

Clinical Forum

Understanding Alexithymia and Language Skills in Children: Implications for Assessment and Intervention

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This article reviews the major construct of *alexithymia*, defined as difficulty identifying, understanding, and expressing feelings. The development of emotional competence in children and its association with alexithymia is presented as a means of providing a new perspective for speech-language pathology services for children. Alexithymia is theorized to be one consequence of trauma (Krystal, 1988) and is thought to result from brain changes following trauma (see also Henry, Sloane, & Black-Pond, this issue). The article reviews measurement

tools used to assess alexithymia and offers a framework for intervention that speech-language pathologists (SLPs) may use to enhance the expressive capacity of children with alexithymia. This discussion is closely related to enhancing children's social communication (see also Coggins, this issue) and sensory integration (see also Atchison, this issue).

EMOTIONAL COMPETENCE

Children's development of emotional competence provides a context for understanding the relatively new concept of alexithymia. Emotional competence may be defined as "how [children] can respond emotionally, yet simultaneously and strategically apply their knowledge about emotions and their expression to relationships with others, so that they can negotiate interpersonal exchanges and regulate their emotional experiences" (Saarni, 1990, p. 116, quoted in Denham & Burton, 1996, p. 225).

Specific components of emotional competence have been identified as emotional understanding, emotional expression, and emotional regulation (Denham, 1998). *Emotional understanding* includes the identification of emotional states in one's self and others, as well as the development of a vocabulary to describe such states. *Emotional expression* includes both the verbal and nonverbal

ABSTRACT: Purpose: This article reviews the construct of alexithymia and its relationship to language impairment.

Method: The article includes a review of the literature on emotional competence, trauma effects, alexithymia, and language impairment; summarizes tools to assess alexithymia; and provides an intervention framework.

Implications: Understanding the relationship of emotional competence and language impairment may provide a new perspective for speech-language pathologists who are serving children with language and socioemotional impairments.

KEY WORDS: children, alexithymia, language impairment, emotional expressiveness, socioemotional development

expression of emotional states. *Emotional regulation* relies on the ability to understand and express emotions and involves effective and organized management of both negative and positive emotions. The ability to understand and express emotions is important for managing one's own emotions, understanding the feelings of others, getting along with others, early learning, and school readiness (Thompson, 2002). Emotional expressiveness is the ability to understand, interpret, and express a range of feelings (Goleman, 1994). Emotional expressiveness has been identified as critical to language development and academic achievement (Thompson, 2002).

The terms emotion and feeling have similar meanings; however, they can be clearly distinguished. An *emotion* has been defined as "an interrelated set of processes at the neural, expressive, and conscious-experiential levels" (Izard & Kobak, 1991, p. 303, citing Izard, 1971). In contrast, a *feeling* has been defined as "an internal emotional state that is physically real and measurable" (Lewis, 1992, p. 14). Given that the two terms are often used interchangeably, both terms will be used synonymously in this article.

Although there are certainly inherent factors contributing to a child's emotional functioning with self and others, the development of emotional competencies is intrinsically connected to interpersonal socialization during infancy and early childhood (Espinosa, 2002). Parents' contributions to the development of a child's emotional competencies might include their own expression of emotions, their ability to help their child talk about feelings, and their own reactions to their child's emotions (Denham, 1998). Espinosa contends, "There is strong evidence that social-emotional development in the first year of life is the foundation of language development and that social-emotional well-being continues to affect both language and literacy as the child matures" (p. 31).

The interaction between newborn and mother, inherent in attachment formation, serves as a regulator of the developing child's internal state. In the early months of parent-child interaction, children respond to caregiver affective expressiveness by reciprocating facial expressions (Bowlby, 1969) and affective vocalizations. Ovtcharoff and Braun (2001) expand on this: "The regulatory function of the newborn/mother interaction may be an essential promoter to ensure the normal development and maintenance of synaptic connections during the establishment of functional brain circuits" (p. 33). As children become older and more sophisticated, they begin to interact with others on a deeper level and to seek more personal information from others by asking questions and making inferences (Morton & Trehub, 2001).

Using words to express emotions that represent feelings of self or feelings of others emerges around the age of 2 years (Bretherton & Beehly, 1982). In the preschool years, children first develop single representations for separate emotions such as *happy*, *mad*, *sad*, *surprised*, and *scared*. They also engage in simple dialogues about the causes and consequences of emotions and use words in a variety of ways both to describe feelings and to influence the behavior of others (Bretherton & Beehly, 1982; Dunn, Brown, & Beardsall, 1991). By early elementary grades, the understanding emerges that two emotions can occur in sequence (e.g., feeling sad and then mad), followed by the insight that they can coexist (e.g., feeling a mixture of sad and mad, Harter & Whitesell, 1989).

Children learn to identify and describe their internal states with words as a result of their caregiver's translation of physical states and emotional experiences using words and cohesive narrative (Saarni, 1999; Yehuda, 2005, citing Baron, 1992). Well-cared-for

children also are encouraged to express themselves and are offered support and nurturing in the presence of real or perceived threats. Subsequently, typically developing children who have been exposed to adequate language during their preschool years are generally able to tell stories, describe their emotions and thoughts, engage in reciprocal conversation, and understand the intent of others when they begin school (Baron, 1992).

