Elementary Education Online, 9(1), 11-22, 2010.
İlköğretim Online, 9(1), 11-22, 2010. [Online]: http://ilkogretim-online.org.tr

Social integration of children with visual impairment: A developmental model

Marie Celeste[1] Darja Kobal Grum[2]

ABSTRACT: This study describes the play behavior and social interactions of a Slovenian preschool-aged child who is blind. The subject's social development was then compared to that of a similar-aged child in the United States who is also blind. There is ample research describing the social development of preschool children with developmental disabilities, however, there is little empirical evidence available specific to children who are blind. This is one of only a handful of similar studies conducted in the United States, and the first of its kind in Slovenia. The data obtained from the assessment protocol indicated play behaviors and social interactions of a Slovenian preschool child who is typically developing, with no additional disabilities. These findings are compared to those of a subject in the United States, which indicated that although the subject was developmentally above age level in all domains, she demonstrated atypical social participation skills and individual social behaviors. The results further identified the social competence skills at particular risk for young children with vision impairment.
Keywords: Blind, visual impairment, play behavior, social interaction

INTRODUCTION

The construct of play evolves continuously throughout early childhood. Initially, infants and toddlers demonstrate solitary play that evolves into parallel and then social play. Solitary and parallel play are both nonsocial, meaning that a child plays alone although in the presence of his or her peers. As play evolves from nonsocial to social, it is critical for children to be able to initiate and maintain interactions with their peers (Brownell, 1986; Guralnick, 1999b; Rubin & Coplan, 1992). Social play requires that children demonstrate strategies to gain entry into peer groups, resolve conflicts, and maintain interactions with other children.

Preschool-age children with disabilities often have difficulty engaging in positive social interactions. They are typically unable to demonstrate peer-related social competence and, as a result, engage in more solitary play than do their typical peers (Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996a, 1996b; McConnell & Odom, 1999). Studies have found that children who are visually impaired (that is, are blind or have low vision) do not display a full range of play behaviors and demonstrate compromised social interactions (Rettig, 1994; Sacks, Kekelis, & Gaylord-Ross, 1992; Warren, 1984). This report of a case study describes the play behaviors and social interactions of a preschool-age child who is blind and has no additional disabilities.

Visually impaired children

Children with disabilities receive fewer positive responses to their social bids or attempts to engage in social interactions and, as a result, demonstrate less interest in their peers, which makes them more prone to social isolation (Guralnick et al., 1996a, 1996b; Guralnick & Groom, 1987; Kopp, Baker, & Brown, 1992; McConnell & Odom, 1999; Odom, Zercher, Li, Marquart, & Sandall, 1998). Studies have indicated that children who are visually impaired demonstrate play behaviors that are

[1] Ed.D., Associate Professor, Early Childhood Special Education, Loyola University in Maryland, 109 Beatty Hall, 4501 North Charles Street, Baltimore, Maryland (USA) 21210, mceleste@loyola.edu, Phone: 410.617.5174, Fax: 410.617.5097
[2] PhD., Associate Professor, Department of Psychology, Faculty of Arts, University of Ljubljana, Askerceva 2, 1000 Ljubljana, Slovenia, e-mail: darja.kobal@ff.uni-lj.si

predominantly exploratory in nature. These children engage less frequently in manipulative play, or the functional use of toys, and demonstrate more stereotypical behavior during play (Adelson & Fraiberg, 1974; Parsons, 1986; Rettig, 1994; Sacks et al., 1992; Skellenger & Hill, 1994; Troster & Brambring, 1994; Warren, 1984). In addition, they infrequently engage in symbolic, highly imaginative, or role play and spend more time in solitary play or interacting with adults than with their sighted peers (Adelson & Fraiberg, 1974; Anderson, Dunlea, & Kekelis, 1984; Anderson & Kekelis, 1985; Erwin, 1993; Parsons, 1986; Rettig, 1994; Sacks et al., 1992; Schneekloth, 1989; Skellenger & Hill, 1994; Troster & Brambring, 1993, 1994; Warren, 1984). These limitations may be due to their inability to see how other children gain entry to play groups or sustain participation in group interactions. Hoben and Lindstrom (1980) found that visually impaired students initiated and responded less frequently to interactions that were initiated by their classmates than did their sighted peers. Sacks et al. (1992) observed that these children are less likely to respond to their peers' interests or to offer compliments to other children.

MacCuspie (1992, 1996) found that children who were visually impaired were inclined to have fewer friends and sometimes confused "assigned school buddies or helpers" with true friends. Jones and Chiba (1985) discovered that these children were rejected by their classmates more than were other groups of disabled students. In peer sociometric measures, they were rated as "popular" by students who were identified as "unpopular" by their peers (Jones, Lavine, & Shell, 1972). As a result, peer-related social interactions are often severely compromised in children with visual impairments. Thus, social play may give rise to feelings of frustration, rather than self-efficacy and independence, which characterize the social experience of typical children.

