This paper reviews the research on use of American Sign Language in elementary classes that do not include children with hearing impairment and also reports on the use of the manual sign language alphabet in a primary class learning the phonetic sounds of the alphabet. The research reported is overwhelmingly positive in support of using sign language, especially in preschool and kindergarten, to enhance reading and communication skills. It notes that sign language appears to enhance brain activity on both sides of the brain and has been proven successful in a total communication reading program for students with learning disabilities and mental retardation. Its successful use to maintain behavior control and foster self-esteem, attention, on-task behavior, communication skills, and academics is also noted. A high level of student interest and improved motivation was noted in the class studied. (DB)
I tried it just for fun; my children loved it so much we made it a part of our daily routine. What was it? "It" is sign language.

As collaborative teachers of students with special needs, we will have all areas of disabilities with which to deal in our classrooms. Many children we encounter may be non-verbal - not only hearing impaired, but those who are autistic, CP, etc. Teachers and students alike must learn to communicate with these students. Some may use picture symbols to communicate, some may use sign language, some may use both; all must communicate with their teachers and classmates. Teaching sign language to a "typical" classroom is a growing necessity - yet there is an additional benefit.

After the 99-00 school year was over, I decided to do some research on the use of sign language in classrooms where there are no individuals with hearing impairment. The research was overwhelmingly in favor of using sign language in such classrooms. According to everything I read, research indicated that students who are taught sign language, especially in pre-school and kindergarten, excel in reading and in communication skills.

Research studies have shown that sign language enhances brain activity on both sides of the brain. In the research of psychologist David P. Corina of the University of Washington in Seattle it was found that "...sign language comprehension is accompanied by substantial neuronal activity in parts of both the right and left hemispheres of native signers..." (Bower, 1996). Dr. Corina (1996) used MRI scanning in a comparison of blood flow in the brain in volunteers. He tested the individuals as they were watching the use of American Sign Language in sentences. The blood flow shows the measure of surges in neural activity. The volunteers were a mixture of persons with and without hearing who did not know sign language, and adults who were deaf and hearing children of deaf parents who knew sign language. Both the persons who were hearing and those who were hearing children of deaf parents "...displayed increased activity largely in left-brain areas previously linked to language" when reading in English. The persons who were deaf and the hearing offspring of deaf parents indicated increased activity in the right brain when reading sign language. This
side of the brain reflects linguistic processing. In another study by Canadian researchers it was found that "brain regions previously thought to be dedicated solely to making sense of sound may in fact be involved in the processing of sign language as well. It seems that this neural tissue possesses a unique sensitivity for aspect of language patterning." Lead author Laura Petitto (Bower, 2000) and her co-workers also used topography to compare brain activity in persons with hearing and persons who are deaf while processing spoken and signed language and came to the same conclusion as Dr. Corina. We know that when both sides of the brain are operating, students have more ways to make connections for learning. If we link the written word with sign, it will increase students' chances of success in reading.

According to Brennan and Miller (2000), it has been shown by the research of Greenberg, Vernon, DuBois, and McKnight (1982) that "Involving sign language in a total communication reading program has proven successful for students with learning disabilities and mental retardation." Brennan and Miller also stated, and I agree from experience, "in using sign, the teacher adds a kinesthetic aspect to the lesson (of reading), and putting to use more of the learning modalities, makes language easier to acquire." The use of sign language, I have found, helps students to pay attention and be physically involved in the lessons.

In another study, D.T. Miller (1984) found that "...sign language can serve to maintain behavior control and foster self-esteem, attention, on-task behavior, communication, and academics." (Jitendra & Costa, 1997). Jitendra and Costa also state that the benefits of using sign language in the classroom "...include reducing unnecessary conversation and expanding on simple cues and signals that most teachers normally employ," as well as "...the motivational aspect of curiosity and novelty inherent in sign language makes it appealing to students." These two authors planned and implemented an instructional unit to teach American Sign Language (ASL) to a class of 9 elementary students, all male, with SED. These students were enrolled in a school specifically for students with SED. Many of
the students in the school were non-verbal, so sign language skills were important for social interaction between students. They did not teach sign language to avoid talking but rather to reinforce natural language instruction.

A direct, systematic approach was utilized in the instruction. Lessons were one half-hour per day over a three-week period. The instructors chose a list of topics from an instructional guide for learning ASL and from those topics the students chose which ones they wanted to cover. This gave the students a sense of being in charge of their own learning. Students were required to learn at least three of the five words presented in each lesson. Activities were developed from the topics and designed from students indicated interests and opportunities to apply their learning. Instructors modeled, provided guided practice, gave feedback and allowed opportunities for independent practice. Participation points were given for guided practice and independent practice in addition to appropriate behavior displayed throughout the lesson (for behavior management plans).