The social information processing model, which outlines children's social adjustment, has been revised in recognition of the critical role of emotion at each step in the process (Crick & Dodge, 1994). Specifically, this formerly primarily cognitive model has been expanded on the basis of a growing recognition that emotion and cognition are intertwined. For example, emotions are theorized to shape how children interpret their environment, what goals they seek, and what kind of attributions they make to a peer's interactions.

Emotional Competence and Diversity

Consideration of ethnic, cultural, and racial differences is critical when exploring the emotional and social development of children and the impact these differences have on their emotional expression. Although research indicates that there are commonalities in the causation of emotional states (Mesquita & Ellsworth, 2001) and experience of emotions (Kobayashi, Schallert, & Ogren, 2003) across various cultures, there are also cultural differences in the expression of emotions (Saarni, 1999). Campos, Frankel, and Camras (2004) summarized that "culture...affects emotion and emotional regulation in many ways: by affecting what is important or not important to oneself, by determining which behaviors are deemed appropriate and which are not, and by specifying how one should feel in certain contexts" (p. 384).

Coll et al. (1996) argued that existing models of child development are based exclusively on middle class European American children. Coll et al. present an integrative model to predict developmental competencies (including emotional skills). The predictive variables in this model include social position, racism, segregation, prohibiting/inhibiting environment, adaptive culture, child characteristics, and family characteristics. Socioeconomic differences, however, are also found to influence the emotional development of children. A child's neurobiological and emotional development may be impacted by prenatal and postnatal insults related to poverty (Brooks-Gunn, Klebanov, Liaw, & Spiker, 1993; Raver, 2004, citing Aber, Jones, & Cohen, 2000).

Barbarin (2002) outlined the harmful effects of racism and poverty on the emotional development of children of color. He argued that "children of color occupy specific cultural niches in American society that expose them to a host of social, familial, and community strains while providing limited resources to help them respond" (p. 45). He suggests that this reality requires "early and sustained intervention" (p. 46). In contrast, other studies indicate that effective parenting moderates the relationship between impoverished environments and the development of self-regulatory skills and emotional competency for ethnic minority children (Raver, 1996; Raver, 2004, citing Garner & Spears, 2000).

Emotional Competence and Traumatization

Research on the impact of early and chronic maltreatment on the development of brain function reveals that people with a history of relational trauma (e.g., neglect and abuse) have underdeveloped

left-hemisphere brain development. This brain development is central to the development of perceiving and expressing language (Teicher, 2000). When children are repeatedly exposed to relational trauma (and its concomitant chronic stress), they compensate through patterns of behavior that are intended to ensure their survival. These strategies have the potential to interfere in the socioemotional learning that is expected during critical periods of right brain development (Schore, 2001). These components of socioemotional learning include “self-awareness, empathy, identification with others, and more generally intersubjective processes, which are the first to develop” (Decety & Chaminade, 2003, p. 591).

Similarly, the impact of maltreatment and resulting attachment disturbances on brain development and function are also significant to the development of self-regulation and the capacity to express emotions to others. Children who lack encouragement to discuss overwhelming events and their feelings related to these events may have difficulty with or feel threatened by words that express these experiences. This is also true for children who have not had their internal states or emotions acknowledged by others. Children whose caregivers did not model emotional expression and recognition, or who modeled primarily negative affect, have been shown to have difficulty in recognizing emotions (Camras, Sachs-Alter, & Ribordy, 1996).

When children are limited in their capacity to acknowledge and express their emotions in ways that reduce their distress, they may continue to attempt to regulate the intensity of their emotions through other means. These may include avoidance, numbing, and somatic tendencies, which often contribute to internalizing (e.g., depression, anxiety) and/or externalizing (e.g., physical aggression) disorders (van der Kolk, 2005). In a study of maltreated 2- and 3-year-olds, Cicchetti and Lynch (1995) found that these children used less internal state language, produced reduced syntactic complexity, and obtained lower scores on measures of expressive language than did same-age peers who had not been mistreated. It may be that one consequence of experiencing trauma is difficulty with emotional expression, also termed alexithymia.

ALEXITHYMIA

The term *alexithymia* was first used by Sifneos (1973) to describe a psychological phenomenon in which individuals may experience or be aware of strong feelings but have difficulty understanding and effectively expressing their feelings to others. Alexithymia is a cognitive-affective communication impairment that children and adults experience when they have difficulty identifying and effectively expressing their full range of emotions through verbal communication with others.

In some severe cases, persons with alexithymia are *unable* to identify, understand, or describe their own emotions. The construct of alexithymia refers to some of the chief manifestations of this deficit in emotional functioning. Most individuals with alexithymia typically have vocabulary for emotions but are unable to identify or describe the specific emotion(s) they are feeling at a given moment (Irwin & Melbin-Helberg, 1997). Irwin and Melbin-Helberg found that there was no relationship between alexithymia and word ability for positive and negative emotions in their sample of adults.