Inclusion

A founding principle of inclusion is to give children with special needs equal opportunities to participate fully in regular education classrooms with children who are not disabled. However, studies have shown that for some students with special needs, placement in regular education classrooms without appropriate social supports has resulted in social isolation and, ultimately, a more restrictive environment (Gresham, 1981; Sacks et al., 1992). Therefore, classroom teachers need to make the development of social competence a priority for children with special needs. Efforts to include students with special needs are most effective when teachers are actively involved in assessing the students and helping them acquire appropriate social skills. It is critical for children who are visually impaired to be taught the social skills that are necessary to interact effectively with their peers. It is also important that the children's ability to implement these skills successfully is carefully monitored (Kekelis & Sacks, 1988; Sacks et al., 1992).

METHODOLOGY

The present study replicates a study recently conducted by the U.S. researcher (Celeste, 2006),
of the play behaviors and social interactions of a girl in preschool who is blind and has no additional disabilities. The methodology of this study is identical to that of the prior U.S. study.

The evaluation methods included developmental and adaptive assessments, structured play observations (during "free play" in the classroom) and interviews (with parents, peers, teachers, and caregivers). Gathering data from multiple sources and through varied methods provides a comprehensive picture of a child's social competence, including the type of play (solitary, parallel, group, and so forth) and the quality and efficacy of social interactions (McConnell & Odom, 1999; McFall, 1982; Pogrund & Fazzi, 2002; Tremblay, Strain, Hendrickson, & Shores, 1981).

The participants

Slovenian participant

The participant was a Slovenian boy aged 4 years, 11 months, who was blind, as a result of Leber's congenital amaurosis, and had no neurological or physical handicaps. A precane device had been introduced; however, the participant did not require it for travel within familiar environments and only utilized it in unfamiliar environments during instruction periods.

As there were no early intervention services in Slovenia, the participant received early intervention services in nearest country - Austria (Graz) at the age of 4 months. The participant had a stimulating and developmentally appropriate home environment. In addition, he participated regularly in a medical intervention program consisting of physiotherapy and play therapy. At the age of three, he began to attend an inclusive preschool program, where a teacher of the visually impaired provided services at the rate of two (two-hour) sessions per week.

US participant

The participant was an African American-Hispanic girl aged 4 years, 6 months, who was blind, as a result of Peter's anomaly with secondary glaucoma, and had no neurological or physical handicaps. She had severely reduced vision in her left eye (OS), and no vision in her right eye (OD). She held items within two inches of her left eye (nasally) for viewing and was unable to track identified playmates or adults beyond arm's reach. Although she executed routes to desired objectives within familiar environments indoors and outdoors, she was unable to explore her surroundings visually. A precane device had been introduced; however, the participant did not require it for travel within familiar environments and only utilized it in unfamiliar environments during instruction periods.

The participant was admitted to early intervention services at the age of 4 months. The US author of this paper is a certified teacher of students with visual impairments and a licensed orientation and mobility instructor and have served in that capacity with her since she was 6 months old. The girl received direct vision services on a weekly basis for the duration of her early intervention services. In addition, she participated regularly in a local "gymboree" program that provided structured motor and social opportunities. Most recently, she was enrolled in group swim lessons, a Brownie troop, and Suzuki piano lessons. At age 3, she began to attend an inclusive preschool program. The US author of this paper continued to provide vision services at the rate of three (two-hour) sessions per week.

Settings

The subjects participated in similar early childhood educational settings.

Slovenian Participant

Slovenian subject attended a full-day kindergarten program (preschool and day care), with twenty children in the class (15 boys and 5 girls, their average age is 4 years), one teacher and two assistant teachers. He was fully enrolled in a program from 8 a.m. to 3 p.m. five days per week. The teacher held an advanced degree in early childhood education and had experiences with inclusion (not the inclusion of visually impaired children but with a child with autistic tendencies). One assistant teacher was in the process of obtaining the degree of early childhood education and also had experiences with inclusion (autism), the other assistant teacher had no formal education in early childhood education but two years of experiences with the participant and had a consistent record of professional development courses and seminars on the inclusion of children with visual impairment. Once a week, from 8:00 a.m. to 11:30 a.m., the participant joined three other children in activities in the kindergarten for visually impaired children. So, there were 2 children who regularly attended the kindergarten (from 8 a.m. to 1 a.m.) and once a week also 3 to 4 children came form inclusion settings. They differed by age, special needs etc.

