

LITERACY AND AUGMENTATIVE-ALTERNATIVE COMMUNICATION USERS:
Using Literature to Increase Language Skills and Language to Build Literacy
3 CE Hours / .3 CEUs

Course Abstract

This Intermediate level course walks learners through the language-literacy continuum as it applies to Augmentative-Alternative Communication (AAC), beginning with a discussion of the Common Core State Standards (CCSS), continuing with language skills as they relate to literature, and ending with literacy.

NOTE: Links provided within the course material are for informational purposes only. No endorsement of processes or products is intended or implied.

**(ASHA CE BLOCK – SPACEHOLDER ONLY – COURSE IS NOT YET REGISTERED)
(Intermediate level, Professional area).**

Learning Objectives

By the end of this course, learners will be able to:

- Recognize the impact of the Common Core State Standards (CCSS) on literacy instruction for students with severe disabilities and complex needs
- Differentiate between two different approaches for organizing vocabulary in Augmentative-Alternative Communication (AAC)
- Recall the Four Block Framework, with attention to how it can be adapted to AAC
- Identify the three levels of text used in reading instruction, including ways AAC users can interact with each
- Distinguish between phonological awareness skills, with attention to how AAC users can master them
- Recall books that lend themselves well to adaptation for AAC users, and considerations that apply to the adaptation process
- Identify which adaptations to the general education curriculum help ensure access to AAC users

Timed Topic Outline

- I. Impact of Common Core (10 minutes)
- II. Building Language Skills: Providing the Words (20 minutes)
- III. Start At the Beginning – Read (10 minutes)
- IV. Building Engagement: Working with Text (40 minutes)
- V. Building Literacy: Increasing Phonological Awareness Skills (20 minutes)
- VI. Adapting Instruction (25 minutes)
- VII. Adapting Books (25 minutes)
- VIII. Adapting the General Education Curriculum (5 minutes)
- IX. References, Additional Resources, and Exam (25 minutes)

Delivery Method

Correspondence/internet self-study with interactivity, including a provider-graded final exam. *To earn continuing education credit for this course, you must achieve a passing score of 80% on the final exam.*

Course Author

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Susan has worked in a variety of settings as a SLP, a Director of Education, and a Chairperson of the Speech Pathology Department. Her career has taken her to public and private schools, developmental centers, group homes, and adult day programs. She currently runs her own private practice in San Diego, providing Independent Educational Evaluations in speech-language, AAC, and Assistive Technology, as well as consultation and staff training. She presents at a variety of national conferences and provides workshops in AAC, autism, and literacy.

DISCLOSURES: Financial -- Susan Berkowitz is the owner of, and a developer at, Language Learning Apps LLC; offers materials for purchase at TeachersPayTeachers.com; and received a stipend as the author of this course. Nonfinancial – No relevant nonfinancial relationship exists.

*“No student is too anything to be able to read and write.”
(David Yoder, ISAAC 2000)*

Just as language and cognition are intertwined, so are literacy and language interrelated – and so are literacy and augmentative communication skills development interrelated, as well. Literature, and literacy, can be used to develop and increase language skills, just as language is used to develop literacy skills.

Literacy skills are needed for academic, social and employment success. Literacy is the way in which information is taught in schools. It is, ever-increasingly, the way in which we communicate with each other and maintain social relationships through email and texting. It is necessary for daily living skills, where we read labels, make lists, and understand directions. Minimal functional literacy skills at least are required for most jobs.

However, many AAC users do not acquire literacy skills. Too many are never taught at all. Most students with complex communication needs receive no literacy instruction.

Best practices in teaching literacy skills calls for 90 minutes per day of instruction for typical students. Students who struggle to learn reading skills receive between 30 and 60 minutes of additional reading instruction. How many AAC users receive 2-3 hours per day of literacy instruction? Very very few, if any.

Impact of Common Core

A large part of what has been driving a new look at literacy instruction for students with severe disabilities and complex needs are the Common Core State Standards (CCSS). While there is some debate, still, about the CCSS, schools have had to take a look at curriculum for Special Education students.

The CCSS are a state-led effort that provide a clear, consistent understanding of what students are expected to learn to be college and career-ready. They were developed primarily at the direction of two groups, the National Governor’s Association Center for Best Practices (NGA) and the Council of Chief State School Officers (CSSO). The common core standards were introduced in 2010 and 45 states and 3 territories had adopted them. More than a dozen states are opting out at this time.

States that have adopted the CCSS are directed to bring their special education instruction in line with the objective of having **all** students – including those in special education – meet the standards with access to the grade level curriculum.

These standards set the bar for a continuum of skills in the areas of Reading, Writing, Speaking, Listening, and Language from kindergarten through high school. The standards define what students should know and be able to do, *not* how teachers

should teach. Current best practices and the wealth of research on literacy should continue to provide the framework for instruction in reading, writing, speaking, listening, and language.

The 10 anchor standards for reading are broken up into 4 groups:

1. Key Ideas and Details
2. Craft and Structure
3. Integration of Knowledge and Ideas
4. Range and Level of Text Complexity

While the standards begin at kindergarten level, a section is provided for Reading Foundations, which are now generally pre-kindergarten skills (they used to be the Kindergarten curriculum), to address phonological awareness skills:

The foundational skills teach phonological awareness and phonics skills. Explicit instruction should be provided to develop understanding of the sound structure of language and an ability to manipulate sounds in words. Students need to be taught about letter-sound correspondence, rhyming and word families, recognition of visual patterns, decoding skills. Phonological awareness is necessary but not sufficient reading instruction: decoding is irrelevant if you don't know the meaning of the word(s).

Phonological processing refers to the use of phonological information - particularly the sound structure of oral language - to process written language. Tasks of phonological processing are highly predictive of reading skills. The three types of phonological processing that appear to be specifically important to learning written language skills are phonological awareness, phonological memory, and rapid naming.

Phonological awareness refers to awareness of and access to the sound structure of language. Spoken words are comprised of strings or sequences of phonemes that signal different meanings. Awareness that changes in these sequences result in changes in meaning is crucial in literacy skills development.

Phonological memory refers to coding information phonologically for temporary storage in short-term (working) memory. Deficits in phonological memory do not appear to impact either reading or listening when the words involved are already a part of the student's vocabulary; however, they can impact the ability to learn new vocabulary, as well as ability to decode new (and long) words.

Rapid naming requires efficient retrieval of phonological information from long-term memory. Research assumes that readers retrieve phonemes associated with letters, pronunciation of common word segments, and pronunciation of whole words. Students who have difficulty with retrieval of phonological codes will have difficulty using phonological information to decode printed words. Students who have

difficulty with both rapid naming and phonological awareness have greater difficulty with learning to read than students who have difficulty in either area alone.

Instruction in the reading foundation skills should start with letter-sound correspondence, then introduce blends and consonant clusters. Sound blending, phoneme segmentation, rhyming and alliteration need to be included. In order of easiest to most difficult: recognize rhyme, segment sentence into words, blend/segment compound words, segment words into syllables, blend & segment phonemes, phoneme deletion/replacement.

The overall emphasis of the CCSS is on an integrated skills approach to development of all skills, including reading and language. With AAC users we are often looking at the teaching of reading, a language-based skill, at the same time we are teaching language and communication skills, placing a heavy burden on the developing reader who is an AAC user. By integrating the skills – by using literature to develop language skills and simultaneously using these language skills to increase literacy – it is possible to move AAC users forward on the language-literacy continuum.

Another aspect of the Common Core State Standards that works hand in hand with teaching language competence to AAC users is the higher level thinking skills required.

AAC users are often at a disadvantage in classrooms where teachers teach and ask questions referentially. Questions that ask students to give the name of a person or place or details of a specific item that will likely not be used again teach very little. Once you've answered a question with a noun, all I know is that you can label it.

By instead teaching descriptively, teachers provide students with the opportunity to demonstrate that they have learned through describing, summarizing, and analyzing. And AAC users are given the opportunity to participate with core vocabulary (discussed below), readily available in their AAC system, and to practice finding and using those words appropriately.

Van Tatenhove talks about using descriptive teaching in the classroom, where teachers focus on critical concepts and vocabulary of the curriculum using core vocabulary. Descriptive teaching relies more on critical thinking and the ability to integrate information than on using a constantly expanding set of fringe content area words to answer referential questions that require little language production.