Alexithymia is not a psychiatric disorder and is not included in the *Diagnostic and Statistical Manual (DSM-IV-TR)*, American

Psychiatric Association, 2000). However, there appears to be a relationship between alexithymia and psychiatric disorders in adults. Studies have found that alexithymia is associated with posttraumatic stress disorder (PTSD) in adult survivors of the Holocaust (Yehuda et al., 1997), borderline personality disorder (Zlotnik, Mattia, & Zimmerman, 2001), dissociation (Irwin & Melbin-Helberg, 1997), and higher depression scores (Honkalampi, Hintikka, Saarinen, Lehtonen, & Viinamaki, 2000). Characteristics of alexithymia have also been compared to features of Asperger's syndrome (Fitzgerald, 2004). Alexithymia is theorized to be associated with violent behavior in adolescents (Marohn, 1992), but this relationship has not been tested empirically with children or adolescents.

The origins of alexithymia are difficult to determine. *Primary* alexithymia appears to be present at birth and may have a genetic component (Fukunishi & Paris, 2001). In contrast, *secondary* alexithymia appears to be the result of being exposed to traumatic life experiences such as child abuse, which may contribute to restricted effective emotional expression (Krystal, 1988). Traumatic experiences may result in a disconnect between the parts of the brain that deal with emotions (right hemisphere) and with verbal expression (left hemisphere) (Schore, 2001), and may lead to dissociation (Siegel, 2000). Alexithymia may be thought of as existing on a continuum, and may be situationally determined (e.g., an individual experiences greater difficulty identifying and expressing emotions with particular persons or in particular settings). The reader is referred to Way (2005) for a review of literature on the relationship between childhood maltreatment, emotional intelligence, and alexithymia.

There may be an intergenerational transmission of the tendency for alexithymia. It appears that children and adults who have difficulty identifying and expressing feelings may have had caregivers who themselves had difficulty with positive communication (Berenbaum & James, 1994), had difficulty expressing their feelings (Lumley, Mader, Gramzow, & Papineau, 1996), or were alcoholic (Fukunishi et al., 1992). One study found that there was a positive correlation between the level of alexithymia reported by college students and their mothers' retrospective self-report of their difficulty with expressing feelings when they were in their early twenties (Fukunishi & Paris, 2001).

Prevalence of Alexithymia

Alexithymia seems to be a relatively stable characteristic that is normally distributed in the general adult population (Taylor, 1994; Yelsma, 2005; Yelsma, Hovestadt, Anderson, & Nilsson, 2000). Researchers have found that 10% to 15% of adults in the general population may have alexithymia (Parker, Taylor, & Bagby, 1989; Rybakowski, Ziolkowski, & Zasadzka et al., 1988, as cited in Keller, Carroll, Nich, & Rounsaville, 1995). There is a gender difference in adults, with males reporting higher alexithymia scores than females (Honkalampi et al., 2000; Yelsma, 2005). The rate of alexithymia in samples of young adults and adults who have specific difficulties ranges from 39% of those with depression (Honkalampi et al., 2000) or cocaine abuse (Keller et al., 1995) to 40% of those with Asperger's syndrome (Tani et al., 2004).

Characteristics of Alexithymia

Difficulties with emotional expressiveness are evident in a person's communicative style (Taylor, 1984). Children (Rieffe,

Oosterveld, & Meerum Terwogt, 2006), as well as adults (Loiselle & Dawson, 1988), who have characteristics of alexithymia appear to have a restricted range of emotional expression with others. Children and adolescents with alexithymia do experience various levels of emotions, but they have difficulty identifying specific feelings and they struggle with using words to express their feelings effectively (Reckling & Buirski, 1996). James (1994) clarified that the child with alexithymia “cannot distinguish between positive and negative emotions, since he is aware only of the physiological component of affect. He cannot differentiate between excitement and fear—both feel the same and he does not have the cognitive labels to discriminate between the two” (p. 19).

The process for assessing whether an individual has alexithymia includes steps such as (a) obtaining informal observations from the caregiver or spouse about emotion-related behavior in the family (e.g., ability to identify, understand, describe feelings), (b) obtaining observations from professionals working with the child during assessment/classroom/clinical contacts, and (c) using a standardized instrument to measure the characteristics of alexithymia (self-reported or observed by others).

There is a relatively small body of research on children with alexithymia. This research has focused on children in school and hospital settings (Fukunishi, Tsuruta, Hirabayashi, & Asukai, 2001; Rieffe, Meerum Terwogt, & Bosch, 2004), preadolescent hospital patients (Ebeling, Moilane, Linna, & Räsänen, 2001), students in primary and secondary schools (Rieffe et al., 2006), preadolescents and adolescents with diabetes (Koski, Holmberg, & Torvinen, 1988), adolescents with sexually abusive behaviors (Moriarty, Stough, Tidmarsh, Eger, & Dennison, 2001), and high school students (Ciarrochi, Deane, Wilson, & Rickwood, 2002; Rieffe, Meerum Terwogt, Petrides, Cowan, & Tolland, 2005; Sayar & Kose, 2003; Sayar, Kose, Grabe, & Topbas, 2005).