The children in the regular class were diverse with regard to developmental level. Three of them were familiar to the participant from the previous school year (others were from the same kindergarten but from different classes, and that year were in the same group).

The preschool classroom was arranged for solitary and small- and large-group activities. It included a fine motor area with beads and puzzles, a light table with related materials, a fully equipped art area with easels, a reading nook (with braille adapted books (most of them were in English, since there are only three braille adapted books in Slovene), a writing center (including materials for producing braille), and a housekeeping area. The daily schedule included free-play activities; circle time; choice time; snack time, lunch time, rest time; and then either a motor, library, art, or music activity.

As part of their preschool curriculum, the children were exposed to responsive, age-appropriate classroom discussions that addressed the concept of disability. The teachers responded to the children's questions about visual impairment, and the participant was encouraged to describe his visual limitations to his peers. Teachers facilitated the participant's participation in classroom activities and special teacher provided instruction in compensatory skill areas. All teachers took care to include the participant's sighted classmates in most activities.

US participant

The participant attended an independent preschool program half days (from 8:30 a.m. to 11:30 a.m.) five days per week. The class consisted of 18 4-year-old children (7 boys and 11 girls), and the student-to-teacher ratio was 9:1. The two teachers were both experienced, holding advanced degrees in early childhood education and early childhood special education. The children in the class were diverse with regard to developmental level, special needs, and ethnicity and race. Three of them were familiar to the participant from the previous school year.

The preschool classroom was arranged for solitary and small- and large-group activities. It included a fine motor area with beads and puzzles, a light table with related materials, a fully equipped art area with easels, a reading nook (with braille adapted books), a writing center (including materials for producing braille), and a housekeeping area. The daily schedule included free-play activities; circle time; choice time; snack time; and then either a motor, library, art, or music activity.

As part of their preschool curriculum, the children were exposed to responsive, age-appropriate classroom discussions that addressed the concept of disability. The teachers responded to the children's questions about visual impairment, and the participant was encouraged to describe her visual limitations to her peers. Although I facilitated the participant's participation in classroom activities and provided instruction in compensatory skill areas, I took care to include the participant's sighted classmates in most activities.

Instrumentation

Developmental assessment

The Battelle Developmental Inventory (BDI-2; Newborg, Stock, Wnek, Guidibaldi, & Svinicki, 2005) is a standardized, norm-referenced, individually administered assessment battery of key developmental skills in the personal or social, adaptive, motor, communication, and cognitive domains. BDI-2 is a revision of the BDI (Newborg, Stock, Wnek, Guidibaldi, & Svinicki, 1988). Although the normative sample did not include children with visual impairments, it was selected for this research because it allows for adaptive administration and scoring procedures for children with impairments.

The Oregon Project for Visually Impaired and Blind Preschool Children (OR; D. Brown, Simmons, & Methvin, 1991) was also administered. It is a criterion-referenced instrument that was specifically developed for young children with visual impairments. It is not intended to provide a precise

developmental age score; rather, it provides estimates of age-functioning levels in each of eight domains: cognitive, language, socialization, self-help, fine motor, gross motor, vision, and compensatory skills. The skills in each domain are developmentally sequenced and arranged in age categories. All major skills, including the prerequisite skills for orientation and mobility and braille, are included.

Adaptive behavior assessment

The participant's preschool classroom teachers served as collective respondents for assessing the participant's adaptive behavior on the Vineland Adaptive Behavior Scales (VABS) classroom edition (Sparrow, Balla, & Cicchetti, 1983). The VABS includes 244 items that assess adaptive behavior in the classroom. It was designed to assess personal and social functioning and is organized around four behavioral domains: communication (receptive, expressive, and written), daily living skills (personal, domestic, and community), socialization (interpersonal relationships, play and leisure time, and coping skills), and motor skills (gross and fine). The VABS provides for percentile ranks and stanines (for the domain and composite scores), adaptive levels (by percentile groups), and age equivalents (by raw score conversions). The "adaptive behavior composite" summarizes the child's performance in all four domains. It should be noted that the normative sample for the VABS did not include children with visual impairments.

Structured play observations

The participant was observed during free play in the preschool (120 minutes), in 10 minute sessions, over a two-week period. Observations were recorded in 10 1-minute intervals. The observations were analyzed using the Play Observation Scale (POS; Rubin, 2001) and the Individual Social Behavior Scale (ISBS; Guralnick & Groom, 1987). The POS is a measure of social participation and cognitive play. It has proved useful in determining age and gender differences in children's play, socioeconomic status differences in play, effects of the ecological setting of play, individual differences in play, and the social contexts within which the various forms of cognitive play are distributed. Researchers have also used the POS in studies of children with developmental and learning disabilities.

