The Development of Social Competence Among Persons with Down Syndrome: From Survival to Social Inclusion

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Contents

Abstract

Socially competent behavior requires the effective coordination of multiple social-cognitive and emotion processes and contextual factors in order to adequately meet the demands of a particular social situation. The emerging evidence suggests that limitations in the child's social-cognitive processing as well as inadequate contextual supports may compromise the development of social competence among children and adolescents with Down syndrome (DS). Research is presented on key social-cognitive processes and contextual influences that may hinder or facilitate the development of social competence among children and adolescents with DS. The review is organized around key developmental tasks thought to reflect behavioral indices of social competence

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(i.e., parent–child interactions, peer relations, adolescent friendships, and community integration) from infancy through to adolescence.

1. INTRODUCTION

Down syndrome (DS) occurs as a result of the presence of all or a portion of an extra copy of chromosome 21 and is the most common noninherited ''organic'' cause of mental retardation. The genetic anomaly of DS has powerful and specific influences on the development of the child and also inadvertently affects significant people (i.e., parents, siblings, teachers, and friends) in the child's life. The unique profile of disabilities associated with DS includes medical, motor, social, affective, and cognitive features. These individual factors may interact with contextual factors in the child's family, peer group, school, community, and culture to determine variability in development. Of particular interest is the wide variability in social adaptation among people with DS that cannot be accounted for by IQ alone.

In this chapter, we address the need to adopt a more differentiated view of social abilities among persons with DS. We propose that the friendly, sociable, and charming behaviors commonly observed among children with DS may reflect a cursory form of social competence. Whereas basic processes such as social interest are necessary, they are not sufficient for the development of social competence. Socially competent behavior requires the effective coordination of multiple social–cognitive and emotion processes and contextual factors in order to adequately meet the demands of a particular social situation. The emerging evidence suggests that limitations in the child's social–cognitive processing as well as inadequate contextual supports may compromise the development of social competence among children and adolescents with DS.

We begin by making the case that social adaptation is a primary concern in the lives of children with DS and we identify social competence as a relevant construct, defining it within developmental and socio-ecological perspectives. Research is presented on key social-cognitive processes and contextual influences that may hinder or facilitate the development of social competence among children and adolescents with DS. The review is organized around key developmental tasks thought to reflect behavioral indices of social competence (i.e., parent–child interactions, peer relations, adolescent friendships, and community integration) from infancy through to adolescence. Where research evidence is lacking, we identified potential research opportunities. We conclude with a discussion of the significance of considering risk and protective factors, multiple systems of influence, and the primacy of social development in future research with persons with DS.

2. THE CASE FOR SOCIAL COMPETENCE RESEARCH ON DS

An existing impressive literature on the cognitive consequences of DS includes a detailed analysis of the specific deficits found in working memory and expressive language, and the propensity of early onset dementia in affected individuals (Jarrold, Baddeley, & Phillips, 2002; Oliver & Holland, 1986; Tager-Flusberg, 1999). However, relatively little attention has been paid to how the cognitive sequelae of DS may affect social cognition and, more generally, social adaptation. This oversight is perplexing given the historical as well as contemporary views of cognitive development as goal oriented and socially embedded (Carpendale & Lewis, 2004; Carpendale & Muller, 2003; Piaget, 1929, 2000; Sameroff, 1990). Moreover, current trends in research on social neuroscience suggest that emotions and social factors may directly affect the way we attend to and process information and ultimately, our cognitions (Phelps, 2005).

The implication for persons with DS is that atypical cognitive development will likely have repercussions on social and emotional development and vice versa. Consistent with this hypothesis, the preliminary evidence suggests that emotion processes and social-cognitive abilities are impaired among persons with DS and worthy of study on their own right (Abbeduto & Murphy, 2004; Abbeduto et al., 2006; Williams, Wishart, Pitcairn, & Willis, 2005). Considering the reciprocal influence between cognitive and social development among persons with DS is promising because it highlights that their development is not simply constrained by the effects of their chromosomes but also influenced by social and environmental factors.

Cognitive development in DS is best considered within a goal-oriented context in which ''cognitive tools'' are shaped by, as well as serve, social goals for these individuals. Social competence is a construct that readily captures the reciprocal relation between the individual's ''tools'' for adaptation (i.e., cognitive, emotion, and social processes) and the social contexts within which these must be applied. Within this framework, social competence is pertinent to understanding developmental adaptation throughout the lifespan and is particularly relevant in the lives of persons with DS who must strive for social inclusion and participation.

3. DEFINING THE CONSTRUCT OF SOCIAL COMPETENCE

3.1. Cognitive influences

Social competence is a construct that captures the dynamic relation between cognitive and social factors as they relate to adaptive development. Figure 3.1 depicts a hypothetical model of social competence in which
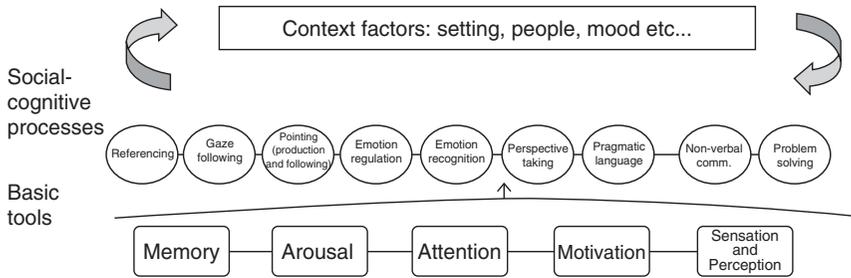
Figure 3.1   A hypothetical model of social competence.

the construct of social competence is conceptualized as incorporating characteristics of individuals and their environments whereby these two sources of influence are transactional (Guralnick, 1996; Rose-Krasnor, 1997; Sameroff, Seifer, & Bartko, 1997; Wyman, Sandler, Wolchik, & Nelson, 2000). Within this framework, social competence involves the active and skillful coordination of multiple processes and resources available to the child. Basic sensory/perceptual and cognitive abilities (i.e., attention, memory, and motivation) are fundamental to the development of higher-order social–cognitive processes. Emotion recognition, sharing attention about an object, and understanding that others' thoughts and feelings are different from one's own are only a few of the higher-level social abilities involved in the development of social competence. Each of these abilities is necessary and builds the foundation for social competence. However, these abilities are not sufficient for socially competent behavior to emerge. A child must be able to coordinate his or her social–cognitive abilities along with available contextual resources to meet developmental goals in an adaptive way.

