

Measuring Social Competence in Toddlers: Play Tools for Learning

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Social competence is an important foundation for school readiness. It is also a complicated developmental area encompassing the traditional domains of communication, cognition, and adaptive and social skills. Although much has been written about the importance of this area to children's development, effective models to guide both assessment and interventions are sorely lacking. This article presents a study to validate an assessment of social competence based on an integrated model of social performance theory and social informational processing theory as proposed by Guralnick (1990). This assessment, Play Tools for Learning, was designed to be implemented by early childhood teachers and address toddler-age children in group environments (e.g., childcare). Data on the administration of 75 assessments using the Play Tools and the Battelle Developmental Inventory are presented. Analyses provide evidence for the psychometric soundness of Play Tools for Learning.

The early childhood years are important for children as they learn how to play and interact with the world around them. It is a time when children move beyond relation-

ships with family and other adults and develop friendships with other children. During these early stages of social development children learn such skills as how to share toys, take turns, interact verbally, and defend their territory. These early interactions with peers are critical in setting the stage for later more complex social development (Guralnick, 1997). As such, the field of early childhood education has long identified the need to emphasize social competence as a means for promoting independence and self-esteem in children (e.g., Zigler & Trickett, 1978), and research has supported the importance of social development to school entry and subsequent performance (Carlton & Winsler, 1999; Denham, 2006; Ladd, Herald, & Kochel, 2006; Mashburn & Pianta, 2006; Snow, 2006). It is no surprise that emotional well-being and social competence was listed as one of the five dimensions that contribute to children's success in school by the National Educational Goals Panel (Kagan, Moore, & Bredekamp, 1995; National Education Goals Panel, 1998), and most recently, the U.S. Department of Education, Office of Special Education Programs, has listed positive social relationships as one of the outcomes to be collected on children participating in early intervention services under Part C of the Individuals with Disabilities Education Act (IDEA).

While no one would argue about the importance of this developmental area for children both with and without disabilities, few early intervention and preschool programs have emphasized the area of social development and peer relationships (Brown, Odom, & Conroy, 2001; Pianta & LaParo, 2003). For example, when examining the Individualized Education Programs (IEPs) for 163 preschool children with disabilities, it was found that there was a mean of .52 long-term goals in the social area, a vast difference from other developmental goal areas (Michnowicz, McConnell, Peterson, & Odom, 1995). This was also the case with toddler-age children receiving early intervention in natural group environments in Connecticut. A review of 120 Individualized Family

Service Plans (IFSP) revealed that only 16 of them had any social outcomes (Bruder, 1997). More recent data collected on 1,588 outcomes from IFSPs and IEPs identified only 6.7% focusing on the social/emotional area (Bruder & Dunst, in preparation). These data seem to reflect a lack of awareness of the social competence deficits found in sub-populations of children identified as having learning issues upon school entry. Such populations include those born premature or of low birth weight (Landry, Chapieski, Fletcher, & Denson, 1988), who live in stressful environments (e.g., Booth, Rose-Krasnor, & Rubin, 1991; Fantuzzo et al., 1988), who have learning disabilities (Utay & Lampe, 1995), language impairments (Carothers & Taylor, 2004), or developmental delays (Guralnick, Hammond, Connor, & Neville, 2006; Guralnick & Neville, 1997). To prevent school failure in such populations of children, it seems imperative that early childhood programs focus on facilitating social competence as early as possible (Guralnick, 1999, 2001b). This article presents a tool for the assessment of social competence with toddler-age children. Background on the conceptual framework used to develop the tool is presented, as are data that support its usefulness as a measure to guide intervention to facilitate social competence for school readiness in very young children.

Social Competence: Descriptions and Measures

The first challenge of promoting social competence in children is to understand the construct, as it is difficult to define both theoretically and practically (Guralnick, 2001a). While many agree on the importance of social competence within a developmental framework, there is no generally accepted definition of the exact construct that embodies social development and interaction skills (Ladd, 2005). This challenge has been attributed to the complexities of behaviors that contribute to social competence, which is

reflected in a lack of appropriate early childhood assessment tools to measure the construct. This has left the field of early childhood without resources to both measure and guide intervention in an area critical to school readiness (Mashburn & Pianta, 2006). This article presents information on a tool developed for use with toddler-age children. The research conducted in the area of social competence is first described as the background that guided the design of the tool.

Social Performance Theory

Historically, descriptions of social competence have fallen into two broad theories or models to explain the development of the construct: social performance and social-emotional processing. The social performance model focuses on the specific social behaviors and skills that children display during peer interactions. Researchers who use this approach to conceptualize social competence have analyzed children's social interaction skills at different levels, from a microscopic (e.g., social skills, peer interactions) to a more macroscopic level (e.g., social relationships/status) (Odom, Schertz, Munson, & Brown, 2004). This model focuses on a child's ability to display positive social behaviors, such as cooperation, assertion, and problem solving when playing with other children (Denham & Burton, 1996; Garcia-Sellers, 2000; Gresham & Elliott, 1990). For very young children, the behavioral aspects of social competence are reflected by their abilities to demonstrate a variety of play-related social skills, such as sharing, turn taking, following play rules, initiating a request for a toy or a play activity, and responding to peers' requests (Beckman & Lieber, 1992; Cook, Klein, & Tessier, 2004; Goncu, Patt, & Kouba, 2002; Umansky & Hooper, 1998). Other important behavior indices within this model include social initiations and responses between children, the maintenance of social interactions, and the level of social involvement of a child (Greenwood, Walker,

Todd, & Hops, 1981; Odom, McConnell, & McEvoy, 1992; Sigman & Ruskin, 1999).