The instrument provides a framework for coding play and nonplay behavior. The cognitive play categories (functional, constructive, dramatic, and games with rules) are nested within the social play categories (solitary, parallel, and group) (Rubin, 2001). It is recommended that behavior be observed in brief intervals (10 seconds to 1 minute), followed by time for coding (to be kept as close to 5 seconds as possible). An Observation Coding Sheet is provided, on which the observer records the child's predominant activity during the allotted time. The instrument provides a means to record the most predominant behavior that is observed during the interval. It is suggested that to obtain a valid measure of the child's general play styles, no more than 5 minutes of behavior should be recorded on any given day, but that a minimum of 15 minutes of POS data should be gathered.

The ISBS is a measure of peer-related social behaviors that was developed by Guralnick and Groom (1987) as an adaptation of the earlier work by White and Watts (1973). It provides a framework for identifying and coding peer interactions. Observers record the occurrence of individual social behaviors, such as joins peers in a specific activity, expresses hostility toward peers, leads in peer activities, follows a peer's lead, refuses to follow the lead of a peer, use of a peer and the participant as a resource, takes an unoffered object, defends property, attention-seeking behavior of peer and participant, and efforts of a peer and the participant to seek agreement. It is recommended that a maximum of 10 minutes of behavior be observed in one day in short intervals (10 seconds to 1 minute). The ISBS provides a series of codes with associated behaviors. The observer is directed to indicate (using the codes) all the behaviors that are observed during the set interval on a recording sheet. The instrument provides for the recording of the range and frequency of social interaction behaviors with peers.

Celeste (2006) developed a single, "blended" coding sheet, divided to provide for recording in 10 1-minute intervals. In the prior US study, she (using a stopwatch), timed the intervals, observing and then recording the predominant play or nonplay behavior (as indicated by the POS) and all the peer interaction behaviors (as indicated by the ISBS) that she observed. The recording time between intervals ranged from 5 to 15 seconds. In the replicated study in Slovenia, free play situations that were part of the research were videotaped and than analyzed.

A modified version of the observation schedule (60 minutes of "free-play" over a two-week period in 1-minute intervals) and observational instrumentation (POS and ISBS), used by Guralnick, Hammond, and Connor (2003) and Guralnick et al. (1996a) were used. Those studies described the play behavior and social interactions of young children with developmental delays. It should be noted that in those studies, observations were conducted in the preschool settings only. This study expanded the settings in which observation took place to include the day care and home settings.

Data Analysis

Developmental and adaptive assessment measures were administered and scored. Structured play observations were scheduled and simultaneously coded using the ISBS and the POS. The ISBS and the POS are designed to facilitate coding of the frequency of behaviors. The analysis of the data included primarily descriptive statistics (frequencies, percentages, means, and standard deviations).

RESULTS

Results of the Slovenian subject

Developmental assessment

The BDI-2 (Newborg et al., 2005), and the OR (D. Brown et al., 1991) were used for the developmental assessment. Table 1 presents a summary of the domain scores attained by the child on the BDI-2, which is a norm-referenced instrument that provides raw scores, percentile ranks, scaled scores, developmental quotients, 95% confidence intervals and age equivalents.

Table 2 presents a summary of the participant's performance on the OR, which is a criterion-referenced instrument that provides "estimated age function levels" only.

The results are described in terms of age-functioning levels. The participant demonstrated some skills above age level on both the BDI -2 and the OR (see Tables 1 and 2), as well as in the receptive and expressive subdomains of the BDI-2. For example, in each of the receptive and expressive communication areas in BDI-2, he scored in the 7 year 11 month range, in area of gross motor development when assessed using the Battelle Developmental Inventory (BDI-2) (2005), he scored in the 5 year 1 month range, in the area of personal-social development, he scored in the 5 year 11 month range on the subscale of adult interaction, 5 years 11 months on the subscale of peer interaction, and 6 years 7 month range on the subscale of self-concept using the Battelle Developmental Inventory (BDI-2) (2005).

The participant demonstrated a delay in the fine motor domain on both instruments (see Tables 1 and 2). It should be noted that test items in this area include skills typically delayed in children with severe vision loss, such as cutting with scissors on a printed line, replicating geometric shapes with pen/paper. The OR identifies several of these skills as typically delayed in children who are visually impaired.

