

*Literacy Skill Development
Students with Special Learning Needs*

DSAF

Fall Literacy Education Conference

Lincoln, Nebraska

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Objective: *Upon the completion of this workshop and study of a recommended text book, the participants will be able to implement a strength-based, sign-assisted, top-down, language-experience, systematic reading program designed for students with special learning needs.*

Agenda

Session 1: *Introduction*

History
Special learning needs
Strength-based approach

Session 2: *Getting started*

Method
First book
Sign-assisted
Composing sentences

Session 3: *Keep it going*

Schedules
Journals
Units

Session 4: *Phonics*

Writing
Spelling

Literacy Skill Development Students with Special Learning Needs DSAF Fall Literacy Conference Presentation Summary

A Strength-based Approach

Designed to meet special learning needs

- Framed in the principles of UDL
- Includes all students—regardless of learning differences—who are ‘table ready’ and can match pictures and/or objects
- Top-down dual approach—whole word sight recognition followed by introduction of phonics-based instruction
- Reading material is *relevant to the learner*, personal and meaningful
- Students have an immediate and on-going use for the vocabulary—printed, spoken or signed—provides tools for communication
- *Sentence-building words* are taught so students can immediately read and compose sentences
- *Horizontal goals* for expansion on how students use and enjoy reading are set, rather than *vertical goals* for higher grade-level scores—progress is measure by the benefits of reading to the student

Instruction is systematic

- Instruction follows the core sequence of *match, select, and name* for as long as the student needs this sequence for learning new reading vocabulary
- The methodology employs the *systematic problem-solving* format of (1) assessment, (2) goals and objectives, (3) planning and preparation, (4) implementation, (5) evaluation, and (6) moving forward

The learning process is followed

- *Exposure*—interaction with the environment that prepares the student for all future learning—‘table ready’ and matching skills are key for implementation of this program
- *Sensory input*—should match the student’s ability—should be clear, simple, and meaningful
- *Perception*—learner’s understanding of perceived information
- *Processing*—input must be presented in the context of use and in category to which it belongs for storage, retrieval, and use
- *Demonstration of learning*—student can demonstrate or communicate comprehension
- *Feedback*—completes the learning process—visual paired with verbal most effective

Implementing the Methodology

Assemble materials

- Basic program for younger learners with less experience: *four picture cards and matching flash cards* (high interest words such as student's name and name of other family members)
- Basic program for older and/or more experienced students: *grid with four spaces and four standard flash cards (2" x 5")*

Stage 1: Acquisition

- **Level 1: Matching—Simplest response—discriminates same and different**
 - Using picture cards: student matches flash card to matching word on picture card (introduce the picture cards, one at a time, and ask him to match the flash card to the word on picture card. ("Put Mom on Mom.")
 - Using word grid and flashcards: Read each word on the grid to the student (words can be determined by the student); read the flash cards, one at a time as you give her the card and ask her to match it with the word on the grid. Repeat the process two more times.
- **Level 2: Selecting—Selects flashcard on verbal and/or signed cue—indicates recognition of the word**
 - Place the four flashcards on the desk in random order.
 - Ask the student to pick up (take, or give) a certain word.
 - If the child has difficulty, point to the word on the picture card or grid, or guide his hand to find it.
 - Tell the student to cover his eyes while you 'mix up' the cards.
 - Repeat the selection process two more times (total 3).
- **Level 3: Naming—Saying or signing in response to written word**
 - If verbal student is confident and ready, show him the flash card and ask him to name (or read) the word on the card.
 - If student is non-verbal, teach hand signs for vocabulary words
 - Some students with ASD prefer to select the flashcards as it gives them autonomy in the process and can reduce anxiety. In this case, put the flashcards on the table and ask the student to give the cards to you, naming them in whatever order she wishes.
 - Test comprehension by asking students to match the words with pictures or objects.

Stage 2: Fluency

- Provide practice to fluency by playing matching, selecting, and naming games such as lotto and bingo.
- Use a probe to determine proficiency—add mastered words to word bank

Stage 3: Transfer

- Student is able to read words on different colors of paper or ink, fonts, and size.
- Student is able to read words in sentences and books

Stage 4: Generalization

- Student has learned to read the word in any print form or medium.

