Language and Play in Students with Multiple Disabilities and Visual Impairments or Deaf-Blindness

Lianna Pizzo and Susan M. Bruce

Abstract: This article investigates the relationships between play and language development in students with multiple disabilities and visual impairments or deaf-blindness. The findings indicate that students with higher levels of communication demonstrate more advanced play skills and that the use of play-based assessment and exposure to symbolic play are important instructional considerations.

Language is a complex and multifaceted aspect of human development that is mediated by many factors, including sensory perception, cognition, and physical ability. As a result of the complicated interplay of these processes, individuals with disabilities that affect any one of these areas may be at risk of global linguistic delays. For students with visual impairments, hearing loss, or deaf-blindness, the development of language is considered an especially important and challenging process (Bruce, 2005; Mar & Sall, 1994; Siegel-Causey & Downing, 1987) because they may be denied access to vital linguistic input that would otherwise be experienced regularly (Iverson, Tencer, Lany, & Goldin-Meadow, 2000; Preisler, 1995; Recchia, 1987; Rodbroe & Souriau, 1999).

One important factor that has garnered sparse attention in the research literature is the relationship between play and the development of language (F. Hughes, 1998). Play is considered a key developmental activity that assists in the growth of cognitive, social, linguistic, emotional, motor, and literacy skills (Burns, Griffin, & Snow, 1999; Parsons, 1986a, 1986b; Reccia, 1997; Schneekloth, 1989; Skelenger & Hill, 1994). It is regarded as an important component of early childhood education because “play must be present before any meaningful learning in the classroom” may take place (Tait, 1972, p. 963). Play is also thought of as a natural and comfortable way for students both to demonstrate their abilities and to acquire new skills in a variety of developmental areas, including sensorimotor skills, communication skills, cognitive skills, and emotional and social skills (Linder, 2008a, 2008b). Important relationships between play and language development have also been documented, since specific play behaviors and communication skills tend to appear around the same time (Casby & Della Corte, 1987; McCune, 1995; McCune-Nicolich, 1981; Shore, O’Connell, & Bates, 1984). For students with sensory loss, researchers have suggested that play is particularly important.
in giving them opportunities to engage with and explore the environment around them (Linder, 2008a; Olson, 1983; Parsons, 1986b; Recchia, 1997; Schneekloth, 1989; Warren, 1994). Given the importance of play in promoting child development and the potential for play to have a positive impact on the development of students with visual impairments, it is valuable to investigate the characteristics, role, and development of play for this population of students.

Development of play in students with visual impairments

Tröster and Brambring (1994) suggested eight major differences in the development of play for children who are blind from those who are sighted on the basis of their review of previous research. They noted that children who are blind may engage less frequently in five types of play: exploration of surroundings and objects; spontaneous play; imitation of parent or caregiver; play with stuffed animals, or animism; and play centered on peers rather than adults. They also reported potential delays in the development of symbolic play, more frequent solitary play, and play that contains fewer acts of aggression (such as taking a toy away from another child) in children who are blind. Additional research on students with visual impairments suggested more frequent engagement in exploration during play and repetitive and sensorimotor play, with less time devoted to social and symbolic play (M. Hughes, Dote-Kwan, & Dolendo, 1998; Olson, 1983; Tait, 1972). Researchers have noted that these differences may not be due to the presence of visual impairment alone, highlighting the critical influence of having an enriched play environment, many opportunities to engage in play activities, and a positive developmental match between children and their play partners (Gerhardt, 1982; Olson, 1983; Recchia, 1997; Schneekloth, 1989; Skinner, Buysse, & Bailey, 2004).

Given the challenge of language development for students with visual impairments or deaf-blindness, the value of play in promoting many facets of child development, and the limited research on the development of play in students with disabilities, it is important to examine the relationship between the development of play and the development of communication in students with disabilities. Therefore, this study set out to explore the relationship between play and the development of communication by children with multiple disabilities and visual impairments or deaf-blindness, to compare parents’ and teachers’ reports of students’ play, and to discuss the implications of using play to promote the acquisition of language.