For example:

Referential classroom:

What is the Iditarod? - a dog sled race

Where is it held? - Alaska

Who is the person who drives the sled? - musher

Descriptive classroom:

Tell me about the Iditarod. - long and hard, can get hurt, hard to win
Tell me why a sled dog must be experienced. - know where to go, help stay safe, go faster, use nose and ears as well as eyes.

To focus more on using core words, teachers need to look at their lessons and objectives, list key content vocabulary, determine what words are in their student's AAC system, and think about how to handle words that the student doesn't have (like use of circumlocution). They think about how to use core vocabulary to define the concepts they are teaching.

The teacher will ask more descriptive questions and fewer referential questions, and will model key points from the lesson with an aided language stimulation board (which will likely help more than just the AAC user in the class).

Building Language Skills: Providing the Words

We have said that in order to build language skills through literature and talk about stories, it is necessary for a student to have a robust AAC system with sufficient vocabulary to talk about the stories and participate in the language-based activities of describing, comparing and contrasting, sequencing, and retelling. But what exactly does sufficient vocabulary mean?

There is debate among AAC practitioners as to what constitutes sufficient vocabulary to meet a student's communication needs. Two systems of thought dominate: the use of a limited number of reusable core words that can be used for multiple meanings and contexts, or a wide range of full vocabulary that can be added to regularly to meet all needs in all areas.

There are some consistent findings in the research. One is that use of preprogrammed messages is ineffective: the AAC system must allow for the generation of genuine messages. While some whole messages are necessary for "quick" responding in social situations where speed is important, vocabulary is needed for the whole range of communication functions.

One method of organizing and presenting AAC vocabulary is the use of core words.

Core words are those words with high frequency of use, words that are often useable in multiple ways. Restricting the number of words in the system and relying on core words limits the amount of navigation needed through the system, maintains stability of vocabulary location needed for learning, and leads to more critical thinking skills, as students use descriptive rather than referential vocabulary.

Core vocabulary includes words from most parts of speech, with an emphasis on verbs, adjectives and adverbs, prepositions, pronouns. This allows the user to generate a wide variety of messages for a variety of purposes.

For example, if the AAC user were to learn one word, it might be “GO.” Go can mean get up and go somewhere, go on the potty, get in the car and go, make it go by turning it on, go start the activity, go away and leave me alone. Most often at the single word stage we can infer meaning by context, given that the word is not a noun that has no meaning attached to it other than the name. The details of intent are supplied by the context in which it’s used, or by another word(s) that are combined with it.

The initial core words of toddlers include:

I no yes my the want it is that a go mine
you what on in here more out off some help all done
finished

[Note: core words are not necessarily first words, but first core words are crucial, in combination with the other words that are important to individuals.]

Combining these core words can provide a powerful amount of communication, such as: What that, Want that, Some that, More that, That mine, It mine, Yes mine, Off that, That out, Want help, It in, It no in, It off, It on, I go, Here I go, Here it is, On here, Want more, Is here, Is on, Is mine, Off mine.

We may change the first core words of AAC users for clinical applications to increase functionality. Most often those words might be: all done, help, want, mine, more, stop, that, want (8) or: all done, away, go, help, here, I, it, like, mine, more (15). (Van Tatenhove 2005)

The focus on core vocabulary means faster and more functional communication in all environments. The most commonly used words are automatically available, and users can use core vocabulary for a variety of communication functions, including:

- Greeting and parting: Go away
- Requesting objects and actions: Want that, Do that, Do again, Put here, Read it
- Requesting assistance: Help me, You help
- Requesting information: Who that, What that, When go, Where she
- Requesting recurrence: More, More that, Again, Do again
- Existence: That here
- Possession: Mine, Your, Mine here, That mine
- Nonexistence: No, None
- Disappearance: Gone
- Rejection: Don’t
- Cessation: Stop

- Comment/describe: Bad
- Direct actions and events: Get
- Name
- Associate

Another method for organizing vocabulary is pragmatically.

The most well-known pragmatic organization is found in the Pragmatically Organized Dynamic Display (PODD) system books. PODD books provide access to a maximum amount of vocabulary to meet all of the communication needs of the user. The initial focus of finding vocabulary in the system is on pragmatic branch starters to signal the intent or function of the message. Consistent navigation and other operational conventions are built into the system to provide ease of use. There is also an emphasis on partner training.

The PODD system uses pragmatic branches to define the user's intent, and teaches how to express multiple functions. The user is taught how to find vocabulary based on their intent – the “why” or “what kind” of the message. The system provides a rich and varied vocabulary. It emphasizes immersion in and modeling of the system for understanding language strategies.

So now, rather than just teaching the single word “GO,” the partners teach what they want to do with it. The branch starters signal:

- Requesting: Let's go
- I'm asking a question: Are we going?
- Telling about: I went (recount or retell)
- Tell a story: tell about going some place
- Play: Let's go play

With the pragmatically organized system the word “go” is not necessarily the first word used. The message begins with the intent – I am asking a question or I want to go somewhere or I want to do an activity or Something is wrong.

While there are some similarities to the basic strategies for teaching AAC that are common to any AAC system intervention, some teaching will differ based on the way in which the vocabulary is organized in the system. There is no wrong answer, just different answers. Both systems organize vocabulary, both offer functional vocabulary, both offer stability of vocabulary for ease of learning.

However the vocabulary is organized in the individual's AAC system, he needs sufficient vocabulary to meet all of his communication needs; not just choices of objects or activities. And however the vocabulary is organized, it needs to be consistent.

No matter how the vocabulary is organized there are some constants. *Ride*, *Go* and *Watch* may be taught individually in the contexts in which they are used, but the user also needs to be taught that all of these words are about doing something, and all of the

doing something words are in (X) location in the AAC system. Where that location is may change dependent upon the organization of the AAC system, but the individual does need to be taught each of those words in the contexts in which they are used and every context needs to be used to teach where those words are.

The primary way, and the most important teaching strategy for use with AAC learners, is through Aided Language Stimulation. Immersion in picture-based language and the provision of good models of using the AAC system to communicate is tantamount. In order to achieve communicative competence, the AAC user must be provided with maximized language input **in the same mode** he is going to be using. Therefore, we need to model use of the system, to show how it can be used successfully, for a variety of messages, for all communication needs. AAC users need exposure to AAC use. How does an individual learn a language he's never seen used?

Communication partners need to use the AAC system to communicate to the student; partners need to model using the AAC system to communicate, demonstrating how to find the word needed for the specific message, for multiple purposes/functions, in a variety of contexts.

Partners should use verbal referencing, talking about what they're doing to find the vocabulary they need, navigating to a page to find the needed word. Explaining what they're doing demonstrates the processes and strategies, helps the child understand others' messages, provides models for him to use for his own messages. Partners should highlight key words, talking about what they're doing to find the vocabulary they need (verbal self-referencing). They should explain how they navigate through the system, model how they repair a message, and model strategies for formulating messages.

Partners should use pictures when talking, producing models for many types of messages/functions. They should provide feedback to child on the effectiveness of his/her messages, provide message expansion as needed, and minimize using the system to give commands/directions. Partners need to become very familiar with the student's system in order to do this effectively.

Just as verbal children are given feedback on their expression, just as we give typical children feedback for their verbal structures, we need to give AAC users feedback for their messages, and AAC users need to hear partners expand their messages. When this is done, the child increases his knowledge of vocabulary, the child increases the length of his messages, the child increases the variety of his message types, the child increases his syntax skills, and the child increases overall communicative competence.

Children with complex communication needs require multiple structured opportunities to learn, to understand, and to use language. They need to learn to use language for more communicative functions than requesting. They need to learn to use language to accept, reject, protest, request objects, request assistance, share objects, request information, comment, answer, ask, relate events, give opinions, express feelings,

negotiate, direct, greet and part. Being able to produce messages for different intents even with the simplest construction is an accomplishment. And it is much more functional than being able to label 100 things.

Start At the Beginning – Read

Typical reading development is assumed to follow a set path: from pre-reading, to initial reading, to confirmation and fluency, to reading for new learning, to multiple viewpoints, to construction and reconstruction (Schuster, et al, 2012). Sight word reading is similarly assumed to follow a single trajectory, building from pre-alphabetic through consolidated alphabetic principles.

The Normal Literacy Learning Continuum

Emergent Literacy	Learning to Read	Reading to Learn
Children develop knowledge about print, sound awareness, and language	Children develop knowledge about alphabetic principle, word recognition, reading fluency	Children continue to develop reading fluency and automaticity, read more text structures

However, because not all learners follow this pathway to learning to read, alternative assessments and interventions need to be provided. Just as AAC assessments themselves look at communication skills embedded in real-life communication opportunities, so literacy assessment and intervention are becoming embedded within real-life tasks, complete with intervention forms and scaffolding, customized to individual students.

