BARRIERS TO PARTICIPATION IN KINDERGARTEN LITERACY INSTRUCTION FOR A STUDENT WITH AUGMENTATIVE AND ALTERNATIVE COMMUNICATION NEEDS

LISA A. PUFPAFF

Ball State University

Preliminary findings and implications from this study were presented at the 45th Annual Convention of the International Reading Association in Indianapolis, Indiana, April 30, 2000.

The author would like to express sincere gratitude to the kindergarten teacher who cooperated with this study and willingly allowed the researcher unlimited access to her classroom. The author also thanks all the school personnel and students who made this study possible as well as the Purdue University AAC Group for their feedback during the course of this project. The author especially thanks Erna Alant, University of Pretoria, South Africa for her guidance in the organization of key sections of this manuscript. © 2008 Wiley Periodicals, Inc.

Participant observation methodology was used to investigate the development of emergent literacy skills of a 7-year-old student with augmentative and alternative communication (AAC) needs who was integrated into a general education kindergarten classroom. The participant qualified for special education services under the categories of communication disorder and intellectual disability. The kindergarten curriculum utilized the Building Blocks reading program, a balanced approach to literacy instruction based on the Four Blocks literacy framework. The participant was observed for 8 months in the kindergarten classroom and other educational settings. Results indicated that both access barriers (resulting from the participant’s impairments) and opportunity barriers (i.e., practice, knowledge, and skill barriers imposed by others) limited the student’s active participation in literacy instruction due to a lack of collaboration among key school personnel, and appropriate supports and accommodations provided to the participant. Findings are discussed in terms of the barriers to academic and social participation, potential causes for barriers, and possible solutions.

It has been suggested that lack of literacy development in young children with disabilities is a result of absent or inappropriate instruction, rather than an outcome of the disability (Cawley & Parmar, 1995; Katims, 1991). There is growing evidence that students across disability categories can develop reading and writing skills when provided with appropriate, explicit literacy instruction (e.g., Conners, 1992; Cupples & Iacono, 2002; O’Connor, Notari-Syverson, & Vadasy, 1998). Given the evidence that students with a variety of disabilities can learn to read, there is increased interest in the literacy development of students with severe speech impairments (e.g., Blischak, Gorman, & Lombardino, 2003). Students who lack the ability to use speech to meet their daily communication needs often require an augmentative or alternative communication (AAC) system (Lloyd, Fuller, & Arvidson, 1997). Students who require AAC systems, especially those with concomitant cognitive and/or physical impairments, are at great risk for not developing functional literacy skills (Smith, 2005).

Given the importance of literacy skills, it is of great concern that many individuals with AAC needs do not develop even basic skills (Koppenhaver & Yoder, 1993). Those who develop some literacy skills tend to be delayed (Berninger & Gans, 1986; Foley, 1993) and experience great difficulty with written language (Berninger & Gans; Kelford Smith, Thurston, Light, Parnes, & O’Keefe, 1989). The acquisition of literacy skills is critical for students with AAC needs to effectively participate in the general education curriculum. Reading and writing can provide a means to circumvent many communication limitations and provide a large and diverse vocabulary that

Correspondence to: Lisa A. Pufpaff, PhD, Department of Special Education, Teachers College 722, Ball State University, Muncie, IN 47306. E-mail: lapufpaff@bsu.edu

582
enables those with AAC needs to communicate novel messages to a wide range of communication partners (Kelford Smith et al.).

Although empirical evidence is limited, students with AAC needs have demonstrated the ability to improve spelling skills (DeCoste, 1993; Koke & Neilson, 1987; Koppenhaver & Yoder, 1989; McNaughton & Tawney, 1992; Schlosser, Blischak, Belfiore, Bartley, & Barnett, 1998), listening comprehension (de Hoop, 1965), rhyming (Blischak, 1995), and word recognition (Koppenhaver & Yoder, 1988). Each of these studies, though, explored the use of a specific instructional technique to teach an isolated skill. Few studies have examined the overall literacy development of students with AAC needs included in general education classrooms (Erickson, Koppenhaver, Yoder, & Nance, 1997; McGinnis & Beukelman, 1989). In a summary of five observational classroom studies, Koppenhaver and Yoder (1993) found that students with AAC needs (a) received less literacy instruction than did their peers without disabilities, (b) took a less active role in that instruction, (c) were often isolated from peers during instruction, and (d) experienced frequent interruptions during literacy instruction. Instruction typically focused on learning words and/or phrases out of context, filling in blanks on worksheets, or spelling words in isolation. Literacy instruction was often provided by paraprofessionals rather than classroom teachers, and the quality of language interaction was often altered due to the misconception that students who do not speak are unable to understand typical classroom language.

The placement of students with AAC needs into general education classrooms can result in numerous barriers to the students’ participation in literacy instruction (Zascavage & Keefe, 2004), especially if students do not have a functional AAC system available. They may be unable to answer the teacher’s questions, participate in discussions, interact with their peers, or initiate conversations. General education teachers, for the most part, are unprepared to provide appropriate, individualized instruction to students with AAC needs (Katims, 1999). The result is that students are physically present in the classroom, but unable to actively engage in the curriculum (Brice & Miller, 2000).

Potential barriers to the participation of students with AAC needs in general education settings must be identified and addressed prior to the inclusion experience. Beukelman and Mirenda (1992) described two general categories of barriers. Access barriers are related to “the capabilities, attitudes, and resource limitations of potential AAC users themselves, rather than to limitations of their societies or support systems” (p. 111). Access barriers are the result of physiological impairments that have not or cannot be circumvented using compensatory strategies and/or techniques that allow the student to function in typical activities in a typical manner. Opportunity barriers, in contrast, are imposed by individuals other than the person with AAC needs. Opportunity barriers are grouped into five subcategories: policy, practice, attitude, knowledge, and skill.

Policy barriers result from legislation or regulations within the agency or setting where the student with AAC needs is provided services. They are typically written procedures that interfere with students’ opportunities to participate to their fullest potential (e.g., restricting school-owned assistive technology from being taken home for use with homework). In contrast, practice barriers are procedures or commonly accepted conventions that are not actual written policies but are often implemented as if they were (e.g., providing related services to students in an isolated setting rather than within naturally occurring educational activities).

