

ELSB and Non-Verbal Students with Autism

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In a small private school for individuals with a diagnosis of Autism located in the southwestern portion of the United States, continuous progress was recorded across two academic years for four students using the Early Literacy Skills Builder (ELSB) program. All four individuals have a diagnosis of Autism and are considered to have a severe intellectual disability. All four are also non-verbal and considered appropriate for augmentative and alternative communication (AAC).

National Reading Panel

The ability to read is a critical skill that sets the foundation for learning. Each child deserves the best instruction possible to develop their ability to read at their highest level possible. Developing solid reading skills will enable participation in other academic areas in a meaningful way (L. Broun, 2004). The National Reading Panel reports the combination of teaching phonics, word sounds, and giving feedback on oral reading is the most effective way to teach reading. The best reading program has a balance between the skills-based and the meaning-based approach to reading instruction. A balanced literacy program has students partake in many aspects of reading (Sttomas, 2008). A balanced reading program should include: Thoughtful instruction that takes into consideration each child's background, strengths, and needs; early training in phonemic awareness, sound-letter correspondence, and decoding skills; the study of word-recognition skills; integration of writing instruction; vocabulary study in the context of meaningful print; an emphasis in reading instruction across the curriculum, and an integration of guided instruction and independent work.

Early Literacy Skills Builder

The Early Literacy Skills Builder (ELSB) is a program for students with moderate to significant developmental disabilities who have not acquired print and phonemic awareness. It is a pre-literacy curriculum for elementary aged students.

Intellectual Disabilities and Reading Instruction

Historically, reading instruction for students with significant cognitive disabilities has been underemphasized. Instead educators have focused on functional skills reflected in daily living activities. Although these students do need functional skill instruction, reading must be an instructional priority if they are to achieve desired outcomes and make progress. Educators limit future opportunities if they make a prior assumption not to teach reading to some students because of the nature or severity of disability (Browder et al, 2006).

Prior reviews of research on teaching reading to students with severe and moderate intellectual disabilities reveal a focus on only one reading component; vocabulary; or specifically sight word recognition. Recent legislation and focus on research based instruction has lead to a more unified drive to teaching students with significant cognitive disabilities how to read because we know now most of these students can learn how to read through intensive instruction using a variety of different strategies to teach the essential components of reading (Browder et al, 2006).

Autism and Reading Instruction

The use of visuals had been found to be highly successful when teaching children with disabilities, and especially those with Autism as they tend to be visual learners. Pictures or other symbols used along with print are important in the early stages of Phonemic Awareness but an emphasis needs to be placed early on print recognition as well. As McCauley and Fey stated “Many children fail to learn to read because they are predominately visual thinkers, whereas reading and the methods used to teach reading are based predominately on an auditory mode of thought”(pg. 347).

AAC and literacy

Many children with language disabilities struggle with literacy. Children with severe speech and language impairments who cannot rely on speech as their primary means of communication may use augmentative and alternative communication (AAC), such as the Picture Exchange Communication System (PECS) or a Voice Output Communication Device. Early literacy skills are important for children who use AAC because 70%-90% of them lag behind their typically developing peers in literacy. Children who use AAC begin to experience reading-related activity and participation restrictions when they are very young. They are less likely to engage in writing and drawing activities than peers without disabilities, less likely to be read to daily, and more likely to be relatively passive participants in storybook interactions (e.g. answering yes/no questions or pointing in response to “show me” directives rather than open-ended or child-initiated conversations) (McCauley & Fey, 2006). These students need an intervention during which the focus is in mastering early literacy skills to form a strong base on which to build. ELSB is unique in the sense that it is designed to be used with verbal or nonverbal responses. Nonverbal students can use AAC, eye gazing or pointing to make responses.

Phonological Awareness

Phonological awareness (P A) is the knowledge that spoken words are made up of tiny segments of sounds referred to as Phonemes. Not to be confused with Phonics; which is the linkage of the sounds to the symbols that they stand for. Phonological Awareness is a critical building block for success in reading and children that have language impairments very often have poor PA which will lead to continued reading struggles (McCauley & Fey, 2006). “Development of phonological awareness cannot be left to chance for most children with disabilities because their disability puts them at risk for reading problems. For children with disabilities who are at risk for reading failure, phonological awareness instruction must be taught explicitly” (K.M. McCoy, 2007). In order for a child to begin reading print they must have an understanding of the sounds that make up the words (Partnership for reading, 2001). ELSB explicitly teaches phonemic awareness within the context of a balanced approach to literacy instruction.