Working with the Four Block Framework for balanced literacy, for example, provides daily opportunities for self-selected reading, guided reading for a purpose, and working with words, spelling, phonics, and writing. Four blocks literacy refers to a strategy that incorporates four different approaches to address individual differences: guided reading, self-selected reading, writing, and working with words.

1. Shared and Guided Reading:

Reading for a purpose.

Students learn how to read different texts. The opportunity to read different types of texts increases skills in comprehension. Students learn that reading is not just decoding words, but also gaining meaning.

Use guided reading to build vocabulary. Always set a purpose for reading. Use graphic organizers to help organize the elements of the story. Relate what is in the reading to the student's own experiences.

Accommodations:

- Create e-books that “read” a modified version of the book and provide additional illustrations for comprehension.
- Pre-write choices of facts about the book to share; students can choose one to hold up or “read” when appropriate

Guided reading in general education classes typically focuses on specific target reading skills for the individual or group. The focus in special education classes is frequently more on listening comprehension and language development than development of reading skills. Students don't generally have their own copy of the book, as is done in general education classes, providing less opportunity to interact with print. Students are read to more often than they are given the opportunity to read themselves.

2. Self-Selected Reading:

Learning to select their own reading materials that are interesting.

It provides an opportunity to share and respond to reading individually, and provides the opportunity to read aloud to children from a wide variety of types of books. The teacher can read these books out loud, the student can read at his own level, or he can share reading with a peer.

Accommodations:

- e-books can be commercial, can be made by upper-grade students, and can be found in the library as adapted books.
- You can also use trade books at a lower reading level than grade level.

3. Writing:

To develop writing skills.

Students share their writings with peers and learn to write with different purposes.

Accommodations:

- Software options include graphic organizers (kidspiration, inspiration), word prediction, picture assisted literacy (picture it, boardmaker symbolate feature) and First Author software for writing about photos with core word banks
- Make sentences from books using word cards or picture cards
- Use pencil grips, magnadoodles, line up letters on toys, typewriters or computers as alternative pencils
- Use alphabet flip charts, alphabet boards, virtual keyboards as alternative pencils

One method for working with writing for AAC users is Predictable Chart Writing, a method used with K-1 students. It is a structured share writing program where students

provide dictation to teachers based on a topic they know about using a predictable sentence structure the teacher has provided. They learn to read their own dictation, and learn to find words in the AAC system as needed for dictating.

4. Working with Words:

Increase decoding skills, learn high-frequency words, understand how words work.

Working with words minimizes the physical demands of letter selection; differentiates between handwriting difficulties and word study.

Accommodations:

- A word wall can be modified with velcro'd words on cards to choose or point to
- Portable word walls can be made with file folders for students to have at their desks
- Color code words
- Use manipulative cards, sticky notes, magnetic letters, or a computer-based activity to make words

The research is relatively new on reading instruction as evidence based practice for AAC users and those students who have severe disabilities with complex communication needs. Significant strides are, however, being made. The University of North Carolina, Chapel Hill's Center for Literacy has spearheaded several programs; including the TarHeel Reader program and the Dynamic Learning Maps project.

[TarHeelReader.org](http://tarheelreader.org) offers both a place for developing authors to write and publish their writing, but also a library of on-line books on a wide variety of topics that can be read by the student or the computer. These are high interest, low reading level books. Large illustrations are utilized, and the amount of writing per page is minimized. Users can create personal libraries of books to come back to for multiple re-readings. Books have been written by teachers, SLPs, parents, and other students. (<http://tarheelreader.org/>)

The Dynamic Learning Maps™ (DLM®) project offers an innovative way for all students with significant cognitive disabilities to demonstrate their learning throughout the school year via the DLM Alternate Assessment System. Dynamic Learning Maps explore the alternate pathway that learning takes place in non-typical students. Only 13 states were originally using them, but there are now 18 who have adopted and are currently participating in the DLM project, but its concepts can be applied by nonparticipants, as well. (<http://dynamiclearningmaps.org/>)

Take advantage of the movement towards an integrated skills approach to train teaching staff in the use of literature in the classroom as a component of teaching language. Use of literature in intervention settings increases the AAC user's language skills, primes him for literacy teaching, and provides increased engagement with experiences he may not have in real life.

Read to students all of the time: a variety of interesting stories and a variety of types of books. One of the emphases of the CCSS is on reading informational texts. This is one way to provide information to students with complex needs who have not had experiences with this information before. Talking about both stories and informational books encourages thinking and language skills, and facilitates reading comprehension.

Reading to children provides motivation for them to want to learn to read. It teaches them about the processes of reading. It provides them with experiences with books and language that they can't read independently. (It is important to allow the student to choose some of the texts that are read to him. This provides additional motivation and maintains interest.)

Build language skills. Most failures of reading comprehension are due to lack of language comprehension, not an inability to read words; vocabulary skills cannot be emphasized enough. Students require knowledge of vocabulary, semantic relations, and morphological and syntactic structures to understand what they've read. While typical students learn new words incidentally or during reading instruction and independent reading, AAC users need explicit instruction.

Students who use AAC have fewer opportunities to experiment with language in the way their typical peers do. They develop syntax, vocabulary, and pragmatics skills more slowly. As a result they have not only fewer opportunities to interact with classroom vocabulary but less language with which to do so

Reading to students gives them a sense of the patterns of written language, and talking about stories encourages thinking and language skills and facilitates reading comprehension. Reading to students is evidence based practice for developing both literacy and language skills when adults provide mediation and scaffolding.

Building Engagement: Working with Text

There are three levels of text used in reading instruction:

1. Emergent/Enrichment

Text and graphics are both rich.

These books are designed to develop language, build background knowledge, and support learning concepts about print. They contain a lot of vocabulary, a variety of sentence types, and significant graphics that support the story and could be used even to retell it. They should be read to students, but these readings should be interactive – students should be engaged. These books often have rhyme or some other feature to assist with engagement.

Students should be learning that print carries meaning, while pictures can support the story but don't carry meanings. This is very important when we start adapting books for AAC users. We want them to develop understanding of the 1:1 correspondence between spoken and printed word. This isn't possible if we over-use symbols in adapting books for students with complex communication needs. Emergent literacy is about making sense of stories, and about sharing meaning with others of one's own experiences.

- i. More experience is needed with enrichment text if the student shows little interest in books, doesn't pay attention to shared readings, doesn't interact well with a computer, and has difficulty understanding graphics. Look for response to different texts to find an interest.
- ii. In instruction, goals for this student are to develop basic concepts of print.

2. Transitional

These books move students to use of reading strategies to read unknown words, to focus more on text than graphics.

These books look simpler than books at the emergent level because students need to read them independently. These are books with repeated lines, with no more than a few words per page. They use rhythm, rhyme, repetition and some text-graphic support. They have a close text to graphics match. The focus of instruction is on early reader strategies; first letter, word length, picture cues.

Students at this level should be able to recognize most letters most of the time, recognize logos and signs. Transitional learners don't read silently with comprehension; they tend to get stuck moving from symbol retell to silent reading. Once a student can retell a story after 4-5 readings, they no longer need the symbols with the story. Now they should focus on the words.

- i. More experience with transitional books is indicated if the student appears engaged in text and graphics, interacts with the reader, can use rhyme and fill in the blank in a repeated line text.
- ii. Goals should include beginning to read words; including decoding strategies using sounds, and retelling stories.

3. Conventional

For beginning readers.

These texts look the easiest: text and sentence structure are simple, and there is little or no use of pronouns to avoid confusion. The story is short, and heavy on use of high frequency words. They are for students who can use word reading strategies to read unknown words. Instruction minimizes the scaffolds of rhyme, repetition, predictability. At this level, we want the students to be able to read 50-75 sight words in a variety of texts, to consistently use first letter cues.

- i. More exposure to conventional texts is recommended when students are in the beginning stages of decoding, can tell the number of words on the page, and guesses words based on phonological properties.
- ii. Goals should include ability to read 50-75 sight words in a variety of texts.

To get a student engaged with books, provide the enrichment books to support word knowledge and core curriculum content.

Typical children ask their parents to read the same stories over and over again. These repeated readings allow the child to become familiar enough with the story to be able to “read” it – or recite it – to their stuffed animals, dolls and other toys. The re-tellings provide a strong and necessary background for developing narrative skills and for understanding story structure.