A fundamental framework for young children's social interactions with peers as represented in this model are the six levels of social participation defined by Parten (1932). These levels of social participation include unoccupied behavior, solitary independent play, onlooker behavior, parallel activity, associated play, and cooperative or organized play. The more advanced levels of play are related to more frequent peer interactions. A child's social competence is then demonstrated by the frequency that he or she engages in more advanced level of play. Howes (1988) further suggested that the frequency and proportion of a play level, and the ages at which a level emerges, may be predictive of a young child's social competence.

Of critical importance within this framework is a child's ability to initiate and respond to social interactions. For example, a child may approach a peer to enter a play situation or he or she may respond to a peer's initiation by accepting the peer's request to play. Children need to acquire social behaviors that are likely to receive positive responses from peers so that interactions can continue (Rubin, Coplan, Chen, Buskirk, & Wojslawowicz, 2005). Social interactions then occur in such a chain of social behaviors directed back and forth. An important variable in such a behavior chain is the duration of a social interaction. These can be measured either by the length of time an interaction continues, or by the number of behaviors in a social interaction chain (Odom et al., 2004). Coded observations have been the primary method of measuring the types and levels of play (Brown, Odom, & Holcombe, 1996; Brown, Odom, Li, & Zercher, 1999; Howes & Matheson, 1992; Rubin, 2001).

Because social behaviors are related to the context in which they are used, a child's social competence can also be determined by his or her behavior within the demands of a situation (e.g., social performance). Being able to achieve a social goal is also an important component of determining a child's

social competence (Krasnor, 1983) and an important component of this model. For example, McFall (1982) defined social competence as a judgment that significant others (e.g., teachers, parents, peers) make to evaluate the quality of the individual's performance within a social task or a setting. Similarly, Gresham (1986) incorporated social judgment in his conceptualization of a child's social competence and recommended that measures of the construct include the opinions of significant others, comparisons to explicit criteria, and comparisons to some normative sample. This framework was further refined to include both adaptive behavior, social skills, and certain intellectual skills thought to be prerequisites to peer relationships (e.g., peer acceptance/rejection and friendship) and social responsibility (Gresham & Elliott, 1987; Gresham & Reschly, 1988).

Peer relationships have been measured in terms of children's social status and various types of friendships. Social status reflects a child's social acceptance in a peer group. A child's social acceptance is often measured by sociometrics. In sociometric assessment, a child is evaluated by peers regarding acceptance, social preference, or likeability (Odom et al., 2004). Peer nominations and peer ratings are the two types of sociometric assessments that are used most commonly (McConnell & Odom, 1986). A higher level indicator of children's social relationships is the demonstration of friendship as they influence the way children negotiate social participation, resolve conflict, and construct social meanings and identities among their peers (Buysse, Goldman, & Skinner, 2002; Deegan, 1996). In addition, having friends can enhance children's cognitive and language development (Parker, Ruben, Price, & DeRosier, 1995). Friendships can be measured in a variety of ways, such as general liking, reciprocal friendships, and playmate preferences (Buysse, Goldman, & Skinner, 2003). This is often done through observation of peer interactions (Guralnick & Groom, 1988), peer nominations and ratings using sociometrics

(Musun-Miller, 1990), and caregivers' reports using questionnaires or interviews (Buysse, 1993).

A last description of the social performance model of social competence has been described as a result of a summary of research on peer relations (see Ladd, 2005). He identified several behavioral and relational components of children's abilities as contributing to a child's social competence. These include the (1) initiation of positive interactions with peers that inhibit the use of negative behaviors, (2) formation of affiliative ties such as friendships and peer-group acceptance, (3) sustaining positive peer relations and relationship features (supportive ties), and (4) avoiding debilitating peer relationships and roles (e.g., peer victimization, rejection, and isolation), and negative social-emotional consequences (Ladd, 2005, p. 193). One challenge to this model is the lack of availability of measurement tools and methodologies that are both easy to implement by teachers and able to be translated into recommendations for interventions to facilitate a child's social competence and subsequent school readiness.

Social-Emotional Processing Model

Another approach to conceptualizing social competence centers around children's early emotional and cognitive development, specifically social information processing (Crick & Dodge, 1994; Dodge, 1986). A basic premise of social information processing is the important link between cognitive processes and social behaviors: a child's understanding and interpretation of a social situation determines his or her related social behavior (Dodge, 1986). For example, Crick and Dodge (1994) proposed a social information processing model that consists of six components: (1) encoding of social cues, (2) interpretation of social cues, (3) clarification of goals, (4) response access or construction, (5) response decision, and (6) behavior enactment. A child's social competence is then defined as the success of a behavioral re-

sponse that results in positive outcomes of social interactions. In contrast, a child's difficulty with any of these components may result in social rejection by peers and later chronic antisocial behaviors (Dodge et al., 2003).