Higher-order coordination of social abilities is a critical component of social competence because it permits children to appropriately match their social goals with the demands of the social context (Bost, Vaughn, Washington, Cielinski, & Bradbard, 1998; Guralnick, 1993, 2005). Accordingly, social competence entails the development of appropriate strategic processes (i.e., techniques) and resources to tackle the social demands of a particular task in a particular context. Social learning through mediation and scaffolding experiences will likely influence the development of the strategies or "techniques" that are particularly useful or meaningful within a specific sociocultural context. Thus, the beliefs and practices of parents and other relevant social mediators (e.g., teachers) will play a significant role in shaping social competence.

Social competence is both a developmental phenomenon that can be measured over the course of a child's development (i.e., ontogenesis) as well as a characteristic of a particular social encounter where the time scale is in the order of seconds/minutes (i.e., microgenesis). Thus,

continuities and discontinuities in the development of social competence are expected as children are better able to coordinate abilities and take advantage of resources with increasing age but may be less competent at certain developmental stages or in specific social contexts.

3.2. Social–environmental influences

According to the social–bioecological model of development, children are embedded within various sociocultural systems that interact to either support or hinder their development (Bronfenbrenner, 1977, 1979, 2000). These dynamic systems are conceptualized as different spheres of influence and include those that have a distal (i.e., indirect) effect and those that have a proximal (i.e., direct) effect on the individual (Cicchetti & Toth, 1997). Indirect influences are thought to emanate from macrosystems or global–political contexts, mesosystems, which encompass the patterns, beliefs, and values of the culture in which the child exists, and the exosystems which comprise the various formal and informal social structures in the child's environment, including the neighborhood, schools, and local government policies on education and health (Bronfenbrenner, 1977, 1979; Cicchetti & Toth). Direct influences include the children's interactions with significant persons or events in their lives (e.g., sensory and perceptual input, parenting customs, sibling and peer relations, and teaching practices). Risk and protective factors may be present throughout the course of development in each of the systems and may operate through distal and/or proximal effects to influence the child's development in adaptive or maladaptive ways (Bronfenbrenner & Ceci, 1994).

For example, in infancy, social competence may be evident within the parent–child relationship as consistency in engaging with, and responding to the other establishes a secure and stable attachment that is integral to the infant's very survival. Later in development as the child is increasingly able to control her or his own behavior and choose environments, social competence appears to transform into something more akin to a personal characteristic of the child (Bronfenbrenner, 1999; Sroufe & Jacobvitz, 1989). However, variability in the availability of social resources and in the quality of the parent–child relationship jointly influence a child's ability to generate and coordinate flexible, adaptive responses to demands and capitalize on social opportunities in the environment (Waters & Sroufe, 1983).

Over both ontogenic and microgenic time, key aspects of social exchanges are actively assimilated and accommodated by the child in order to achieve greater flexibility and compatibility with regard to matching social-cognitive strategies with contextual demands in subsequent interactions (Piaget, 2000). The benefits of fine tuning social strategies with social expectations is

the achievement of more differentiated and self-directed social goals such as parent–child interactions, peer relations, intimate friendships, and community integration.

4. STATUS OF EVIDENCE ON SOCIAL COMPETENCE IN DS

The review of research studies is organized around key developmental tasks that are considered to be behavioral indices of social competence. Figure 3.2 depicts four developmental tasks that will be the focus of the present review; each was selected to highlight different periods in development—those of infancy, middle childhood, and adolescence. In infancy, the quality of the parent–child interaction may be a particularly sensitive index of social competence as the interrelations between infant cues and parent sensitivity to the infant's cues improves the odds of survival as well as the social–emotional development of the infant. Peer interactions may be especially salient in middle childhood whereas in adolescence intimate relationships and community integration are paramount. Within each task, the relevant research on social-cognitive and emotion processes in children with DS is discussed. The goal is to identify research in DS that is relevant to understanding social competence in these individuals, identify
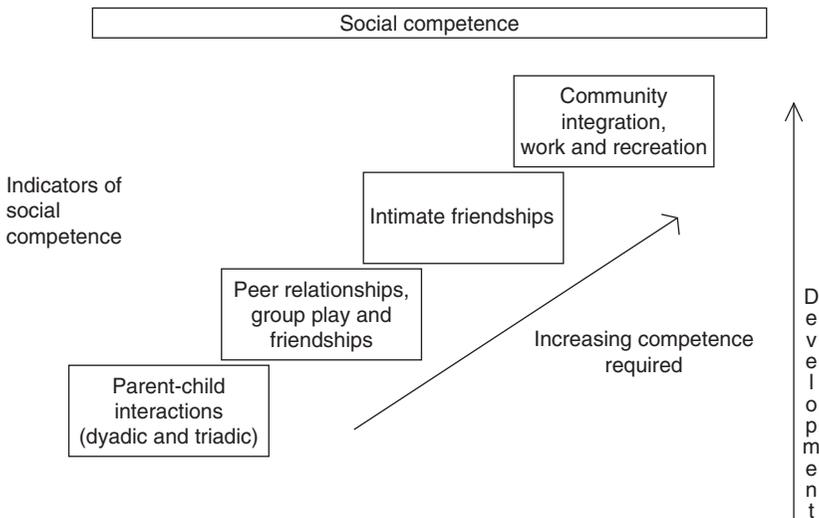

Figure 3.2 Behavioral indicators of social competence at different periods of development.

potential gaps in the research literature, and suggest future directions for research in the area.

4.1. Infancy and the preschool years: Dyadic and triadic interactions

Compared to other newborn animals, human infants could be described as "premature" since they rely almost exclusively on their caregivers for sustenance and nurturance. The implication is that infants' survival and ultimately their social development are intricately linked to protective mechanisms that are inherent in the parent–child caregiving relationship (Barber, 2000). Thus, a healthy parent–child attachment increases the likelihood of behaviors that promote proximity between the dyad. Children learn early in life to use strategies, such as crying, smiling, grasping, or calling in order to keep the parent close by and ensure their survival and security. Physical closeness between the dyad increases the likelihood that parents will be aware of and respond to cues of distress and hunger as well as social bids from their child (Bowlby, 1969). The caretaking practices of the Kung San in Africa illustrate the effectiveness of physical proximity on parental responsiveness. The Kung San mothers constantly carry their infants and are able to respond to every distress cue the baby makes within 10 s (Barr, Konner, Bakeman, & Adamson, 1991). Children who have their basic needs met have a secure base (the parent–child relationship) from which to explore their environment and remain confident that their needs and social bids will not be ignored or misinterpreted (Ainsworth, 1973; Bowlby, 1969). Immediacy and compatibility of parental response may be particularly important to at-risk infants (Barr et al., 1991).