Table 1. *Participant's summary profile on the Battelle Developmental Inventory-2 at age 59 months (4.11 years)*

Domains and subdomains	Age equivalent		Raw Score	Percentile rank	Scaled Score	Developmental Quotient	95% Confidence Interval
	Year-month	Months only					
Adaptive							
Self-care	4-7	55	61	50	10		
Personal Responsibility	4-11	59	28	63	11		
Total				*55*	*21*	*102*	*94 to 110*
Personal-social							
Adult interaction	5-11	71	60	>99	19		
Peer interaction	5-11	71	45	98	16		
Self-concept and social role	6-7	79	82	>99	18		
Total				*99*	*53*	*134*	*128 to 138*
Communication							
Receptive communication	7-11	95	76	>99	19		
Expressive communication	7-11	95	90	>99	19		
Total				*99,9*	*38*	*145*	*137 to 149*
Motor							
Gross motor	5-1	61	82	75	12		
Fine motor	4-0	48	45	5	5		
Perceptual motor	4-1	49	23	9	6		
Total				*19*	*23*	*87*	*80 to 96*
Cognitive							
Attention and memory	5-4	64	53	75	12		
Reasoning and academic skills	4-10	58	36	50	10		
Perception and concepts	4-7	55	50	37	9		
Total				*55*	*31*	*102*	*95 to 109*
BDI-2 Total				*87*	*166*	*117*	*114 to120*

Table 2. *The Oregon Project (OR) for Visually Impaired and Blind Preschool Children: Summary of the participant's performance at the age of 59 months (4 years, 11 months)*

	Birth-2 years		2-3 years		3-4 years		4-5 years		5-6 years	
Domain	N	%	N	%	N	%	N	%	N	%
Cognitive	22	100	16	100	16	100	29	93,1	50	56
Language	24	100	22	100	17	100	16	100	17	100
Social-emotional	21	100	9	100	12	100	9	100	14	92,88
Compen-satory	15	100	7	100	8	100	14	100	17	64,71
Self-help	24	100	23	100	11	100	20	90	21	14,29
Fine motor	25	100	13	100	10	90	12	25	12	25
Gross motor	32	100	14	100	10	100	14	85,71	13	84,62

Note. N - Total number of skills, % - percentage of attained skills

Adaptive behavior assessment

Table 3 presents a summary of the scores on the VABS classroom edition (Sparrow et al., 1983). The participant scored at his chronological age level in the socialization domain, demonstrating higher functioning in the area of coping skills. He scored higher than his chronological age level in the communication domain (5 years, 3 month), with higher functioning in the expressive and receptive subdomains. In motor skills domain he scored below his chronological age.

Table 3. *Vineland Adaptive Behavior Scales (classroom edition): summary of the participant's performance at the 59 months (4 years, 11 months)*

Subdomain	Raw score	Standard score	Adaptive level	Age equivalent
Receptive	20		Moderately high	12 years
Expressive	54		Moderately high	9 years, 4 months
Written	5		Adequate	4 year, 10 months
Communication domain	**79**	**112**	**Adequate**	**5 years, 9 months**
Personal	54		Adequate	4 years, 9 months
Domestic	7		Adequate	3 years, 6 months
Community	23		Adequate	4 years, 7 months
Daily living skills domain	**84**	**96**	**Adequate**	**4 years, 7 months**
Interpersonal relationships	24		Adequate	4 years
Play and leisure time	18		Adequate	4 years, 10 months
Coping skills	18		Adequate	5 years, 2 months
Socialization domain	**60**	**100**	**Adequate**	**4 years, 11 months**
Gross	19		Moderately low	2 years, 7 months
Fine	13		Moderately low	2 years, 11 months
Motor skills domain	**32**	**69**	**Low**	**2 years, 9 months**
Sum of domain scores		377		
Adaptive behavior composite		**93**	**Adequate**	**4 years, 6 months**

Play-based observations

The participant was observed during free play in the preschool setting for a total of 100 minutes (10 minutes at each session), over a two-week period. Observations were recorded in 10 1-minute intervals. The observations were coded using the POS (Rubin, 2001), during which the predominant play activity that was observed was recorded. In addition, the frequency and type of the interactions with peers were coded using the ISBS (Guralnick & Groom, 1987).

Preschool

In the classroom setting, the participant spent only 13% of the total time in solitary play while engaged in exploratory and constructive activities. He spent approximately 32% of the total time in group play, engaged in exploratory and games with rules activities. The rest of the time he spent in parallel group, and some double coded activities were observed (peer conversation etc.).

An examination of specific interactions with peers yielded some interesting patterns of behavior (Figure 1). For example, the participant expressed directly and indirectly leading behaviors in social activities, he used his peers as a resource (as a means of obtaining information or help), he was seeking agreement from his peers etc.