Emotional processes have also been identified as an important component of the social information processing model. Research has examined the contribution of emotionality and regulation to the development of young children's social competence or socioemotional functioning in children's peer relationships (Ayduk, Mendoza-Denton, Mischel, & Doney, 2000; Denham, 1998; Walden, Lemerise, & Smith, 1999), externalized and internalized problem behaviors (Kochanska, 1995; Kyrios & Prior, 1990), and emotional or behavioral regulation, control, self-regulation, and behavioral inhibition (e.g., Cicchetti, 1996; Eisenberg & Fabes, 1992; Eisenberg et al., 2003; Kochanska, Murray, & Harlan, 2000; Walden et al., 1999). For example, it has been found that children who have high regulation show more socially competent behaviors and are rated more positively by peers than children with low regulation (Eisenberg et al., 1995; Eisenberg et al., 1997). Further research also suggested that children who are able to regulate and control their responses will experience less negative emotional arousal within their interactions with peers than those who are less able to regulate their responses (Fabes et al., 1999).

Regulation is a complex construct that involves not only emotional processes, but also cognitive, behavioral, and temperamental processes (Hill, 2003; Kochanska et al., 2000; Rothbart & Jones, 1998). In addition, extrinsic factors such as caregiving environment and peer relationships may also affect the development of emotional regulation (Fox & Calkins, 2003). These multiple pathways for children to develop regulatory abilities have significant implications for children's social competence in early childhood (Calkins & Fox, 2002; Derryberry & Rothbart, 1997; Kopp, 1989; Rothbart, Ahadi, & Evans, 2000).

In addition to emotional regulation as an emotional process supporting social competence, empirical evidence suggests that young children's emotional knowledge is an important prerequisite to social competence (Mostow et al., 2002). The research in this area suggests that emotional knowledge facilitates competent social behaviors by activating appropriate emotions to accurately perceive social cues during interactions. For example, it has been shown that abilities such as accessing appropriate emotional memories, recognizing and labeling emotion cues in facial expressions, and encoding one's own emotions predict children's social competence (Cassidy, Parke, Butkowsky, & Braungart, 1992; Izard et al., 2001). Mostow et al. (2002) have proposed that children's social skills mediate the relationships between emotional knowledge and peer preference.

Finally, emotional processing has been linked to social information processing by Lemerise and Arsenio (2000). They propose that several emotional processes, such as recognition of both one's own and others' affective cues, empathic responses, affective relationships with peers, and emotional regulation can influence different aspects of social information processing, which ultimately determine the success in the outcome of a social encounter. A similar challenge to this model has been the lack of assessment tools available for teachers and others to measure social competence, and subsequently intervene to facilitate children's development.

An Integrated Model and Measure of Social Competence

Both of the described models of social competence have relevance to all young children and their readiness for school. Unfortunately, neither has been operationalized into a measurement system that can be used in early childhood programs to both assess or facilitate school readiness. Similarly, there have been few attempts to integrate the two models as a single comprehensive model of social competence.

One such attempt has been proposed by Guralnick (Guralnick, 1990) in his efforts to design interventions for children with disabilities. He has developed a hierarchical model of peer-related social competence that integrates emotion regulation, social-cognitive processes, and successful social outcomes. "This model has been built upon a comprehensive definition of social competence: the ability of young children to successfully and appropriately select and carry out their interpersonal goals" (Guralnick, 1990, p. 4). His hierarchical model of social competence involves three interrelated processes, including foundation processes of emotional regulation and shared un-

derstanding, social-cognitive processes, and high-order processes. Children use these processes to select appropriate and effective social strategies within social tasks such as gaining entry into peer groups, resolving conflicts, and maintaining play. Guralnick further emphasizes in his model that these processes are influenced by a child's general development on cognitive, language, motor, and affective domains (Guralnick, 1992b). These three processes operate in conjunction with the developmental domains to determine the effectiveness and appropriateness of a child's social strategies in carrying out their interpersonal goals. This model is represented in Figure 1.