Alexithymia is implicated in a variety of physical problems in children and adolescents. For example, some children with alexithymia experience bodily sensations and somatic complaints (e.g., stomachache, headache, tiredness), and they make reference to these physical sensations in their attempts to express their feelings to others (James, 1994). Serious illness in children has been associated with higher levels of alexithymia as reported by parents (Fukunishi & Paris, 2001; Fukunishi et al., 2001). Alexithymia in youth has been associated with greater somatic complaints (Ebeling et al., 2001; Rieffe, Meerum Terwogt, & Tolland, 2004; Rieffe et al., 2006), diabetes (Koski et al., 1988), anorexia nervosa (Zonneville-Bender, van Goozen, Cohen-Kettenis, van Elburg, & van Engeland, 2004), and dissociation (Sayar & Kose, 2003; Sayar et al., 2005). However, the relationship between alexithymia and dissociation disappears when anxiety is entered into the multivariate model (Sayar & Kose, 2003), emphasizing the importance of including anxiety in multivariate models analyzing this relationship.

One consequence of alexithymia is difficulty regulating or managing the emotional expression that is important in interpersonal relationships. James (1994) contended that children with alexithymia may have dysregulated affect, and therefore may have difficulties interpreting signals and cues in others. Lack of emotional competence is closely related to alexithymia, and lower emotional competence in adolescents has been associated with less intention to seek help, suggesting that youth who have the least emotional competence are also the least likely to ask for help (Ciarrochi et al., 2002).

Not surprisingly, alexithymia has also been associated with behavior problems (including aggression, anorexia, bulimia, and

substance abuse problems), which are hypothesized to be attempts to modulate strong emotions (van der Kolk & Fisler, 1994). In the classroom and with peers, children with alexithymia may exhibit a combination of behaviors and emotional responses that reveal their difficulty in processing emotional stimuli. They may describe their thoughts and experiences rather than identify emotional states. They may act out and/or internalize their emotions while seeming to function within age-expected limits otherwise. Overall, their impairment may go unidentified throughout the lifespan, leading to a risk of misdiagnosis.

Outbursts of aggressive behavior such as violent and assaultive responses by adolescents may be an indication that they feel various emotions but experience difficulties effectively expressing a broad array of complex emotions to others (Marohn, 1992). Adolescents with sexually abusive behaviors reported lower scores on attention to their feelings when contrasted with a non-offender comparison group, but did not differ in their level of alexithymia (Moriarty et al., 2001). However, the small offender sample ($n = 15$) limits generalizability of these findings.

Measurement of Alexithymia in Children

Procedures for measuring alexithymia in children are still in the early stages of development (see Table 1). The Alexithymia Scale for Children (ASC; Fukunishi, Yoshida, & Wogan, 1998) was developed in Japan with children in the first through sixth grade (mean age 9;0, $SD = 1.4$) and is completed by a parent or other caregiver. The ASC has 12 items rated on a 3-point Likert scale (0 = not true – 2 = very true or often true). The ASC has two subscales (i.e., difficulty expressing feelings, difficulty relating to others). The Japanese version of the ASC has adequate reliability (Cronbach's $\alpha = .84$) and demonstrates criterion validity; however, the psychometrics of the English version of the ASC have not been established.

Rieffe and colleagues (Rieffe et al., 2006) developed the Alexithymia Questionnaire for Children (AQC), a Dutch adaptation of the 20-item version of the Toronto Alexithymia Scale (TAS–20; Bagby, Parker, & Taylor, 1994), with 740 children ages 9 to 15 (mean age 12;4). Similar to the TAS–20 (which measures self-reported alexithymia in adults), the AQC has three factors (difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking). The first two subscales have adequate reliability (Cronbach's $\alpha = .73, .75$, respectively); the third subscale has poor internal reliability, similar to psychometrics for this subscale on the TAS–20. The AQC is a self-report instrument with 20 items rated on a 3-point Likert scale (0 = not true – 2 = a bit true). The AQC has been translated into English but this version has not yet been psychometrically evaluated.

Rieffe and colleagues expanded the concept of alexithymia and developed the Emotion Awareness Questionnaire (EAQ; Rieffe et al., 2005), which includes six factors: differentiating emotions, verbal sharing of emotions, bodily awareness, acting out emotions, analysis of emotions, and attending to feelings of others. The EAQ is a self-report instrument and has 30 items rated on a 3-point Likert scale (1 = not true, 2 = sometimes true, 3 = often true). The EAQ was tested in the United Kingdom (in English) and the Netherlands (in Dutch) with children ages 9 to 16. Internal consistency of the EAQ subscales was good for most scales and ranged from .77 (differentiating emotions) to .65 (analyses of emotions) in a preliminary examination. Only the scale *acting out*

Table 1. Measurement of alexithymia in children.