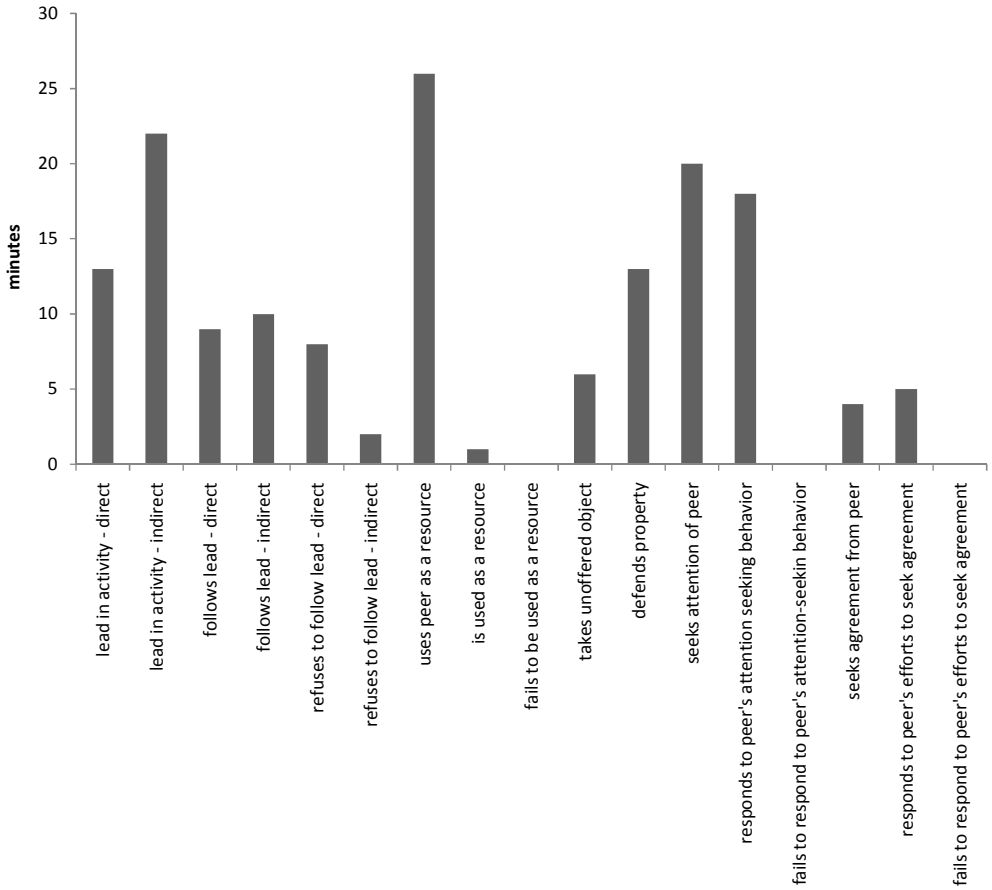

Figure 1. Individual Social Behavior ISBS (Slo)

Limitations

There are several limitations to the study. Given the nature of two single-case design, the generalizability of the results of this study may be limited. Furthermore, the instrumentation included the use of the BDI-2 (Newborg et al., 2005) and the VABS (Sparrow et al., 1983), neither of which included visually impaired children in its normative sample. In addition, all the data collection and coding were conducted by a single individual, thereby not providing for interrater reliability.

The intercultural differences between American and Slovenian society must be considered in the interpretation of the results. While little empirical research is available which compares the two cultures, Americans are thought to demonstrate more open, sociable, extraverted behavior than Slovenians. If this is the case, it may be expected that the US participant would demonstrate more developed social skills than the Slovenian participant. However, it was not the case in this study. We might speculate in two ways: (1) that the results were more prone to interpersonal differences than to intercultural ones or (2) that when it comes to visual impairment, personality characteristics have greater impact on social development than cultural ones. Of course, our assumptions need further empirical investigation.

DISCUSSION

The literature has shown that delays in the language, motor, or cognitive domains can have a direct impact on a child's social competence (Guralnick, 1990; Guralnick, 1999a; Rettig, 1994). However, the participant in this study demonstrated skills that were at or above his age level in these areas, with only subtle delays in fine motor skills. Nor did he exhibit any stereotypic or "negative behaviors", such as anxiety (crying or whining), hovering, aggression (antagonistic behavior), or excessive rough-and-tumble play that can have a detrimental effect on social interactions (Rubin, 2001). In contrast to the results of the subject in the previous US study (Celeste, 2006), he demonstrated neither limited play behaviors neither compromised social interactions.

In general, the results of this study don't support the findings of previous research (Erwin, 1993; Rettig, 1994; Skellenger & Hill, 1994; Troster & Brambring, 1993, 1994; Warren, 1984). The Slovenian subject demonstrated a greater degree of social competence, and as a result, was less prone to social isolation than the US peer. What is the cause of such differences? In this study, it is impossible to answer this question due to the limitations of the study mentioned above. However, according to our speculation that in the case of visual impairment, personality characteristics have greater impact on social development than cultural ones, it could be assumed that designing a highly individualized intervention program for development of social competence should be a priority for a blind child. It is important that such a program be independent of cultural influences.