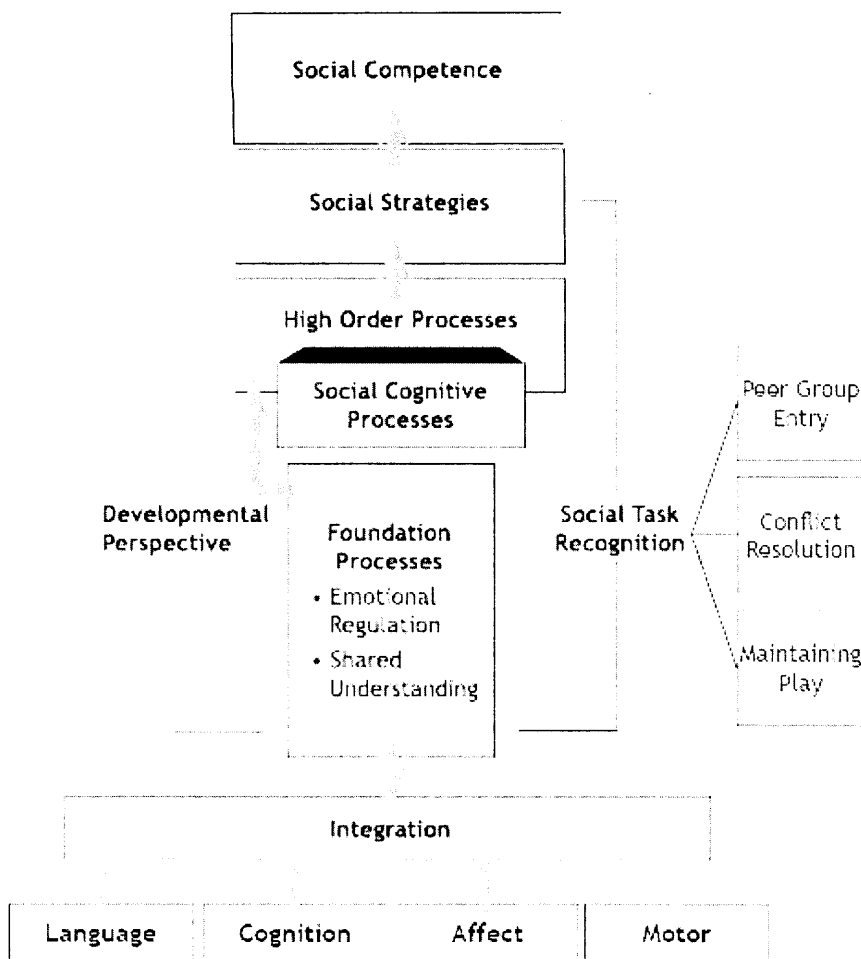


Figure 1. Hierarchy of social competence. (Adapted from Guralnick, 1992.)

In an effort to measure this model of social competence, Guralnick (Guralnick, 1992a) developed the Assessment of Peer Relations (APR) to obtain information about young children's developmental behaviors within foundation, social-cognitive, and higher order processes using the social tasks of peer group entry, conflict resolution, and maintaining play. The APR is divided into two major sections, and its purpose is to gather information about a child's current development and behaviors in order to plan interventions as needed. The first section focuses on the overall developmental characteristics of children's peer relations, including the pattern of strengths and concerns related to the processes of shared understanding and emotional regulation. The second section is organized in terms of the three social tasks: peer group entry, resolving conflicts, and maintaining play. The social strategies children use, both initially and over the course of the task, are observed and categorized. Combined with the information obtained from the first section, recommendations about children's social competence are generated, and specific guidelines for the development of intervention programs can be formulated. The assessment is designed to be completed by someone knowledgeable about the child's development, and a checklist with Likert scale format is used. One identified limitation of the instrument is the age group to which it is referenced: The baseline items are developmentally anchored at preschool age and therefore not appropriate for a younger population.

A Social Competence Assessment for Toddlers

The Play Tools for Learning (Play Tools; see Appendix A) was designed to be a downward extension of the APR (Guralnick, 1992a). The developmental skills of emotional regulation, shared understanding, and play initiation were modified from the APR. Play Tools was designed to improve the social competence of young children (ages 2

to 4) by assessing the child's behaviors during play and social interactions with other children at home, in childcare, and/or in other community settings. The Play Tools was based upon the first section of the Assessment of Peer Relations (Guralnick, 1992a) and included 36 skills that were task analyzed from the APR. These 36 skills fall within the following three domains: (1) Play Initiation and Involvement, (2) Shared Understanding, and (3) Emotional Regulation. Play Initiation and Involvement contains 16 skills that assess a child's ability to express preferences, makes choices, play with toys, and play in small groups with other children. Many of the social skills in this area are developmentally progressive in nature and require children to demonstrate competency in more basic skills. Shared Understanding contains 10 skills that assess a child's ability to understand and engage in a number of social concepts while playing with other children. This area includes the understanding of social rules (e.g., sharing, turn taking, ownership of objects), the ability to engage in pretend play, and knowledge of everyday events. Some of the skills in this area require children to demonstrate competency in the skills contained within Play Initiation and Involvement. Finally, Emotional Regulation contains 10 skills that assess a child's ability to manage his or her emotions as well as solve problems. Many of these skills are related to the skills assessed in the first two areas. Although these three domains of social competence are interrelated in nature and one skill is often a prerequisite for another, each skill is rated separately, without reference to the other skills.

In addition to assessing the child's performance of the 36 social competence skills, the Play Tools is also designed to assess whether a child is engaging in inappropriate or challenging behaviors that may interfere with his or her acquisition or performance of skills. Many children demonstrate inappropriate or challenging behaviors, and these must be addressed in the context of teaching the child more appropriate social

skill behaviors (e.g., signing for wanting to play) to replace inappropriate or challenging behaviors.