<i>Instrument</i>	<i>Language</i>	<i>Factors</i>	<i>Sample items</i>	<i>Number of items</i>	<i>Response scale</i>
Alexithymia Scale for Children (ASC; Fukunishi et al., 1998)	Japanese (translated into English)	difficulty expressing feelings; difficulty relating to others	“Finds it hard to describe how he/she feels about others.” “Gets along well with other children.”	12	3-pt. Likert
Alexithymia Questionnaire for Children (AQC; Rieffe et al., 2006)	Dutch (translated into English)	difficulty identifying feelings; difficulty describing feelings; externally oriented thinking	“I don’t know what’s going on inside me.” “I find it difficult to say how I feel inside.” “It is important to understand how you feel inside.”	20	3-pt. Likert
Emotional Awareness Questionnaire (EAQ; Rieffe et al., 2005)	Dutch, English	differentiating emotions; verbal sharing of emotions; bodily awareness; acting out emotions; analysis of emotions; attending to feelings of others	“When I feel upset, I often talk to someone about it.” “My body feels different when I am upset about something.” “When I am angry or upset I try to understand why.” “If a friend is upset, I just look the other way.”	30	3-pt. Likert
Children’s Alexithymia Measure (CAM; Applegate et al., 2005)	English	preliminary instrument, still in piloting stage	“Has trouble finding words or getting words out when talking about his/her own feelings.” “Complains about stomach aches when experiencing emotional situations.”	32	4-pt. Likert

emotions had a poor internal consistency (Cronbach’s $\alpha = .49$) (Jellesma et al., in press). This scale is currently being revised.

One other instrument to measure alexithymia in children, the Children’s Alexithymia Measure (CAM; Applegate et al., 2005), is currently under development in the United States. The CAM is designed for English-speaking children ages 6 to 14. The CAM is completed by a child’s parent or other caregiver and identifies observed language-related behaviors of the child. The preliminary CAM has 32 items rated on a 4-point Likert scale (1 = almost never – 4 = almost always). Psychometric data on the instrument are not yet available.

In summary, the majority of research on alexithymia has been conducted with adults and adolescents. The existing research on children and young teens suggests that difficulties with awareness and expression of one’s own feelings has been associated with difficulties in interpersonal relationships. Development of emotional language and expression of emotions are closely related to pragmatic language skills.

LANGUAGE IMPAIRMENT AND SOCIAL AND EMOTIONAL FUNCTIONING

Children with language impairments face special challenges in meeting the demands of understanding and expressing longer and more complex language needed for listening, reading, speaking, and writing. In children, specific language disorder is characterized by a tendency to “exhibit significant limitation in language functioning that cannot be attributed to hearing, oral structure and function, or general intelligence” (Leonard, 1987, p. 1, as quoted in Nelson, 1998, p. 97). Added to these demands, many children who experience language impairments also experience pragmatic difficulties that negatively impact effective social interactions, though they do not justify a diagnosis of emotional or behavioral disorder.

Many children with language impairments lack a full range of positive and negative emotions and have difficulty regulating their emotions by monitoring, evaluating, and modifying reactions in response to internal and external cues (Fujiki, Brinton, & Clarke, 2002). Researchers report that students with language impairment show more difficulty accessing communication and participating fully in social interactions than do their typically developing peers (Brinton & Fujiki, 1999; Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993). They make fewer communication initiations, respond less frequently to their conversational partner’s initiations, and interact more frequently with adults rather than with peers (Rice, Sell, & Hadley, 1991).

Language problems have also been associated with behavior and social problems. In studies using teacher ratings, students with specific language impairments were described as having more behavior problems and poorer social skills than their typically developing peers (Fujiki, Brinton, & Todd, 1996), and being more withdrawn, reticent, and impulsive (Fujiki et al., 2002; Fujiki, Brinton, Morgan, & Hart, 1999). In studies of peer relationships, children with specific language impairments were less accepted by peers; had more difficulty forming and maintaining friendships; and had fewer friends in play, lunch, and after-school activities (Fujiki, Brinton, Isaacson, & Summers, 2001; Gallagher, 1993; Gertner, Rice, & Hadley, 1994).

A relationship between maltreatment and reduced language skills has been reported in the literature. Preschoolers who experienced maltreatment scored more poorly on language comprehension tests measuring knowledge of vocabulary and syntax when compared to typically developing children (Culp et al., 1991; Fox, Long, & Langlois, 1988). Furthermore, this finding was stronger for children with neglect rather than abuse, suggesting reduced language input as a contributing factor. Toddlers who have experienced maltreatment also show reduced verbal expression characterized by a more limited vocabulary and shorter mean length of utterance (Coster, Gersten,

Beeghly, & Cicchetti, 1989; Culp et al., 1991). In conversation, children who experienced maltreatment were observed to participate for social purposes with less frequency, to use less language in their interactions, and to sustain conversation over fewer turns than their typically developing peers (Coster & Cicchetti, 1993; Coster et al., 1989). The content of their language was found to be less varied and more repetitive, with a focus on the here and now. Overall, they made fewer references to their own activities and feelings (Coster & Cicchetti, 1993; Coster et al., 1989).