Attitude barriers are often the most difficult forms of barriers to remedy. Attitude barriers result from a negative, exclusionary, or prejudicial disposition of an individual in the student’s environment. Attitude barriers often result in limited expectations of the student with AAC needs, leading to restricted opportunities for participation. Knowledge and skill barriers result from a service provider’s lack of information or skill regarding assessment and/or intervention options, assistive technology, and/or support strategies to use with students who have AAC needs.
Kent-Walsh and Light (2003) described several barriers identified by general education teachers based on their actual experiences with students with AAC needs included in their classrooms. Seven of the eight barriers identified by the teachers could be classified as opportunity barriers. Such barriers included a lack of collaboration and/or communication among key school personnel, lack of time needed for planning and preparation, lack of training in special education and AAC, and difficulty adapting curricular activities to meet the needs of students who used AAC. The types of opportunity barriers to literacy acquisition for students with AAC needs are numerous and interrelated. Zascavage and Keefe (2004) identified a wide range of policy, practice, knowledge and/or skill, and attitude barriers to literacy education as perceived by parents of children with AAC needs, special education teachers, university faculty, and special education administrators. A common theme across barriers was that teachers are unprepared to provide appropriate literacy instruction to students with AAC needs.

To date, there are no published studies that have explored the use of commercially available reading curricula to teach literacy to students with AAC needs in the inclusive setting. A balanced approach to reading instruction has often been recommended (Blau, 1986; Erickson & Koppenhaver, 1995; Hicks, 1988; Smith & Blischak, 1997), which is aligned with current scientific evidence on appropriate literacy instruction for students who are typically developing (National Reading Panel [NRP], 2000). The NRP review of the scientific literature on teaching children to read identified five key components of reading: vocabulary, phonemic awareness, phonics, fluency, and comprehension. The Four Blocks literacy framework (e.g., Cunningham, Hall, & Defee, 1991, 1998) incorporates these components of a balanced reading program.

The Four Blocks is a framework for beginning reading instruction that addresses the varying needs of students without using ability groups (Cunningham et al., 1998). Daily language arts instructional time is evenly divided among four traditional approaches to reading instruction: guided reading, self-selected reading, writing, and working with words and/or phonics (Hall, Prevatte, & Cunningham, 1995). The guided reading block exposes students to a variety of literature genres, teaches comprehension skills, and teaches students to read from increasingly more difficult material. Materials range from basal readers to trade books to children’s magazines. In the self-selected reading block, students choose their own reading material and share and respond to what they have read. The writing block begins with a mini-lesson in which the teacher models various aspects of writing and editing. Afterward the students engage in their own writing. Finally, in the working with words block, “children learn to read and spell high-frequency words and learn the patterns which allow them to decode and spell lots of words” (Cunningham & Hall, 1997, p. 6).

Although the Four Blocks reading program was initially developed for use in first grade, it has been adapted and used across grade levels (Sigmon, 2001). It has also been successfully implemented in a classroom of elementary-aged students with mild to moderate cognitive impairment (Hedrick, Katims, & Carr, 1999). In the classroom used for this study, the Building Blocks reading program was being implemented. The Building Blocks program is the kindergarten version of the Four Blocks and addresses six critical areas of literacy experience for young children:

1. Reading and writing for enjoyment
2. Development of vocabulary for reading, writing, speaking, and listening
3. Development of concepts about print such as reading from left to right
4. Development of phonemic awareness skills
5. Learning to read and write personally motivated words such as Pizza Hut
6. Development of letter names and sounds (Hall & Cunningham, 1997)

In light of the importance of literacy development for students with AAC needs and the continuing trend toward full inclusion, reading and writing instruction provided in general education classrooms must become a research priority in the AAC field. The purpose of this study was to
explore the feasibility of using a balanced reading program such as the Building Blocks to meet the literacy learning needs of young children with AAC needs within a general education setting. The specific research goals were to (a) identify the literacy activities conducted within the Building Blocks program, (b) describe the opportunities for participation within those activities, and (c) document the participation patterns of students with AAC needs in the literacy activities in a kindergarten classroom.

**METHOD**

This study was conducted within an interpretivist paradigm (Ferguson, Ferguson, & Taylor, 1992; Jacob, 1990) using participant observation and unstructured and semistructured interviews (Patton, 1990). The interpretivist approach is well suited to exploring the realities of inclusive educational environments (Jacob) in order to provide a holistic view of the setting and uncover issues that might not be noticed when conducting traditional empirical research wherein variables are isolated and studied individually (Stainback & Stainback, 1984). Initially three participants who were integrated in the same half-day kindergarten program were chosen for this study. All were diagnosed with mild cognitive impairment and a severe speech impairment resulting in AAC needs. Shortly after the study began, two of the three participants were removed from the kindergarten classroom at their parents’ request. The project was continued with one participant.

This was the first study to explore the participation of a student with AAC needs in a balanced reading program within a general education environment and, by offering rich descriptions of the student’s experience, can offer future researchers insight into issues that need to be explored further (Stainback & Stainback, 1989). The investigator’s role was to observe, describe, and interpret the participant’s visible behaviors, including nonsymbolic communication (e.g., gestures, facial expressions), within the context of the antecedent and consequent actions and spoken utterances of those in the environment.

**Participant**

The participant, William (a pseudonym), was 7 years old and had an educational classification of mild intellectual disability and communication disorder. William had fine motor impairments (FMI) and coordination impairments that made it difficult for him to independently participate in activities such as writing and cutting. He was active and had a limited attention span.