Even though the participant expressed less difficulty initiating and sustaining interactions with her peers than previous studies report, we find it is essential to enhance, the child's participation in group interactions, and to work to secure the positive attitude of peers toward the child's visual impairment.

Implications for the field

The development of social competence must be a priority for children who are visually impaired, even those who appear to be developing typically. The children's play behaviors and social interactions should be assessed, and a structured plan of intervention should be provided. Professionals in the field must identify strategies that work and provide consistent, long-term support to children with visual impairments because research has indicated that short-term solutions are rarely effective (Sacks et al., 1992).

It is important that social skills intervention be implemented as early as possible before atypical patterns develop. To support the social development of young children who are visually impaired, teachers, parents and other providers of care, and peers need information on how to interpret behavioral cues and recognize the children's attempts to interact. It is essential to provide visually impaired children with a repertoire of social skills that facilitate their entry into social groups and to prepare them to sustain interactions. These skills should be introduced in the early preschool years and as soon as new groups of children are established with a continued emphasis on more developed entry skills as children become more closely acquainted.

Simply including children with visual impairments in typical settings is not enough to ensure that they become full members of the classroom or day care community. Even in the highest-quality environments with supportive professionals, educators must remain sensitive to the social challenges of children who are visually impaired, or their inclusion in typical environments can result in reduced social opportunities and isolation.

REFERENCES

Adelson, E., & Fraiberg, S. (1974). Gross motor development in infants blind from birth. Child Development, 45, 114-126.

Anderson, E. S., Dunlea, A., & Kekelis, L. S. (1984). Blind children's language: Resolving some differences. Journal of Child Language, 11, 645-664.

Anderson, E. S., & Kekelis, L. S. (1985, March). Language input and language acquisition: Evidence from special populations. Paper presented at the 17th annual Child Language Research Forum, Stanford University, Stanford, CA.

Brown, D., Simmons, V., & Methvin, J. (1991). The Oregon Project for Visually Impaired and Blind Preschool Children. Medford, OR: Jackson Education Service District.

Brown, M., & Gordon, W. (1987). Impact of impairment on activity patterns of children. Archives of Physical Medicine and Rehabilitation, 68, 828-832.

Brownell, C. (1986). Convergent developments: Cognitive-developmental correlates of growth in infant/toddler peer skills. Child Development, 57, 275-286.

Celeste, M. (2006). Play Behaviors and Social Interactions of a Child Who is Blind: In Theory and Practice. *Journal for Visual Impairment and Blindness, 100,* 75-90.

Coplan, R., Gavinski-Molina, M., Lagace-Seguin, D., & Wichmann, C. (2001). When girls versus boys play alone: Nonsocial play and adjustment in kindergarten. Developmental Psychology, 37, 464-474.

Coplan, R., & Rubin, K. (1998). Exploring and assessing nonsocial play in the preschool: The development and validation of the preschool behavior scale. Social Development, 7, 72-91.

Coplan, R., Rubin, K., Fox, N., Calkins, S., & Stewart, S. (1994). Being alone, playing alone, and acting alone: Distinguishing among reticence and passive and active solitude in young children. Child Development, 65, 129-137.

Erwin, E. J. (1993). Social participation of young children with visual impairments in specialized and integrated environments. Journal of Visual Impairment & Blindness, 87, 138-142.

Gresham, F. (1981). Social skills training with handicapped children: A review. Review of Educational Research, 51, 139-176.

Guralnick, M. (1990). Peer interactions and the development of handicapped children's social and communicative competence. In H. Foot, M. Morgan, & R. Shute (Eds.), Children helping children (pp. 275-305). Sussex, England: John Wiley & Sons.

Guralnick, M. (1999a). The assessment of peer relations. Seattle: University of Washington Press.

Guralnick, M. (1999b). Family and child influences on the peer-related social competence of young children with developmental delays. Mental Retardation and Developmental Disabilities Research Review, 5, 21-29.

Guralnick, M., Connor, R., Hammond, M., Gottman, J., & Kinnish, K. (1996a). Immediate effects of mainstreamed settings on the social interactions and social integration of preschool children. American Journal on Mental Retardation, 100, 359-377.

Guralnick, M., Connor, R., Hammond, M., Gottman, J., & Kinnish K. (1996b). The peer relations of preschool children with communication disorders. Child Development, 67, 471-489.

Guralnick, M., & Groom, J. (1987). The peer relations of mildly delayed and nonhandicapped preschool children in mainstreamed playgroups. Child Development, 58, 1556-1572.

Guralnick, M., Hammond, M., & Connor, R. (2003). Subtypes of nonsocial play: Comparisons between young children with and without developmental delays. American Journal on Mental Retardation, 108, 347-362.

