering both the biological and experiential contributions to individual differences in approach and withdrawal are as yet few, but do support that early individual differences in anger/approach are unrelated to dysregulated behaviour.

In one study, the time that it took the toddlers to stop playing, the degree of protest shown, and the rapidity with which toddlers calmly re-engaged in play with the toys were reliable indices of persistent motivation to play. More anger to goal blockage in infancy was related to toddler's persistence in playing, indicating consistency of approach emotion from 4 to 20 months. While earlier maternal sensitivity was related to showing less negative emotion by 4 months in general, early maternal sensitivity did not effect anger and sadness differentially and was unrelated to toddlers' persistence or to protest.[27]

Approach and withdrawal emotions at 5 months and maternal reports of infant negative temperament are not related in a simple or direct fashion.[28-29] Some relations have been found between sadness/withdrawal and maternal reports, but not anger. Sadness was related 1) to low activity, suggesting that infants who are low in approach are more passive, and 2) to composite ratings of negative temperament, but not to distress to novelty or limits dimensions individually.[28-29]

Maternal reports of tantrum onset and a composite score of their severity at 12 and 20 months were unrelated to the infants' anger to goal blockage.[29] Supporting this view, anger predicts emotional competence in older children and is related to the persistence of instrumental responses during repeated goal blockage in young infants.[28,30]

Gaps in Knowledge

Work on approach and withdrawal in infancy and later consequences is still limited. The stability of individual differences in goal blockage emotions has been established, but the cross-contextual consistency of approach and withdrawal emotions should be examined. Withdrawal responses to goal blockage and behavioural inhibition appear to be different emotion styles, based on maternal reports, but direct behavioural study is needed. Excessive inhibition and greater passivity/low approach reflect different axes of emotional risk so it is important to determine to what extent these represent distinct vulnerabilities in children.

Continued study of early sensitive maternal caregiving in relation to early approach and withdrawal emotion is needed. To examine how experience effects approach and withdrawal both dyadic in-home interactions, and global ratings assessments of caregiving should be examined. If results continue to support approach and withdrawal emotions are relatively independent of maternal influence before 6 months, we must examine whether later maternal responses moderate initial approach and withdrawal tendencies. Mothers may not entrain early differences, but may subsequently support approach or withdrawal responses directly as they respond to their children, or indirectly through their structuring of infants' play and learning experiences. Such studies will allow us to examine how approach and withdrawal become consolidated as styles.

Finally, once anger and sad responses are elicited, individual differences in how they are regulated are of considerable interest. This will require continued study of the interface of approach and withdrawal emotions in

relation to physiological responses, developmental changes in attention, as well as maternal behaviour.

Conclusions

Study of early individual differences approach and withdrawal emotion promises to expand our knowledge of the development, regulation and socialization of emotional competence. Understanding how experience contributes to the adaptive, appropriate expression of approach and withdrawal emotion is important in developing models of early development. Examination of contextual differences between withdrawal emotion to novelty, and withdrawal emotion in goal blockage contexts, currently thought to reflect low approach and/or passivity, will help to identify those children who may show greater emotional vulnerability.

Implications

Individual differences in approach and withdrawal emotions and their developmental trajectories will become increasingly apparent as young children expand their horizons in the preschool period. As the number of children entering group care settings during infancy and preschool is likely to increase, understanding the developmental trajectories emotions that promote appropriate emotional development is necessary to help identify and support children who may have emotional vulnerabilities.

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Child Development and the Emotional Circuits of Mammalian Brains

Jaak Panksepp, PhD

College of Veterinary Medicine, Washington State University, USA
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Introduction and Subject

Do little babies feel pain when they are circumcised without anesthetics? Despite ambiguous 20th century medical opinion, the answer is, of course they do. It is now quite clear that all mammals experience their emotions within the *subcortical* circuitries of their intensely affective brains. The evidence comes from hundreds of brain stimulation studies in other animals, where "rewarding" and "punishing" effects are readily obtained from subcortical brain emotional systems that are homologous in all mammals, with essentially no places where such effects can be obtained from higher brain areas.[1,2,3] Primal affective feelings are part and parcel of our inherited mammalian emotional action apparatus, which strongly influence learning and the growth of the neocortical cognitive apparatus.