ELSB and Balanced Literacy Instruction

ELSB lessons begin by teaching students general print awareness and continue through more complex themes as the child progresses through the levels. Each level has a student assessment which determines the level of mastery before moving on. ELSB includes whole word recognition, vocabulary development, comprehension and reinforcement. It uses many visual methods such as story boards, puppets (modeling) and pictures to aid in the learning process.

Word recognition has been used with developmentally disabled students in many successful interventions. Sight word games, word walls and personal dictionaries are some ways to help facilitate word recognition (Freeman & Dake, 1997). “Many children with ASD (or other developmental disabilities in which auditory processing is compromised) will find it easier and more efficient to learn to read by recognizing *whole words*” (L. Broun, 2004). To teach sight words a teacher may use pictures to aid in the learning and to increase success it is important to teach words that are in high usage, are meaningful to the student and are functional in everyday life (girl, boy, mom, dad). ELSB includes word recognition in the teaching strategies.

Vocabulary development is an important component in a balanced reading program. Understanding specific words and their meaning will increase comprehension. Many children with autism have delays in their receptive and expressive vocabulary development which will impact their overall understanding of the text. Vocabulary is addressed in the ELSB through the use of high-frequency sight words and the reading of new vocabulary through picture symbols or text. Each lesson of the ELSB has a focused set of new vocabulary words for students to learn.

Comprehension is teaching children to understand what they read. It is a skill that was previously taught in third or fourth grade, once a child has learned to read. After the 1997 landmark national reading report, which was a comprehensive examination on reading, the study identified the five essential reading components and found that most middle school and high school individuals continued to struggle with comprehension. Since this report, changes have been made to teach comprehension starting in Kindergarten and continuing on through the early elementary grades (Carrier, 2006). ELSB includes comprehension activities.

Reinforcement is important when teaching any child. ESLB uses reinforcement to keep the student interested and actively participating. “The most effective delivery of reinforcement needs to be immediate and specific so the child understands exactly why they received the reinforcement” (Whitmore, 2008). Reinforcement by definition increases the likelihood of a behavior to occur. If the desired behavior is not occurring more frequently, a teacher will need to reassess the “reinforcer” and use something more desirable for the student (Baldwin & Baldwin, 2001).

ESLB is based on **direct and systematic instruction**. Systematic instruction is based on Applied Behavior Analysis which is a systematic approach for improving socially important behaviors (Baldwin & Baldwin, 2001). Systematic instruction involves identifying educational goals, outlining very specific procedures for instruction, implementing the procedures, evaluating the success of the instruction and modifying instruction based on the results of the data from the evaluations. The instruction utilizes two methods; the system of least prompts and a constant time delay. The two methods used are intertwined to ensure the best possible instruction. Prompting is a technique used to maximize learning success by helping children respond correctly so they receive reinforcement. A prompt could be verbal, physical or gestural and it’s always important to use the least intrusive prompt possible and fade them as quickly as you can while still ensuring success (Baldwin & Baldwin, 2001). Constant time delay is a method during which a teacher immediately points to the correct answer (which in itself is a prompt) during initial teaching trials (zero time delay). As the student learns the teacher delays the prompt for longer periods of time to give the student time to respond independently. If the child gives no response at the end of the interval the teacher will prompt the student to the correct answer (Browder et al, 2007).

Intervention

All the students are in the same classroom with one teacher and two para-educators. Their daily routine consists of snack, circle time, lunch, playing outside, going for a walk, and attending music therapy, speech therapy, recreational therapy, and occupational therapy sessions either individually or in a group at least two times per week. Prior to the implementation of the ELSB pre-literacy reading program, these students were receiving approximately 15 minutes of reading two to three times a week. This reading time consisted of the teacher sitting on the floor with whatever students were interested and reading a story to them. There was exposure to reading but no direct instruction on learning how to read was taking place.

The ELSB has two components: Building with Sounds and Symbols and Building with Stories. The Building with Sounds and Symbols component includes scripted lessons for teaching print and phonological awareness, in particular phonemic awareness. The Building with Sounds and Symbols component includes a Teacher Manual, Student Materials, Student Assessment manual, Student Assessment Forms, All about Moe and Oh My Apple Pie stories and supplementary materials such as Moe the Frog puppet.