Often children with complex communication needs – and particularly those who use AAC – are not only not read to as much as typical children, but are read different books all the time. Without this chance to really learn the structure of favorite stories and become able to re-tell the story, many AAC users miss developing the narrative and story element skills – the language bases of reading comprehension.

Use of story props may be used to help with listening comprehension (and fidgeting). Providing those visual cues – whether 3-dimensional or 2 – provides valuable assistance with vocabulary and story structure comprehension. Create story bags or boxes for some stories when you can find small toys, dolls, or plastic animal figures that represent characters and places in the story. Copy illustrations from the book (making a copy of a book you have paid for to provide access for a child who has difficulty interacting with print does not violate copyright). Cut out and laminate the pictures of the characters, settings, and actions and staple them to popsicle sticks. Students can then interact with the reading, retell the story, understand the sequence, and respond to questions using the visual cues.

For AAC users who are beginning readers, use transitional books: adapt texts with less than 6 words per page and less than 12 pages, close text-to-picture match, and repetitive and predictable text that has some sight words. Program lines from the books into their AAC system or a repetitive line into a BigMack button, or sequenced lines into a Sequencer button. (This allows participation, but misses the opportunity to use story and sentence structure, so it is very important to move on in instructional level and not get stuck here.)

To move towards reciprocal reading, instruction needs to focus on reading skills and syntax skills. A symbol display that has all the necessary syntax structures will need 5-7 “hits” per page to tell a story. If this is too much for the student, adapt as needed.

The Common Core State Standards (as well as the DLM) focus on the skills of answering Wh-questions, sequencing, using sentences to respond, re-telling stories, identifying story elements, comparing and contrasting characters and settings,

describing characters and settings, identifying words and phrases that suggest feelings of characters, comparing and contrasting adventures of characters.

While reading to the student, the partner should talk about the text with the student. Relate the text to the student's own experiences. Make sure that the individual has access to AAC at all times, and encourage the student's active participation and engagement. Encourage him to talk about the story and how it relates to his own experiences. Have him fill in the blank in lines, read parts of the stories with his AAC system, and participate actively at all times. It is active participation in reading experiences that build students' language skills. These types of activities build motivation, build understanding of the meaningfulness of reading, and also build the student's comprehension of reading texts. Providing repeated readings of texts will allow the student an opportunity to build his own competence with materials, and to begin to build fluency as well.

Shared reading has been shown to have a significant influence upon language and literacy skills development. Reading in this format should be interactive. One purpose is to provide students experiences with books they are unable to read themselves, providing access to richer vocabulary and syntax. Another purpose is to provide structured interactive experiences with specific questions that enable the student to build language skills. Shared reading has been demonstrated to be one of the best influences on later vocabulary and reading skills; having interactive conversations around the story generates vocabulary knowledge and develops higher order thinking skills when the right types of questions are asked.

"What?" "What do you see?" "What is it?" These are often the types of questions asked of children with limited language skills during shared reading times. However, those are not the questions that develop language and thinking skills. Parents and professionals alike need to stop thinking in terms of nouns and "what" questions only. A quality reading session allows students to be active participants in the dialogue. Adults should ask open-ended questions, pause for students to fill in predictable lines/words, elaborate on students' responses, point out interesting words.

Shared and guided reading helps teach students how to get information from text and how to think through texts. Repeated reading over several days with a variety of purposes shows students how to get different kinds of information from the same text. Setting a specific purpose for reading each time the book is read tells the student they do not always have to remember everything. Setting the purpose keeps students alert throughout the reading of the text, helping to prevent their becoming overwhelmed by trying to remember everything or giving up altogether and becoming passive listeners. (Remember not to set a too narrow purpose that requires listening only for a particular word or answer.)

Before reading the first time, do a "picture walk:" starting with the front cover of the book, go through the illustrations. What do they tell students about what the book is about and what happens in it? Can students tell what they think will happen? Can

students guess the sequence of events from the pictures? What do they learn about the topic from the graphics? Find out what they already know about the topic. Have them find words on the topic in their AAC systems.

Use the same B-D-A (Before-During-After) framework used in classrooms and therapy sessions for all students as best educational practices, and recommended by Karen Erickson and the UNC-Chapel Hill Literacy Program for teaching reading to both typical students and those with severe disabilities:

Before reading, activate students' prior knowledge and pre-teach concepts. Talk about the topic and the vocabulary and complete an activity related to the purpose that will be set for this reading. Have them practice the same type of comprehension activity you will use for the book, but using a related topic they know something about.

For example: If the "After" activity will be to compare and contrast two characters, then practice a compare and contrast activity in the "Before" activity.

Another example: If this book is about a visit to the zoo, "What animals can you find in your AAC system that are found in zoos?" Or, sort animals on the AAC system into zoo and not zoo animals. Hold up pictures of animals: do they think they will find these in the zoo story? You just need a yes/no response for this.

During: Explicitly set the purpose for reading; tell students what to listen for.

For example: "I want you to listen for all the animals they found at the zoo." Or, "I want you to listen and remember a description of one animal they saw."

Ask appropriate comprehension or prediction questions as you read.

After reading, complete an activity related to the purpose you set.

For example: This might be to describe one animal they saw. It might be to compare and contrast two characters. Students might need to use the AAC system to list all the character traits of one character.

A possible "Before" reading activity is to give students practice with the idea of sequencing by having them tell the steps of their morning or bedtime routine, or the sequence of meals in a day, or steps in a task. Then present pictures of things that happen in the story. Have them listen to the story with the idea that they will need to put these in order afterwards. If visual cues are needed, use first-next-then-last icons or words, or use number sequence. Sequencing is a skill that is needed in telling about one's day, about one's experiences, about stories, and about sequences in history.

Story mapping is used in classrooms for general education students all the time, although story maps – and many graphic organizers – began with special education.

For AAC users, a visual diagram of story elements provides both visual cues and a way of organizing the information, and also a way of expressing what they know with pictures and/or symbols. Use story maps to have AAC users retell the story.

Throughout the process of the shared reading activities, support students to find the answers or responses in the AAC system, to use the AAC app to make responses, to navigate to the appropriate page in the system to find needed vocabulary, and/or to use the keyboard to spell out a word that isn't in the AAC system, if possible.

Have AAC users look in the AAC system to find the needed vocabulary. As you read, have students find specific words in the AAC system to answer questions. Talk about what kind of a word it is. Talk the child through finding it in the (X) part of the AAC system, based on its part of speech, category, etc. Create a vocabulary notebook (which can be simply a page or page set within the AAC system) into which you can add words alphabetically or categorically for discussion of stories whose vocabulary may be used for a short while but probably won't be needed again. Then you can look in this "book" – or page set – for words you need for specific book topics.

Note again that all of these require a robust AAC system with sufficient vocabulary to talk about books and all of the actions, characters, places, and events within them.

As we've seen, researchers differ in what a robust or sufficient AAC system is comprised of. Many point to the efficiency of the use of core vocabulary words. Developers of the Dynamic Learning Maps have researched and delineated what is being called "The Core for the Core." Core vocabulary and high frequency words for reading overlap substantially. Providing access to the words that are used the most in order to talk about what is said and done in books allows students to use language to talk about literature.

Others, (Burkhart 1993) show that very young children can use a broad vocabulary for a variety of intents, including both core and fringe words. For example, a child may see a dog, point to a picture in a book of a dog, and then glance toward his communication partner. Through verbal language and AAC, the communication partner could model "I see a dog too!" by stringing together individual words or pictures. This is aided language stimulation (Binger & Light, 2007). Over time, and with practice, the child will begin to repeat and generate the sentence, "I see a dog!" or "I like dogs!" as a way to comment to others about their experience.

In order for AAC users to acquire literacy skills, the same type of modeling and practice needs to occur. Reading partners can use the reading opportunity to embed literacy-based activities at the same time as they are expanding language skills and teaching the user to navigate the AAC system.

Reading a book with a child while using AAC provides an incidental learning opportunity that can improve syntactic and semantic language understanding and use (Binger & Light, 2007), which support the fundamentals of reading. Within the classroom,

educational staff can ensure student access to the curriculum by providing a combination of low- and high-tech tools, including access to core words and appropriate content-based fringe vocabulary (Sturm et al., 2006).

SHARED READING SPOTLIGHT:

A Trip to the Zoo, by Karen Wallace

“This book is about a visit to the zoo. Tell me some animals we will see. What animals can you find in your system that are found in zoos?” Or, “What animals won’t we see and why? Where do they belong instead?”