Thus, the lessons from other mammals, where essential causal neuroscientific work can be done, apply to our children. Their intense affective nature, especially during the earliest years, is a consequence of evolutionarily in-built emotional functions. For instance, crying, even if not precipitated by physical pain, reflects psychological pain, whether hunger-related or from separation-distress (starting at about age 6 months). Before infants speak, their affective experiences can be reasonably deciphered from their emotional actions, especially their diverse emotional vocalizations, homologous with those of other mammals.[4]

Problems and Research Context

The experience of pain corresponds to shrieking and crying, similar in all mammals. When we artificially activate such brain circuits, including ones that generate RAGE and FEAR, animals rapidly turn off stimulation. Likewise for joy. When humans feel joy they laugh; other animals also make laughing-type sounds when they play or are tickled. They learn to self-stimulate PLAY facilitating systems that generate such happy sounds, and the same goes for brain circuits that generate foraging (SEEKING), sexual (LUST) and maternal (CARE) behaviours.[1,3] (Please note that capitalizations are used as a nomenclature convention to highlight their primary-process status – also known as "unconditioned stimuli and responses" in behavioural learning-system parlance.)

Cross-species animal work has now revealed brain mechanisms that human have but can't be studied in ethically-conceivable human research. The lessons from affective neuroscience are quite clear. All our primary-process affects – emotional arousals, but also valenced sensory (e.g., pain and taste) and homeostatic feelings (e.g., hunger and thirst) – arise from subcortical brain systems mediated by evolutionarily ancient neural circuits

and neurochemistries, concentrated very medially and very far down in the brain, namely very ancient brain areas. Animal research has also revealed universal secondary-process emotional learning mechanisms, which transpires in subcortical *basal ganglia* (e.g., *amygdala*, *nucleus accumbens*, etc.) richly connected to neocortex. It is the tertiary-processes of the BrainMind – capacities for thoughts, ideas and ruminations – that require extensive neocortical tissues that are essentially *tabula rasa*, at birth. Most functions of our visual cortex are fundamentally programmed by experiences.

Cortical "modularity" emerges through learning, making early emotional development critical for the quality of higher mental abilities. An understanding of such evolutionary/developmental levels of cognitive emergence have direct implications for child rearing practices: Optimize positive effects and minimize negative ones, with plenty of challenges for children to manage with their rapidly maturing higher mental powers. Many paths are auspicious, many are not, depending on local cultural and ecological demands, but reasonable advice, rich with emotional intelligence, is available.[5] A good example is to be found in language development. Infants love the emotional melodic-musical intonation of *motherese*. The first goal of language acquisition is to be positively engaged with the melodic contours of your native language. Propositional meanings follow affective engagements.

Recent Research Results

The basic affective circuits of mammalian brains

There are at least seven primal types of emotional systems in all mammalian brains (see Panksepp,[1] for fuller anatomical, neurochemical and behavioural descriptions of these systems). All systems are situated subcortically, and consist of large transverse networks that interconnect ancient central midbrain regions such as the periaqueductal gray and ventral tegmental area, with various basal ganglia nuclei, such as amygdala and nucleus accumbens, which are well connected to cingulate, insular, orbitofrontal and medial frontal old-type cortices, via pathways that run through both the hypothalamus and thalamus. Each system has abundant descending and ascending components that work together to coordinate instinctual emotional behaviours, autonomic bodily changes and raw feelings. These systems come to be activated and regulated by higher brain mechanisms through learning. The seven systems that currently have abundant evidence are as follows:

1. The SEEKING/Desire System. This general-purpose appetitive motivational system is essential for all other emotional systems to operate effectively. Thus it is the grand-daddy of them all, generating an urge to explore and engage with the world, with eager curiosity and interest, yielding abundant spontaneous learning, which can become habit structures (in basal ganglia) and knowledge structures (in the neocortex). SEEKING allows animals and humans to find and eagerly anticipate all kinds of resources needed for survival, including water, food and warmth, but also creativity and playful engagements that promote development of various skills including those related to LUST and CARE. Pathologically, this system mediates all addictions to artificial drugs (e.g., cocaine and heroin) and natural compulsions (gambling, obsessive sexuality, etc). SEEKING circuitry has been called the "brain reward/pleasure system," but this one promotes euphoria accompanying enthusiastic engagements with the world. Children need many opportunities to exercise the power of this exploratory system.

2. The RAGE/Anger System. When SEEKING is thwarted, RAGE/anger/aggression is aroused (e.g., just

restrain a baby for a short time). All children have many encounters with this system throughout development. The goal should be to help children regulate this power of the mind and minimize its influence on personality development.

3. The FEAR/Anxiety System. FEAR circuitry helps all mammals to reduce pain and likelihood of destruction. It promotes uptight freezing when danger is far away and precipitous flight when near. This system conditions rapidly to promote traumatic disorders as well as other psychiatric problems. Children need to learn how to cope with vicissitudes detected by this system in age-appropriate ways and in fundamentally secure environments.

4. Male and Female Typical LUST/Sexual Systems. These are imprinted within infant brains during early development (second trimester, in humans), promoting forms of childhood sexuality and "brought to life" in adolescence as massive sex hormone secretions from testes, ovaries and adrenals, promote sexual readiness in female- and male-typical ways, under the guidance of differential brain chemistries, especially *oxytocin and vasopressin*. Since brain and bodily sex characteristics are independently organized, there are abundant opportunities for cross-gender role identities. Sensitive parents should find ways for children not to feel guilty about who they have become, to minimize diverse personality problems in adulthood.