There are seven levels with five lessons within each level. In order to move from one level to the next, a student needs to score 90% correct on all objectives addressed in each lesson. There is also an optional level A for students who have not yet developed picture discrimination. The students in this class started on Level A because most of them were inconsistent in their ability to discriminate between pictures. In Level A Building with Sounds and Symbols students learn to recognize a book, interact with objects related to a book, identify their own photo or written name, select a named photo or word, physically engage with a book, point to an object, picture, or word that completes a story line, and respond to questions about a story.

Prior to starting the ELSB program each student was assessed using the Student Assessment Recording Form: Level A. The students were assessed on the eight objectives targeted in Level A. The eight objectives are; to recognize a book from a non book, interact with objects related to a book, select own photo or written name, select named photo or word, physically engage with a book and/or visually attend to a story, point to an object, a picture, or a word that completes a story line, respond to literal questions about a story, and point to named objects or pictures.

For students who used AAC communication devices, a reading page was programmed for the device that contained picture symbols of characters and objects that were in the story. This was done in order to provide a means for the individuals to participate with the story by commenting, requesting, labeling pictures, completing lines from the story, and answering questions.

Instruction took place in a group which included five students (one student left the school after 6 weeks of intervention) the teacher, two paraprofessionals, and either the speech-language assistant or the speech language pathologist. Instruction was provided for 30 minutes two times per day, one time in the morning and one time in the afternoon five days a week. The teacher started at Level A lesson one which included the story "Oh My Apple Pie" and activities that addressed the objectives for that level. Each activity includes instructions for the activity and suggestions for prompting, correction, and reinforcement. The direct instruction of model, lead, and test is embedded within the

lesson framework (Browder et al, 2007). In objectives 1-3, a constant-time delay procedure is used to support errorless learning. On all other objectives a 5-second wait time was given, if the student didn't respond to the request, the teacher would wait five seconds before physically prompting. A Time Timer was used to keep track of the thirty minutes to ensure the lesson was taught for thirty minutes. It was permissible to teach the lesson longer than thirty minutes, but not less than thirty minutes. Moe the frog puppet was used as a motivator to encourage the students to come to the table and join the group. When students attempted to leave the table they were redirected back to with gestures and physical prompting. Verbal praise of the other students who were attending to the story was used to help reinforce staying with the group.

Student Profiles and Results

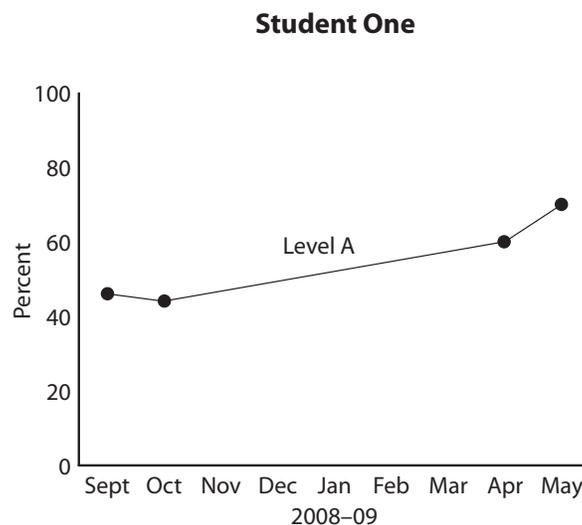
The progress of four students using ELSB was recorded across two academic years of instruction. All four students made continual progress at their own rate.

Prior to the implementation of the ELSB, all four students were unable to independently sit and attend for longer than 5 minutes for all academic activities. After three weeks of consistent implementation, all students were able to sit and attend during reading for 30 minutes. They also began attending longer to other academic activities.

Student One

Onset: At the start of using ELSB, Student 1 was a 10-year-old with the diagnosis of Autism. Before using ELSB, he had attended the school for three years. He is non-verbal and has a Vantage voice output augmentative communication device; however had only used it to say that he wanted to eat or swing (two preferred activities). At the onset of using ELSB, Student 1 had difficulty following one step directions and was unable to identify letters, shapes, and numbers. He was beginning to identify some pictures of basic objects from a field of two and enjoys swinging and jumping on a trampoline.

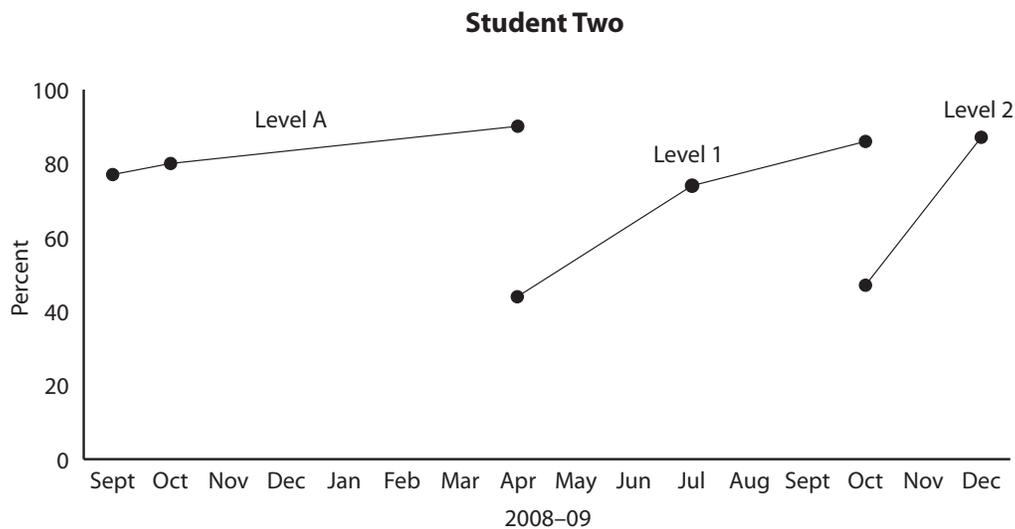
Progress: Student 1 progressed from 46% on Level A to 70% on Level A across 9 months. Although student one did not make significant progress on the specific objectives in the ELSB, he improved in ability to respond to simple directions such as sit down, point to, and give me, independently.



Student Two

Onset: At the start of using ELSB, Student 2 was a 5-year-old with the diagnosis of Moderate Mental Retardation and Autism. He is non-verbal; however was able to produce three word approximations for Bye, Hi, and Apple. Student 2 started at the school at the beginning of the school year when ELSB was first implemented. He used actions and gestures to communicate, followed one and two step directions, identified pictures, some letters and some numbers from a field of two. He enjoyed interacting with peers and adults, music, and swinging.

Progress: Student 2 progressed from 77% on Level A to 87% on Level Two across 16 months. Student two required physical prompting for all verbal directions (i.e., show me, point to) during the first three weeks. He eventually learned how to follow verbal directions during ELSB instruction as well as independently responded to more verbal directions throughout other activities.

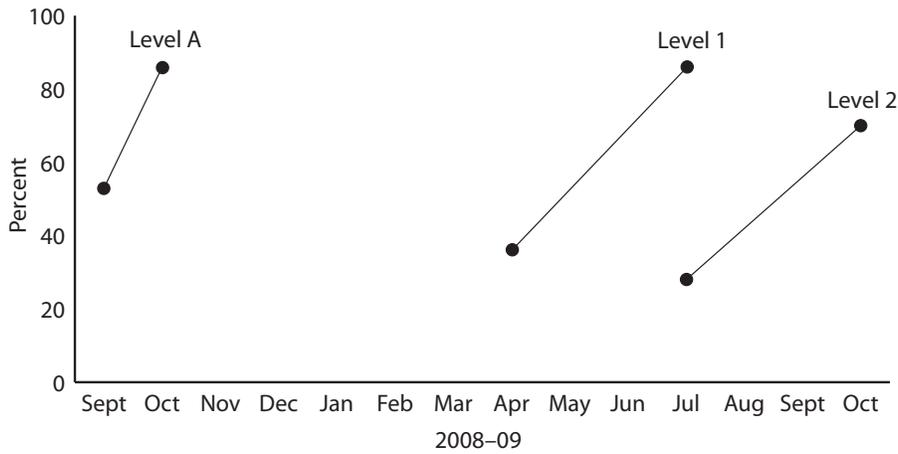


Student Three

Onset: At the start of ELSB, Student 3 was a 9-year-old who has a diagnosis of Autism. He had attended the school since preschool. He was primarily non-verbal; however did produce word approximations with the phonemes p, b, and m. Student 3 used a Vantage augmentative communication device to request, comment, and answer simple questions. He was able to follow most directions; however was usually noncompliant. He would hit, scream, bite, and pull hair when he wanted attention and refused to do what was being asked. Student 3 has good receptive vocabulary skills, can identify some letters and some numbers, loves to color and play with his peers.

Progress: Student 3 progressed from 53% on Level A to 70% on Level 2 across 15 months. Student 3 was noncompliant for all demands placed on him. He would become aggressive towards others as well as injure himself when he was asked to do perform a non-preferred activity. He initially refused to join reading time and would only look from a distance. With consistent implementation of the ELSB after approximately two weeks, this student would request Moe the puppet and when seeing the puppet would eagerly come to the group. Student three began to initiate looking at books and would bring books to his teacher to look at with her.

Student Three

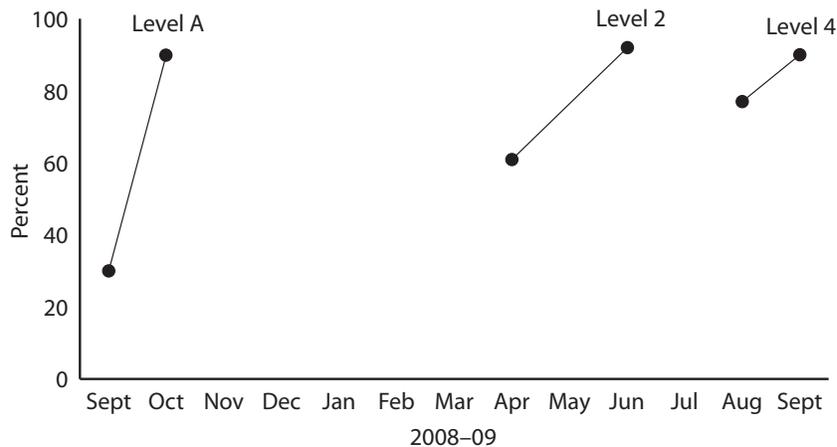


Student Four

Onset: At the start of ELSB, Student 4 was a 6-year-old with the diagnosis of Autism. He also exhibited characteristics of oral and verbal Apraxia of Speech. He used a Springboard voice output augmentative communication device to request and comment. Student 4 was able to identify some letters, numbers, and pictures of objects from a field of two. He had difficulty following two step directions and answering simple Wh-questions. He enjoyed swinging, swimming, and horseback riding.

Progress: Student 4 progressed from 30% on Level A to 93% on the pretest of Level 5 prior to his departure from the school after 13 months. Student 4 continually pushed icons on his augmentative communication device during reading time. He would repetitively push the same icons on his AAC device such as chicken nuggets and meat sticks throughout group. The teacher would ask him to be quiet and one day he was asked to leave the group. He immediately wanted to return and began pushing icons that were in reference to what was in the stories. He began to use his AAC device to comment and answer questions in regards to the stories in the ELSB. This skill generalized to other activities throughout the day.

Student Four



All of the students except one made progress on the objectives in only the first six weeks of intervention. This student, however, showed significant progress in his ability to use his finger to scan the words in the story and started producing word approximations as he was attempting to read the words. One student who is primarily nonverbal and occasionally imitates single words, during the assessment, pointed to the title of the book and spontaneously said "Oh my apple pie." All students appeared to enjoy the story and activities and rarely needed redirection to remain with the group. Two of the students learned to use their AAC devices to comment, answer questions related to the story, and complete story lines in the first six weeks of intervention.

Conclusion

This program was implemented in a self-contained classroom, however would be effective in an inclusive setting as well. Teachers who work in all environments should be able to use this program due to its ease of implementation and systematic instruction. There are suggestions for modifications and accommodations for students who have significant physical disabilities as well as cognitive disabilities. All of the materials are included and core vocabulary words are listed. This makes it easy to program vocabulary for students who use AAC.

The ELSB is a balanced reading program that addresses all components necessary for effective reading instruction. There is a transformation in the way reading instruction is being delivered to all children including children with significant disabilities. Previously, skills were being taught in isolation. The research has shown this method of instruction to limit an individual's ability to develop a strong foundation in reading. Therefore programs such as the ELSB that address pre-literacy and literacy skills in a balanced curriculum are best practices for ensuring all children receive the most effective reading instruction possible.

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