Sort animals on the AAC system into zoo and not zoo animals. Hold up pictures of animals. Do they think they will find these in the zoo story? You just need a yes/no response for this.

In some AAC systems animals are categorized (wild, pet, water, farm, insect). Sort animals into the appropriate categories.

“Tell me how these two animals are the same and different.”

Students need to find the descriptive vocabulary in the AAC system’s pages.

Before reading, have students practice their comparing skills. Use two animals, two students, two shirts, or two of anything they can see in the classroom or out the window.

During reading, stop for predictions. Ask questions about the animals or characters.

After reading, use the vocabulary in the AAC system to describe an animal, compare two animals, or describe the setting.

SHARED READING SPOTLIGHT:

The Snowy Day, by Ezra Jack Keats

Activity ideas include sequencing what Peter did, describing how Peter felt outside and how the snowy world looked to him, telling what happened to the snowball he brought inside, making a Venn diagram comparing and contrasting a winter day where you live and where Peter lives, finding all the winter/temperature words in the AAC system, finding words that rhyme with *snow*, finding words that begin with the same sound as *winter*.

Complete a simple Somebody-Wanted-But-So story map: Somebody (Peter) Wanted (to save a snowball) But (it melted) So (he was sad).

Make a concept map (a diagram showing the relationship between words or concepts). For this book, it might start with Seasons in the center, surrounded by the four seasons. Then, since the book is about Winter, place words related to winter next to Winter. Semantic maps or concept maps can teach words in the story students don't know: what kind of a word it is, what it is related to, what category it is in, and where it is in their AAC system. For example, *snowball* is a weather word and it is a thing. It is cold, hard, wet, and made from snow. It is round and you throw it. Create a visual using all of these symbols, AND practice finding each of these words and concepts in the AAC system.

Keep teaching vocabulary. Make card games with synonyms or antonyms or words beginning with the same sound as words from the story. Use them to play "Memory"-type games. This provides practice finding vocabulary in the AAC system while also practicing turn-taking and making game-related comments.

Make BINGO-type game cards using the story vocabulary. Instead of calling out the labels, give students descriptions of words on the cards. Students need to determine what you are describing to place a marker on their card.

In another example, Van Tatenhove demonstrates how to use core vocabulary in story telling/retelling with *The Three Billy Goats Gruff*.

(insert 3 Billy Goats Gruff chart here)

For those students who are fascinated with technology, and prefer interacting with an iPad to interacting with an adult, some story reading can be done through the technology. A wide variety of story book apps are available. These can be used for "shared" reading activities. They offer self-selected reading activities. They allow the story to be read by the device if the child is unable to read. They often provide interactive activities throughout the book. They can provide a more meaningful experience than simply flipping through the pages of a paper book with no interaction at quiet reading time. They often hold the student's interest better than a paper book or an adult reading to them.

Features of a good story book app include offering choices of "read to me" and "read to myself," highlighting words as they are read, saying and showing words when objects in the graphics are activated by touch, providing appropriate "turn the page" prompts, and graphics that support the text through movement.

Another good use of iOS apps is for story retelling or narrative development. Remember, enabling AAC users to retell the stories they hear is important. Typical children get practice with language and literacy by retelling stories to their stuffed

animals, dolls, parents, and siblings. These reenactments facilitate language and literacy skills: vocabulary, syntax, sequencing, and story grammar.

Story sequencing and telling can be done with many different apps designed for the purpose, including many storybook-making apps available to use to reconstruct stories (and make your own). A few are *Pictello*, *Story creator*, *Special stories*, *Storybook*, *Scene speak*, *Story patch*. (With new apps being added to the iTunes store daily it is not possible to provide a comprehensive list here.)

In the same way that teachers and SLPs have created Powerpoint books, apps can be used to create digital books: personal books, stories that motivate, and adaptations of classroom literature books for participation.

Use the iOS device (NOT the student's AAC device) to take pictures of the book's graphics or find similar pictures on-line and download them to the iOS device's camera roll. Then:

- Import the pictures into the app.
- Put the pictures in order on the pages and have the student tell – with his AAC system – what happened in the story.
- Expand single word utterances through modeling and recasting.
- Record the story in the app either using your voice (if needed) or have the student's AAC device do the talking.
- The storytelling will be on a classroom or therapist's iPad so the student can use his own for talking.

Alternatively, it is possible to program the story into the child's AAC device. Use the symbol set or imported photos (see above) to add pictures to a sequence of buttons on a new page. Add labels and messages. The student can now retell the story by activating the sequence of buttons on his AAC device. You can keep a storytelling page set on the AAC device for this purpose. Keep another, separate set of pages for "my stories" for personal narratives.

When you use the AAC app to create the story page, remember to add symbol buttons in sequence to provide transition words that are needed to provide cohesiveness and order to the story: use "first," "next," "then," icons; add pictures or symbols for steps.

It is also possible to sequence the entire story into an AAC device if the book is a "transitional" level book that has only 1 line of text per page. Pull the text from each page, find symbols that go with the text, put the symbols on the device and record or program the line of text. Model using the buttons to tell the story for the student. During classroom reading cue the student to activate the buttons to tell or to re-tell the story.

Using symbol supports for retelling stories increases engagement for beginning communicators. Providing symbols allows for exploring syntax and practicing language. It provides expressive language support through books. It builds word relationships by teaching words in the story the student doesn't know: what kind of word it is, what it's related to, what category it's in, and where it is in the AAC system pages. It increases language, but not necessarily literacy. For literacy teaching you want to eliminate the symbol supports for reading as soon as possible. The goal is for students to know that the text is where the meaning is gained, not the symbols.

During shared reading sessions the same type of strategies for scaffolding used with other students apply to AAC users:

- referencing the text: look at the boy running
- cloze procedure: the boy is....
- expansion: yes, the boy is running
- binary choice: is the boy running or sitting
- modeling: only in this case, by pointing to the AAC system rather than a verbal model
- open-ended question: what is the boy doing?

Building Literacy: Increasing Phonological Awareness Skills

In order to move from using literature to build language to using language skills to build literacy we need to add some more components to our instruction.

Phonological awareness (briefly discussed in the context of Reading Foundations) is the individual's understanding or awareness of the sound structure of language – or, as Torgesen has said, it's the ability to notice, to think about, and manipulate the phonemes of words.

Phonological awareness tasks include segmenting the sounds of words, blending individual sounds to form words, rhyming tasks, etc.

Segmenting sounds of words and blending individual sounds to form words are the two skills highly correlated with later literacy outcomes. These have been a primary focus of the Light & McNaughton program. Much of the work specifically addressing phonological awareness and AAC users comes from Penn State University and these two researchers.

Light (2009) lists three components necessary for instruction in literacy for AAC users: the reading of interesting texts to them, building their language skills, and teaching phonological awareness skills. She includes teaching letter-sound correspondence, decoding skills, early reading skills, use of shared reading activities, and writing opportunities in these components.

Light and McNaughton have developed a literacy program for learners who have difficulty using speech to communicate. They have adapted the procedures of reading instruction to accommodate the unique needs of individuals who use AAC. The program combines direct instruction with multiple practice opportunities. Skills taught include phonological awareness skills such as sound blending, phoneme segmentation, and letter-sound correspondences. As soon as learners are able to blend sounds and have acquired 4-6 letter sound correspondences, instruction moves on to decoding, sight word recognition, new letter-sound correspondences, and consistent review of previously mastered skills. Throughout the program the instructor models, the learner responds with support, and then responds independently.

The program is based on reading strategies and practices recommended by the National Reading Panel for all students. The approach changes for learners who use AAC by not requiring the learner to say sounds or words out loud. The learner can use a variety of means to participate in instructional tasks, including speech, signs, or symbols. The instructor provides whatever scaffolding support help the learner needs to say the sounds in his /her head (subvocal rehearsal). This support is faded as the learner develops competence. The materials are designed to help the instructor determine areas where the learner is having difficulty.

Building phonological awareness skills is one of the key components needed in literacy instruction in general, and specifically with students with complex communication needs. In their particular intervention Light and McNaughton focused primarily on the first two of these: segmenting the sounds of words and blending individual sounds to form words. (These two skills are highly correlated with later literacy outcomes.)

Light enumerates the basic component skills that lead to reading and writing:

- phonological awareness skills (skills in phoneme segmentation, sound blending, and other types of skills)
- skills in letter-sound correspondences
- early reading skills (such as single word decoding and learning to decode in the context of shared reading activities)
- early writing skills (such as dictating and writing stories, sound spelling activities, and writer's workshop)

Traditional reading instructional strategies require the student to read and respond orally. Teachers and SLPs are often unsure how to teach students who cannot respond orally, particularly if they are AAC users whose AAC systems do not have phonemic output possibilities.

What Light and McNaughton have done is to adapt these procedures to accommodate the unique needs of the students who use AAC. They have eliminated the need for spoken responses by providing alternative responses, usually pointing to symbols (including direct selection, eye gaze, signs, etc.). In their teaching system scaffolding is provided for the students, and the instructor provides oral production and rehearsal for the student initially. Light also provides the AAC users with systems that have voice output at the phoneme level.

Segmenting Initial Sounds

The goal is for the student to match a target phoneme that's presented orally to the correct picture of a word that starts with that target phoneme.

First, present a group of between two and six pictures to the student. Label those pictures orally to make sure that the student knows what the pictures are. Use the individual's AAC symbols so that they're already symbols that the student is familiar with. Then say the target phoneme to the student. For example, say /b/ and show the printed letter at the same time. The student then needs to point to the picture that starts with the target phoneme. (fig 1)

Throughout the program the instructor explains the task to the student, then provides guided practice, helping the student complete the task as needed. This may include pointing with the student to the correct picture. The instructor inserts a time delay into his support, looking for the student to begin to respond independently. Then the program moves to independent practice. At any point, if the student is incorrect, the instructor provides a corrected model, guides the student and goes on.

Blending Sounds

This skill, crucial in learning to decode and read words, is the focus of the next phonological awareness task introduced.

The goal initially is for the student to blend 3 target phonemes that have been presented orally in sequence with exaggerated timing, in order to determine the correct word, and then choose the picture of the correct word.

Again the student is provided with between 2 and 6 pictures, which are labeled orally for him to make sure he knows what they are. Again, use the AAC user's symbol system as much as possible.

The instructor says the target word orally, extending each phoneme 1-2 seconds. The student determines the correct word and points to the symbol. (fig 2)

Letter-Sound Correspondence

The developing reader needs to know the link between sounds and the graphemes and letters that represent them: sounds correspond to specific letters and letters correspond to specific sounds. At this point, in addition to phonological processing, the student needs to develop orthographic processing of written letters.

In this task, the goal is for the student to match a target phoneme presented orally to the correct written letter.

Again, there are between 2-6 letters in the visual array.

The instructor says a target phoneme and the student must choose the correct letter. The instructor must make sure that the field of choices changes and that the location of the target letter changes each time the choices are presented.

Lower case letters are taught before upper case. Most letters in books are lower case, so they are seen far more often than upper case letters. The letters that are used most often are taught first, again because they are being seen the most often. Letters that are dissimilar are taught first, so that students don't need to make fine distinctions between subtly different sounds; such as /b/ and /d/. Short vowels are taught before long vowels. Add letters one at a time and constantly review mastered letters.

Once the student knows 6-7 letter-sound correspondences and is competent with sound blending then instruction can begin in single word decoding.

Single Word Decoding

This skill requires integrating knowledge of the letter-sound correspondences with skills in sound blending. Not only are the words taught in isolation as single words, but multiple opportunities are presented for reading the word in meaningful contexts. Reading books with the known words in them will begin to give the student experiences as a reader.

Single word decoding uses the same task structure as the other skills. A field of symbols is provided, along with a single printed word underneath. The student needs to use his knowledge of the sounds of each letter and his skills of blending those sounds in order to point to the correct picture that corresponds with the word. (fig 3)

As the student masters more letter-sound correspondences more words are introduced into decoding and, of course, more books. Instruction continues until the student masters automaticity so that he does not have to give over working memory to the task. The cognitive demands of the task need to be minimized. And, as all of this is continuing, so is the reading of books, building of vocabulary, and building more complex morphological and syntactic skills.

More and Sudduth created a curriculum in their project, "Reading Instruction for Nonverbal Students with Autism or Selective Mutism (2014)," but did not further adopt it with any subjects, leaving its actual efficacy to be further researched.

Adapting Instruction

So, how do we adapt instruction and materials for AAC users and students with complex communication needs?

Light and McNaughton (2007) provide specific examples in their studies of how to adapt phonological awareness practice for nonverbal students. In their protocol for blending phonemes, the clinician says the word, extending each phoneme for 1-2 seconds, and the student identifies the correct symbol out of 4 presented after blending the phonemes internally. Similarly, the students identify the correct (out of 4) symbol that begins with the sound the clinician presents, the correct letter (out of 4) that matches the phoneme produced by the clinician, and the correct symbol (out of 4) that represents the written word presented.

Carmine (1997, in Light & McNaughton) directs us to teach lower case letters first; since most letters in books are in lower case, to teach the letters in order of frequency of use (a-m-t-s-i-f-d-r-o-g-l-h-u-c-b-n-k-v-e-w-j-p-y), and to teach short vowels first.

Musselwhite uses song boards and music to meet curriculum standard for phonological awareness skills. She uses books based on songs and nursery rhymes as a good source of initial story re-telling. The songs themselves demonstrate rhyme and alliteration. Clapping, stamping feet, etc. can be used to demonstrate the 1:1 correspondence between spoke and written word. She creates variations on familiar songs and chants to provide repetition with variety so that students have the opportunity to learn the skill and generalize it across contexts. Students are given a purpose for listening when they are required to respond when they hear a rhyme, a sound, a word, etc. Musselwhite uses poems from Seuss, Prelutsky and others to have students listen for word families/rhyming words. For older students, she suggests using rap or chants instead of songs and rhymes.

There are 37 most frequently used word endings (Wylie & Durell). They are: -ack, -ail, -ain, -ake, -ale, -ame, -an, -ank, -ap, -ash, -at, -ate, -aw, -ay, -eat, -ell, -est, -ice, -ick, -idge, -ight, -ill, -in, -ine, -ing, -ink, -ip, -it, -ock, -oke, -op, -ore, -ot, -uck, -ug, -ump, -unk.

Instruction that plays with letter sounds is useful in building sound awareness. Read books with alliteration, and have students make a response every time they hear a word that starts with the same target sound. Construct tongue twisters, and AAC users can find words in their system that start with the same sound. Use books with rhyming pairs, and ask AAC users to fill in the second word from their system.

QUICK INTERVENTION TIP

Using a simple static display device, make overlays for the following activity:

- Make a list of word pairs, where one phoneme is changed in the first word to create the second (i.e. pail-tail, pop-hop, cat-mat, mice-rice).
- Put the second word in each pair on the overlay and program the device.

- Ask students to replace the first sound in [pail] with [t]. What word do you get? If a device is not available, just use a picture board.
- This can be done with replacing final and medial sounds, too.

For AAC users who are building language skills along with literacy skills, we need to:

Build comprehension.

Again, we need to bring in or activate their background knowledge and knowledge of their AAC system. Look into their AAC system for lists of vocabulary related to the topic. For example, for that book about a visit to the zoo or animals in the zoo, look for an “animals” folder in the system and have the student find which ones would be in the zoo. While reading, have the student find one animal they heard in the story in their system/on their device. Create a notebook with vocabulary listed alphabetically. Add words as they are needed for use in discussions. Look here for words that might be in the story; i.e. weather words when reading *Cloudy with a Chance of Meatballs*.

Always set the purpose for reading.

Tell the students they will need to tell you one animal they hear in the story, or three words to describe the weather, and will need to put the word(s) in a sentence frame in a cloze procedure (i.e. “It is ___ outside.”). Let them focus on one linguistic aspect at a time.

Do adapted story re-tellings.

Also called pretend readings or independent reenactments (King-DeBaun, 2010), these are based on the idea that children gain confidence in and success with their literacy skills by retelling stories to friends, parents, dolls, pets, stuffed animals. Because AAC users don't get practice with fluent reading they miss practicing vocabulary, syntax and story structure. By giving them symbol supports to retell stories they get increased engagement and more opportunities to practice language and vocabulary development.

Remember that the goal of symbol supported reading is to increase expressive language skills through books. Symbol based story retellings build language skills, not reading skills. To increase literacy skills, we need to build in the text and fade out the symbol supports.

For transitional readers we give multiple opportunities to retell stories with story-specific displays independently. Then we embed sight words into the stories at their instructional level to focus on the words. Next we separate the words from the symbols, keeping the words in the book and the symbols in the AAC system. When symbols are used in the book, keep the text at the top of the page and the symbol supports at the bottom to be used to talk about the story. Graphics from the story go in the middle. Move the symbols off of the story page as soon as possible.

Provide daily opportunities for writing.

Introduce a keyboard as soon as the student knows 6-8 letter-sound relationships in order to begin integrating phonological awareness skills, sight word recognition, and keyboarding. Provide motivation by having them tell stories to others or publish their own books. Copy the format of patterned stories. Use a story with a repeated line and leave a space for students to insert their written content. Find pictures on the internet for students to use to retell a story. Creating their own books using pictures of themselves and their experiences increases motivation, background knowledge, and understanding through content.

- a. Errorless writing activities: high success with little risk for students. Good for emergent writers. Provide word and sentence banks.
- b. Transitional writing activities: not errorless, but still lots of support. May introduce the keyboard on-screen. Word banks are less complete. May also include fill-in-the-blank activities with no picture support to help with alphabet exploration or use of core vocabulary.
- c. Modeled writing: the student selects the topic, the teacher/SLP provides a model of how (s)he would write about a similar topic with the same set of vocabulary and same tools. The model should be slightly beyond what the student can currently produce.

Vocabulary sets for writing include closed sets, which have a small number of pre-programmed words and phrases, are temporary, and are set up for a single activity; core + content vocabulary sets, which also contain pre-programmed words and phrases (from less than 100 to thousands), but the same set is always available and may be somewhat generative; and generative vocabulary sets, which still use core vocabulary to support quick writing but also include use of the alphabet to generate vocabulary that's not in the core.

Adapt teaching procedures to eliminate the need for a spoken response. Provide alternatives, such as choosing from a selection of symbols, words, letters either from the AAC system or from a group provided. To compensate for the lack of production rehearsal, provide an oral model while encouraging internal (in your head) subvocalization.

Adapt the read aloud experience by providing an adapted version of the book, giving the student a story kit (manipulatives) or a puppet to act out part of the story, giving the student a symbol or word card to hold up whenever a target word is heard. (Kluth)

Adapt the guided reading instruction by having the student match a picture to one in the book, fill in the repeated line using their device (a cloze procedure).

Use of a cloze procedure is an adaptation for reading assessment that is evidence based. Give the student a book with more than 5 words per page. Omit every 3rd, 4th, or 5th word from the story and, in each place, provide a bank of 3-5 words from which to choose. Students who can fill in the blanks with 60-65% accuracy are at the correct reading level.

Adapting Books

Using symbol supports when reading books is not about reading, it is about supporting interaction and engagement skills. Not all AAC users need symbol support when learning reading skills. Some students need symbol supports for a long time in order to interact with books at all, and have a difficult time moving along the continuum of literacy skills.

We want to remember not to rely on the symbols for teaching reading. The symbols are there for the child to use for interaction.

When adapting books, think first about whom you are adapting them for. Who will use the book? What do they need? Does the book need to be used by multiple students? You cannot adapt a book to fit the needs of all students in a class, but you can do one adaptation that meets the general needs and then change the required response from each student.

Before we start adapting text materials, we need to see how the student interacts with them as they are, identify which demands the student cannot currently meet, decide whether adaptations need to be in text content or format, and which features require adapting.

- Does the student have difficulty interacting with the materials? Understanding them? Responding to them?
- Does the student need changes in the amount of time allowed to complete the work, in the number of items needed to be completed, in the level of support needed to complete the work, in the way in which instruction is delivered, in the way in which the student demonstrates comprehension, in the level of difficulty of the material?
- Is the material being presented too abstract, too uninteresting for this student, too irrelevant to the student, too complex, or is there too much of it?
- Does the student (not) have the necessary background knowledge, background skills, strategies to deal with the information being presented?

Grade level books need to be accessible to all students. Use grade level books but provide instruction at the instructional level of the given student. Using grade level books aligns the students with state standards and promotes access to the general education curriculum, as well as providing them with the same experiences as their peers.

Books get adapted because the text is too difficult (the student can't read the words, there's no graphic support, the student has a limited receptive vocabulary) or the student cannot physically access the book (can't hold the book, can't turn the pages, can't attend to text without picture support).

Rewrite the text passage to simplify the language; especially with expository text. Summarize the content into brief sentences, enhance the text with graphic support (1:1 symbols for words or graphics for an entire section of text), color code sections of text to help key into important vocabulary or main ideas.

To rewrite the text read each chapter, summarize the chapter by capturing the main idea and some details, and rewrite the summary at 2-3 grade level. Add graphics using PCS icons, photos, magazine cut-outs, second-hand books, or draw your own. Illustrate the story/chapter overall or just selected key vocabulary. Add definitions or explanations. Use a repeated story line to support the main idea – the big idea of the story or part.

To give the students a way to demonstrate what they understand, have them point to, pull off, look at the graphics or words. Provide multiple choices initially with only 1 plausible answer (from a set of 4). Then add another possible response.

The easiest comprehension questions are those of factual recall, where the answer is on the page (who -> where -> what -> how in order of difficulty). The next easiest is factual recall where the answer isn't on the page for the student to see; they need to remember it. The next level of difficulty is prediction (what will it be about, what will happen), then sequencing the events in the story (using pictures, then phrases), then comparing/contrasting. The most difficult is making inferences/drawing conclusions.

When asking comprehension questions, be sure to pause and give the student ample time to respond. If necessary, reread part of the story/sentence – but more than just the part with the answer. If still needed, then reread the part with just the answer. If necessary model the answer. For students with the most disabilities, call their name to get their attention first, use salient objects and textures, use an overhead projector or power point books on a computer.

(Based on Cole, Horvath, Chapman, Deschenes, Ebeling, Sprague (2000)
Adapting Curriculum and Instruction in Inclusive Classrooms)

Remember that the basic framework for all lessons should be the same. Start with a “before reading” activity that reviews the important meaning of key vocabulary, pre-teaches key concepts, relates the story content to the students’ experiences. (This activity can be a precursor to the comprehension activity, such as reviewing how to compare/contrast, sequence, describe, categorize, etc.) The purpose should be set for reading. After reading, there should be a comprehension task, such as comparing/contrasting characters, sequencing the events in the story, sorting words that do/don’t describe the character or setting, matching vocabulary with the character or setting or event that it describes, etc.

Watch for a match between level of difficulty between text and activity. Never pair new concepts or language structure with a difficult activity that requires new skills. Combine a difficult text with an easy activity, simple text with a more difficult language activity, and a new strategy or task with medium level text or a familiar activity (Erickson).

Always keep in mind the desired outcome for the student. The end goal may not always be conventional reading and writing instruction, but literacy may still be a key in the overall outcome.

A Note on Core Vocabulary for Literacy Instruction

The foundation of successful communication is based on:

1. social skills (core phrases in the system for easy retrieval for interaction)
2. literacy skills (core words used for literacy and communication)
3. linguistic skills (use of core words to build sentences and generate ideas)

So, we’re back to those core words.

100 core words represent 50% of our speaking vocabulary. The first 100 of Fry’s 300 instant sight words is full of core words used to make phrases and act as models for spelling other words:

a	can	her	many	see	us
about	come	here	me	she	very
after	day	him	much	so	was
again	did	his	my	some	we
all	do	how	new	take	were
an	down	i	no	that	what
and	eat	if	not	the	when
any	for	in	of	their	which
are	from	is	old	them	who
as	get	it	on	then	will
at	give	just	one	there	with
be	go	know	or	they	won
been	good	like	other	this	wow

before	has	little	our	three	you
boy	have	long	out	to	your
but	he	make	put	two	
by		man	said	up	

Look at this list of sight words and think about core word phrases, i.e. I + verb, at + noun, to + noun, the + noun.

Then look at the words that should be on your word wall as models for spelling other words (word families) - at, all, in, is.

Pati King-DeBaun and Carolyn Musselwhite both have created books specifically for use with AAC users and literacy skills. There are other alternatives available, as well. Focus on beginning words and literacy skills.

Pati, for example, has an "I am Me!" book. She begins teaching "I" as the first core word. Students look for the word "I" as the book is read, and they should say it with the reader on their device/in their system. Remind them how to find the word in their system. Then, have them practice how to use the core word to communicate; i.e. "Tell me three things you do every day." "I...." After multiple readings, tell students to read the word "I" in their head when the reader comes to it in the story. Follow up with multiple activities, such as creating an 'I' poem, completing other sentences that begin with "I", etc.