The final assessment was a story that included all the words given during the three weeks. "Students gained an average of 34 new signs, ranging from a low of 20 to a high of 42." (Jitendra & Costa, 1997). Students continued to ask to learn new signs after the study was completed. It was observed that students who had learned the sign utilized it in the hallways and lunchroom to communicate with each other and they also initiated communication with those in the school who were hearing-impaired. According to Jitendra and Costa, the students' classroom teachers

"...reported a reduction in participating students' disruptive behaviors and a marked increase in their task engagement. ... Because sign language is unlike the traditional academic subjects with which students with disabilities have had a history of failure and toward which they may have feelings of antipathy, the success of this instructional unit is beguiling."

Parents are finding that sign language can help them teach their infants to communicate early. According to Diane Brady (2000), "sign language is becoming a powerful
tool to promote early communication for everyone (not just babies who are deaf or hard of hearing)." She also says that, "children can communicate with hand signs much sooner than they can master verbal skills." According to Brady, professors Linda Acredolo and Susan Goodwyn of the University of California revisited the subjects of a 1993 study in the use of sign language with infants and found that "children who signed as babies had a mean I.Q. of 114 compared to the non-signing control group's mean I.Q. of 102. As Brady puts it "even if signing doesn't produce smarter children, anecdotal evidence suggests that it may help them speak earlier than their non-signing counterparts, because signing seems to help the grasp some basics of language structure. ... Researchers have long recognized that it's far easier to acquire second and third languages at a young age. And learning two languages, they've demonstrated, gives children intellectual skills that extend into other areas." If this is true of infants, it is also true of children with disabilities.

"Each of us meets children who are not strongly motivated to attend to language, either spoken or written. Often these children are more interested or better able to express themselves in art, music, or movement." (Berghoff, et al, 1998). This is very true and although this article discussed the use of drama, music and art to interest children in language, isn't sign language the perfect way to incorporate movement into language instruction to enhance attention and motivation? Kathleen Brennan and April Miller 2000) have discovered this unusual way of enhancing language instruction. Brennan developed a game called SIGN-O, which incorporates sign language in a game (see internet site for board and instructions). These two authors encourage the use of sign language along with verbalization and word-object association in order to bring about comprehension of new sight words.

In my own classroom experience, I have found much the same results. I began by teaching the students the manual sign language alphabet while teaching them the phonetic sounds of the alphabet. They began to want to compete with each other to see who could sign the alphabet while verbalizing the sounds. One student can accomplish this task in 17
seconds. All but one student (who has fine motor difficulties in his hands) can accomplish this task in less than one minute, most in 30 seconds or less. Students who could or would not write spelling words would spell in sign language and then moved to writing the words; students who were interested only in disrupting the classroom found interest and excelled in sign language. One student who would not even look anyone in the face or talk to anyone except in a whisper when I first began as her teacher ended the year reading a picture book, with only two or three words per page, to the entire class: grinning from ear to ear as she did so. Students who have failed and failed in other areas find sign language an area at which they can excel. If there is no one in their school or community who uses sign language, these students suddenly know something that no one else does! Their self-esteem soars, and that is worth it all even if it is the only benefit.
A few helpful Internet sites for learning and utilizing sign language are:

http://www.signit-original.com/index.html - at this site you can purchase a game board for learning sign language.

http://www.where.com/scott.net/asl/ - at this site you can get help learning American Sign Language with virtual letter and word signs and quizzes.

http://www.seamless-solutions.com/html/sign language/default.htm - at this site you can find out about new computer enhancement using sign language for communication over the Internet.

http://www.palatineinc.com/ - at this site you can purchase sign language programs for the computer.

http://www.handspeak.com - at this site you can get virtual demonstrations of signed alphabet and words.

http://www.handilinks.com/hand/sigh.htm - at this site you can also get virtual demonstrations of signed alphabet.

http://babel.uoregon.edu/yamada/fonts/asl.html - at this site you can get sign language fonts to download (actual hand signs for words and letters).

wysiwyg://22/http://www.deafened.org/ - at this site you can get information about acquired deafness.

Internet sites for Support Groups

I found one site that led to several great support groups. The address is: http://www.listen-up.org/support.htm This site gives teaching strategies and classroom accommodations links too.

One site under this one is: http://www.beginningssvcs.com/ This one provides several other links as well.
Books To Read Or Use

American Sign Language the Easy Way, by David Stewart, Barrons Educational Series
Ananse the Spider: Why Spiders Stay on the Seiling by, S. H Collins, Garlic Press
Fruits & Vegetables by S.H.Collins, Garlic Press

References


I would like to preface this by saying that you do not need to be fluent in sign language before you begin using it in your classroom. I knew no signs before we began; I am still learning with the students in my room. Have fun with this and let your imagination create more activities suited for your students.