5. The CARE/Maternal Nurturance System. Brain evolution insured that mammalian parents (usually mothers) take care of offspring enthusiastically and psychological "can-do" strength, that fathers can learn. Also, young children seem to have a natural affinity to exhibit nurturing behaviours, reflected in a love of animals and certain toys, like dolls. CARE arousal is surely important for some variants of love, and deserve to be nourished and cultivated in children.

6. The PANIC/Separation-Distress System. All young mammals depend on maternal care for survival. Mother's CARE systems synergize with children's emotional responses, especially intensely when they get lost – their separation cries promptly stir PANIC in mothers, motivating reunion. If separation-distress is sustained for too long, no matter what age, depressive affect is promoted. This affective network is regulated via brain *opioids*, oxytocin, and *prolactin* systems, which provide social comfort, promoting attachments formation. Without a secure neuro-affective base early in life, children tend to grow into insecure adults, who are more likely to have depression and various insecurity problems, such as borderline personality disorders.

7. The PLAY/Rough-and-Rumble, Physical Social-Engagement System. Young children, like most immature mammals, have robust urges for physical play, which naturally lead to chasing, romping and wrestling, accompanied routinely by joyous shrieking and laughter. Social PLAY networks have been well-studied in animals, and they promote adaptive socialization, acquisition of many social skills not genetically coded within the brain. Social play can reduce adult irritability (RAGE) and promote pro-social attitudes via learning and epigenetic moldings of other emotional systems. This emotional power-house, closely linked to SEEKING, deserves cultivation and attention by parents and society in order to reduce mental health problems such as childhood ADHD and adult depression.

Conclusion and Implications

These basic emotional systems are intrinsic value systems that inform animals how they are faring in the quest

to survive. They guide learning and maturation of cortical executive processes. The implications of such ancestral tools for living and learning have enormous implications for early child development.[6]

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Emotional Intelligence in the First Five Years of Life

Susanne A. Denham, PhD, Katherine Zinsser, MA, Craig S. Bailey, BS

George Mason University, USA
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Introduction

The construct of emotional intelligence (EI) refers to a distinct group of mental abilities, in which individuals 1) perceive, appraise and express emotions; 2) use emotions to facilitate thinking; 3) understand the antecedents and consequences of emotions; and 4) regulate emotions in self and others.[1,2] These abilities dovetail well with what has been termed, in the developmental psychology literature, as "emotional competence" (EC).[3,4,5] Because of the developmental emphasis in the EC literature, this is the term we use here. Young children's EC – expression of useful emotions, knowledge of emotions of self and others, and regulation of their own and others' emotional expressiveness and experience when necessary – contributes to their social and pre-academic adjustment, both concurrently and across time.[6-8]

Subject

Because of the link with social and pre-academic success, there is considerable interest in the topic of early childhood EC; its relevance to policy-makers and service-providers in child care, early childhood education and mental health is becoming clear. There are three main components of EC, with specific attainments during the early childhood period:[9]

Expression: Young children become able to use emotional communication to express clear nonverbal messages about social situations and relationships (e.g., stamping feet, giving a hug). They also develop empathic involvement in others' emotions (e.g., patting a classmate in pain). Further, they display complex social and self-conscious emotions, such as guilt, pride, shame and contempt, in appropriate contexts.

Knowledge: Young children's abilities to accurately identify and label their own and others' emotions, especially the discrete emotions of happiness, sadness, anger and fear, are emerging. Particularly via the use of methods embedded within play, they can identify the causes and consequences of these emotions, and they show budding awareness of complex, individualized causes for emotions.[10]

Regulation: Young children begin to regulate emotions in productive ways – showing awareness of their feelings, monitoring them and modifying them when necessary, so that emotions aid, rather than impede, coping in varying situations. Although young children begin to understand which regulation strategies are most useful, they still often need adult assistance in these efforts.

The interrelationships of these aspects of EC must be underscored. Emotion knowledge undoubtedly plays an important role in children's ability to regulate emotion; when a child knows, for example, that her playmate is delighted to heave her tricycle upright after a long struggle, she is no longer distressed herself, trying to discern what to do with an angry friend. Further, her emotion knowledge may assist her own adaptive, regulated emotion expression – if she understands what makes her (and others) sad, and with what intensity, she may be able to show sadness at falling off playground equipment in a way that elicits help without overwhelming her. Because of the intricate inter-workings of the components of EC, it is no surprise that preschool deficits in both emotion knowledge and under-regulated expression of anger predicted difficulties with teachers and peers in kindergarten.[11] For example, preschoolers with deficits in understanding emotions have been found to show aggression or peer problems, both concurrently and predictably.[7(p249),12,13] Moreover, aspects of early childhood EC, separately and as an interrelated group, predict young children's early school success.[14-16]