Although it is clear from these studies that many children with language impairment experience more social difficulties than do their typically developing peers, little is known about the extent to which children who have language impairment also have alexithymia. Some children with language disorders have been found to display some of the characteristics associated with alexithymia. For example, children with language impairment may be less skilled than children with normal language at identifying vocal cues of emotion (Courtright & Courtright, 1983) and interpreting facial cues of emotion (Spackman, Fujiki, Brinton, Nelson, & Allen, 2005; Timler, 2003). In addition, children with language disorders have been found to be less skilled in understanding how their communication partners will feel in response to situational cues (Timler, 2003). Ford and Milosky (2003) found that although students with language impairment were able to label emotions, they had difficulty interpreting character motivations and intentions when presented with narratives. They also confused characters' positive and negative emotions at a significantly higher rate than did their typically developing peers.

For some children with language impairment, the intertwined difficulties with comprehending and using language, reading non-linguistic cues of emotion, and gaining insight into a speaker's perspective and intentions contribute to higher levels of breakdown in social communication. This may be further complicated when children have difficulty understanding and expressing their emotions.

Co-occurrence of Communication, Emotional, and Behavioral Problems

Communication problems also may co-occur with diagnosed emotional/behavioral problems (Gallagher, 1999). Baltaxe and Simmons (1990) reviewed the literature and estimated that as many as one half of adolescents with language diagnoses are also diagnosed with a co-occurring psychiatric disorder. From another perspective, studies of psychiatric populations have found an even greater number of children and adolescents with coexisting communication problems (Camarata, Hughes, & Ruhl, 1988; Prizant et al., 1990).

The relationship between communication disorders and psychiatric disorders is complex and varied. Researchers attempting to characterize the relationship have proposed several possibilities (Gallagher, 1999; Prizant et al., 1990; Westby, 1999). Problems with comprehension and expression due to limitations in language skill may contribute to emotional and behavioral difficulties. In contrast, emotional and behavioral difficulties might result in withdrawal, with reduced opportunity and participation for growth in language. Language and social difficulties may also emerge from the same underlying process, as in the case of pervasive developmental disorder, or may develop independently over time in response to a child's interaction with his or environment and through social interactions. Language disorders have been associated with difficulty in relationships with peers and loneliness (Asher & Gazelle, 1999).

The prevalence of students who have unmet emotional communication needs and who have been involved in violence has been documented (Sanger, Moore-Brown, Montgomery, & Hellerich, 2004). However, the extent to which these adolescents may also have alexithymia has not been examined. Furthermore, the intervention strategies for working with this population are not well established. In response to the complexity of early and multiple exposure to traumatizing events, interventions that focus on emotional regulation, relatedness with others, and increased competencies have been designed but not yet evaluated (Ford, 2005).

In summary, these studies support the notion that for many students with language impairment, social interaction problems coexist with problems processing language structure and meaning. Although not all children with language impairment experience social problems, for many, the two problems are interwoven in a complex relationship that varies across communication contexts and partners. Although emotion and communication have been linked in the literature on children with language impairment, no references about coexisting language disorders and alexithymia were found.

FRAMEWORK FOR INTERVENTION WITH CHILDREN WITH ALEXITHYMIA

There is only a small literature about intervention with people with characteristics of alexithymia. The literature that exists is almost exclusively about intervention with adults, including art therapy to help adults express their feelings (Heiman, Strnad, Weiland, & Wise, 1994) and group therapy to help members learn feeling identification and expression through modeling by other members (Kleinberg, 2000; Swiller, 1988).

Components of curricula designed to address emotional competence and socioemotional interventions may serve as strategies to address characteristics of alexithymia. Skills of emotional competence include "awareness of one's emotional state..., ability to use the vocabulary of emotion and expression..., (and) ability to realize that inner emotional state need not correspond to outer expression" (Saarni, 1999, p. 5). Socioemotional interventions are defined as those that address "self-concept, affect, emotional resilience, peer relations, social withdrawal, social status, social competence, and antisocial behavior" (Merrell, 2002, p. 143).

Three programs designed to address socioemotional development in children are the Promoting Alternative Thinking Strategies curriculum (PATHS; Greenberg & Kusché, 1993), the Social-Emotional Intervention for At-Risk 4-Year-Olds (Denham & Burton, 1996), and the School Intervention Program (SIP; Hyter, Atchison, & Blashill, 2006) (see Table 2 for summary). These interventions offer a number of activities that may be useful for intervention with children with characteristics of alexithymia.

Efficacy studies have been reported for the first two programs. Joseph and Strain (2003) summarized three randomized trials of the PATHS curriculum with children who were deaf, children receiving special education services, and children in general education classrooms (Conduct Problems Prevention Research Group, 1999; Greenberg & Kusché, 1998; Kam, Greenberg, & Kusché, 2004). Children who participated in the PATHS curriculum were reported to demonstrate less aggression and less disruptive behavior and to use appropriate expression of emotions (as reported in Joseph & Strain). The Social-Emotional Intervention for At-Risk

Table 2. Selected social–emotional curricula.