Vocabulary Development

- Add new words to student's vocabulary on an on-going basis
- After the student has four nouns, teach sentence-building words such as *see, like, I, my*
- Maintain students' interest and enthusiasm through the use of personal and meaningful vocabulary
- Make a personalized books using the words the student can read
- Teach new words in 'units' or 'categories' and make a personalized book for each unit.

Sentence Construction

- Each literacy period should have a sentence-building component.
- Initially, sentences can be constructed with flashcards.
- Work toward using keyboard to input sentences into a word processing program or printing them in a notebook, if printing is a viable option.

Alphabet and Phonics

- Introduce letters gradually—start with the first letter of the child's name, then the initial letter of other words the student reads
- Make alphabet book featuring the initial letter of the words the student reads
- Have students to file the words he has mastered in his word bank by initial letter
- Play games to practice letters and sounds
- When student has 50 to 100 words, teach 'word families'
- If student 'clams up' and is not successful with word families, drop it and continue with 'match, select, and name'—for some children learning phonics is not an option, others will be able and receptive at a later time.

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Universal Design for Learning (UDL)

The Oelwein method for the development of literacy is framed in the principles of UDL as defined by the CEC.

Principles

- Represents information in multiple formats and media
- Provides multiple pathways for students to respond and express themselves
- Provides multiple ways to engage students' interest and motivation

Key features of UDL

- Learning is an *active process*, personal, and begins with the individual
- Instruction is *engaging*, structured to involve student's natural thinking process and interests
- Instruction is *individualized* so students can understand the world from their own unique vantage points
- Subject content and skill work is *structured to be accessible* to the learner
 - Set at the student's *level of ability*, yet challenging enough to be motivating
 - *Physical accommodations* are made available when needed
 - *Motivating content, materials, and methodology* facilitates accessibility and minimizes behavioral issues

CEC educational application of UDL (2005)—Oelwein Method

- *Equitable curriculum*—allows student access to development of literacy skills across the curriculum
- *Flexible curriculum*—allows teachers to modify content and elicits meaningful student participation
- *Simple and intuitive instruction*—provides straightforward means of instruction for “visual learners”
- *Multiple means of presentation*—provides means of presentation to meet the needs of individual students
- *Success-oriented curriculum*—enables students to learn effectively and efficiently
- *Appropriate level of student effort*—stresses ease of access to content through visual supports and varied means of student output, including hand signs, and assistive technology
- *Appropriate environment for learning*—learning space is organized with emphasis on physical and visual aspects of organization

Literacy Skill Development for Diverse Learners

Educators limit future opportunities if they make a priori assumption not to teach reading to some students because of the nature or severity of disability (Browder, D. et al., 2006, p.393)

Opponents to teaching reading to diverse learners argue that:

- it's not developmentally appropriate
- they don't have the prerequisite skills to read
- it's a waste of time—they just call words
- they don't understand what they read

- it isn't reading if it isn't phonic-based

Setting goals and objectives (Oelwein 2002)

- *Vertical goals*—for traditional proficiency in technical reading skills—goal is higher grade-level scores
 - students often experience failure
 - demonstrates “plateauing” and students are dropped from reading instruction
 - reading material often not relevant
 - reading skills at levels higher than comprehension are not beneficial
- *Horizontal goals*—for expansion on how students use and enjoy reading
 - has an ongoing effect on building communication and competencies that lead to independence
 - reading is applied to all school subjects and recreation
 - reading grade-level scores will gradually increase—the real measure of success is how reading benefits the student
 - reading becomes a valuable life-time activity

The ‘web model’ as opposed to the ‘literacy ladder’ (Kluth, 2003)

- Students won't need to acquire a certain skill set before being invited to participate in curriculum and instruction
- Learners won't be expected to develop, behave, and learn in the same ways
- Individual differences in learning will be supported and appreciated

Literacy and citizenship in inclusive classrooms

Kliewer (1998) followed ten elementary-age students with DS for 2 years in inclusive classrooms and reported:

- *Teachers who held reading itself as dear*—the mastery of sub-skills and technicalities of reading with the *end product* of higher grade-level reading scores as goals—put student with developmental disabilities at a disadvantage—they were regarded as intellectually incompetent. Three classes of students emerged:
 - *Citizens*—privilege class—met reading expectation—full curricular participation
 - *Squatters*—students who partially—and at a reduced rate met expectations
 - *Aliens*—students who made no progress toward meeting reading expectations
- *Teachers who viewed reading as the construction of shared meaning in specific context*—the *end product* communication—students with developmental delays were respected and valued as intellectually competent
 - All students were full *citizens* with full curricular participation

Reading benefits all students

- Regardless of the reading level—reading is a crucial tool for building competencies, and benefits last a lifetime as long as opportunities and need are present
- Imagine spending your developmental years in school and never have a text book or a means to take notes or look up information you forgot, and you have a weakness in auditory short term memory—the modality through which you are expected to learn

Autism Spectrum Disorder (ASD)

Many students with autism may be genetically predisposed to having significant difficulty in learning to read using a phonics or sound-based approach.

The genetic factor

- The difficulty students with ASD have learning to read through the development of phonemic awareness phonic skills may have genetic origin as they usually have irregularities on the following chromosomes (Fred Volkmar, 1998):
 - Chromosome 1: responsible for phonemic decoding and phonics
 - Chromosome 6: responsible for phonemic awareness

- Chromosome 15: responsible for single word segmentation
- Chromosome irregularities reported by Roberto Tuchman (2002)
 - Chromosome 7: oral-motor skills (initiating and coordinating the movements of the mouth)
 - verbal dyspraxia: difficult with the production of words and sounds
 - phonology: understanding the sound system of letters
 - syntax: understanding how words are combined to make meaning
 - motor dyspraxia: difficulty with initiating and coordinating movement
 - Chromosome 15: cognition and motor skills

Developing literacy skills

- Difficulties students with ASD often have with sound-based approach:
 - Blending efficiently—letter-by-letter pronunciation
 - Breaking the habit of letter-by-letter pronunciation
 - Putting so much effort to sounding out, the meaning is lost
- Dual approach—starting with whole-word sight recognition followed by introducing phonics-based instruction—most effective for students who:
 - are non-verbal
 - have emergent verbal skills
 - are echolalic

Down Syndrome (DS)

Factors that impact learning to read

- *Untreated health problems* that interfere with learning (congenital heart defects, hearing, vision, thyroid, immunity response)
- *Dual diagnoses* (DS plus another diagnoses, such as autism, ADHD, depression and other mental illnesses such as OCD)
- *Minimal Auditory Deficiency Syndrome*—caused by otitis media early years--problems with auditory sequential memory, selective auditory attention, and sound blending
- *Weakness in auditory processing and short-term working memory*
 - The magic 7 plus or minus 2
 - The 'fleeting' spoken word that quickly vanishes
 - A possibility of 11 differences in the structure of the ears
- *Strength in visual processing and short-term working memory* (Wang, 1996)
- *Working brain* that works differently from yours
 - Learning letter names and sounds in isolation may be too difficult
 - Difficulty with blending when letter sounds are taught in isolation
 - *Emotional intelligence* a better predictor of achievement than IQ (D. Goleman, 1995)

Over achievement in reading

Fowler, et al. (1995) report the following mean scores for 33 readers with DS, 17-25 years of age; mean general ability age 5.9, range, 5 years novice group, 7.1 skilled group, placed in reading groups: novice, n=12; emerging, n=10; developing, n=6; skilled, n=5.

- *Word attack* age-equivalent score, *2 years above general ability age* (K-ABC)
 - Range: novice, 0.7; skilled, 8.9
- *Word identification* age-equivalent score, *2.6 years above general ability age*
 - Range: novice, 1.7; skilled, 5.6
- *Comprehension* age-equivalent score, *1 year above general ability*
 - Range: novice, 0.8; skilled, 1.3

Learners with Down syndrome achieved when instruction is:

- strength-based
- individualized
- systematic

- meaningful

Students with Other Learning Differences

General Learning Disabilities

- Many have difficulty with auditory processing and development of phonemic awareness skills
- Traditional and typical phonological approach may not be sufficient—one size does not fit all
- This strength-based approach is success-oriented and the effect on self-esteem is immeasurable