Hoben, M., & Linstrom, V. (1980). Evidence of isolation in the mainstream. Journal of Visual Impairment & Blindness, 74, 289-292.

Jones, R., & Chiba, C. (1985). Social skills assessment and intervention (final report). Bethesda, MD: National Institute of Child Health and Human Development.

Jones, R., Lavine, K., & Shell, J. (1972). Blind children integrated in classrooms with sighted children: A sociometric study. New Outlook for the Blind, 66, 75-80.

Kekelis, L. S, & Sacks, S. Z. (1988). Mainstreaming visually impaired children into regular education programs: The effects of visual impairment on children's social interactions with peers. In S. Z. Sacks, L. S. Kekelis, & R. J. Gaylord-Ross (Eds.), The development of social skills by visually impaired children (pp. 59-82). San Francisco: San Francisco State University.

Kopp, C., Baker, B., & Brown, K. (1992). Social skills and their correlates: Preschoolers with developmental delays. American Journal on Mental Retardation, 96, 357-366.

MacCuspie, P. A. (1992). The social acceptance and interaction of visually impaired children in integrated settings. In S. Z. Sacks, L. S. Kekelis, & R. J. Gaylord-Ross (Eds.), The development of social skills by blind and visually impaired students: Exploratory studies and strategies (pp. 83-102). New York: American Foundation for the Blind.

MacCuspie, P. A. (1996). Promoting acceptance of children with visual disabilities: From tolerance to inclusion. Halifax, Nova Scotia: Atlantic Provinces Special Education Authority.

McConnell, S., & Odom, S. (1999). A multimeasure performance-based assessment of social competence in young children with disabilities. Topics in Early Childhood Special Education, 19(2), 67-74.

McFall, R. (1982). A reformulation of the concept of the social skill. Behavioral Assessment, 4, 1-33.

Newborg, J., Stock, J., Wnek, L., Guidibaldi, J., & Svinicki, J. (1988). Battelle Developmental Inventory (BDI). Allen, TX: DLM.

Odom, S., Zercher, C., Li, S., Marquart, J., & Sandall, S. (1998, March). Social relationships of preschool children with disabilities in inclusive settings. Paper presented at the Conference on Research Innovations in Early Intervention, Charleston, SC.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? Psychological Bulletin, 102, 357-389.

Parsons, S. (1986). Function of play in low vision children. Part 2: Emerging patterns of behavior. Journal of Visual Impairment & Blindness, 80, 777-784.

Pogrund, R. L., & Fazzi, D. L. (2002). Early focus: Working with young children who are blind or visually impaired and their families (2nd ed.). New York: American Foundation for the Blind.

Rettig, M. (1994). The play of young children with visual impairments: Characteristics and interventions. Journal of Visual Impairment & Blindness, 88, 410-420.

Rubin, K. (2001). The Play Observation Scale (POS) (rev.). College Park, University of Maryland.

Rubin, K., & Coplan, R. (1992). Peer relationships in childhood. In M. Bornstein & M. Lamb (Eds.), Developmental psychology: An advanced textbook (3rd ed., pp. 519-578). Hillsdale, NJ: Lawrence Erlbaum.

Sacks, S. K., Kekelis, L. S., & Gaylord-Ross, R. J. (Eds.). (1992). The development of social skills by blind and visually impaired students: Exploratory studies and strategies. New York: American Foundation for the Blind.

Schneekloth, L. H. (1989). Play environments for visually impaired children. Journal of Visual Impairment & Blindness, 83, 196-201.

Skellenger, A., & Hill, E. (1994). Effects of a shared teacher-child play intervention on the play skills of three young children who are blind. Journal of Visual Impairment & Blindness, 88, 433-445.

Sparrow, S., Balla, D. A., & Cicchetti, D. V. (1983). Vineland Adaptive Behavior Scales (VABS). Circle Pines, MN: American Guidance Service.

Tremblay, A., Strain, P., Hendrickson, J., & Shores, R. (1981). Social interactions of normally developing preschool children: Using normative data for participant selection and target behavior selection. Behavior Modification, 5, 237-253.

Troster, H., & Brambring, M. (1993). Early motor development in blind infants. Journal of Applied Developmental Psychology, 14, 83-106.

Troster, H., & Brambring, M. (1994). The play behavior and play materials of blind and sighted infants and preschoolers. Journal of Visual Impairment & Blindness, 88, 421-432.

Warren, D. (1984). Blindness and early childhood development (2nd ed., rev.). New York: American Foundation for the Blind.

White, B. L., & Watts, J. C. (1973). Experience and environment (vol. 1). Englewood Cliffs, NJ: Prentice Hall.