<i>Instrument</i>	<i>Description</i>
Promoting Alternative Thinking Strategies (PATHS; Greenberg & Kusché, 1993)	Developed for elementary-aged children who are deaf; has been adapted for general classrooms. The curriculum has three units: readiness and self-control (12 lessons), feelings and relationships (56 lessons), and interpersonal cognitive problem solving (33 lessons). The PATHS curriculum has been researched with three randomized studies.
Social–Emotional Intervention for At-Risk 4-Year-Olds (Denham & Burton, 1996)	Developed for use with preschool children. The 32-week intervention includes three components: relationship building, understanding and regulating emotions (adapted from the PATHS curriculum), and interpersonal cognitive problem solving. The intervention is implemented by the classroom teacher. There has been one (non-randomized) evaluation.
School Intervention Program (SIP; Hyter, Atchison, & Blashill, 2006)	An inclusive classroom-based intervention program for elementary and middle school children. The transdisciplinary framework includes multiple school interventionists such as SLPs, occupational therapists, and social workers. SIP includes eight units, with activities that include literacy, critical thinking, expressive/receptive and social language skills, and executive functions. The evaluation of SIP is in process, and no data is available.

4-Year-Olds was evaluated with (nonrandomized) comparison groups in childcare centers (Denham & Burton, 1996). The preschool students showed less negative emotion and more appropriate peer interactions following their participation in the intervention (Denham & Burton, 1996). No evaluation data is available for SIP, which is currently being evaluated (Hyter et al., 2006).

We propose a framework for intervention that incorporates activities from these three programs, as well as other sources (see Table 3). This framework incorporates literature on emotional competence, intervention for socioemotional development, and trauma processing. The framework details three goals for intervention with children with characteristics of alexithymia, including to (a) increase internal awareness and connect physical experience and emotions, (b) increase awareness of one's own emotional state, and (c) connect emotion to expression. Specific strategies to achieve each of these goals are described in the following sections.

Increase Internal Awareness and Connect Physical Experience and Emotions

It is important for children to become increasingly aware of their internal experience. Because children often experience emotional states as somatic symptoms (e.g., having a stomachache on the first day of school), children need to learn to connect their physical experience to specific feelings. Bodywork (e.g., recognizing one's heartbeat, sweating, flushing, stomachache) can help turn children's attention internally to notice what is going on within them. This may also be accomplished through connecting their physical states to specific feelings and learning methods to calm themselves when

they are feeling upset or anxious. Sensorimotor psychotherapy (Ogden & Minton, 2000) is an intervention that incorporates sensorimotor processing components along with the more traditional cognitive and emotional components of trauma therapy.

Increase Awareness of Own Emotional State

Difficulty identifying one's own feelings precludes effective expression of those feelings to others. Intervention at this level must help children learn to identify their feelings and become increasingly able to distinguish the various feelings they experience. Strategies for teaching recognition of affective states may include drawing the child's attention to salient features of expression, then modeling language to express those feelings (Giddan, Bade, Rickenberg, & Ryley, 1995; Timler, 2003). For example, SLPs might observe facial expressions (e.g., "Wow, look at your smile, I bet you're really happy"), body expressions ("Your stomping tells me you are mad"), vocal affect ("You're using your quiet, almost crying, voice. I think you're sad"), and labels or words in the context of affective experiences ("I'm scared"). Children also may learn to identify feelings by role playing various feelings (Feshbach & Cohen, 1988); identifying feelings of characters in stories, videos, or photos; or using art therapy (c.f. Gerber, 1994).

The PATHS curriculum (Greenberg & Kusché, 1993) provides children with *feelings strips* to be placed on their desks. The feelings strip has the unfinished sentence, "I feel..." Children accumulate a variety of feelings faces that they can insert into their feelings strips to describe their feelings throughout the school day. The PATHS curriculum further builds on this foundational learning by helping children differentiate *comfortable* (e.g., content, compassion, excited, curious) and *uncomfortable* (e.g., nervous, jealous, malicious, humiliated) feelings. In this way, children are taught physical cues for various feelings as they learn to become aware of their own feelings.

The PATHS curriculum uses a continuum that teaches children first to identify single feelings and then to learn to recognize multiple feelings at a particular moment. A developmental hierarchy begins with *primary* emotions such as "joy, sadness, fear, disgust, interest, and anger" (Lewis, 1992, p. 13) and progresses to more sophisticated *complex* emotions that require self-reflection such as "empathy, sympathy, envy, guilt, shame, pride, and regret" (p. 13). A newly developed curriculum, Trauma Affect Regulation: Guide for Education and Therapy (TARGET–A; Ford & St. Juste, 2006), teaches children and adolescents to recognize and identify their reactive emotion as well as their more enduring main emotion at a particular moment so as to help them develop coping skills for managing their alarm reactions.