Secure infants are engaged with their caregivers, are upset by a separation from their caregivers, but are easily consoled upon reunion. The essence of secure attachment behavior is thought to occur when a balance is struck between an infant moving toward the world and toward the caregiver during times of distress (Bowlby, 1973). The caregiver is responsible for responding to the infant's cues, alleviating the infant's distress, and providing socio-emotional and cognitive growth while the child is similarly active and responsible for providing clear cues and responses to the caregiver's bids. This formative and formidable dyadic relationship creates a solid foundation for all future social relationships (Van Hooste & Maes, 2003). If either the child or the parent lacks the ability to engage with or respond to the other adequately, the quality of the relationship may deteriorate. Alternatively, compensatory strategies may be employed by either the child or the parent to establish adequate reciprocity and emotional nurturance. Thus, in infancy, social competence may be defined in terms of the quality of the parent–child relationship.

4.1.1. Risk and protective factors associated with DS

Compared to typically developing (TD) infants, those affected by DS develop at a slower rate, show uneven development across domains, have motor challenges, and experience more frequent hospitalizations for health concerns (Cicchetti & Ganiban, 1990; Cooley & Graham, 1991; Dunst, 1998). Specifically, these infants are challenged by impairments in motor control, information processing, language acquisition, emotion recognition, and affect regulation (Kasari, Freeman, & Hughes, 2001; Knieps, Walden, & Baxter, 1994; Moore, Oates, Hobson, & Goodwin, 2002; Wishart & Pitcairn, 2000). Any and all of these risk factors may interfere with the infant's ability to use the parent–child relationship to meet basic needs and desires.

Despite these problems, the parent–child relationship may be buffered by several protective factors. For example, infants with DS look at faces and may be socially engaging due to their attractive physical attributes and interest in people (Carr, 1994; Fidler, 2003; Hornby, 1995; Kasari, Freeman, Mundy, & Sigman, 1995). Certain aspects of social–emotional communication may be intact among infants with DS despite cognitive impairments (Kasari et al.). As compared to children with other types of developmental disorders, children with DS have fewer externalizing behaviors that might alienate or unduly stress their parents (Kasari & Hodapp, 1996). Parents of children with DS achieve scores on measures of parental stress similar to those of parents of TD children, and significantly lower than those of parents of children with autism or other undiagnosed etiologies of mental retardation (Kasari & Sigman, 1997; Seltzer, Krauss, & Tsunematsu, 1993). The disability of DS is visible, not heritable and widely recognized relative to other developmental disabilities. Many families of children with DS receive support from their extended family members and wider community and report being cohesive and harmonious (Kasari & Hodapp).

4.1.2. Parent–child interactions

a. Dyadic interactions. The parent–child interaction is the primary social learning context for infants. A variety of emotion and social-cognitive processes, such as emotion regulation and recognition, referencing, gaze following, pragmatic language, and nonverbal communication are first evident in the parent–child interaction. Between the second and third month of life, there are significant developments in behavioral synchrony, turn taking, and reciprocity between the parent and the infant, precursors to a healthy attachment (Ainsworth, 1973; Fogel, 1977; Schaffer, 1977; Schore, 1994). However, infants with DS show less predictability, clarity, and frequency in social cueing and consequently, their parents are more likely to misinterpret, overinterpret, and/or occasionally miss cues. For example, infants with DS displayed dampened and fewer smiles, less eye contact, and less excited waving of their arms and legs, signs that may

indicate a decreased intensity of emotional expressiveness toward the parent (Cicchetti & Sroufe, 1978; Emde, Katz, & Thorpe, 1978). At 12–19 months, children with DS showed diminished emotionality and separation distress as compared to their CA-matched peers (Thompson, Cicchetti, Lamb, & Malkin, 1985). In one study, seven-month-old infants with DS were described as more ''difficult to read'' than TD infants of comparable chronological age (Hyche, Bakeman, & Adamson, 1992). In addition to diminished social-communicative behaviors with their mothers, infants with DS show fewer approach behaviors, less persistence, lower thresholds for sensory stimulation, and more passivity during play (Bridges & Cicchetti, 1982; Linn, Goodman, & Lender, 2000).

Difficulty in providing or responding to cues within the dyadic interaction will affect the development of social-cognitive processes and may affect the synchrony or compatibility in the interaction. Under these conditions, parents may focus their attention to structuring, scaffolding, and controlling the interaction. For example, mothers of 17-44 month-old children with DS may exert more control and direction during naturalistic play than mothers of same-aged TD children (Cielinski, Vaughn, Seifer, & Contreras, 1995; Landry & Chapieski, 1990; Mahoney, Fors, & Wood, 1990; Mahoney & Robenalt, 1986; Pino, 2000). The increased structure and guidance improves functional use of objects (Maurer & Sherrod, 1987), compliance with requests (Landry, Garner, Pirie, & Swank, 1994), and activity during play (Mahoney, 1988).

Although beneficial for cognitive growth fostering (Crawley & Spiker, 1983), a focus on teaching and managing the parent–child interaction may result in a trade-off on socio-emotional growth (Ganiban, Barnett, & Cicchetti, 2000). For example, infants with DS show less intense and visible distress upon separation from their parent and brief recoveries following the return of their parent, and do not seek to maintain contact and require little to no comforting (Thompson et al., 1985; Vaughn et al., 1994). The interaction pattern between parents and children with DS during the Strange Situation Task could not be classified within the traditional attachment style framework (Vaughn et al.).

Although disruptions in dyadic interactions and attachment are not evident in all parents of and children with DS (Iarocci, Virji-Babul, & Reebye, 2006), there is evidence to suggest that certain parent–infant dyads may benefit from early intervention designed to foster a balanced style that incorporates high responsiveness and scaffolding as well as supportive praise in order to meet both the cognitive and the emotional needs of infants with DS (Bornstein & Tamis-LeMonda, 1989; Spiker, Boyce, & Boyce, 2002; Vaughn, Contreras, & Seifer, 1994).