Because the 36 social competence skills identified in the Play Tools represent different levels of complexity, the assessor is required to make a judgment as to whether the child's performance is appropriate for his or her age and developmental level. For example, the assessor could identify a 4-year-old who has difficulty managing his or her frustration as an area of concern, but may not identify the same behavior as a concern with a young toddler, because it is developmentally appropriate at the younger age. Similarly, difficulty with sharing or turn taking may be typical for a toddler, but may be a concern for a 4-year-old. If the assessor determines that the child's ability to perform a specific social skill is problematic, intervention is recommended to enhance the child's competence within that particular area.

Play Tools is scored from observations of a child's behavior during play and social interactions with other children. Each item is rated on a five-point scale ranging from *never performs or demonstrates the behavior* (1) to *competently performs and uses the behavior during play or social interactions* (5). The rating continuum is intended to measure the extent to which a child is able to demonstrate or use each of the social competence skills.

Similar to the APR, the Play Tools for Learning is designed to serve as an educational tool, as well as a bridge between assessment and intervention. The Play Tools is not intended to provide information regarding the child's performance as compared to that of other children of the same age and, thus, does not provide numbers or cutoff scores. The assessment depends largely on the judgment of those adults (e.g., parents or childcare providers) who have sufficient knowledge of the child and the child's behaviors to conduct the observations. As a curriculum-based assessment tool, information gathered from the Play Tools can serve as a good starting point from which to design interventions for the child to enhance his or her social skills and peer relations.

The purpose of this study is to provide initial psychometric data on the Play Tools. To do this, the Play Tools was administered to a group of children to identify item/factor relationships for internal consistency. The children were also evaluated with the Battelle Developmental Inventory (BDI; Newborg, Stock, Wnek, Guidubaldi, & Suinicki, 1994) to allow for a comparison of children's scores on both instruments, as the BDI is a standardized assessment for children birth through 8 years, and it includes information on a child's social competence and peer relationship skills, adaptive skills, cognitive skills, language and motor skills. Additionally, the Battelle has psychometric properties to support its integrity, and has been used for research about its relevance to children at the lower end of age performance (Bruder, Staff, & McMurrer-Kaminer, 1997; McLean, McCormick, Bruder, & Burdug, 1987a).

Method

Subjects

Seventy-five (75) toddlers enrolled in one of two childcare centers were enrolled in the study. The only criteria for selection was enrollment in the centers and being between the ages of 24 and 42 months. The childcare centers were state licensed and nationally accredited by the National Association for the Education of Young Children (NAEYC). The centers were both located in the same town and less than 1 mile away from each other. Childcare Center 1 provided care for children ages 6 weeks to 12 years and had 140 children enrolled at the center. Childcare Center 2 was an onsite university childcare and preschool for children ages 6 weeks to 5 years. It also enrolled families who were not employees of the University. This center had a total enrollment of 100 children.

Females made up 49% of the participants and males 51%. More than 80% of the children were Caucasian, with Asian, African-American, and Biracial/Multicultural chil-

dren making up the other 20%. A majority of the parents (96%) were married and rated their socioeconomic status as medium to high (on a scale of low, medium, high). The other 4% were never married, divorced, or divorced and remarried. All of the mothers and fathers worked outside the home. None of the children was identified as receiving early intervention services.

Procedures

Meetings with the childcare staff were held at both centers to describe the study. After agreeing to participate, an overview of the Play Tools was given to the toddlers' teachers. The overview included information about social competence, the Play Tools instrument, and examples for scoring each item. A letter about the study was then distributed to all families at both centers. The families were instructed to call or E-mail their interest, and a project research assistant responded to each interested family, explained the study, and if the family was willing to participate in the study, written consent was obtained. The study was conducted over a year's time with staggered entries based on the child's age. That is, assessments were scheduled to correspond to the age points of 24, 30, 36, and 42 months. Once a child was enrolled, his or her first assessment was scheduled to be conducted at the age point corresponding to project data collection ages. For example, if a child was enrolled when he was 28 months of age, his first assessment was scheduled 2 months later, when he was 30 months of age, and then again at 36, and 42 months.

For all assessment points, the child was observed by a research assistant for a minimum of 2 hours at the childcare setting in order to complete the BDI (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1994). If more time were needed, another BDI observation was scheduled for the next day. The Play Tools was completed by the classroom teacher for the child the same day as the BDI administration. The research assis-

tant waited for the teacher to complete the Play Tools and responded to clarification of questions as needed. The childcare teachers took between 20 to 40 minutes to score the Play Tools. Assessments were scheduled at 3-month intervals for each child. This schedule resulted in 25 assessments being completed on 24-month-olds; 48 assessments being completed on 30-month-olds; 54 assessments being conducted on 36-month-olds and 36 assessments conducted on 42-month-olds. Each child enrolled in the study received a minimum of two assessments.

Description of Measures

Social competence was measured using the Play Tools (Bruder, 2000) and child development was measured using the BDI (Newborg et al., 1994). These were used as the independent and dependent measures, respectively, in the analyses described below. The Play Tools has been described above. The BDI (Newborg et al., 1994) is a standardized developmental assessment that assesses key developmental skills in children birth to age 8. The full BDI consists of 341 test items grouped into five domains: personal-social, adaptive, motor, communication, and cognitive. A three-point scoring system provides a measure that takes into account emerging as well as fully developed skills. The BDI was designed to accommodate a range of disabling conditions and permits adaptations for children who have sensory or motoric disabilities that might restrict their ability to perform a target behavior. A total score and individual domain scores are generated, and age-equivalent scores are then calculated as per the assessment procedures.