Connect Emotion to Expression

Difficulty expressing feelings may persist even when a child knows more about what he or she is feeling about a particular situation. Approaches for fostering growth in understanding and using emotional expressiveness work to increase engagement and reciprocal interactions, reflect on internal states and label them, assess situational variables, and reflect on one's own and others' perspectives (Giddan et al., 1995; Greenspan & Lewis, 2002; Hyter & Self, 1999). Drawing pictures can help children and adolescents express feelings non-verbally in preparation for addressing them verbally (Gerber, 1994).

Expressing emotion through role playing, pretend play, and acting out dramas allows students to explore specific emotions

Table 3. Framework for intervention with children with alexithymia.

<i>Goal</i>	<i>Problem</i>	<i>Strategy</i>
Connect physical experience and emotions	distress expressed as somatic symptoms	<ul style="list-style-type: none"> • reflect on physiological states (bodywork), e.g., recognize heartbeat, sweat, stomachache, flushing • recognize cognitive states, e.g., racing thoughts • practice calming activities (Greenberg & Kusché, 1993) • match physical states with feelings
Increase awareness of own emotional state	difficulty identifying feelings	<ul style="list-style-type: none"> • differentiate comfortable and uncomfortable feelings (Greenberg & Kusché, 1993, PATHS) • distribute feelings faces for each new feeling learned (Greenberg & Kusché, 1993) • use a feelings strip and feelings faces at desk (Greenberg & Kusché, 1993) • describe emotions through games • identify feelings in video, stories, pictures, and photographs • role play feelings • sing songs about feelings (Feshbach & Cohen, 1988) • identify feelings using a feelings chart • teach physical and behavioral cues for identifying feelings • distinguish reactive and main emotions (Ford et al., 2006) • model vocal, facial, and bodily characteristics of emotions (Giddan et al., 1995)
Connect emotion to expression	difficulty expressing feelings	<ul style="list-style-type: none"> • utilize special modalities (e.g., art, music, pantomime, dance, rhythmic activities) • draw <i>before</i>, <i>during</i>, and <i>after</i> pictures for specific incidents (Gerber, 1994) • write poetry • engage in pretend play and acting out drama • teach vocabulary to differentiate a continuum of emotions • teach vocabulary, sentence formation, and narrative structures to connect emotions to events • model paralinguistic (tone and volume) and nonlinguistic expressions of emotions (facial expression, gestures, and posture); develop skits for specific feelings; others guess the feelings (Hyter, Atchison, & Blashill, 2006) • reflect of internal states, expression of emotions, and contextual variables in narratives (Westby, 1994)

associated with different roles and situations. Clinicians may scaffold students to examine the character motivations and emotional state, and model uses of language and expression through play participation. Role-playing activities can be tightly scripted to teach language and expressiveness in specific social situations (Gray, 1995) or can be more open-ended rehearsals of hypothetical situations. One structured activity included in the SIP curriculum involves a group of children creating a skit from an index card listing multiple feelings and a location, and then having other children guess at the feelings being portrayed (Hyter et al., 2006). More expanded dramas can be used to integrate feelings in response to other characters and events. Acting out stories from books, TV shows, and movies reduces the demand to create a story line while still exploring the motivations, beliefs, language, and emotions of characters.

Narratives offer opportunities to support language use, emotional expression, and social-cognition in an integrated social and academic context (Westby, 1994). During reading and listening activities, students can be supported to comprehend and make sense of character perspectives in the context of story events through the use of questions that probe linguistic and socioemotional awareness. Questions that guide students to reflect more deeply on feelings and organize these ideas using language may include requests to describe, report, predict, and interpret feelings and motivations.

Similarly, oral and written storytelling activities allow students to share their personal narratives while developing integrated language skills and expressiveness in the process. Stories (either personal or fabricated) also create an avenue for affecting the emotions of an authentic audience. When producing stories, students relate their characters' feelings and connect them causally to a sequence of events. Scaffolding in narrative production tasks can help students to take their audience's perspective as well.

In summary, although there are no manualized treatment interventions for children with alexithymia, there are published descriptions of curricula that may be used to address socioemotional difficulties. There are also a number of therapeutic activities that can be used to target characteristics of alexithymia and/or emotional expressiveness difficulties. These activities are experiential, may be used either in the classroom or in pull-out services, and may be implemented individually or in group settings.

CONCLUSION

This article introduced the concept of alexithymia in the context of socioemotional development, emotional expressiveness, and

language impairment. Although alexithymia is not limited to children who are or were maltreated, these children are at increased risk for both language impairment and alexithymia. Assessment and understanding of alexithymia may be critical for working with children's socioemotional issues. As Redmond (2002) discussed in detail, it may be difficult to accurately measure socioemotional behavior problems in children with language impairments. This concern supports further examination of the relationship between alexithymia and language impairments. The article provided a framework for intervention with children with characteristics of alexithymia. This proposed intervention framework builds on knowledge about socioemotional and language development. Further research is needed to learn which intervention strategies are effective, and for which children.

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