Activity #1:

Activity Name: Signed phonetic alphabet
Reference: Personal design
Steps: 1. Teach phonetic alphabet to children.
2. Teach children alphabet in sign language.
3. Combine phonetic alphabet with signed alphabet.
This could become a competition with timed tests to see who can do this the fastest. This should be done every day so you are reinforcing the signs and the phonetic sounds of the alphabet as well.
Adaptations: Some children may not have the fine motor skills to get the letters signed perfectly for a while. It is OK to accept approximations, but be sure to help the child practice the letters properly until they can do it correctly. Signs made incorrectly can be something else; it is like reading misspelled words when you fingerspell words incorrectly.
Rationale: Use of the sign language instruction gives the children something tactile to put with learning the alphabet and phonics. It also gives children a sense of self-esteem when they can do something that no one else in the school can do; they feel special.

Activity #2:

Activity Name: Learning signed words for reading.
Reference: Personal design
Steps: 1. Follow learning the alphabet with learning a few words per week. You may want to start with dolche list words or sight words students are learning for their reading for the week. Since we use trade books in my classroom, I will pick common sight words, dolche list words or spelling lists for the children to learn to sign. Learn to fingerspell first and then you may teach the sign for the word.
2. Practice, practice, practice as a class and anytime you can individually. During downtime, have them practice their words in sign language.
Adaptations: Again, if you have some who have fine motor skill problems, allow for some extra time for exact sign.
Rationale: Again, when the children have hands-on with anything, they remember better. If the children learn to fingerspell or sign common sight words, when they come to them in reading, they then have something physical to attach to the word to help them remember.
**Activity #3:**

**Name of Activity:** Spelling hangman  
**Reference:** Personal design  
**Steps:**  
1. Take spelling lists or vocabulary lists and play hangman.  
2. Teacher or student may lead the game, choosing the word to be guessed by the other students.  
3. Students are to sign the letter they guess; this reinforces activities 1 & 2.  
4. When all the letters are guessed, one student gives the word and another gives the word used in a sentence.  
5. You may give small rewards for correct letters, words, and sentences. This encourages students to be familiar with their chosen words, spellings, and uses of the words. My students love to play this game over and over. In a room with several levels of learners, put everyone's words on the board and play from all the lists. That way, everyone is learning the words and the correct usage even if they all don't memorize how to spell them. You may also want to learn the signs for the words or eventually sign the entire sentence they make up.  

**Rationale:** This activity gives students a chance to practice sign and their spelling words all at the same time.

**Activity #4:**

**Name of the Activity:** Reading books with sign language  
**Reference:**  
There are several other books that I do not own published by this same company. The address of Garlic Press is 605 Powers St., Eugene, OR, 97402.  
**Steps:**  
1. Read the book aloud to the class.  
2. Choose to either teach the entire class the signs for the book or have individual students volunteer to learn the signs. If the entire class learns the signs, then they can take turns reading and signing.  
3. Students read and sign the book simultaneously.  

**Adaptations:** In some books, like the "Ananse" book, you can have the class act out the book while it is being read and signed, especially if they will have the opportunity to perform it for an audience.  

**Rationale:** This activity not only gives the children hands-on experiences while they read, they are also having fun with it at the same time. It helps them to enjoy the overall experience and get involved in the text.
**Activity #5:**

**Name of Activity:** Choice menu board


**Steps:**
1. For free-time activities/center activities, etc. make a list of the activities to choose from for free time or center time.
2. Label these activities with pictures as much as possible.
3. Spell with hand alphabet or signs for the activity and the actual written word for the activity underneath.

**Rationale:** This gives the students visual cues and chances to reinforce signs used in the classroom.

**Activity #6:**

**Name of Activity:** Word bingo

**Reference:** None

**Steps:**
1. Utilize spelling words, vocabulary words, sight words, words missed when writing or reading, etc.; you may want to have students call these out to you (but have your list handy). Put these words on the board.
2. Give students pieces of construction paper with 9 or 12 squares drawn on them (you can do one master and make endless copies).
3. Have students write a word from the list on the board in any order in any square on their paper (you need to have more words on the board than you have squares on the paper so that everyone does not have the same words on their card).
4. When everyone is finished, erase the board (make sure you have a copy of the list) and play bingo by signing the words in random order. You may need to play a few times or model how to choose words for the cards for the students to understand that they don't go straight down the list and just copy words.
5. You can sometimes give stickers for winners. Students have 3x5 cards that they keep up with and are given a small piece of candy/gum for each sticker or a prize of some sort for the most stickers in a week's time (they can use these for hangman also).

**Rationale:** This is simply a fun way of reinforcing spelling words, etc. and using the sign language also.

**Activity #7:**

**Name of Activity:** Internet resource - Handspeak.com

**Reference:** www.handspeak.com Internet site.

**Steps:**
1. Assign a word of the week for sign language (learning the ASL sign for that word. This word could be from spelling, sight word, and vocabulary word lists.
2. Students go to Handspeak site, click on that word or type it in the search and use the Internet site to interact and learn the sign for that word.

**Rationale:** This is a fun way for students to learn the words in sign and, again, gives them something physical to associate with a word.
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