Deaf or Hard of Hearing

- Strong visual component and with illustrations and pictures to define words for students who do not have access to sound/symbol system
- Sign-assisted
- Immediate access to active participation in literacy

English Second Language

- Words defined with illustrations and pictures
- Students learn spoken word and written
- Personalized program teaches words, phrases, and sentence the student needs to function and interact with other

Blind and Blind and Deaf

- Core sequence of match, select, and name can be adapted for Braille
- Objects and/or fragrances can be substituted for illustrations and pictures
- Calendar boxes can be transferred to schedules in Braille
- Individualized, personal and relevant reading material makes reading meaningful

A Strength-Based Approach

Reading enables students with special learning needs to participate in all other aspects of schooling and life; it allows them to transition from the world of the illiterate to the world of the literate, thereby affecting entire lives.

How do we define reading?

- A process of letter-by-letter decoding?
- The deprivation of meaning from print?
- Webster's definition: "to look at so as to understand the meaning of something written or printed"
- The journey to literacy may differ from one individual to another
- We cannot confuse *process* with *outcome*

Reading is essential to many areas of life and learning

- It conveys information and interpretations about the immediate environment
- It provides a visual translation of expectations, thereby helping individuals understand how to navigate an environment and be independent
- It provides a visual means to assist with organizing internal thought and expressing thought
- Subject-focused word recognition allows for mere meaningful participation in the curriculum
- It builds self-confidence and pride in accomplishment
- It enables students to expand their internal language for thought and communication
- It may significantly improve an individual's ability to participate in the workplace

Limitations of a phonics-based, bottom-up approach

- Some students with special learning needs learn to read using this approach and make steady progress—some are gifted at sounding out words—these students generally thrive in almost any approach
- Prerequisite skills required before learning to read are too difficult for most learners with special learning needs:
 - learning the alphabet
 - sequence of letters
 - sound/symbol associations
- Letter-by-letter decoding of words is a labor-intensive process, frustrating, and discouraging
- Slowly and laboriously sounding out words may never allow them to derive meaning from print in an efficient and enjoyable manner
- Blending letter-sounds into words is problematic for some students
- When students fail, they are considered incapable of learning to read
- For students whose auditory process is comprised:
 - learning letters and sounds is too abstract
 - letters are perceived as single units with no meaning rather than building blocks of words

Strength in the visual modality

- A large body of research has identified students with ASD and DS as visual learners
- Research demonstrates that visual learners (Quill, 2000):
 - process visual information more easily than transient auditory information
 - visual information remains available for as long as needed for student to comprehend
 - auditory input must be encoded instantly, as it vanishes
- Differences in the brains
 - MRI brain scans revealed that when performing letter recognition tasks the right hemisphere (part of the brain that processed shapes) was activated in ASD subject, indicating that while knowing the names of letters, remembered them as shapes; control group of neurotypical learners remembered by their names, in the left hemisphere (Koshino, 2004).
 - Wang (1996) reports that magnetic resonance imaging reveals that the part of the brain that processes auditory input was ‘diminished’, whereas the part that processed visual input was ‘very much intact’

Learning modalities accessed in Oelwein approach

- *Visual*—whole words, letters, pictures, illustrations, games, and hand signs (a visual language) are used to enable non-verbal students to participate in literacy skill building
- *Auditory*—the spoken word is heard and paired with the printed word or letter
- *Kinesthetic*—learners physically match and select words as well as construct sentences using flash cards; students using hand signs further engage the kinesthetic component
- *Spoken*—learners with verbal skills read aloud, offer answers and respond to teacher questions; non-verbal and emerging speakers speak with sign language

The Oelwein approach: A strength-based alternative

It is important to clarify that this whole word sight approach does not exclude the development of phonemic awareness skills or an understanding of the use of phonics for decoding; teaching is adjusted to meeting the needs of visual learners.