Method of Analysis

A principal components factor analysis was first conducted on 153 administrations of the Play Tools to assess item/factor relationship. Second, multivariate linear growth curve analysis (Dixon, 1992) was used to ascertain developmental change and relate

variations in social competence to variations in growth rates. Median splits of each Play Tools social competence subscale score was used to construct low and high social competence groups, which were used as the independent variables in the main analysis as well as in the univariate follow-up analyses. Cohen's *d* effect sizes were used to estimate the sizes of effects of the linear growth curves, social competence, and social competence by linear growth curve interactions. Our main interest was the relationships and relative importance of the different social competence skills as determinants of child developmental status.

Interrater Reliability

Two experienced research assistants independently scored the assessment on the same day with the target child. The overall interrater reliability for the BDI scale was 97%, with each specific domain above 96%. The specific domain interrater reliabilities were personal-social (96%), adaptive (97%), motor (98%), communication (97%), and cognitive (99%). The overall kappa was high (0.98) indicating very good agreement, with specific domains with the following kappa levels: personal-social 0.94, adaptive 0.96, motor 0.96, communication 0.95, and cognitive 0.99. Specific interrater reliability and kappas divided by the age of the child and domain also resulted in high interrater reliability in the 86% to 99% range, with kappas between 0.78 and 0.99.

Results

Principal components factor analysis of 154 Play Tools administrations with an orthogonal varimax rotation produced a six-factor solution ($\alpha = .95$) accounting for 67% of the variance. Table 1 summarizes the findings for the varimax rotated solutions. These subscales were used to construct different measures of the social competence of the participants in the study.

Prosocial Interactions, one of the subscales, included items measuring a child's positive initiations with and responses to other children (e.g., "Initiates requests for objects and activities," "Responds to the requests of other children"). *Self-Regulation* included items measuring a child's ability to manage stressful interactions with other children (e.g., "Manages his or her anger during interactions with other children," "De-escalates to a more positive emotional state in an appropriate amount of time"). *Cooperation* included items measuring a child's ability to share and become integrated into daily routines (e.g., "Shares objects with other children during play," "Follows the sequence of daily activities"). *Pretend Play* included items measuring different aspects of symbolic representation (e.g., "Engages in pretend play with other children"). *Independent Play* included items measuring a child's ability to play constructively by him- or herself (e.g., "Explores and tries new things," "Plays with an object by himself or herself"). *Positive Child Affect* included items measuring a child's affection to and from other children

Table 1. Summary of the Varimax Rotated Factor Analysis of the Play Tools Scale Items

Play Tools Subscales	Number of Items	Psychometric Properties	
		Internal Consistency	Total Amount of Variance
Prosocial Interactions	13		19
Self-Regulation	7		15
Cooperation	5		11
Pretend Play	3		9
Independent Play	5		8
Positive Child Affect	3		6

(e.g. "Seeks or gives affection in a socially appropriate manner"). All but the independent play subscale measured different dimensions of social competence.

Since participants were each observed on two to three occasions during the course of the study, the average score on each Play Tools subscale aggregated across measurement occasions and was used as the independent variables for relating variations in social competence to variations in developmental competence. Table 2 shows the results of the six multivariate linear growth curve analyses, one for each Play Tools subscale. Each analysis produced highly significant linear growth trends. This was not unexpected given the fact that changes in developmental age equivalents from the BDI assessment were being modeled as the dependent measures. The Prosocial Interactions subscale, Positive Child Affect subscale, and Self-Regulation subscale proved the best predictors of differences in average developmental ages as evidenced by the significant chi-squares and the magnitude of the effect sizes. The other three subscales had smaller but nonetheless moderate effect sizes. In all cases, high social competence group membership was associated with higher BDI developmental scores. Taken together, these findings indicate that social competence skills involving social interaction skills with peers were the most

important determinant of developmental standing. The analysis of the Self-Regulation subscale was the only one that produced a Play Tools linear trend interaction.

Univariate linear growth curve analyses were used to ascertain whether Play Tools' social competence subscale scores were related to each of the BDI's developmental domain age-equivalent scores. Table 3 summarizes the results from the 30 sets of analyses. What are shown are the effects for low social competence versus high social competence comparisons for each Play Tools subscale. In every analysis yielding an effect size of .30 or higher, high social competence group membership was associated with higher BDI developmental age equivalents. Further inspection of Table 3 shows that social competence was most related to personal-social and communication development followed by adaptive and cognitive development.