A balanced approach designed to meet both the cognitive and the emotional needs of infants with DS may prevent early social-cognitive and emotion processing difficulties. For example, toddlers with DS looked

at their parents less frequently and for a shorter duration and exhibited a different pattern of social referencing than did mental age (MA)-matched toddlers without DS (Knieps et al., 1994). Less reliable and effective referencing behaviors may indicate that toddlers with DS are failing to attend to some of the crucial information needed to understand and regulate emotions. For example, Williams et al. (2005) found that a group of children with DS (mean MA of 4 years) performed significantly poorer on emotion recognition tasks than both MA-matched TD children and children with nonspecific intellectual disabilities (ID).

In addition, preverbal communication such as gaze monitoring that involves subtle changes in tracking and sharing attention with the caregiver may be qualitatively different than those in TD children (Fischer, 1988). For example, the onset, use, and subsequent development of eye gazing may differ in important ways (Berger & Cunningham, 1981). Children with DS appear to use eye gaze predominantly for "game" or "personal" purposes whereas TD children use their eye gaze predominantly for "referential" information to refer to another person or object (Jones, 1980). More research is needed to explore whether children with DS are lacking experience with eye gazing for labeling emotions and objects and, if so, how this might affect their emotion and social understanding.

b. Triadic interactions. Dyadic interactions in which the child and a communicative partner share attention in face-to-face interactions are the precursors to later sharing of attention toward inanimate objects or other significant adults and peers (Carpendale & Lewis, 2004). At this stage, the child's face-to-face interactions with parents decrease as more time is devoted to attending to objects. The coordination of attention between objects and parent (or other significant adult) is an important step in a child's learning awareness of, and interest in, significant persons or events. Accordingly, these joint attention episodes provide opportunities for children to learn to point, make requests, direct others' attention, follow others' gaze or point (usually their parent's) to guide their interpretations of an ambiguous event (Klinnert, Campos, Sorce, Emde, & Svejda, 1983; Walden & Ogan, 1988) and make connections between an object and its verbal label (Carpenter, Nagell, & Tomasello, 1998). This stage of development marks the beginning of a gradual process of differentiation between the self and other that culminates in an understanding of others' thoughts and feelings as different from one's own (Carpendale & Lewis).

In contrast to TD children, children with DS may continue to fixate on an adult's emotionally expressive face rather than shifting attention between the adult and a salient play object (Kasari, Sigman, Mundy, & Yirmiya, 1990; Kasari et al., 1995; Ruskin, Kasari, Mundy, & Sigman, 1994). The sustained attention to emotional faces may suggest to the parent that the child is similarly engaged and motivated to interact, yet prolonged attention to the caregiver's face may indicate difficulties with processing faces and has been associated with

language delays in children with DS (Sigman & Ruskin, 1999). Even though these infants look at their mothers for longer amounts of time as compared to TD children of the same MA and language ability (Kasari et al., 1995), this behavior does not bootstrap development to more sophisticated sharing of attention to an object. Instead, these children show fewer social referencing looks to their mothers in ambiguous situations (Kasari et al., 1995) and make fewer attempts to direct their mother's attention across social situations (Fischer, 1987; Landry et al., 1994).

Delays in verbal and nonverbal communication and discrepancies between receptive and expressive language among children with DS may further impact triadic interactions. Fidler and colleagues found that toddlers with DS showed fewer nonverbal, instrumental requests than did TD and DD toddlers matched on MA and that these requests were significantly related to their problem-solving abilities (Fidler, Philofsky, Hepburn & Rogers 2005). Verbal language difficulties in toddlers with DS may have the added adverse effect of reducing parents' use of inner state terms such as desires, beliefs, and feelings that promote the child's understanding of affective and mental states in the self and other (Dunn, Brown, & Beardsall, 1991; Meins et al., 2002; Tingley, Gleason, & Hooshyar, 1994) as well as fostering attachment security within the dyad (Meins, Fernyhough, Fradley, & Tuckey, 2001; Mcquaid, Bigelow, McLaughlin, & MacLean, in press). Thus, the child's communication delays and lower parental expectation with regard to language ability are likely to jointly constrain the development of triadic interactions in young children with DS (Iarocci, McLaughlin, Virji–Babul, & Reebye, 2005).

4.1.3. Systemic risk and protective factors in infancy and preschool years

The quality of dyadic and triadic interactions may vary as a function of family and community resources and supports. During the early developmental years, the family system and parent–infant dyad may be more vulnerable to stressors as it accommodates a new member and renegotiations are necessary in the couple and parent–sibling relationships (Carter & McGoldrick, 1999). The parental subsystem must also accomplish a variety of tasks simultaneously; making sense of a host of medical and other diagnostic information on DS, procuring specialized professionals and services for their child's special needs and the resources to finance them (Guralnick, 2000; Minnes, 1998). It is also a time when parents may experience negative attitudes from health professionals and others in their social networks, particularly with regard to expectations about their child's future (Virji–Babul, Eichman, & Duffield, 2004).

Although social services and early intervention programs are generally accessible to children with DS and their parents, they may not be specialized or integrative. For example, infant development programs are designed to meet the needs of families coping with a variety of developmental disabilities

and thus, are not specific to children with DS (Guralnick, 2000). They offer a variety of specialized professionals (e.g., speech and language pathologists, occupational and physical therapists) who focus on treating specific domains of function such as speech or motor development while teaching parents to adopt highly structured parenting techniques that focus on stimulating cognitive development (e.g., Office of the Provincial Advisor Infant Development Programs of BC, http://www.idpofbc.ca/). An alternate specialized early intervention model that considers the reciprocal nature of the child with DS and his family's well-being and incorporates social competence goals that link skills from across the various domains of function may be more compatible with the goals of parents and supportive to the needs of families. Such a program would target a variety of proximal and distal protective factors and the systems that support the quality of parent–child interactions and family well-being (Iarocci et al., 2006).

4.2. Middle childhood: Peer interactions, group play, and friendships

During the school years, peer relationships play an increasingly prominent role in a child's social development. In TD children between the ages of 3 and 6 years, there is a marked decrease in time spent in direct contact with caregivers and a concurrent increase in time spent with peers (Larson & Verma, 1999; Lewis, Feiring, & Brooks-Gunn, 1988). This trend continues throughout middle childhood as increased availability of social opportunities is coupled with social-cognitive maturation and increased independence and social interest.