Top-down—whole word first

- Students learn to read by first recognizing the *whole word*, then work backward to the sounds contained within the words
- Reading material is *relevant to the learner*—vocabulary is personal and meaningful
- Designed to “hook” the reader with *instant success*—names of family member, pets, and favorite foods, toys, places, TV shows, as well as other special interests, are taught first

- Students have an *immediate and on-going* use for the vocabulary—printed, spoken, or signed--it provides tools for communicating and conversation
- *Sentence-building words* such as *I, see, like, the, here, is, my*, etc. are taught so students can immediately read and compose sentences

Systematic instruction

Focus on desired outcome: students will be able to read to the best of their ability and use words to frame and communicate thoughts.

- The **core sequence** to this top-down approach
 - *Matching*—student matches word to word, or word printed under a picture
 - *Selecting*—student selects the word on request
 - *Naming*—the student names the word on request—either verbally or by hand signs
- The methodology employs the **systematic problem-solving** format
 - *Assessment* of abilities and needs—identifying areas of need
 - *Goals and objectives*—determining the desired outcome
 - *Planning and preparation*—developing lessons plans and materials to meet objectives
 - *Implementation*—teaching according to plan
 - *Evaluation*—determining the effectiveness of the teaching
 - *Moving forward*—ongoing systematic process with new objectives based on evaluation, building on previously learned material, student’s interest and needs, such as conversation scripts and other class subjects

The learning process is carefully followed:

- *Exposure*—interaction with people and the environment from birth gives meaning to all that the student sees, hears, touches, tastes, and feels and prepares students for all future learning—*exposure that has built ‘table-ready’ behavior and the ability to match pictures are the only prerequisite skills for this method*
- *Sensory input*—should match the student’s ability to absorb, perceive and process and should be clear, simple, and meaningful
- *Perception*—learner’s understanding of perceived information
- *Processing*—input must be presented in the context of how it is used and the category to which it belongs so it can stored, retrieved, and used
- *Demonstration of learning*—after information has been processed, pondered, and filed, the learner needs an effective means to demonstrate or communicate that he/she has comprehended, perceived and processed information
- *Feedback*—completes the learning process by letting the students know if they are correct or incorrect—for visual feedback paired with verbal is effective

The stages of learning must be followed for literacy skills to become a permanent part of the student’s repertoire:

- *Acquisition*—stage for the **match, select, and name** sequence
- *Fluency*—providing practice to reinforce skills to proficiency
- *Transfer*—recognizing words on different colors of paper, in different fonts, and in different context
- *Generalization*—using the information or skill whenever and wherever the opportunity arises

Assessment—ongoing component of the educational experience

- *Formal* assessments using standardized instruments
- *Informal* use of regular classroom assessments such as: probes and tests, portfolios, and functional behavior assessment
- *Before commencing instruction* consider:
 - current academic skills
 - performance of specific tasks—assisted, supervised, or independently

- skills needed to better function in the environment
- medical problems that might interfere with learning
- strengths that would facilitate learning
- difficulties that require accommodations
- priorities—what the child most needs to learn

Goals—integrate literacy skills into functional domains:

- *Self management*
- *Social*
- *Communication*
- *Leisure*
- *Vocational*

Planning—lesson plans to meet the desired out come include:

- *Objectives*—what the student is expected to do
- *Materials*—what the teacher prepares and/or organizes for the lesson
- *Procedures*—what the teacher is to do draw out the best in the student

Implementation—as the teacher becomes proficient in following these guidelines, they will become routine and can be adapted to individual teaching styles and apply unique, creative ideas to materials:

- Follow *match, select, and name* sequence
- Teach with constant awareness of the *learning process*
- Expand teaching to include the *stages of learning*
- Differentiate *teaching from testing*
- Differentiate *exposure from systematic teaching*
- *Expect and wait* for the student to respond

Evaluation—document to determine student progress as well the effectiveness of teaching:

- When each task in the *acquisition stage* is mastered
- When *fluency* has been reached
- When student has *transferred and generalized* the use of words
- When to go to the next step—*keep the learning process going*
- When each *objective has been met*
- Words that *need more practice*
- Whether there is *progress, no progress, or regression*
- Involve students in their own evaluation:
 - *Charting* their own performance over time, providing them with visual feedback and uses math skills
 - *Comparing* each days performance with previous days
 - *Evaluating* his/her performance—I read the most word on Friday.
 - *Setting goals*—Tomorrow I will read three more words.