Discussion

Fantuzzo, Manz, and McDermott (1999) suggest that the selection and development of quality measures of social competence for young children should consider three essential principles. First, measures should be developmentally appropriate for young chil-

Table 2. Multivariate Linear Growth Curve Analysis Results for Changes in Battelle Scale Development Ages

<i>Play Tools</i> Subscales	Wald Tests					
	Linear Trend		<i>Play Tools</i> (Low vs. High)		<i>Play Tools</i> Linear Trend Interaction	
	χ^2	<i>d</i>	χ^2	<i>d</i>	χ^2	<i>d</i>
Prosocial Interactions	1680.66***	>5.0	5.56*	.56	0.27	.12
Positive Child Affect	1681.83***	>5.0	5.41*	.55	0.40	.14
Self-Regulation	1519.34	>5.0	5.42**	.55	2.77*	.41
Independent Play	1724.46***	>5.0	4.18*	.48	0.74	.20
Cooperation	1723.06***	>5.0	2.68*	.39	0.13	.08
Pretend Play	1666.30***	>5.0	2.62*	.38	0.35	.13

* $p < .10$. ** $p < .05$. *** $p < .0001$.

Table 3. Univariate Tests of the Between Play Tools (Low vs. High) Subscale Comparisons

Play Tools Subscales	Battelle Domain									
	Adaptive		Personal		Communication		Cognitive		Motor	
	χ^2	<i>d</i>	χ^2	<i>d</i>	χ^2	<i>d</i>	χ^2	<i>d</i>	χ^2	<i>d</i>
Positive Child Affect	8.62**	.69	8.23***	.68	5.51**	.55	6.72***	.61	0.08	.07
Prosocial Interactions	4.48**	.50	2.09	.34	3.01	.41	3.77*	.46	1.01	.24
Self-Regulation	0.06	.06	3.17*	.42	4.76**	.51	0.95	.23	2.92*	.40
Independent Play	0.11	.08	4.69**	.51	3.89**	.46	1.26	.26	3.59*	.45
Cooperation	1.56	.29	2.26*	.35	3.30*	.43	0.57	.18	1.71	.31
Pretend Play	0.00	.00	0.43	.05	0.01	.02	0.01	.02	1.56	.29

* $p < .10$. ** $p < .05$. *** $p < .01$.

dren and psychometrically sound. Second, measures should be appropriate and useful for diverse children from different ethnic or economic background. Third, outcome measures should assess positive socioemotional functioning in addition to problem behaviors. Information from instruments that measure both positive and negative social behaviors is directly relevant to creating effective interventions. One additional criteria I would add would be that measures should be easy to administer and reflective of a child's abilities in his or her natural learning environments.

This study attempted to gather data on the first of these principles while attending to the other three. These data suggested a number of findings related to the developmental appropriateness (as measured by the relationship of the Play Tools scores to the BDI scores) and psychometric properties of the Play Tools instrument. A factor analysis resulted in the identification of factors related to the construct of social competence, and scores on the Play Tools instrument predicted a child's developmental status, especially in the areas of personal-social and communication development as measured on the BDI. This suggests both content and concurrent validity for the Play Tools (Guralnick et al., 2006; Ladd, 2005).

The sample used for this study was homogeneous. One-fifth of the children were of minority racial and ethnic backgrounds, thus providing limited evidence for the appropriateness of the Play Tools for a diverse population. Additionally, the instrument did measure both positive and negative behaviors, allowing a direct translation of its results to an intervention plan. Finally, the instrument was administered by childcare providers, suggesting that it can be used by those who know the child best in the environment where the child spends a lot of his or her time. Although there are limitations to this data set, primarily because of the homogeneity of the study sample, the preliminary evidence suggests the usefulness of Play Tools for Learning as a measure to identify a child's social competence status and as

a curriculum guide from which to develop interventions.

It has been suggested that assessment for young children be curriculum referenced (McLean, Wolery, & Bailey, 2003). A curriculum is one of a number of program features that contribute to the effectiveness of early childhood programs. In a joint position statement, the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) (1991) proposed that "a curriculum is an organized framework that delineates the content that children are to learn, the processes through which children achieve curricular goals, what teachers do to help children achieve these goals, and the context in which teaching and learning occur" (p. 10).

Most curricula in early childhood intervention have a developmental focus, utilizing developmental skills in domain-specific categories (Bruder 1997). Even when a curricula recommends the integration of areas into an intervention activity (Bricker & Cripe, 1992; Linder, 1993), assessments are structured into developmental domains. This focus results in an overreliance on developmental descriptions of children according to a developmental discipline area, as opposed to an holistic integration of a child's strengths and abilities (Bruder, 2001; Hanson & Bruder, 2001). While not negating the influence and necessity of a development by domain foundation, recommendations have been made to reconceptualize the curriculum by utilizing broad-based constructs such as social competence as a foundation for the interrelationship of developmental domains (Bruder, 1997). Play Tools for Learning provides an example of this framework. At this time more data must be collected on the intervention usefulness of the Play Tools across children with deficits in social competence for a variety of reasons (e.g., disability, behavior issues).

A last and most important use for the Play Tools may be as a measure for both identifying and tracking child outcomes in social emotional development. As stated in the introduction of this article, the Office of Spe-

cial Education Programs currently requires that states report on child outcomes as a result of participating in Part C early intervention and Part B preschool special education. One challenge to this requirement is the lack of assessment tools that focus on a functional model of social competence. The data collected in this study support the use of Play Tools for Learning as one method to report a child's status in the social area. Additional studies must be continued in this important area of development. As a contributor to school readiness, social competence cannot be undervalued. Assessments and curricula must be made available to those whose intent it is to facilitate the competence of young children as they leave early childhood for school-age programs.