Relationships with peers are qualitatively different from those with adults and other caregivers. Children are less likely to make concessions during interactions; thus each partner in the relationship carries equal responsibility for the outcome of the interaction (Hall & McGregor, 2000). Peer relations during unstructured exchanges on the playground, as well as structured interactions in the classroom setting, provide a rich environment for learning fundamental tools for social interaction (Guralnick, 1990; Hartup, 1996). Children learn to modulate aggressive impulses, recognize and share emotions, communicate effectively, lead an activity, and resolve moral issues (Capps, Kasari, Yirmiya, & Sigman, 1993; Damon & Killen, 1982; Guralnick, 1995; Hall & McGregor, 2000; Sigman & Ruskin, 1999). Positive peer relations are predictive of adult mental health and, thus, may also guard against psychopathology in children (Nelson & Dishion, 2004; Serafica, 1990). Thus, the benefits of peer relationships during middle childhood extend beyond cognitive growth and include prosocial and self-development (Freeman & Kasari, 2002).

4.2.1. Peer interactions

Children with DS tend to seek out social interaction and thus appear to have a high level of social motivation or interest (Kasari & Freeman, 2001). They have been described as highly sociable with peers, well behaved in social situations, and active in joining a peer group (Rosner, Hodapp, Fidler, Sagun, & Dykens, 2004). Observations that some children with DS achieve socially related goals (Hodapp, 1996) or charm their way out of difficult tasks (Pitcairn & Wishart, 1994) have led some researchers to question whether sociability and friendliness is a syndrome-specific personality trait among people with DS (Kasari & Hodapp, 1996; Kasari et al., 1995). However, there is limited evidence to support this hypothesis as most studies are based on parent reports of social behavior or peer ratings of social attractiveness rather than observations of sociability or peer-related social competence among children with DS (Capps et al., 1993; Hall & McGregor, 2000; Kasari et al., 1990; Landry & Chapieski, 1990; Sigman & Ruskin, 1999). Direct observations of social behavior among children with DS reveal that these children show an absence of problematic or disruptive behaviors and diminished activity in the classroom and in group play (Guralnick, 1989; Sinson & Wetherick, 1981; Terry-Gage, 1999).

a. Group Play. The majority of peer interactions in middle childhood involve group play, a behavior that promotes cognitive growth, creativity, and understanding of social rules (Guralnick, 1995). Children with DS engage in group play in a limited way (Sinson & Wetherick, 1981) and may experience social isolation at school (Sigman & Ruskin, 1999). When they are playing, children with DS do not appear to derive the same benefits as their TD peers (i.e., they have difficulty learning from social interactions). Specifically, these children have difficulty transferring supported goal-directed play behavior to independent play (Landry, Miller-Loncar, & Swank, 1998). Some researchers have suggested that the difficulty with group play among children with DS may be due to a lack of preference for social over nonsocial play (Sigman & Ruskin). Alternatively, deficits in auditory working memory in children with DS (especially when related to recall of social scripts) may limit play (Bray, Fletcher, & Turner, 1997) contribute to inconsistent play behavior and interfere with peer interactions (Guralnick, 2000).

Gaining entry into a group at play requires the ability to make bids for social interaction. Children with DS may not make sufficient bids (Guralnick, 2002) and require scaffolding from adults in order to effectively entice another child or group of children to play with them. Lack of social initiations may be a key factor that hinders the development of other aspects of social competence among children with DS (Sigman & Ruskin, 1999). The ability to initiate social bids may initially be taught through parent–child interactions

as children who are more likely to initiate social interaction with adults, are also more likely to initiate social interaction with peers (Sigman & Ruskin).

Accepting social bids from others may also be challenging for children with DS and are considerably less receptive to the social bids of others as compared to their TD peers matched on MA (Sigman & Ruskin, 1999). Schlottmann and Anderson (1975) found that children with DS were more likely than MA-matched children with DD to reject another child's bid for play by physically pushing the other child or walking away. After numerous advances proved unsuccessful, the TD children gave up. Once social contact is initiated, however, children with DS appear to maintain the interaction (Sigman & Ruskin).

Requesting items and negotiating with other children about desired toys or objects in a nonconfrontational fashion are challenging skills for children with DS (Guralnick, 1995). Requesting and negotiating are most critical when conflict arises in play and must be resolved in a manner that is judged fair by both parties. Parents often describe their children with DS as less persistent than MA-matched TD children, a quality that may hinder the ability to effectively request objects or negotiate with playmates (Kasari & Freeman, 2001; Pitcairn & Wishart, 1994; Spiker et al., 2002; Wishart, 1996). Mundy and colleagues found that neither cognitive nor language delays explained the diminished verbal and nonverbal requesting (Mundy, Sigman, Kasari, & Yirmiya, 1988). However, expressive language skills may influence the ability of children with DS to negotiate during conflicts (Guralnick, Neville, Connor, & Hammond, 2003). Alternatively, good nonverbal communication and use of gestures may be adequate to model from socially appropriate peers (Sarimski, 1982) and effectively communicate with peers (Franco & Wishart, 1995).

b. Friendships. Friendships represent the apex of peer-related social competence and are distinguished from peer interactions with regard to their increased reciprocity, stability over time, and changes across development (for a review, see Kasari & Bauminger, 1998). Friendships are uniquely characterized by warmth and associated with heightened responsiveness and mutuality, higher levels of play, and increased positive affect (Freeman & Kasari, 2002). True friendships are reciprocal in nature (each member independently identifies the other as a friend) in contrast with unilateral friendships (one-sided nomination). Reciprocal as opposed to unilateral friendships are associated with significant developmental gains (Freeman & Kasari). TD children tend to select friends that are similar to themselves in age, gender, and developmental level and those who share common interests, abilities, and experiences (Farmer & Farmer, 1996; Rubin, Lynch, Coplan, & Rose-Krasnor, 1994). According to parent reports, children with DS prefer younger TD friends (Sloper, Turner, Knussen, & Cunningham, 1990; Strain, 1984).

A majority of children with DS (66–81%) are reported to have friendships. However, friends are likely to be relatives (Carr, 1994) or are less likely to be children that they play with outside of school (Byrne, 1988). In one study wherein children with DS were asked to bring a friend to a play session, 1/3 of children with DS brought a friend who was unilateral rather than reciprocal in nature (Freeman & Kasari, 2002).

Although the majority of children with DS often identify at least one peer "friend," the quality of friendships differs from those of MA-matched TD children (Freeman & Kasari, 2002) and thus, may contribute less to potential developmental gains (Guralnick, 1995). Freeman and Kasari reported that the peers who were nominated as friends by children with DS were often identified as "acquaintances" by their parents. Thus, simply reporting that children with DS have friendships may not be sufficiently informative of the exact nature of those relationships. There is a need to examine whether children with DS derive the same benefits (e.g., emotional support, emergent sense of self) from reciprocal friendships as their TD peers. The preliminary evidence suggests that children with DS may have difficulty making use of friends as resources or positively influencing the behavior of other children in a goal-directed fashion (Guralnick).

Difficulties with developing reciprocal friendships may be due to specific emotion and social–cognitive factors. For example, children with DS do not readily recognize emotions such as fear, anger, and surprise and, at times, may confuse positive emotions with negative ones (Kasari et al., 2001; Williams et al., 2005; Wishart & Pitcairn, 2000). The ability to express affect may also be compromised as children with DS show similar incidents of smiling but briefer and less salient smiles than those of TD children matched on MA (Kasari et al., 1990). The difficulties with recognizing and expressing emotions may become evident during interactions when children must match the other's affect (Guralnick, 2002; Knieps et al., 1994). In addition to understanding others' emotions, children with DS may have limited ability to understand that others have feelings and thoughts that are different from their own (Abbeduto et al., 2001; Binnie & Williams, 2002). A deficit in theory of mind may impede their ability to predict what other children might be feeling or what they are thinking during interactions.

Whereas TD children spend more time with their peers once they enter school and are making greater gains in social competence, children with DS rely on contact with adult caregivers and teachers during the primary school years (Lewis et al., 1988), and are less likely to initiate social interactions with peers. Further, when they engage in social interaction they do so in a limited way and stand to benefit less from the experience. The limited amount and quality of social interaction with peers coupled with less contact with their caregivers may leave children with DS at greater risk for social isolation in the school context (Sinson & Wetherick, 1986).

4.2.2. Systemic risk and protective factors in middle childhood

Two decades ago, the atypical appearance of children with DS was listed as an impediment to social inclusion (Richardson, Koller, & Katz, 1985). However, appearance is no longer associated with amount of social contact in children with DS (Sloper et al., 1990). Similarly, inappropriate behavior in the classroom or on the playground, was predictive of social exclusion of children with DS in earlier research findings (Crawley & Chan, 1982; Guralnick & Weinhouse, 1984). However, more recent studies indicate that, unlike TD classmates, behavioral problems in children with DS are not associated with lower peer acceptance ratings (Laws, Taylor, Bennie, & Buckley, 1996). Accordingly, children with DS receive average ratings of acceptance by their TD peers (Laws et al.). These findings suggest that TD children are aware of differences in their peers with DS and make concessions for unusual or disruptive behavior. This change in behavior toward peers with DS may reflect attitudinal changes at a societal level.

During the school years, the educational system and associated policies are particularly powerful at impacting the development of children, especially for children with DS whose education is more dependent on the system's resources and overall functioning (e.g., special education policies and practices, teaching expertise, and social integration initiatives). Including children with DS in mainstream classrooms in the public school system is not only desirable for most parents and children but also reflects a fundamental social value of acceptance of diversity and inclusion for all children (Rosenthal, 2001). However, research evidence suggests that simply placing children in mainstream contexts does not sufficiently benefit children with/without disabilities (Guralnick, 1996).

Proponents of special education cite research that in segregated settings, children with DS display more appropriate peer-related social interaction and receive more positive guidance from adults (Terry-Gage, 1999) and that more generally children with DD in special education classes are better at playing with peers than those in mainstreamed classrooms (Freeman & Kasari, 2002). However, the variability in play and social competence may be related to the characteristics of the system (teacher scaffolding vs unstructured play) rather than the setting (special education vs mainstream) (Sigman & Ruskin, 1999).

When appropriate teaching strategies are in place in the mainstream setting, children with DS are likely to seek out interactions with their TD peers (Guralnick, 1996; Rynders, Johnson, Johnson, & Schmidt, 1980) and, can be taught effectively to model their social behavior on that of their TD peers (Goldstein & Strain, 1988). The research evidence suggests that peer assistance programs (i.e., where children with DS are matched with TD peers) increase the number of social interactions and friendships experienced by children with DS (Schaefer & Armentrout, 2002). They may also have a

positive impact upon cognitive skills such as pragmatic language use (Knox, 1983). Mentoring and tutoring by peers often teaches leadership and compassion in helpers and thus, may improve the social development of TD children as well as that of children with DS (Beveridge, 1996; Rynders & Low, 2001; Sinson & Wetherick, 1981). Research is needed to explore the potential risk and protective factors that operate in various social systems that impact the social lives of children with DS (e.g., schools, daycare facilities, and community leisure centers).

Family factors, such as high levels of cohesion, harmony, expressiveness, and child-centered approaches influence whether neighborhood peers accept children with DS (Mink, Nihira, & Meyers, 1983). Although families often influence the time spent in organized age-appropriate activities with peers, parental arranging of play is not associated with increased social competence (Guralnick et al., 2003). However, large social networks mainly consisting of family members may serve as a protective factor against social isolation among children with DS (Lewis et al., 1988).

4.3. Adolescence: Intimate relationships and social inclusion

The transition to adolescence is marked by an unprecedented convergence of biological, cognitive, emotional, and social changes. Whereas the majority of youth are able to successfully navigate the waves of change, for some, navigating these developmental changes in the context of greater social demands that they are not prepared to tackle, can heighten the risk for maladaptation (Jackson & Rodriguez-Tome, 1993). During this period, key behavioral indices of social competence include the development of more intimate peer relationships and increase in community involvement (e.g., participation in postsecondary education, employment, or leisure activities). The adolescent's abilities to engage in intimate friendships and assume diverse social roles in the community require greater facility in higher-order social cognition. This period likely involves both an emergence of new skills (e.g., social problem solving and abstract reasoning), as well as further developments in existing social-cognitive processes such as perspective-taking (theory of mind), emotion processing, and pragmatic language abilities. Whereas gains in social competence enable individuals to better contend with social developmental tasks, the successful negotiation of these tasks, in turn, creates further opportunities needed for continued social learning and growth. Indeed, the heightened demands encountered during increasingly complex social interactions provide the impetus for young people to develop more advanced skills and behaviors (Collins & Repinski, 1994). For instance, close peer friendships permit the individual to learn observationally from more competent peers, practice and refine more sophisticated social skills, and receive important social feedback (Buhrmester, 1996; Goldstein & Morgan, 2002).

The adolescent period is also marked by fundamental developmental changes that include experimentation with social rules and structures (Zimmerman, Ramirez, Washienko, Walter, & Dyer, 1998) and adoption or rejection of cultural norms in an effort to understand the self in relation to others (Borysenko, 1996). Thus, contextual factors are especially relevant during the transition to adolescence (Weisz, 1997). Moreover, the focus on social competence during this developmental transition period permits researchers to have a unique view of developmental reorganization and maladaptation from the standpoint of an established developmental history of childhood and the initiation into the new developmental challenges of adolescence.

In contrast to earlier developmental periods, few studies have investigated social-cognitive and emotion processes in adolescents and young adults with DS. The majority of available research has been conducted at the "behavioral indices" level of analysis (i.e., investigations of intimate relationships and community involvement). Thus, the studies provide indirect evidence regarding the social competence of youth with DS and do not inform our understanding of the social processing strengths and weaknesses displayed by these individuals. The few studies that are available at this developmental period are consistent with the childhood literature findings and suggest that young people with DS continue to display difficulties across many key social-cognitive domains.

Smith and Dodson (1996) investigated the production of facial affect in adults with DS and found that although adults with DS demonstrated relatively intact expression of positive affect in response to happy stimuli as compared to CA-matched TD peers, they displayed more "nonemotional" or "extraneous" facial movements. The authors suggested that such movements could interfere with others' interpretations of their emotional and social responses. However, the lack of a developmentally matched comparison group limits the significance of these findings.

In addition, deficits in pragmatic language (the use of language in social interaction) have been documented in young people with DS. When compared to MA-matched TD individuals, adolescents and young adults with DS demonstrated difficulty taking into account the informational needs of the listener and were less likely to provide "scaffolding" or speech references for listeners (Abbeduto & Murphy, 2004). Difficulties taking the listener's perspective during conversations may also be related to deficits in theory of mind among adolescents and young adults with DS. For example, compared to MA-matched TD peers and those with fragile X syndrome, adolescents and young adults with DS have significant difficulty understanding that others are not privy to knowledge that they possess and therefore, may hold a false belief (Abbeduto et al., 2001; Yirmiya, Erel, Shaked, & Solomonica-Levi, 1998; Zelazo, Burack, Benedetto, & Frye, 1996).

Taken together, these studies provide preliminary evidence of continuity in social–cognitive deficits among adolescents and young adults with DS. Further investigation is needed to clarify the precise nature of impairments in emotion processing, pragmatic language, and theory of mind as well as to determine their influence on socially inappropriate behaviors and interpersonal problems commonly reported among persons with DS (e.g., overly friendly approaches toward strangers; "hypersocial" or excessive displays of affection, such as hugging that are not appropriate to the situation) (Greenspan & Shoultz, 1981; McGuire & Chicoine, 2002; Waterhouse, 2002). Empirical studies are needed to explore additional domains of social cognition that are particularly relevant during this developmental period (e.g., social problem solving, inferencing, and regulating emotion).

4.3.1. Intimate relationships

During adolescence and early adulthood, peer relationships typically assume increasing significance. The intimate relationships that emerge during this time, such as close friendships or dating relationships, tend to be less based on shared play activities and more typically characterized by a higher degree of intimacy and self-disclosure (i.e., sharing of personal thoughts and feelings), greater mutuality, and increased reciprocity (Buhrmester, 1996; Collins & Repinski, 1994; Kimmel & Weiner, 1985). Adolescents and young adults with DS generally report a desire for friendships (Bottroff et al., 2002). However, many experience significant difficulty making friends and instead spend much of their social life with their family (Bochner & Pieterse, 1996). In one study investigating friendship development in adolescents and young adults with DS, fifty-five percent of parents reported that their child had no "special friend" (Bottroff et al.). Dating also appears to be relatively uncommon among young people with DS (Carr, 1995). Given the importance of friendships in promoting the acquisition of more sophisticated social-cognitive skills, this apparent lack of friendships is particularly concerning.

Among the youth with DS that do establish peer relationships, there is some question as to how intimate or "close" they truly are (Carr, 1995). For instance, anecdotal observations suggest that young people with DS may misinterpret helping relationships as real friendships (Jobling, Moni, & Nolan, 2000). Jobling et al. hypothesized that a superficial understanding of the emotional aspects of relationships may impact the quality of friendships among young people with DS. Future research on the quality (e.g., levels of intimacy and emotional support) as opposed to quantity of peer relationships among individuals with DS would be more relevant to understanding how friendships promote the development of social competence (Hartup, 1996).

4.3.2. Community involvement and social inclusion

Adolescence and early adulthood is generally a time of increasing autonomy and involvement within the wider community. Integration in the community typically involves a transition from high school to postsecondary education, the work environment, and/or leisure settings.

a. Postsecondary education. The opportunity to experience college or university life may be beneficial for individuals with DS, even if they do not fully participate in academic programs. For instance, in a qualitative case study, Hamill (2003) described the positive college experience of a young woman with DS. The author suggested that an emphasis on the social experience of college life, as opposed to academic achievement, may create many opportunities to foster social development in young people with DS.

b. Employment. Participation in employment or volunteer opportunities also has the potential to foster social integration and social development in the lives of young people with DS. Recent estimates of employment rates for young people with DS vary considerably, ranging from extremely low [e.g., 0% (Thomson, Ward, & Wishart, 1995)] and 10% (Carr, 1995), to moderately high [e.g., 65% (Jobling & Cuskelly, 2002)]. Of those employed, the majority continue to be involved in sheltered as opposed to competitive employment opportunities (Carr). In light of research suggesting that vocational success relies heavily upon social competence (Chadsey-Rusch, 1992; Greenspan & Shoultz, 1981; Mueller, 1988), future studies are needed to investigate whether specific impairments in social competence limit job success among young people with DS.

c. Leisure. Recent findings suggest a decrease in the frequency and breadth of participation in active recreation occurring in the mid to late 20s among adults with DS (Brown, 1995). Surveys indicate that most young adults with DS engage primarily in passive or solitary activities (such as watching TV, going to a movie, or walking) as opposed to participating in sports activities, clubs, or other community organizations that would promote greater interpersonal interaction (Brown; Putnam, Pueschel, & Holman, 1988).

4.3.3. Systemic risk and protective factors in adolescence and early adulthood

As in childhood, the continued development of social competence among adolescents and young adults with DS may be impeded or facilitated by systemic factors occurring at the level of the individual, family, peer, community, or service agency. Risk or protective factors may impact the development of specific social competence skills directly or indirectly (i.e., through their effect on social interaction and learning opportunities, such as relationships or community involvement).

Young people with DS demonstrate significant personal strengths that may promote their social development. Some reports suggest that the high levels of social interest and enjoyment apparent among children with DS persist into adolescence and early adulthood (Carr, 1995). Indeed, young people with DS are frequently described as being socially engaging, cheerful, and friendly (Rosner et al., 2004). Furthermore, as compared to children with DS, adolescents demonstrate fewer maladaptive behaviors and externalizing problems, such as aggression, arguing, and disobedience, that could alienate others (Dykens, Shah, Sagun, Beck, & King, 2002). Further research is needed to determine whether factors such as low rates of negative behaviors, high social interest, and a pleasant interpersonal style promote the social inclusion and social development of young people with DS.

Peer factors also have the potential to impact the social growth of young people with DS. Opportunities to develop close relationships with TD peers may be hampered by social stigma or stereotypes; a tendency for TD peers to take on a caregiver role; challenges in the pursuit of shared interests due to cognitive and social limitations; and/or a lack of proximity (Day & Harry, 1999). While normative peer interactions are typically based on notions of equity, and thus, may not naturally encourage the participation of adolescents with DS, the presence of individual peers to play ''advocacy'' and/or ''facilitatory'' roles may support their inclusion (Harry, Day, & Quist, 1998). A better understanding of the specific peer factors that may hinder or facilitate social development among adolescents with DS would contribute information about the contextual supports needed to scaffold social competence during this developmental period.

At the level of the family system, more research is needed to examine the role of parent and family factors (e.g., presence of siblings, parenting strategies, parent beliefs about social development, parent expectations) in promoting or impeding socially competent behavior among young people with DS. For instance, overprotection by parents, whether deliberate or unintentional, may interfere with continued social development in young people with DS by limiting or highly regulating key social learning opportunities (McGuire & Chicoine, 2002; Waterhouse, 2002). Conversely, parenting styles that encourage greater responsibility and freedom (with appropriate limits) may be more adaptive in facilitating the social growth of certain adolescents with DS (Brown, 1995).

Service agencies may promote social competence and social opportunities through the types of programs offered to adolescents and adults with DS. Programs directly supporting social skill development, in addition to the typical emphasis on adaptive functioning at this developmental stage, may prove most beneficial and effective. For instance, Soresi and Nota (2000) developed a social skills training program that has shown promise in modifying the quality and frequency of social behavior in DS. Similarly, Jobling and colleagues (2000) describe a program for young adults with DS designed to

enhance their understanding of the emotional aspects involved in friendships and report encouraging preliminary findings.

In addition to social skill interventions, an evaluation of the services designed to more effectively support the development of relationships, particularly peer friendships, is warranted (Emerson & McVilly, 2004). Greater attention should be paid to the ways in which organizations, whether educational, employment, or recreational in nature, are structured in order to facilitate the social inclusion of young people with DS. There is some evidence suggesting that "cooperative structuring" of activities promotes the inclusion and acceptance of individuals with DS within community leisure settings (Rynders & Low, 2001). For instance, Rynders and colleagues (1980) compared the effects of cooperative, competitive, and individualistic goal structuring during an 8-week recreational bowling program involving adolescents with DS and their TD peers. Their results demonstrated that greater interpersonal attraction and more positive interactions occurred in the cooperative condition.

4.3.4. Social inclusion and mental health

Recent evidence suggests that there may be subtle changes in sociability among individuals with DS that occur during adolescence. Dykens and colleagues (2002) presented preliminary findings that indicated a shift toward increased withdrawal and decreased sociability during this period. Specifically, sixty-three percent of the adolescents included in their sample reported that they preferred to spend time alone. Changes in sociability may represent early phases in the cognitive and social decline common in individuals with DS (Thompson, 1999). However, they may also reflect the cumulative effects of ongoing social difficulties and limited social networks. Young people with DS may find themselves ill equipped to negotiate key social developmental tasks and progressively withdraw from the social world as it becomes increasingly complex.

Research findings suggest that social difficulties and/or low social support place individuals at increased risk for developing mental health problems, and particularly internalizing disorders (Brown, Andrews, Harris, Adler, & Bridge, 1986; Brown & Harris, 1978; Coyne & Downey, 1991; Turner, 1999). Thus, in adolescents with DS, subtle increases in social withdrawal or isolation may heighten the risk for the later emergence of depressive disorders. There is evidence that the rates of depression increase as individuals with DS reach adolescence and adulthood (Rowitz & Jurkowski, 1995). Furthermore, individuals with DS appear to be 2–3 times more likely to develop depression than individuals with other developmental disabilities (Collacott, Cooper, & McGrother, 1992). The high prevalence of depression in young people with DS is a concerning statistic that warrants more extensive research on the relation between social impairments and increased social withdrawal in persons with DS.

5. Conclusion

The birth of a child with DS, much like other life cycle transitions, occurs within a context of stability and change. The child enters a family system that has an established developmental history yet must adapt to ever changing developmental circumstances such as the introduction of a new child, the initiation of the child's formal schooling, increased autonomy and peer contact in adolescence, and launching the adolescent into adulthood (Carter & McGoldrick, 1999). The process of developmental reorganization, at any transitional period in the life cycle, involves both challenges to, and opportunities for, growth within the family system. Although children with DS and the families that care for them may be referred to as "at risk" due to the added challenges associated with the condition of DS, they may also be considered for the ways in which they successfully manage stressors and adjust to normative life cycle transitions as effectively as typical family systems do (Iarocci et al., 2006).

The developmental course of children with DS is laden with potential risk and protective factors. Consequently, multiple pathways to adaptation or maladaptation are possible. For example, families that care for a child with DS do not have the benefit of their extended family's wisdom on how to raise their "unique" child yet they may be less bound by social and cultural prescriptions on parenting. These families also often face the challenges of advocating for and acquiring resources for their parenting and child's needs; however, this very deliberate engagement in the parenting process may lead to more mindful awareness and activity in child rearing. Similarly, the social inclusion of the child with DS is not a natural process but requires commitments and concerted efforts from families, their communities, and society. Ongoing family, community, and societal efforts to accommodate diversity and change within relative stability is what propels these systems toward more flexible and creative growth and adaptation. Accordingly, the field of mental retardation, in particular as it relates to the study and practice of rearing children with DS, needs to adapt to the changing landscape of knowledge about DS and create opportunities for continued growth. Remarkable medical advances in the past decade have largely eliminated the major medical conditions that previously threatened the survival of people with DS, and, as a result, adults with DS are living longer (Janicki, Dalton, Henderson, & Davidson, 1999). Researchers, practitioners, parents, and policymakers may now shift their focus from the survival or simple existence of persons with DS to matters that address social inclusion and the quality of their existence.

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