Do & don't list

- *Do* help students discriminate between words they know and words they don't know—when a word is missed, say 'try again' and if he/she misses again, supply the word.
- *Do* make a note of words missed and provide extra practice
- *Do* individually review data with students—you missed these words yesterday less practice them so you will get the right today.
- *Do* teach students to ask what a word is, or say, 'help me'—praise them for asking
- *Don't* start a teaching session with 'what is...?'—that's testing—teach first, then test

- *Don't* allow students to get in the habit of guessing or mumbling something unintelligible when they don't know a word.
- *Don't* request that students 'sound it out' if they don't have the skills for phonemic decoding—interferes with comprehension, puts students on the spot, increases anxiety, and makes reading unpleasant and undesirable.

Getting started

- This is a language experience program—the words learned must be within the students' experience and interest—and words that the student has an immediate and ongoing use for
- Start with the students' name and the names of close siblings and *Mom* and *Dad*—or, other people in the students' life
- Move quickly into using the names in games
- Teach sentence-building words such as *I*, *see*, *like*, *my* and move to simple sentences
- Compile student's first reader using the words
- Teach the first letter—upper and lower case—of each word the student reads using the 'match, select, and name' sequence

Move forward—keep it going

- Continue with teaching words in other categories, play the games, make sentences and transfer books in each category
- Create books about the student such as 'All about Me' and experiences, such as trips to the zoo, vacations,
- Create unit books—feelings, food, animals, etc.
- Help student to create his/her own book for classroom units of study
- Adapt printed books to students' reading abilities—stick adapted text on with restickable glue
- Teach students to read scripts to aid in communication and conversation
- Children's literature can be programmed for students using the 'match, select, and name sequence'
- Some students will be successful in basal reading programs
- Some students will continue with this language experience approach
- *Either way, student must have on-going USE for reading--for pleasure, for learning concepts, for remembering information, organizing information, and for functioning in the environment.*

Reading comprehension

Text comprehension requires readers to attend to word meanings and to both activate and apply background knowledge and experiences (i.e., schema) to text formation and understanding. (Miranda, 2003)

- Text must be within the students' experience, at his reading level, and contain words in their vocabulary
- Reading material should be presented in increasingly sophisticated ways
- Factual questions are easier and the information is more important than questions about fictional characters and events
- Yes/no, true/false, and multiple choice are easier than questions requiring a lengthy response
- 'Fill in the bank' exercises are useful in enabling students to recall information and understanding story detail
- Teach students to use highlighter pen to denote key points
- Teach students to look up information he does not remember

Introduce letters and letter sounds

- Introduce letters gradually, starting with first letter of student's name, then first letter of other words child knows

- Make an alphabet book featuring the words the student reads—for example, pages will be ‘M m’ for Mom; ‘D d’ for Dad (students can find the upper and lower case ‘M’s’ and ‘D’s’ in these words)
- Move the student through the stages of learning letter—as you do with reading—by playing games as well as reading the alphabet book
- Start a word bank of the words the student reads—and teach her/him to file her/his words by first letter
- Play games to practice letters and letter sounds

Word families

- Teach the words as sight words using picture cards
- Demonstrate how changing the first letter in a word family changes the word
- Play games making new words using word families
- Use ‘word family’ words in books
- Transfer use of letter sounds to new words introduced

Writing

- Ability to write usually develops later than the ability to read—it can be slow coming, but students with DS usually become good writers in their teens; relax, and let them use the computer in the meanwhile
- Some students—especially some students with ASD—will have great difficulty learning to write and will lose interest in reading and words when required to write—*discontinue writing with these students*, let them use a computer
- Start by giving the child the opportunity to scribble and do his/her own thing—using a variety of surfaces and drawing and writing materials
- Introduce drawing of people and familiar objects (start by doing joint projects)
- Teach him/her to communicate on paper by crossing out/circling symbols/words and using labels
- Provide verbal cues; use the vocabulary of writing--start, stop, top, bottom, straight, curve, cross, up, down
- Teach how to write only the letters the child knows or is learning
- Embed reading, writing, spelling in activities throughout the day in journals
- Avoid teaching him/her to draw letters (requesting that he/she trace, copy, or write letters that he/she *does not know* is asking him to draw them).
- Provide a model with lines (primary paper) and mnemonics, starting point, and arrows to indicate direction
- Be accepting of the student’s way if it is different from yours—if it readable, it acceptable—it’s not worth emotional trauma to have your way
- Teach the student to use the computer to write—both “writers” and “non-writers” can profit from computer writing skills.