Method

The Play Assessment Questionnaire (PAQ) that was used in this study is an adaptation of the Play Assessment Scale (PAS) (Fewell, 1986). PAS is an observational measure consisting of 45 developmentally sequenced items that are designed to elicit various play skills that typically appear from age 2 months to 36 months (Kelly-Vance & Ryalls, 2008). Items in PAQ were adapted to appear in questionnaire format with a simplified scoring procedure for use with parents and other nonprofessionals (Yoshinaga-Itano, Snyder, & Day, 1998). We asked the respondents (parents and teachers) to
read and complete PAQ on the basis of their interactions with their children or students. PAQ instructs respondents to indicate if the students had performed a play behavior previously (yes), had never performed the behavior (no), or had performed it with help (with help). Respondents were also asked to provide an example for any question on which they answered yes or with help. The Institutional Review Board of Boston College approved this research, and informed consent was obtained from the respondents before data were collected.

PARTICIPANTS
The parents and teachers of 11 students who were either deaf-blind or had multiple disabilities and visual impairments in two schools were asked to complete PAQ (Yoshinaga-Itano, Snyder, & Day, 1998). All the teachers who participated in the study were licensed in the areas in which they were teaching, and the teachers of children who were deaf-blind were also university prepared in deaf-blindness. The teachers had at least three years of teaching experience in their area of certification and in the areas of disability of the children in the study. Data collection started in late spring, allowing the teachers to be familiar with the children before they completed the questionnaire.

Of the 11 students in the study, 6 were deaf-blind and 5 had multiple disabilities and visual impairments (including non-ambulation); they were aged 3 to 10 years. Of the 6 students who were deaf-blind, 2 were diagnosed with CHARGE syndrome, 1 demonstrated CHARGE-like characteristics, 2 were born prematurely, and 1 had meningococcal meningitis at age 6 months. In terms of ambulation, 4 students were ambulatory, 1 was ambulatory with assistance or equipment, and 1 was nonambulatory at the time of the data collection. Two students had severe visual impairments, 3 were legally blind, and 1 had mild visual impairment. The students’ levels of hearing loss varied; 2 had bilateral severe hearing loss, 1 had a bilateral severe to profound hearing loss, 1 had a bilateral moderate to severe hearing loss, 1 had a moderate to profound hearing loss, and 1 had a unilateral moderate hearing loss. All the students were reported to have developmental delays on their most recent psychoeducational evaluation.

Of the five students with multiple disabilities, one had traumatic brain injury, one was diagnosed with congenital hydrocephalus, one had hypoxia and ischemia at birth, one was born prematurely, and one had an unknown etiology. Four of these students were nonambulatory, and one was ambulatory with equipment or assistance. These students’ vision levels varied; one student had a severe visual impairment, two were legally blind, and two had mild visual impairments. Two students were reported to have developmental delays, and three were reported to have significant developmental delays per their most recent psychoeducational evaluation. All five of these students had normal hearing. Three of the five students had limitations in upper-limb movement and control.

All 11 students were determined to have intentional communication (in any form), with no more than two- to three-word utterances (in any form) at the onset of the study. Their communication levels were the primary criterion for inclusion in the study and were assessed by the Communication Matrix,
an assessment tool that is designed to evaluate the communication skills of children who have severe or multiple disabilities, including children with sensory, motor, and cognitive impairments (Rowland, 1996).

The Communication Matrix assesses levels of communication within four communicative intents: to refuse something undesired, to obtain something desired, to engage in social activities, and to seek information from others (Rowland, 1996). Within these four domains, students are placed on one of seven levels of communication ability: (1) preintentional behavior, (2) intentional behavior, (3) unconventional communication, (4) conventional communication, (5) concrete symbols, (6) abstract symbols, and (7) language. For this study, an average of the communication scores across the four communicative intents (refuse, obtain, social, and information) was used as a single measure of overall communication ability. It is important to note that students were chosen for the study on the basis of their ability to perform intentional communication, which would place all students at Level 3 or higher on this measure.

Construction of Play Categories
Although PAQ is roughly developmentally sequenced, it does not provide a means of understanding overarching categories of the development of play. Therefore, we selected a framework for categorizing the types of play behavior assessed by PAQ. Ogura (1991) proposed 13 categories of play behavior, which were derived from the McCune-Nicolich (1986) Sequence of Symbolic Development Expressed in Play and Language. The Ogura framework was chosen because of its appropriate sequence for the development of symbolic play and the ability to capture small increments in the development of play. The sensitivity to discern subtle changes in play behavior for students with multiple disabilities or deaf-blindness is key because these students often progress through various stages of development at a slower rate than their typically developing peers (Beeghly & Cicchetti, 1987; McCune-Nicolich, 1981).

The 13 categories proposed by Ogura (1991) include simple manipulation, sensory effects manipulation, inappropriate relational manipulation, container relational manipulation, grouping manipulation, functional relational manipulation, conventional naming act, pretend self-play, pretend other-play to dolls, pretend other-play to other people, substitution play, combinations of a single scheme, and planned play. Each question on PAQ was reviewed by two researchers and assigned to the appropriate Ogura grouping for categorical analysis. A third researcher later reviewed both PAQ and the Ogura framework and confirmed the groupings independently without knowledge of the previous findings.

Synchronicity of PAQ and Ogura’s Framework
The questions on PAQ were not evenly distributed across the Ogura categories. The earlier stages of development were less well represented on PAQ than were the later stages of development. The uneven distribution of PAQ questions per developmental category suggests that PAQ may be more sensitive to later developmental changes in play, since more
questions fell within the later developmental categories, allowing for the increased ability to examine both play behavior and progress. For example, only 1 question on PAQ addressed simple manipulation, the earliest developmental play stage, whereas 13 questions addressed planned play, the most advanced play stage.

One category of Ogura’s framework that was not addressed by PAQ was grouping manipulation, which involves grouping together two or more similar objects (Ogura, 1991). Conversely, Question 18 on PAQ was not represented by Ogura’s framework. For this question, we added a self-generated category of reciprocal imitation, since the question addresses imitative interaction between a parent or teacher and a student. This type of imitation has been noted as an important skill for students, so the researchers believed it was important to acknowledge.

**DATA ANALYSIS**

The individual responses of the parents and teachers on PAQ were examined to uncover patterns through the formal yes, no, and with help responses to items on the scale. Next, the responses were coded on the basis of Ogura’s (1991) categories, and a one-way analysis of variance was run using the Statistical Package for the Social Sciences (SPSS) to examine relationships among categories and students’ variables, including the level of communication on the Communication Matrix, raters, and type of disability. Since one student with multiple disabilities had only a teacher report completed, his scores were excluded during the portion of the analysis that compared the parents’ and teachers’ responses.

**Results**

**DEVELOPMENTAL SEQUENCE OF PLAY**

After coding PAQ on the basis of Ogura’s (1991) framework, we found that the earlier questions on PAQ fell within the same or adjacent Ogura category. The later PAQ questions usually fell within the same or adjacent category, but had more deviations from this pattern, starting with substitution play and continuing through planned play. For this range of categories, the questions were not clearly clustered by number groups; instead, they crossed over categories and ranged from 6–13 questions, as opposed to the earlier categories, which ranged only from 1 to 5 questions per category.

The mean scores declined as the play categories became increasingly developmentally difficult, indicating that fewer students were able to perform the most developmentally difficult tasks. Neither the parents nor the teachers rated any student as able to perform play tasks within two categories of play, pretend doll play and substitution play (see Table 1).

**RESULTS BY DISABILITY**

When the categories were analyzed for differences in mean scores on the basis of the students’ documented disabilities, differences were found in only 3 of Ogura’s 13 categories: container relational manipulation ($F = 6.454, p = .020$), functional relational manipulation ($F = 12.231, p = .002$), and pretend self-play ($F = 13.868, p = .001$). For these three categories, the students who were deaf-blind were rated as being capable of performing the play
skill at a higher rate than were the students with multiple disabilities. All other categories of play showed no significant differences between the disability groups (simple manipulation, $F = 3.252, p = .087$; sensory effects manipulation, $F = .029, p = .122$; inappropriate relational manipulation, $F = 2.627, p = .122$; conventional naming act, $F = .869, p = .363$; pretend other play, $F = 3.277, p = .086$; combinational symbolic play, $F = .163, p = .691$; planned play, $F = .794, p = .384$; and reciprocal imitation, $F = .027, p = .872$).

**RESULTS BY RATER**

There were no significant differences between the mean responses provided by the parents and the teachers for any category of play (simple manipulation, $F = 2.419, p = .137$; sensory effects manipulation, $F = .619, p = .442$; inappropriate relational manipulation, $F = .257, p = .618$, container relational manipulation, $F = 4.373, p = .051$; functional relational manipulation, $F = .060, p = .809$; conventional naming act, $F = 3.470, p = .079$; pretend self-play, $F = .240, p = .630$; pretend other play, $F = .000, p = 1.0$; combinational symbolic play, $F = .122, p = .731$, planned play, $F = .602, p = .448$; and reciprocal imitation, $F = .000, p = 1.0$).

**RESULTS BY LEVEL OF COMMUNICATION**

Each Ogura category was also examined using the students’ communication levels, as measured by their average scores across the four intents on the Communication Matrix. The Communication Matrix scores for the students ranged from Level 3 to Level 6. Differences were found in 6 of the 13 Ogura categories, including sensory effects manipulation ($F = 4.621, p = .009$), inappropriate relational manipulation ($F = 3.587, p = .025$), functional relational manipulation ($F = 5.090, p = .006$), pretend other play ($F = 3.008, p = .045$), combinational symbolic play ($F = 5.565, p = .004$), and planned play ($F = 3.429, p = .029$). For these categories, an examination of the means indicated that the students with

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**Table 1**

Ogura’s framework and the Play Assessment Questionnaire.

<table>
<thead>
<tr>
<th>Ogura category</th>
<th>PAQ question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple manipulation</td>
<td>3</td>
</tr>
<tr>
<td>Sensory effects manipulation</td>
<td>1, 2, 4, 5, 7</td>
</tr>
<tr>
<td>Inappropriate relational</td>
<td>6</td>
</tr>
<tr>
<td>Container relational manipulation</td>
<td>8, 10</td>
</tr>
<tr>
<td>Grouping manipulation</td>
<td>None</td>
</tr>
<tr>
<td>Functional relational</td>
<td>12, 13</td>
</tr>
<tr>
<td>Conventional naming act</td>
<td>9, 11</td>
</tr>
<tr>
<td>Pretend self-play</td>
<td>14</td>
</tr>
<tr>
<td>Pretend other play</td>
<td>15, 16, 31</td>
</tr>
<tr>
<td>Pretend doll play</td>
<td>19, 30</td>
</tr>
<tr>
<td>Substitution play</td>
<td>20, 21, 22, 23, 24, 25, 27</td>
</tr>
<tr>
<td>Combinational symbolic play</td>
<td>18, 22, 26, 29, 32, 33, 34, 35, 37, 38, 40, 41, 44</td>
</tr>
</tbody>
</table>

Note: Question 18 did not fit into any category, so a new category was created for this question, reciprocal imitation.
higher levels of communication abilities were rated as demonstrating developmentally more advanced play behaviors than were those with lower levels of communication ability, as measured by the Communication Matrix.

Discussion

Both PAQ and Ogura’s (1991) categories of play were created with the intention of being developmentally sequenced. In examining the responses for each category, we found that the mean scores declined as the categories became increasingly developmentally difficult, which lends credibility to the idea that the Ogura categories are developmentally sequenced. The PAQ also appeared to be generally consistent with a developmental sequence, in that the students were able to perform better on Questions 1–13, which dealt with tangible object manipulation, but demonstrated more difficulty on the remaining questions, which focused on more advanced levels of play, including the use of symbols in play.

Compared to the mean scores for the Ogura categories, the mean scores for the individual questions on PAQ were more variable. Although the students were rated higher in ability for the early questions on PAQ, there were more peaks and lulls in the data by question. For example, the mean ratings fell for Questions 8 and 9, but spiked for Questions 18, 27, and 29. These patterns make sense because of the nature of the individual task being queried. Question 8 required motor dexterity in manipulating objects with apparent intent, which may be difficult for students with motor difficulties (approximately half the students who were assessed). Question 9 required an association of sound to play, which is difficult for students who have hearing loss (approximately half the students who were assessed). Conversely, Question 18 involved imitation skills, and Questions 27 and 29 involved sequencing, all aspects of learning that were observed as being heavily emphasized in the classrooms that were involved in the study.

None of the students in this study were able to complete tasks related to symbolic play involving dolls or play involving symbolic substitution of one item for another. It appears that developing symbolic relationships, whether in play or in language, may be challenging for students who are deaf-blind or have multiple disabilities and visual impairments, since these students’ access to the environment is limited. These students may need additional environmental support and opportunities to engage in symbolic play activities, whether in the classroom or at home.

Both the parents and teachers rated the play behaviors of their children or students similarly in all categories of play. This finding lends credibility to the data, since multiple raters were in agreement about the students’ abilities. It could also mean that play is a particular activity that can transcend the school-versus-home context, which supports play-based assessment as a means of accessing skills that may otherwise not be seen at school (Linder, 2008a). In today’s era of standardization and accountability, it is important to remember the value of play as both an assessment and an instructional tool to support students’ development and learning.

When differences between students who were deaf-blind and those with
multiple disabilities were examined, only three areas of play were found to have significant differences. The students who were deaf-blind were rated as being able to bring together and integrate two objects in an appropriate manner (functional relational manipulation), place an object in or on another object (container relational manipulation), and engage in pretend behavior with themselves (pretend self-play) at a higher level of proficiency than were the students with multiple disabilities and visual impairments. The abilities to bring together objects and to place objects in or on one another were most likely affected by limitations in upper-limb movement and control, experienced by three of the five children with multiple disabilities and visual impairments.

The findings also provide further evidence of a relationship between play and language development for students with multiple disabilities or deaf-blindness. On the basis of the pattern of significant differences within the data, the stronger communicators demonstrated significantly higher levels of play behavior in 6 of Ogura’s 13 areas of play: sensory effects manipulation, inappropriate relational manipulation, functional relational manipulation, pretend other play, conventional symbolic play, and planned play. Higher documented levels of communication in these areas corresponded with the parents’ and teachers’ reports of the children’s more advanced levels of play.

It is interesting to note that 9 of the 13 categories showed no significant relationships with communication levels: simple manipulation, inappropriate relational manipulation, container relational manipulation, grouping manipulation, conventional naming act, pretend self-play, pretend doll play, substitution play, and reciprocal imitation. Although some connections between play and communication have been established here and in other research (Casby & Della Corte, 1987; McCune, 1995; McCune-Nicolich, 1981; Shore et al., 1984), the complex nature of the relationship has yet to be thoroughly explored, which may account for these findings. Another possible explanation is that PAQ may not be as sensitive to small changes in the development of play, especially in the beginning categories. The small number of students in this study, as well as the unequal distribution of questions in each category, may have also influenced these findings.

**Implications for research**

The findings provide support for the connection between language and the development of play. Further research that expands on the connection between categories of play and linguistic markers is warranted. In addition to collecting data from parents and teachers, observations of students engaging in play activities may yield insights with greater depth into the development of play and the connections of play behavior to language. Play assessments with an adequate number of items on handling objects and on the early stages of play (presymbolic play) may yield particularly useful information for students who are deaf-blind or have multiple disabilities and visual impairments.

There were documented differences in the play behavior of students who are deaf-blind and students with multiple disabilities and visual impairments with regard to bringing together multiple objects correctly (functional relational manipulation) and pretend play directed toward...
themselves (pretend self-play). Future research should continue to investigate the development of play skills and the impact of disability characteristics, such as the degree of visual impairment, hearing loss, or motor function.

The students were rated as unable to complete play tasks that were related to pretend play with dolls and combinations of different play schemes, both aspects of symbolic play. Research in the area of play that examines various types of symbolic play tasks may be beneficial to understanding which skills are most challenging to students and thus help educators promote appropriate interventions. Similar schemes in language development may also be investigated, given that language and play appear to be linked.

More research on how certain areas of communication relate to specific areas of play is needed. Studies that investigate play interventions and their effect on the development of communication skills would also be beneficial. Information gained from these research endeavors could be used to inform teachers about how to best pair play and communication instructional strategies to promote communicative development.

**Implications for Practice**

Since the research indicated that the development of play and communication skills are linked for students who are deaf-blind and children with multiple disabilities and visual impairments, classroom teachers can use play techniques and strategies to reinforce the development of communication, an area that is known to be important for students with multiple disabilities and visual impairments or deaf-blindness (Bruce, 2005). Knowing that play behaviors have a developmental progression similar to the Ogura (1991) framework, teachers may be able to use the framework’s categories as a way to set goals and move students along the developmental continuum by examining the kinds of play behaviors that students currently demonstrate, allowing for instructional goals that are developmentally sequenced and instruction that is provided at an appropriate level of difficulty.

Increasing exposure to play involving symbolic tasks may be an important instructional consideration. More opportunities to engage in pretend play surrounding the use of dolls or imaginative play with substitutions for objects could be a valuable tool to explore symbolic relationships that could potentially assist in the development of symbolic schemes not only for play, but for linguistic relationships.

The findings also support the use of play-based assessment in the classroom as a way of accessing skills that are developing not only in school, but also at home. Play may be a valuable resource for evaluating and monitoring the development of skills in a variety of areas, including those related to language development. By examining play abilities and skills that emerge during play, researchers may develop a naturalistic picture of the children (Linder 2008a).

**References**


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