William’s receptive communication was adequate to follow simple directions, answer yes or no questions, and make choices. Although he had little to no intelligible speech, William used a variety of nonsymbolic communication behaviors (including vocalizations) to gain attention, exhibit pleasure and pain, and to approximate some spoken words (e.g., “mamama” for mother). He pointed to objects in the environment to make choices and respond to wh- questions (e.g., pointed to the computer when asked, “What do you want during free time?”). He shook his head for “no” and nodded for “yes.” William also used facial expressions and body movements to communicate. He smiled, grimaced, maintained eye contact, and looked away. He also pulled his body away or turned away from objects, activities, and/or people that he did not like. He closed his eyes, laid his head on the table, or lay on the floor to avoid activities or to indicate he was finished.

William was just beginning to use symbolic modes of communication at the beginning of this study. He was being taught manual signs in the special education classroom that he attended during the afternoon. Although he was able to produce 10 to 15 manual signs upon request (e.g., “What is the sign for stop?”), he used very few spontaneously (i.e., book, music, eat) and only for requesting. Both the special education teacher and the speech-language pathologist used communication boards containing Picture Communication Symbols (PCS; Johnson, 1992) with William within specific
activities (e.g., calendar time, storybook reading). The communication boards typically contained six to eight nouns specific to an activity, and William was being taught to use the symbols to label objects and answer wh- questions related to the activity (e.g., “What day is today?”). Toward the end of the study, an AAC facilitator began using activity-specific communication boards with William one day a week in the kindergarten classroom. Each board contained eight PCS for use during calendar and language board activities.

William also displayed a variety of challenging behaviors (CB) such as pushing adults away, grasping and pulling clothing and jewelry, grabbing instructional materials and wadding, biting, and chewing them, pushing instructional materials off desks and/or tables, throwing objects, and vocalizing and laughing loudly. These CB resulted in William being socially isolated and interfered with his acquisition of new skills (Durand, 1990). Although a functional assessment had not been conducted to identify the function of William’s CB (Durand), most of the behaviors appeared to function as communicative requests to escape undesired tasks, demands, or people.

Data Collection

This case study was conducted within an interpretivist paradigm (Jacob, 1990; Rabinow & Sullivan, 1979), using participant observation and unstructured and semistructured interviews (Patton, 1990). Observational data were collected during 25 sessions between September and May. There were 14 observation sessions in the kindergarten classroom and 11 in the special education classroom, each ranging from 1 to 3 hours depending on William’s schedule. Observation sessions in the kindergarten were scheduled for the entire morning (i.e., 3.5 hr), but William was frequently removed from the classroom for pull-out therapies or to return to the special education classroom when the kindergarten staff felt that his CB were too disruptive. Descriptive field notes (Bernard, 1995) were used as the primary data-recording method. Key words and/or phrases were recorded while in the classroom, and field notes were dictated immediately following each session. The field notes were then transcribed verbatim. Fifty percent of the observation sessions were videotaped to compare with field notes.

Unstructured interviews were conducted with the kindergarten teacher, kindergarten paraprofessional, and special education teacher. These interviews were informal and occurred approximately twice per month. The interviews were used to clarify scheduling discrepancies, clarify strategies being used within the Building Blocks program, and determine the teachers’ perceptions of William’s participation and success rate in the kindergarten classroom. Responses from the unstructured interviews were included in the field notes. At the conclusion of the study, a semistructured interview (Patton, 1990) with the kindergarten teacher was completed, audiotaped, and transcribed. Documents from William’s education file containing reports written by educational and medical personnel who had worked with William from the time he was 3 years old were also used to gather data.

Credibility and Validity

Strategies used to enhance credibility and validity included prolonged engagement, persistent observation, triangulation, and peer debriefing (Lincoln & Guba, 1985; Patton, 1990). Eight months were spent collecting data across all school activities of the participant, allowing for comparison of observable behaviors across settings. Triangulation was used to cross-check the consistency of data from multiple sources by comparing information from field notes collected in both classrooms, videotapes from the kindergarten classroom, the semistructured interview with the kindergarten teacher, and documents in the participant’s special education file. Peer debriefing took place across the study through dialogic engagement about problems, concerns, and initial findings with colleagues who had expertise and experience in a variety of related fields. Colleagues provided feedback.
by probing possible investigator biases, exploring meanings and/or relationships in the data, and clarifying interpretations and findings.

Data Analysis

Field notes were reviewed at the end of each week in search of repeating topics and developing patterns or themes (Miles & Huberman, 1994). Themes and potential linkages in the data connecting similar instances of the same phenomenon were noted in the margins of field notes. Coding categories emerged in two broad groups (Patton, 1990): indigenous concepts (e.g., categories based on objective descriptions, overt behaviors, and activities inherent in a kindergarten classroom), and sensitizing concepts (e.g., categories or patterns developed based on the investigator’s interpretations of the observations). Analytic notes (Bernard, 1995) were developed wherein interpretations of the data began to emerge. These notes guided further data collection and developing the development of assertions. Additionally, negative case analysis (Lincoln & Guba, 1985) was used; as initial assertions were being developed and exemplified, all data sources were searched for examples that did not fit the assertions.

Results

Data analysis resulted in two assertions: William’s participation in the kindergarten classroom was affected by access barriers resulting from his disabilities; and opportunity barriers affected William’s level of participation and acquisition of literacy skills. Although the original aim was to document the development of literacy skills of a student with AAC needs across a school year and to describe the contributing instructional activities, the reality of William’s experience in the kindergarten classroom was a series of barriers to his participation, resulting in limited acquisition of new literacy skills. Therefore, the data analysis revolved around identifying the barriers, possible causes for barriers, and potential solutions.

The findings describe access and opportunity barriers that affected William’s participation in the Building Blocks activities as compared to his peers’ participation. Table 1 presents an outline of the opportunities for participation available within each of the four main activities of the Building Blocks reading program in which William participated: self-selected reading, calendar, language board, and working with words. William’s typical forms of participation are outlined, and the types of barriers affecting his participation are identified.

Three primary access barriers influenced William’s participation: lack of functional speech (LFS), CB, and FMI. The lack of appropriate intervention to address William’s disabilities resulted in numerous opportunity barriers. Two overarching and overlapping opportunity barriers (including practice, knowledge, and skill barriers) were identified from the results of this study. First, the lack of collaboration among key school personnel resulted in (a) minimal planning and preparation for William’s integration, (b) no delineation of the roles and responsibilities of key school personnel, (c) no training provided to the kindergarten teacher, and (d) a lack of the necessary supports for the kindergarten teacher. Second, William was not provided with the supports he needed to successfully participate in the kindergarten classroom. William needed (a) an appropriate AAC system, (b) provision of effective instructional practices, and (c) peer preparation and training.

Self-Selected Reading

Self-selected reading was the least structured activity of the day. Upon arrival to the classroom – a place often filled with chatter – students signed in, gathered five books of their choice, sat at a table, and began reading independently. The teacher wandered around the tables and conducted individual conferences with students – asking questions related to concepts of print, comprehension, or general perceptions of the story or favorite characters.

Psychology in the Schools DOI: 10.1002/pits
Table 1
William’s Participation in Building Blocks Activities Compared to Peers’ Participation

<table>
<thead>
<tr>
<th>Peers’ Typical Daily Participation</th>
<th>William’s Participation (Frequency(^a))</th>
<th>Access Barriers</th>
<th>Opportunity Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-selected reading (15 min)</td>
<td>Located written name on sign-in sheet</td>
<td></td>
<td>Practice</td>
</tr>
<tr>
<td>Located written name on sign-in sheet (1)</td>
<td></td>
<td>Knowledge</td>
<td>Skill</td>
</tr>
<tr>
<td>Wrote name on sign-in sheet</td>
<td>Wrote name with physical assistance (3)</td>
<td>FMI(^b)</td>
<td>Practice</td>
</tr>
<tr>
<td>Independently chose five books from among all tubs</td>
<td>Independently chose books from same one tub (11)</td>
<td>Practice</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Sat in a chair around a large table with peers</td>
<td>Sat on floor by himself (11)</td>
<td>Knowledge</td>
<td>Skill</td>
</tr>
<tr>
<td>Socialized with one another about topics unrelated to books</td>
<td>Waved at peer (1)</td>
<td>LFS(^b)</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Read books (silently, orally to themselves, orally to a peer or teacher)</td>
<td>Gestured toward peer and vocalized (1)</td>
<td>Practice</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Looked at pictures in books (12)</td>
<td>Bent/bit/chewed books (12)</td>
<td>CB(^b)</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Did not respond to social initiation by peer (2)</td>
<td>Did not sing song with peers (12)</td>
<td>LFS</td>
<td>Practice</td>
</tr>
<tr>
<td>Did not sing part of a song (12)</td>
<td>Did not respond to question within a song (2)</td>
<td>LFS</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Responded to question within a song with unintelligible vocalization (1)</td>
<td></td>
<td></td>
<td>Skill</td>
</tr>
<tr>
<td>Did not sing song with peers (12)</td>
<td>Did not sing part of a song (12)</td>
<td>LFS</td>
<td>Practice</td>
</tr>
<tr>
<td>Sang part of a song or responded to question within a song</td>
<td>Did not respond to question within a song (2)</td>
<td>LFS</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Sang song in unison with peers</td>
<td>Responded to question within a song with unintelligible vocalization (1)</td>
<td></td>
<td>Skill</td>
</tr>
<tr>
<td>Performed gestures or actions during a song</td>
<td>Independently performed gestures or actions during a song by imitating peers (4)</td>
<td>FMI</td>
<td>Practice</td>
</tr>
<tr>
<td></td>
<td>Physically prompted by paraprofessional to perform gestures or actions during a song (2)</td>
<td></td>
<td>Knowledge</td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Peers' Typical Daily Participation</th>
<th>William’s Participation (Frequency^)</th>
<th>Access</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made a comment</td>
<td>Pointed toward object and vocalized repeatedly (1)</td>
<td>LFS</td>
<td>Practice Knowledge Skill</td>
</tr>
<tr>
<td></td>
<td>Touched peer’s head (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waved at a visitor and vocalized (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Language board (20 min)</strong></td>
<td>Did not respond to open-ended question when called on by teacher (3)</td>
<td>LFS</td>
<td>Practice Knowledge Skill</td>
</tr>
<tr>
<td>Answered open-ended question when called on by teacher</td>
<td>Imitated teacher’s answer with unintelligible vocalization (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Imitated teacher’s gesture (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answered open-ended question by pointing (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answered yes or no question when called on by teacher</td>
<td>Practice Knowledge Skill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answered open-ended question in unison with peers</td>
<td>Practice Knowledge Skill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answered question aloud even when not called on by teacher</td>
<td>Vocalized and performed manual sign in response to teacher’s question (1)</td>
<td>Knowledge Skill</td>
<td></td>
</tr>
<tr>
<td>Asked teacher a question</td>
<td>Imitated teacher’s answer with unintelligible vocalization (2)</td>
<td>LFS</td>
<td>Practice Knowledge Skill</td>
</tr>
<tr>
<td>Made a comment</td>
<td>Made loud noises, clapped hands, giggled, laid on floor (5)</td>
<td>LFS</td>
<td>Knowledge Skill</td>
</tr>
<tr>
<td></td>
<td>Pointed to fly and vocalized (1)</td>
<td>CB</td>
<td></td>
</tr>
<tr>
<td>Socialized with a peer</td>
<td>Practice Knowledge Skill</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working with words (10 min)</strong></td>
<td>Selected new word from “mystery box” (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selected new word from “mystery box”</td>
<td>Selected new word from “mystery box” (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sounded out written mystery word</td>
<td>Held letter card (4)</td>
<td>CB</td>
<td>Knowledge Skill</td>
</tr>
<tr>
<td>Held letter card for cheering mystery word</td>
<td>Bent and/or bit letter card (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chanted in unison the mystery word cheer</td>
<td>Held letter card (4)</td>
<td>CB</td>
<td>Knowledge Skill</td>
</tr>
<tr>
<td>Placed letter on graphing chart</td>
<td>Placed letter on graphing chart (3)</td>
<td>CB</td>
<td>Practice Knowledge Skill</td>
</tr>
<tr>
<td>Placed magnetic letter on chalkboard</td>
<td>Bent and/or bit letter card (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulled items off wall (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answered open-ended question when called on by teacher</td>
<td>Raised his hand in response to “who” question (2)</td>
<td>LFS</td>
<td>Practice Knowledge Skill</td>
</tr>
<tr>
<td>Asked the teacher a question</td>
<td>Made a comment</td>
<td>LFS</td>
<td>Knowledge Skill</td>
</tr>
<tr>
<td>Made a comment</td>
<td>Pointed at object and vocalized (1)</td>
<td>LFS</td>
<td>Knowledge Skill</td>
</tr>
</tbody>
</table>

(Continued)
Table 1
Continued

<table>
<thead>
<tr>
<th>Peers’ Typical Daily Participation</th>
<th>William’s Participation (Frequencya)</th>
<th>Access Barriers</th>
<th>Opportunity Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socialized with a peer</td>
<td></td>
<td>LFS</td>
<td>Practice Knowledge Skill</td>
</tr>
</tbody>
</table>

Note. Attitude barriers were not indicated because of the possible negative connotations. aNumber of times behavior was observed across 12 observation sessions. bFMI = fine motor impairment; LFS = lack of functional speech; CB = challenging behaviors.

Access and Opportunity Barriers. At the beginning of the school year, William was accompanied to the kindergarten classroom by a special education paraprofessional (phased out by early November). On the first day of observation William independently approached the sign-in sheet and waited for the special education paraprofessional to join him. She turned the two-sided sheet over and told William to find his name. He pointed to his name, and she handed him a pencil and physically assisted him in writing his name. On two subsequent observation sessions, she pointed to his name on the sign-in sheet and physically assisted him in writing his name. On two subsequent observation sessions, she pointed to his name on the sign-in sheet and physically assisted in writing his name.

William demonstrated that he had the ability to independently locate his written name on the sign-in sheet, but was prompted only once to do so during the observation period. He required physical assistance to write his name with a pencil due to his FMI. Therefore, without an adaptation, he could not complete the activity independently. Additionally, he resisted the physical assistance of adults by pushing them away, wadding up paper, and throwing writing instruments. When the special education paraprofessional stopped accompanying him to the kindergarten classroom, he no longer had the opportunity to locate or write his name on the sign-in sheet because he was not prompted or assisted to do so by the kindergarten staff.

During an observation early in the school year, given only a verbal prompt, William demonstrated the ability to choose books, go to the tables, find an empty seat, sit down, and begin reading his books. William was never again prompted to get his books and sit at the tables, and for the remainder of the observation sessions he sat on the floor in the same location beside a book tub each day. He typically selected a book from the nearest tub and alternated his attention between gazing around the classroom and flipping through the pages of the book as he had difficulty turning one page at a time. He frequently put books in his mouth and bit/chewed them. This behavior appeared to function as a method of gaining the teacher’s attention. During an observation session in March, William was chewing a book. The teacher reprimanded him from across the room, but he continued to chew the book. The teacher then approached him, pushed the book down into his lap, sat on the floor beside him and read two books aloud. While the teacher was reading, William smiled, pointed to pictures in the books, assisted in turning the pages, and tapped the teacher’s arm to draw her attention to pictures in the book. As the teacher stood up to leave William’s side, he immediately began biting the book again. The teacher verbally reprimanded William and walked away. He then angrily tossed the book.

William’s LFS and accompanying CB created a barrier to his interactions with peers and staff. His nonsymbolic initiations and responses (e.g., holding his book up toward the teacher) were often overlooked, ignored, or misunderstood by his peers and the kindergarten staff. Although William’s vocal communication was limited to sounds, he used a variety of socially appropriate nonsymbolic communication such as nodding or shaking his head, pointing, using facial expressions, and vocalizing.
Potential Solutions. William had a name stamp in the special education classroom. Although the special education teacher communicated during an unstructured interview that he could use it independently, observations in the special education classroom revealed that he needed physical assistance to press down the stamp adequately. An alternative solution in the kindergarten classroom may have been to provide William with preprinted, self-adhesive labels with his name for him to adhere to the sign-in sheet. Given this simple adaptation, William could have been encouraged to participate in signing in each day just as his peers did.

William was capable of following the same routines as his peers and should have been encouraged to do so each day. Had he been sitting at the tables during self-selected reading time, William would have had more opportunities to imitate the reading behaviors of his peers as well as interact with them socially. He might also have had more informal interactions with the teacher as she wandered around the classroom.

William enjoyed looking at books in the special education classroom and frequently chose to do so during free time. Through collaboration, the special education teacher could have shared with the kindergarten teacher William’s favorite topics for books. Had the kindergarten teacher been aware of William’s passion for books, she may have increased her expectations for his participation during self-selected reading time.

William’s FMI interfered with his ability to easily turn pages one at a time. Some of William’s favorite books could have been adapted for easier manipulation through the use of page fluffers (i.e., small pieces of foam adhered to each page to separate the pages), or inserting the pages in photo albums or plastic page protectors in three-ring binders. Altering the format of books may also have reduced William’s tendency to bite and/or chew them.

Calendar

The transition from self-selected reading to calendar followed a predictable routine each day. The teacher released one table at a time to put their books away and go to the calendar area. Calendar typically lasted 10 to 15 minutes and included days of the week, the date, special events or holidays, and the weather. During most observation sessions, the kindergarten paraprofessional entered the classroom shortly after calendar began.

Access and Opportunity Barriers. Transition from self-selected reading to calendar gave an opportunity for the students to socialize. While they were putting their books away and waiting for the teacher to arrive at the calendar area, they typically talked about non-school-related events. Even during this brief unstructured period, William rarely interacted with his peers. Due to the location where he sat on the floor during self-selected reading, all the students had to walk past him to put their books away, yet only two interactions between William and his peers were ever observed during this transition time. Both interactions were not so much attempts to socialize with William as opportunities to encourage him to follow the routine.

William’s LFS was a barrier during calendar, a structured, large group activity wherein the students responded to teacher-directed, open-ended questions. Although the teacher called on individual students to answer questions (e.g., “What day is today?”), students typically shouted out answers. Although William occasionally raised his hand in response to a question, without an AAC system, he could not answer open-ended questions.

Across the 12 observation sessions, William was given only three opportunities to participate. Once he was asked to go to the window to check the weather, indicate the current weather by pointing to one of four pictures, and then choose appropriate clothing for the weather bear. On a second occasion, the teacher asked William if the tally mark for that day should be up and down or diagonal. She demonstrated by drawing the respective lines in the air and William indicated the
correct answer by drawing an up and down line in the air. Lastly, the teacher asked William which color she should use on the weather graph. William had no means to provide a response to the open-ended question.

Overall, William’s level of participation during calendar was lower than that of his peers. There was an average of 18 opportunities for the students to respond to a direct question, or to otherwise participate (e.g., point to the numbers on the calendar while everyone counted aloud) on a daily basis. The teacher seemed to call on all the students equally; with 16 students enrolled in the class, each student should have had about one opportunity to respond during calendar each day. William had only three opportunities to respond across 12 observation sessions.

**Potential Solutions.** William’s limited interaction with his peers resulted not only from his LFS, but from a lack of training and/or awareness provided to the peers prior to William joining their classroom. The kindergarten students needed training in how to communicate with a peer who could not talk and how to respond to his nonsymbolic communication, including CB. Without such training, the peers simply imitated the behavior of the adults in the classroom and either ignored William or provided spoken prompts for him to follow directions.

The kindergarten teacher primarily used open-ended questions during calendar, resulting in William being unable to participate. Even without a formal AAC system, William’s participation could have been increased had the teacher altered the format of her questions to multiple choice. For example, rather than asking, “What color should I use on the weather chart?” the teacher could have held up four markers and asked William to choose the color.

**Language Board**

Language board, lasting about 20 minutes, followed calendar. The language board consisted of 24 pockets, each containing stimulus cards addressing a different concept (e.g., colors, numbers, sight words). Language board was conducted very quickly with the teacher removing the stimulus cards (e.g., three cards each with a picture and written word), displaying them, and giving a prompt (e.g., “Nest, igloo, house. What do these things have in common?”). She then called on a student to answer the question.

**Access and Opportunity Barriers.** The teacher provided William with more opportunities to participate during language board than during calendar. She typically asked him to identify the body part shown on the stimulus card by pointing to the corresponding part on his own body.

William’s LFS was a consistent access barrier across all activities, but was particularly evident during language board, as the only form of participation for the students was to respond to the teacher’s questions. William’s participation was nearly a third that of his peers. There was an average of 39 opportunities to respond each day resulting in an average of 2.4 opportunities per day per student. William had 12 opportunities to participate during 12 observations.

Both the kindergarten and special education teachers were aware of and concerned about the limitations resulting from William’s LFS as communicated during unstructured interviews early in the school year, yet it was not until January that an AAC facilitator began working with William one day a week in the kindergarten classroom during calendar and language board. The AAC facilitator prepared topic-specific communication boards. Each board contained eight locations and vocabulary pertaining to a single item within calendar or language board. Some examples were a board that contained eight different colored circles, a board with the numerals 0 to 9, and a board with eight different shapes. During each session that she was present, the AAC facilitator programmed an eight-location, speech-generating device with possible answers to one of the questions asked during language board (e.g., names of coins). The kindergarten teacher appeared pleased about the AAC
facilitator working with William. “The AAC facilitator has been coming on Wednesday mornings. Last week William was able to answer the question from the colors category on the language board by using a communication board. So that is great. I think that will give him more chances to participate” (Unstructured interview, February).

Although the kindergarten teacher seemed pleased with William’s enhanced ability to participate, she did not increase the opportunities for him to participate. Across three observation sessions when the AAC facilitator was present, William was not asked any questions during calendar and only two questions during language board. In fact, when the AAC facilitator was present, the kindergarten teacher did not ask William the questions that she had been commonly asking him prior to the AAC facilitator’s arrival (e.g., body parts).

Potential Solutions. The language board activities provided a unique context in that the pockets for each concept contained the stimulus cards for the entire week. Therefore, nearly every concept could have been addressed through the use of a multiple-choice question. For example, rather than displaying one card and asking, “What color is this?” the teacher could have displayed several cards and asked William to point to yellow.

The presence of the AAC facilitator one day per week afforded William an opportunity to demonstrate his abilities to use PCS for communication, yet the communication boards that were developed were each specific to a single question and contained only nouns. Therefore, William was still limited to simply responding to a single question at a time. William required a more comprehensive AAC system that included social vocabulary (e.g., my turn, what’s that, I don’t like it, I want more), verbs, adjectives, prepositions, and locations (e.g., lunchroom, classroom, recess, home).

Through lack of collaboration, the kindergarten teacher was unaware of the communication strategies (i.e., communication boards and manual signs) that were being used with William in the special education classroom and had not received training in how to implement them in her classroom. This resulted in continued missed opportunities for William. During an observation of language board in March, the teacher held up the concepts card that had three different bottles depicted on it. She asked, “Which bottle has the least amount of liquid?” William vocalized, “/ba/-/ba/” several times and then signed drink. Neither his attempt to say bottle nor his sign for drink was acknowledged.

Additionally, the issue of William’s CB went unaddressed. Neither the kindergarten teacher nor the paraprofessional had received training in strategies for addressing William’s disruptive behaviors, and they were unaware that most of William’s CB were communicative in nature. Therefore, the misinterpretation of William’s nonsymbolic communication remained a barrier across the school year. For example, one day in April, a kindergarten student arrived at school with his hair cut very short. During language board, the student sat beside William. William tapped the boy on his shoulder, then reached up and gently rubbed his head and smiled. The boy brushed William’s hand away, but William persisted in touching his hair. It was apparent that William was commenting on the boy’s new haircut, yet no one in the classroom understood William’s communicative intent. In the end, the teacher told the boy to move away from William and the paraprofessional physically pulled William to a corner, away from the other students.

Working with Words

Working with Words (WWW), lasting about 10 minutes, occurred in the same corner as calendar and language board. Each Monday a new word card – a printed word and picture – was drawn from the “mystery box.” Students used the picture to name the word, sounding it out as the teacher wrote it on the board. They then used magnetic letters to spell the word. The students used large, laminated letters to spell and “cheer” the word. For example, when the mystery word heart was selected, the cheer leader said, “Give me an H.” The student with H held it above his head while the students...
shouted, “H.” The leader then said, “Give me an E.” The student with E held it above her head and the students shouted, “E.” When the word was completed, the leader said, “What’s that spell?” The class shouted, “heart.” The leader said, “Say it again.” The class shouted, “heart” again. Finally, the leader said, “One more time.” The students typically screamed the word for the grand finale. The teacher then collected the laminated letters and placed them in a pocket chart on the chalkboard. Finally, the students placed small letters on the graphing chart and examined the vowels versus consonants and the length of the word in comparison to other words on the graph.

On Tuesdays, the students cheered the word from Monday then went to the tables to write the word. The teacher modeled the writing process while students imitated on their own papers and then drew a picture to go with the word. These pages were saved and stapled together at the end of the month so each student had a book of the thematically related words for the month. Following this writing activity, the word was added to the Word Wall. The same activities were replicated with a new word on Wednesdays and Thursdays of each week.

Access and Opportunity Barriers. The activities conducted during WWW required both spoken responses and physical actions; therefore, William’s participation in WWW was less restricted by his LFS than were previous activities. He was able to participate in the physical actions (e.g., holding up a letter while the students cheered out the word). On two occasions the teacher asked William to choose the new mystery word; on four occasions he was given a letter card as part of cheering the word; and on three occasions he was given a letter to place on the graph.

William did not consistently participate in WWW due to scheduling issues such as pull-out therapy. When he was present, the teacher hesitated to provide him with opportunities to participate due to his CB such as wadding up letter cards, bending and or chewing on letter cards, and pulling the graphing chart off the wall. “Sometimes when we were cheering out a word, it was just, you know, it would be kind of iffy to give him a letter card because you just didn’t know for sure if he was going to wad it up and put it in his mouth or if he was gonna actually... Sometimes he did stand up and really do it” (Structured interview). When he was given an opportunity to participate, he was typically provided physical assistance in order to prevent him from damaging the letter cards. The physical proximity and assistance from adults typically resulted in William engaging in CB such as pushing, grabbing, dropping to the floor, and making loud noises.

Potential Solutions. Through collaborative team planning and a change from the pull-out therapy model to integrated therapy, the interruptions of William’s time in the kindergarten classroom could have been reduced. Given William’s FMI, kindergarten writing activities would have been an optimal time for the occupational therapist to work with William within the naturally occurring activities of the kindergarten classroom. The use of integrated therapy would also have afforded the kindergarten teacher an opportunity to learn new strategies for addressing William’s disabilities.

The impact of William’s CB during WWW could have been reduced by using thicker laminating materials on the letter cards as well as reducing the amount of physical assistance provided to William during the activities. The kindergarten paraprofessional had received no training in working with students with special needs and often provided William with more physical assistance than was necessary. This resulted in a cyclical effect of William engaging in more CB in order to avoid the physical assistance, the paraprofessional providing more physical assistance in order to get William to participate, and William then escalating his CB to avoid further physical assistance.

DISCUSSION AND IMPLICATIONS

William, a 7-year old student with AAC needs, spent a year integrated for part of the school day in a general education kindergarten classroom. He was immersed in a literacy-rich environment...
and exposed to the multilevel activities of the Building Blocks reading program. The Building Blocks program offered innumerable opportunities for William to be actively engaged in literacy activities. Unfortunately, unresolved opportunity barriers such as lack of collaborative team planning precluded William’s active participation in the classroom and subsequent lack of acquisition of new literacy skills. Although much has been written about appropriate strategies for successful inclusion (e.g., Stainback & Stainback, 1996), evidence of minimal opportunities for academic participation and classroom structures that isolate students with AAC needs within general education settings is not uncommon (Brice & Miller, 2000).

Identification of access and opportunity barriers is a crucial component of the inclusion process (Beukelman & Mirenda, 1992) and should be conducted early in the inclusion experience in order to plan for the desired level of academic and social participation by the student with AAC needs (Kent-Walsh & Light, 2003; Soto, Müller, Hunt, & Goetz, 2001). Giangreco (2000) identified several variables critical to effective inclusion of students with multiple disabilities such as collaborative teaming, educational supports for both general education teachers and included students, and implementation of positive behavioral supports to address CB. Variables specific to students with AAC needs have also been identified such as AAC specific training for team members, additional team planning time, presence of an effective paraprofessional, peer training, and provision of an effective AAC system for the included student (Erickson et al., 1997; Kent-Walsh & Light; Soto et al.). When these critical variables are not addressed, as in William’s case, the resulting experience is less than optimal for everyone involved.

**Access Barriers**

**LFS.** William’s LFS left him unable to communicate novel messages, respond to open-ended questions, or have a conversation with his peers. His initiations and responses were limited to idiosyncratic gestures, unintelligible vocalizations, and pointing. Participation in the kindergarten classroom required the students to respond to the teacher’s questions and to interact with one another. Learning occurred as the students provided answers to teacher-directed questions. In the absence of an effective AAC system, William was unable to functionally participate in academic or social activities. The kindergarten teacher had little opportunity to evaluate his learning or identify areas of weakness. Therefore, William’s learning could not be shaped by feedback or enhanced by additional instruction. The kindergarten teacher’s inability to determine whether William made educational gains was not novel to this case study (Kent-Walsh & Light, 2003). General education teachers are typically unprepared to adapt evaluation methods suitable for use with students with limited communication skills.

William’s unconventional and ambiguous modes of communication were not understood by his peers and were often overlooked. Because kindergarten classroom membership was based on social interaction among peers, friendships were formed and broken as the students conversed, negotiated, and shared information. The kindergarten students needed to be taught how to recognize and respond to William’s nonsymbolic communication (Calculator & Jorgensen, 1991), including his CB. Although William was physically present in the kindergarten classroom, his LFS prevented him from fully participating in the kindergarten curriculum or the kindergarten “community.”

**FMI.** William had difficulty holding and manipulating traditional writing instruments independently. The Building Blocks program included numerous daily opportunities for the students to engage in writing. Without adaptations, William was limited in his ability to independently engage in writing activities. The physical assistance that was provided by the kindergarten staff during writing activities often resulted in William displaying CB such as wadding up paper, chewing on crayons, and throwing writing instruments in order to avoid the physical assistance. These CB eventually resulted in reluctance by the kindergarten staff to offer him writing opportunities.
CB. William’s CB provided a significant barrier to his participation. The kindergarten staff was often frustrated when he did not respond to typical discipline techniques. The frustration led to ignoring him, isolating him, and sometimes sending him back to the special education classroom earlier than planned. The staff hesitated to allow him access to classroom materials (e.g., word cards, crayons) due to his tendency to wad up, bite, and chew materials. William’s loud vocalizations and laughing outbursts were disruptive for the entire kindergarten classroom. The teacher ignored the disruptive behaviors whenever possible, while classmates learned to follow her example. They also learned from her example to move away from William when he was touching, tapping, and grabbing them. Being ignored and isolated further prevented William from participating during classroom activities.

Opportunity Barriers

The types of opportunity barriers affecting William’s participation in the kindergarten classroom were not unique to this study. General education teachers interviewed by Kent-Walsh and Light (2003) identified similar barriers; specifically the lack of communication and collaboration among key school personnel leading to deficient problem solving and inconsistent information sharing. Including a student who lacks functional speech is particularly problematic, given the student’s AAC needs. Few general education teachers have been trained to meet the needs of students who use AAC systems (Kent-Walsh & Light). They require knowledge and skills for interpreting the student’s nonsymbolic communication, planning accommodations for the student’s communicative needs, and assessing the student’s educational growth in the absence of functional speech. Limited collaboration among school personnel in this study resulted in little planning and preparation for William’s integration. When asked about advanced planning, the kindergarten teacher commented, “It was really just like any other student. I mean, there wasn’t a lot of preparation.”

Also evident in this study was a lack of delineation of the roles and responsibilities of key school personnel. General education teachers have stated that the support of an effective paraprofessional is invaluable for the successful inclusion of students with AAC needs (Kent-Walsh & Light, 2003; Soto et al., 2001). After the special education paraprofessional stopped attending the kindergarten classroom with William, the kindergarten paraprofessional took over the role, but was not trained to provide appropriate supports for William.

The kindergarten teacher possessed a key link to William’s acquisition of literacy skills – expertise in early literacy development. But, without collaboration, she did not have the ongoing support needed for William’s successful participation and learning in her classroom. General education teachers must be supported in their efforts to provide effective instruction to students with disabilities (Schaffner & Buswell, 1996) and in adapting teaching techniques, curricular content, and evaluation methods (Wood, 1998). General education teachers who have included students with AAC needs into their classrooms have suggested several important forms of support including:

a) time allocated for team problem solving and planning;
b) assistance provided by the speech-language pathologist and assistive technology consultant to adapt the curriculum, operate AAC system, and select vocabulary;
c) a paraprofessional with adequate knowledge, skills, and experience to facilitate the student’s participation, operate the AAC system, and make curricular adaptations where necessary;
d) detailed written documentation about students’ skills, abilities, and Individualized Education Program (IEP) goals;
e) students’ access to an effective AAC system (Kent-Walsh & Light, 2003)

In order to be successful in the kindergarten classroom, William required ongoing support, such as a trained paraprofessional, integrated therapy services, peer training, an effective AAC system, and
appropriate instructional practices. Although he was being taught to use manual signs and PCS in the special education classroom, these strategies were not conveyed to the kindergarten staff. William relied on nonsymbolic communication modes, which were unintelligible to the kindergarten staff and students.

William’s academic and social isolation was also a result of his peers being unprepared to interact with him. Peer support and tutoring is a necessary component of successful inclusion, especially for students with AAC needs (Soto et al., 2001), but typically developing peers require specific training in appropriate initiation and interaction skills (Janney & Snell, 1996). For his classmates to accept William and successfully support him in their classroom, they needed disability awareness and sensitivity training, skills in communicating with a nonspeaking peer, and guidance in addressing and reacting to William’s CB.

**Conclusions**

Given an appropriate curriculum with direct skill instruction at the student’s developmental level, there is evidence that students with AAC needs can develop conventional literacy skills (e.g., Katims, 1996; Koppenhaver, Evans, & Yoder, 1991). The balanced approach to reading instruction of the Building Blocks curriculum afforded ample opportunity for William to acquire new literacy skills. Unfortunately, inadequate collaboration among school personnel resulted in the lack of supports needed for William to successfully participate in the kindergarten curriculum.

In order to successfully include students with AAC needs, general education teachers require specific training such as communicating with the student and facilitating the student’s communication with others, planning accommodations to meet the student’s communication needs, and evaluating the student’s progress. General educators also need the assistance of a well-trained paraprofessional, strategies to facilitate peer relationships, and guidance in developing appropriate expectations for the student’s participation and achievement.

In light of evidence regarding the literacy learning difficulties of students with AAC needs, ensuring their active participation in literacy activities should be a high priority. Students with AAC needs who are included should be provided with high-quality literacy instruction supplemented by adapted materials, an effective AAC system, and developmentally appropriate instructional strategies. To date there is no evidence that students with AAC needs acquire literacy skills any differently than their typically developing peers. Therefore, current evidence-based practices in reading instruction should be applied to students with AAC needs in combination with accommodations for their communication, motor, sensory, and cognitive needs.

**References**


*Psychology in the Schools* DOI: 10.1002/pits


DeCoste, D. C. (1993). Effects of intervention on the writing and spelling skills of elementary school students with severe speech and physical impairments. University Microfilms International (University Microfilms order number 9318049).


Psychology in the Schools DOI: 10.1002/pits
Barriers to Literacy Instruction