The keyboarding alternative

Marcel (2006) reported that his recent neurological research on individuals with ASD found that in the brains of persons with autism, the performance of a multi-process task results in a reduction of the available resources (i.e., blood/oxygen supply) for each component. Thus, the individual may be less able to focus on or effectively complete the composite elements of a task.

- The persistent inability to form letters correctly and quickly is called dysgraphia (printing) or dyscriptia (writing); students with dysgraphia may focus more energy on printing than the content of what they are writing
- For students struggling with producing print, their intellectual energy is diverted away from thoughtful writing.
- Avoid using penmanship as a perception of students’ abilities—how legibly one prints or writes is completely irrelevant to learning and intelligence.
- Use of the keyboard is crucial for effect output for some students

- Start keyboarding skills as early as possible—engaging and entertaining keyboarding programs are available

Writing non-fiction—learning composition

- Instructional sequences—their own task analysis, such as how to make a sandwich
- Individual research projects across the curriculum
- Individual ‘textbooks’
- Journal writing
- Home/school communication book
- Diaries
- Lists
- Descriptive writing

Writing Fiction

- Prompt student who have trouble making up characters and events to write stories about themselves, their families, pets, or a character in a story, TV show, or video.
- Teach students to use charts to pay attention to the elements of the story—who, where, when, what as well as the sequence of the story
- Some students will enjoy using the “comic book’ format, first drawing their stories and then add text—comic book templates helpful

Writing resources

- *The Sensible Pencil*, by Linda C. Becht is a systematic program for teaching writing to children, developed for children with Down syndrome. (ATC Learning, P.O. Box 43795, Birmingham, AL 35243)
- *Calliobics*: handwriting exercises set to music—provides templates for letter formation and pre-skill development of pencil manipulation skills—see www.calliobics.com.
- *Handwriting Without Tears*: a developmentally-based program with multisensory teaching aids and methods—see www.hwtears.com.
- *Learn to Print and Draw*: a visual and kinesthetic program designed by occupational therapists S. Wahl and S. Sutton—see www.ot-shirleysutton.com.

Spelling

- Student must first know names of letters and have a means to communicate the sequence of the letters; oral spelling, writing letters, cut-out letters, letters on clothes pins on a hanger, keyboards.
- Teach words the student has a use for in daily communication (own name, to, from, Mom, Dad, dear, love), and "subject matter" words (words needed to write journals and self-made books)
- Program for success (one letter at a time, if needed) play games for practice (peer "basketball" games, Scrabble, crossword puzzles)
- Introduce new words gradually; add-a-word, drop-a-word (use a probe)
- When student learns "word families," teach him/her to spell the words
- Teach student to look up words in word bank and primary dictionaries
- Teach student to use spelling check on word processor

Resources:

High-interest/easy-reading materials:

- *News 'n Views*, NDSS, 666 Broadway, New York, NY 10012-1317 (A magazine written by and for teenagers and young adults with Down syndrome)

- Available from Academic Communications Association, Inc. Publication Center, Dept. 611, 4149 Avenida de la Plata, P.O. Box 4279, Oceanside, CA 92052-4279.
- *Tom and Ricky Mysteries* by Bob Wright: Set of 5 novels (1st grade readability)
- *The Riddle Street Mystery Series* by Elaine Pageler: for older teens and adults (1st grade readability)
- *Four Corners Novel* by Penn Mullin: Set of 5 novels includes geography, history, adventure, and mystery (2nd grade readability level)
- *Unusual Events* by Earl Thomas: Set of 5 action-packed novels about unusual situations (2nd to 3rd grade readable levels)
- *High Adventure/Life Line*: Three sets of 5 novels. (3rd to 4th grade readability)

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