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**Appendix
Play Tools for Learning**

Assessment of Social Competence – Scoring Sheet

Child's ID: _____ Birthday: _____ Age: _____ Date: _____

Completed by: _____

AREA 1: PLAY INITIATION AND INVOLVEMENT

Skill	Ratings	Does the child exhibit inappropriate behaviors that interfere with his/her performance of the skill?	If yes, please describe the behavior(s).	Does the child's ability to perform the skill concern you?	If yes, please describe why.
1. Expresses a preference toward activities, objects, and people.	1 2 3 4 5	Yes No		Yes No	
2. Makes a choice between activities, objects, or playmates.	1 2 3 4 5	Yes No		Yes No	
3. Plays in an activity or with an object by himself/herself.	1 2 3 4 5	Yes No		Yes No	
4. Plays near other children using similar toys or materials.	1 2 3 4 5	Yes No		Yes No	
5. Watches the activities or play of other children.	1 2 3 4 5	Yes No		Yes No	
6. Imitates the play behaviors of other children.	1 2 3 4 5	Yes No		Yes No	

7. Explores and tries new activities, materials, or playmates.	1 2 3 4 5	Yes	No		Yes	No	
8. Gains the attention of other children.	1 2 3 4 5	Yes	No		Yes	No	
9. Responds to the attention seeking of other children.	1 2 3 4 5	Yes	No		Yes	No	
10. Initiates direct requests for objects or activities.	1 2 3 4 5	Yes	No		Yes	No	
11. Responds to requests from other children.	1 2 3 4 5	Yes	No		Yes	No	
12. Invites other child/children to join an activity.	1 2 3 4 5	Yes	No		Yes	No	
13. Initiates requests for information or assistance from other children.	1 2 3 4 5	Yes	No		Yes	No	
14. Responds to requests for information or assistance from other children.	1 2 3 4 5	Yes	No		Yes	No	
15. Engages in simple social exchanges with other children.	1 2 3 4 5	Yes	No		Yes	No	
16. Maintains play with other children for an extended period of time.	1 2 3 4 5	Yes	No		Yes	No	

continued

AREA 2: SHARED UNDERSTANDING

Skill	Ratings	Does the child exhibit inappropriate behaviors that interfere with his/her performance of the skill?	If yes, please describe the behavior(s).	Does the child's ability to perform the skill concern you?	If yes, please describe why.
17. Requests permission from other children to join an activity or to obtain an object.	1 2 3 4 5	Yes No		Yes No	
18. Defends his/her space or objects in an appropriate way.	1 2 3 4 5	Yes No		Yes No	
19. Takes turns during play or daily activities.	1 2 3 4 5	Yes No		Yes No	
20. Shares objects or materials with other children during play or daily activities.	1 2 3 4 5	Yes No		Yes No	
21. Adapts his/her play to the abilities of other children.	1 2 3 4 5	Yes No		Yes No	
22. Engages in pretend play with other children using simple single actions.	1 2 3 4 5	Yes No		Yes No	
23. Engages in pretend play with other children using multiple actions.	1 2 3 4 5	Yes No		Yes No	
24. Engages in complex pretend play with other children.	1 2 3 4 5	Yes No		Yes No	

25. Follows the sequence of his/her daily events and routines.	1 2 3 4 5	Yes	No		Yes	No	
26. Describes the sequence of his/her daily events and routines.	1 2 3 4 5	Yes	No		Yes	No	

AREA 3: EMOTIONAL REGULATION

27. Seeks affection from adults in a socially appropriate manner.	1 2 3 4 5	Yes	No		Yes	No	
28. Gives affection to other children in a socially appropriate manner.	1 2 3 4 5	Yes	No		Yes	No	
29. Recognizes different emotional states in him/herself and in others.	1 2 3 4 5	Yes	No		Yes	No	
30. Manages his/her frustration during interactions with other children.	1 2 3 4 5	Yes	No		Yes	No	
31. Manages his/her anger during interactions with other children.	1 2 3 4 5	Yes	No		Yes	No	
32. Manages his/her anxiety during interactions with other children.	1 2 3 4 5	Yes	No		Yes	No	

continued

Skill	Ratings	Does the child exhibit inappropriate behaviors that interfere with his/her performance of the skill?	If yes, please describe the behavior(s).	Does the child's ability to perform the skill concern you?	If yes, please describe why.
33. Manages his/her aggression during interactions with other children.	1 2 3 4 5	Yes No		Yes No	
34. Manages his/her impulsive behaviors during interactions with other children.	1 2 3 4 5	Yes No		Yes No	
35. Calms down from an emotional state in an appropriate amount of time.	1 2 3 4 5	Yes No		Yes No	
36. Develops solutions and responds to conflicts or stressful situations during interactions with other children.	1 2 3 4 5	Yes No		Yes No	

NOTES AND BRIEF SUMMARY:
