

# Increasing Literacy Skills in Students with Disabilities: A Pictorial Approach

By Jean M. Slater, SLP

Our job as educators is to teach ALL children so they reach their potentials. This two-year study used the approach of pairing pictures with text to teach reading to elementary aged children with significant disabilities.

## **Introduction**

It was not too long ago, in “education time”, that children with significant disabilities were given only medical and personal care, instructed in self-help skills and simple home living skills. Education has now moved to embrace all children. Inclusion of students with disabilities in the regular classroom has become the Least Restrictive Environment for many children. The Colorado Department of Education (1995) stated, “...all students will be included in the accountability system. In addition, most students will be included in the general instruction and assessment system...Under standard-based education, the focus is on inclusion.”

“It’s ‘terribly important’ that society come to see a child with autism, cerebral palsy or Down Syndrome, for example, as ‘somebody who desperately needs a quality education’” (Biklen, 1996). Most people with developmental delays have significant delays in learning to read and write, but have the linguistic and cognitive skills needed to achieve conventional literacy. (Dziwulski, 1994)

## **Graphical Representation**

A low- or lite-tech means of communication uses pictures. Generally thought to be used in communication boards, an individual points to the picture or sequence of pictures to communicate his/her thought.

Since some children learn through their visual modality, picture systems can actually accelerate speech and language acquisition (Shane, in Chedd, 1995). Symbol sets have a positive effect on the development of written language because they become the scaffold for expressive communication and cognition (McHaughton, 1993). Some researchers believe that symbols are a vital tool for developing literacy because they act as a bridge between the concrete (pictures) and the abstract (print). (Detheridge, 1996). “Pictorially based instruction can be viewed as an alternative pathway to speech. But simultaneously, it can be an alternative approach to literacy. When a picture that has been selected by someone else is presented to learners, that activity can resemble learning to read. When learners designate pictures for an audience, that activity can be analogous to writing.” (Giordano and Stuart, 1994).

Other researchers have found that symbol sets have little impact on written language development beyond providing general access to language and communication. (Bishop, Rankin and Mirenda, 1993)

## **Conventional Literacy**

The goal with instruction in reading is to increase silent reading comprehension skills. The underlying processes of reading are the same for all students. However, the ways

students with developmental delays demonstrate those processes are likely to be substantially different than for students without developmental delays. (Cunningham and Erickson, 1996)

The areas to assess in conventional literacy are: Word Identification: the accuracy and automaticity of reading words in isolation. What is the child's ability to make sound-word links? Written Language Comprehension: The highest level an individual can comprehend with 80% accuracy when a passage is read. This can be assessed whether children read the passages themselves, have it signed to them, listen to it being read by another person, or any other means. Listening comprehension is the best measure for potential for silent reading comprehension in elementary students with developmental delays (Cunningham and Erickson, 1996). Print Processing or Silent Reading Comprehension: The highest level the student can read "to himself" and answer comprehension questions with at least 80% accuracy.

## **The Research**

Do children with disabilities improve silent reading comprehension when picture symbols are added to text?

This research study determined if the addition of picture symbols to text is or is not:

(1) a valid strategy to use to increase reading and literacy skills in students with disabilities, and

(2) an effective method of adapting materials to help students meet content standards and be active learners in inclusive settings.

The format for this study followed a single-subject research model. Therefore, a cause-and-effect relationship between the intervention (addition of picture symbols to

text) and the student's success with reading was established.

The students selected for the study all had significant language delays. Except for one student, speech/language delay was not their primary disability. Nine of the ten students had been identified as having significant disabilities in cognition, physical, and/or learning. They ranged in age from 6.8 years to 12.0 years (Kindergarten through fifth grade) at the beginning of the study, to 8.8 years to 14.0 years (second through seventh grade) at the end of the study. Parental permission was given for each child to participate in the research.

The faculty of Lincoln Elementary School in Canon City, Colorado, was told of the study and agreed to accept the adapted materials (pictures plus text using Picture It software) in their classrooms. Materials would be adapted by the researcher, special educators, paraprofessionals, and/or regular education classroom teachers.

The Basic Reading Inventory (BRI) by Jerry Johns was used as the assessment tool. Baseline scores were obtained for each student in May, 1996. Different versions of the assessment were given when the children returned to school in September, 1996. Final testing was given in May, 1998.

## **Procedures**

During the two-academic-year study, materials were adapted and presented to children daily. The quantity of adapted materials varied from student to student due to different teaching styles of teachers, curriculum, grade levels, and the students' individual attitudes and willingness to participate.

Some children had Picture It documents presented to them throughout their school day. For others, the exposure was more limited. In order to give each child an opportunity daily to

read using pictures and text, a library of adapted books was available for the students to check out and read. The children read the books to teachers, paraprofessionals and parents.

### **Testing**

Each child was given all three parts of the BRI: Word identification (WI), Listening Comprehension (LC), and Silent Reading Comprehension (SRC). The WI and SRC tests were given both without and with pictures supporting the text. When the students reached a frustration level on any of the tests, the testing was stopped. Eight of the ten students were able to respond verbally. Two students needed the tests to be adapted in a multiple-choice format. (See explanation of assessment adaptations.) At the beginning of the study, three children were given the Emergent Reader Evaluation Score Sheet as their pretest since they did not have any sight words and could not participate successfully on the BRI.

The following assessment Adaptations were made for the students who could not respond verbally. During the WI tests, the students were shown four choices of words and asked, "Which word says \_\_\_?" The students heard the word and chose from the four written choices. In the second administration of the WI, the child was shown the printed word and asked, "Which picture says this word." The word was not spoken. The child selected one of the four pictures.

During both the LC and SRC portions, the child was presented with four possible choices of answers to the comprehension questions. Each possible answer was read to the child in the same order with an even voice.

### **Results**

Each student's scores were recorded by

(1) the number of words read or questions answered, and (2) the highest grade level achieved. All of the students scores were totaled and averaged to arrive at the Mean Scores below:

#### **Word Identification:**

Words Read: Pretest *without* pictures: 18.8  
Posttest *without* pictures: 31.6

Pretest *with* pictures: 23.4  
Posttest *with* pictures: 56.8

#### **Grade Level Improvement:**

*without* pictures: 2.1  
*with* pictures: 1.6

#### **Listening Comprehension:**

##### Questions answered:

Pretest: 19.5  
Posttest: 31

#### **Grade Level Improvement:** 1.9

#### **Silent Reading Comprehension:**

##### Questions answered:

Pretest *without* pictures: 3.9  
Posttest *without* pictures: 13.3

Pretest *with* pictures: 5.3  
Posttest *with* pictures: 18.8

#### **Grade Level Improvement:**

*without* pictures: 2.1  
*with* pictures: 3.5

### **Discussion**

The results of the research show that students reading levels (silent reading comprehension) increased both when materials were adapted with pictures and text and when plain text was presented. The average increase

of 2.1 grade levels when reading passages without pictures is remarkable considering the population of students in the study. Except for the youngest child, all the students had received reading instruction in regular and special education settings since entering school, some for five years. Since all students within the study had been identified as having significant delays in cognition, language, or learning, to see two years growth in reading in a two year span of time is notable. When the adapted materials were read, even more growth was evident (average improvement: 3.5 grade levels). All the students read and comprehended passages at a higher level when pictures were added than when they were not present.

The results of the Word Identification test show that the students read at a higher grade level when reading the word lists without pictures than when pictures were added. Perhaps these scores indicate that reading with pictures helped the students' overall skills of word identification. Perhaps the exposure and interaction with the adapted materials complimented the additional reading instruction that occurred throughout the students' school day. Or perhaps since the students had access to "easy reading" materials, their repeated practice with sight words generalized to the word-list test.

Comparing the scores of the Word Identification and the Silent Reading Comprehension tests, it is obvious that greater improvement occurred when passages were read as opposed to single words. Reading of meaningful text was easier for these students than identifying individual words. This coincides with the literature that supports giving children functional reading materials.

Listening Comprehension improved an average of 1.9 grade levels. Prior knowledge, vocabulary levels, auditory memory skills, and

knowledge of grammar and syntax are all factors influencing competency in this area.

The reading performances at the end of the study clearly show that the addition of pictures was vital for success with these students. All had been struggling to read text, and the adaptation allowed them to participate in reading activities that had previously either been very difficult or very limited.

It should be stated that variables were present that could not be measured in this study but could have affected the outcome. How much time each day did the children spend reading the adapted materials? Is there an optimum time frame for reading experiences per day? Did teaching styles influence the use of pictures plus text? Which styles were favorable to the adaptation and, therefore, the children in those settings had more opportunities to read? Which styles were not favorable? Did the age and/or grade level of the students make a difference in their progress? The children had the opportunity to check out adapted books every day, but which children read the most books? Were the ones who showed the most growth the students that read the most? Or was growth more a factor of the child's motivation and participation in print activities?

While those questions must wait to be addressed in further research, this preliminary study showed that picture-supported text is a valid intervention to increase reading skills in students with disabilities, and that it is an effective method which helps those students meet content standards and perform as active learners in inclusive settings.

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