Research Context

The context of research into EC varies throughout development. The study of infant emotion has relied predominantly on external signs of experienced emotions such as facial expressions, gestures and vocalizations. As children leave infancy, researchers use both naturalistic observations and direct assessment procedures in a variety of settings, to better capture children's expression and experience, understanding, and regulation of emotions. Procedures to assess children's EC sometimes use purposefully frustrating situations with and without adult scaffolding to understand children's regulation of emotions. Children's responses to direct questions, often within ecologically valid play procedures, show their understanding of self and others' feelings in differing situations, as well as causes and consequences of emotions, and children's differentiation between their own and others' perspectives. Observational and self-report methods are used to examine adults' socialization of children's EC.

Key Research Questions and Recent Findings

1. How is EC related to young children's successful negotiations of other important developmental tasks?

   a) EC is related to young children's success in relationships. Young children must learn to send and receive emotional messages using their knowledge about emotions and their abilities to regulate emotions, so that they may successfully negotiate interpersonal exchanges, form relationships and maintain curiosity about and enthusiasm for their world.[17] When they do so, they have more satisfying, successful relationships with others, especially in the new peer arena.[18]

   b) EC is related to young children's early school success. Emotions are ubiquitous in the early childhood classroom; as young students learn alongside and in collaboration with teachers and peers, they must utilize their emotions to facilitate learning. Children's abilities to understand emotions of self and other, regulate emotion, and express healthy emotions, all work together to grease the cogs of a successful school experience.[6(p653)]

2. How do parents promote children's EC?

   By modeling various emotions, moderately expressive parents give children information about the nature of emotions ? their expression, likely eliciting situations, and more personalized causes. Living in a particular "affective climate" promotes children's experience and expression of specific emotions.[19] A positive affective climate promotes positive emotional and social outcomes in children.[20-24] Conversely, where families display more negative emotion, children fare worse with peers.

[25] Parents' reactions to young children's emotions and their direct instruction about emotions are also important socialization tools that support the development of EC.[26]

3. What else can we do to promote children's EC?

There are opportunities to promote young children's EC within child care and early childhood education settings.[27] For example, the Preschool PATHS program teaches children about emotion expression, knowledge, and regulation.[28,29] Additional programs have been created specifically for use in Head Start classrooms to help young children use EC effectively.[30,31] Parent programming also exists.[32,33]

Research Gaps

Much basic research work is left to be done, particularly in examining how the components of EC work together. Research also needs to situate EC abilities within the "whole child," viewing how EC interacts with other domains of development, both concurrently and predictably.

Further, despite accumulated findings on parental socialization, and early childhood research that shows that teachers are engaging in emotion socialization behaviours, we know little about how teachers (or, for that matter, peers or siblings) socialize children's EC.[34] Research is also needed to discern possible indirect contributors to EC, such as parental psychopathology, divorce, poverty and child care quality. Moreover, our state of knowledge is ripe for increased exploration of applied topics, such as evidence-based programming. Finally, even more excellent assessment tools are needed in order to track EC promotion in young children.[34]

Conclusion

In sum, emotional competence is a developmentally-evolving construct that encompasses children's abilities to appropriately express, interpret and regulate their emotions, as well as to understand the emotions of others. Understanding the interrelationships between these facets of EC, as well as how EC is socialized, is crucial in understanding the emotional experience of children, and why some children have higher scores than others on measures of EC. Extant findings suggest that 1) EC is related to young children's success in relationships; 2) EC is related to young children's early success in school; 3) parents model emotional expression and regulation and structure environments that promote attaining EC; and 4) parent socialization of emotion is not the only mechanism by which children's EC is socialized. Understanding and promoting EC in the home is emerging as vital, but research has yet to fully explore how teachers and the school context contribute to children's EC.

Implications for Parents, Services and Policy

Gaps in researchers', educators' and policy makers' understanding and valuing of early childhood EC must be bridged. To provide the optimal learning environment for every student, teachers should be trained in programming and assessment tools that not only assess but also assist in forming interventions that promote social-emotional learning (SEL) abilities. Parents should likewise be supported in their roles as socializers of EC.

Educational standards, including evidence-based assessment and programming, are also sorely needed. Policy initiatives that encourage teacher awareness of SEL abilities will not only foster a more harmonious classroom environment, but will also help form a stable social-emotional foundation that the child will use across social and

learning contexts. One such legislative initiative, the Academic, Social, and Emotional Learning Act, was introduced in the U.S. House of Representatives in 2009. Such policies can help establish programs and allocate funds to create technical assistance and training centers, provide grants to support evidence-based SEL programming, and conduct a national evaluation of school-based SEL programming.

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