Creating Literature Based Communication Boards

From a handout developed for AAC Make It/Take It presented by Lori Tufte/Julie Maro, March, 1999

Objective: To develop emergent literacy/communication overlays to facilitate communication and vocabulary development during literacy activities.

1. Select a story book (utilize repetitive phrase story books)

Using repetitive phrase stories during reading time is a quick and efficient way to engage students with limited verbal skills in the literature process.

To do this, you will need to:

- pull the repetitive phrase and/or phrases from the story
- find symbol representations for these phrases using BoardMaker or some other picture library system
- place the picture symbols for the repetitive phrases on a simple communication device
- record the message into the communication device
- model the use of the communication device during initial story readings

- cue students to activate the communication device when reading the story. This can be done using a visual cue such as highlight tape on the repetitive line of the book and on the communication device.



(PCS from Mayer-Johnson, makers of Boardmaker ©1999, all rights reserved worldwide)

Books with Repeated Lines (List available from AACintervention.com):

Author	Title
Aardema, V.	Why Mosquitos Buzz in People's Ears
Aliki	Go Tell Aunt Rhody
Allen, R.V., ed.	The Dinosaur Land
Allen, R.V., ed.	I Love Ladybugs
Archambault, J & Martin, Jr. B	A Beautiful Feast for a Big King Cat
Asch, F.	Just Like Daddy
Asch, F.	Here Comes The Cat
Asch, F.	Moonbear's Books
Aylesworth, J.	Old Black Fly
Baer, G.	THUMP, THUMP, Rat-a-Tat-Tat
Barrett, J.	Animals Should Definitely Not Act Like People
Bennett, J.	Teeny Tiny
Blake, Q.	Mr. Magnolia
Boynton, S.	Red Hat, Yellow Hat
Brown, M.	The Important Book
Brown, M.	Goodnight Moon
Brown, R.	A Dark, Dark Tale
Butler, D.	A Happy Tale
Campbell, R.	Dear Zoo
Carle, E.	Have You Seen My Cat?
Carle, E.	Today is Monday

Carle, E.	The Very Hungry Caterpillar
Carle, E.	The Very Busy Spider
Carle, E.	Do You Want To Be My Friend?
Carle, E.	Rooster's Off to See the World
Carlsen, N.	I Like Me
Carlson, N.	How to Lose All Your Friends
Carlstrom, N. W.	Jesse Bear, What Will You Wear?
Cartwright, Stephen	Who's Making That Mess? -
Cooney, B.	Miss Rumphius
Cowley, J.	Mrs. Wishy-Washy
Cowley, J.	The Tiny Woman's Coat
Cowley, J.	Who Will Be My Mother
Coxe, M.	Whose Footprints?
Croser, J. & Vassiliou, S	Stuck in the Mud
Dale, P.	Ten in the Bed
Day, D.	King of the Woods
Delany, A.	Gunnywolf
De Regniers, B.S.	Going for a Walk
De Regniers, B.S.	How Joe the Bear and Sam The Mouse Got Together
Dijs, C.	Are You My Mommy?
Dunbar, J.	Four Fierce Kittens
Eastman, P.	Are You My Mother?
Emberley, D.	Drummer Hoff
Fox, M.	Shoes From Grandpa
Fox, M.	Time For Bed
Fox, M.	Whoever You Are
Fox, M.	Hattie and the Fox
Flack, M.	Ask Mr. Bear
Framst, L.	Kelly's Garden
Framst, L.	On My Walk
Galdone, P.	The Teeny, Tiny Woman
Galdone, P.	The Gingerbread Man
Galdone, P.	Henny Penny
Galdone, P.	The Three Little Pigs
Gelman, R.G.	I Went to the Zoo
Ginsburg, M.	The Chick and the Duckling
Gordon, J. R.	Two Bad Babies
Greeley, V.	Where's My Share?
Grindley, S.	Knock, Knock! Who's There?
Guarino, D.	Is Your Mama A Lama?
Guy, G. F.	Black Crow, Black Crow

Hamsa, B.	Dirty Larry
Hawkins, C.	Old Mother Hubbard
Hayes, S.	This is the Bear and the Picnic Lunch
Hennessy, B.G.	Jake Baked the Cake
Hill, E.	Where's Spot?
Hoberman, M.	A House is a House for Me
Holzwarth, W. & Erlbruch, W.	The Story of the Little Mole
Hutchins, P.	The Doorbell Rang
Hutchins, P.	Little Pink Pig
Hutchins, P.	Rosie's Walk
Hutchins, P.	Titch
Ivimey, J.	Three Blind Mice
Johnson, T.	Yonder
Kahn, J.	You Can't Catch Me
Kalan, R.	Jump Frog, Jump
Kalan, R.	Stop, Thief!
Kent, J.	The Fat Cat
King, B.	Sitting on the Farm
King-DeBaun, P.	Storytime
King-DeBaun, P.	Storytime, Just For Fun!
Knowles, T.	No, Barnaby
Koontz, R.	This Old Man
Kovalski, M.	The Wheels on the Bus
Kraus, R.	Come Out and Play
Kraus, R.	Where are You Going, Little Mouse?
Krauss, R.	The Carrot Seed
Krauss, R.	Big and Little
Krauss, R.	Noel the Coward
Krauss, R.	Leo the Late Bloomer
Langstaff, J.	Oh, A-Hunting We Will Go
Langstaff, J.	Ol' Dan Tucker
Lindbergh, R.	The Day the Goose Got Loose
Lindbergh, R.	There's a COW in the Road!
Livingston, M.	Dilly Dilly Piccalilli
Lobel, A.	The Rose in My Garden
Lockwood, P. & Vulliamy, C.	Cat Boy!
Maxner, J.	Nicholas the Cricket
MacDonald, E.	Mike's Kite

Martin, B.	Fire! Fire! Said Mrs. McGuire
Martin, B.	Brown Bear, Brown Bear
Martin, B.	The Braggin' Dragon
Martin, B.	Good Night, Mr. Bettle
Martin, B.	Polar Bear, Polar Bear
Masurel, C. & Henry, M.H.	Good Night!
Mayer, M.	What Do You Do With a Kangaroo?
McGilvray, R	Don't Climb Out of the Window Tonight
McGuire, L.	Brush Your Teeth Please
Melville, H.	Catskill Eagle
Meyer, M.	Baby Sister Says No
Meyer, M.	Just For You
Miller, S.S.	Three Stories You Can Read to Your Dog
Miranda, Anne	To Market, To Market
Mosel, A.	Tikki Tikki Tembo
Most, B.	If the Dinosaurs Came Back
Munsch, R.	Love You Forever
Munsch, R.	Mud Puddle
Munsch, R.	Mortimer
Nelson, J.	Peanut Butter and Jelly
Peck, M.	Mary Wore Her Red Dress
Peppe, R.	The House That Jack Built
Pienkowski, J.	Eggs for Tea
Pienkowski, J.	Pet Food
Pienkowski, J.	Phone Book
Pizer, A.	It's A Perfect Day
Pryor, A.	The Baby Blue Cat Who Said No
Quackenbush, R.	She'll Be Comin' Round the Mountain
Raffi	The Wheels on the Bus
Raschaka, C.	Yo! Yes?
Rathmann, P.	Good Night, Gorilla
Rice, Eve	Goodnight, Goodnight
Rice, Eve	Grammy's House
Robart, R.	The Cake That Mack Ate
Rogers, P. & E.	What's Wrong with Tom?
Rosen, M. & Oxenbury, H.	We're Going on a Bear Hunt
Sawicki, N. J.	The Little Red House
Scieszka, J.	The True Story of the Three Little Pigs!

Sendak, M.	Pierre
Sendak, M.	Chicken Soup With Rice
Serffozo, M.	Who Said Red?
Seuss, Dr.	Green Eggs and Ham
Seuss, Dr.	The Cat in the Hat
Seuss, Dr.	My Many Colored Days
Shannon, G.	Dance Away
Shannon, G.	The Piney Woods Peddler
Shaw, C.	It Looked Like Spilt Milk
Shiefman, V.	Sunday Potatoes, Monday Potatoes
Sloat, T.	The Thing That Bothered Farmer Brown
Slobodkina, E.	Caps For Sale
Stevens, J.	The House That Jack Built
Stevens, H.	The Fat Mouse
Tafari, N.	Have You Seen My Duckling?
Van Laan, N.	A Mouse in my House
Van Laan, N.	Possum Come A-Knockin
Van Laan, N.	The Big Fat Worm
Vipont, E.	The Elephant and the Bad Boy
Wabe, B.	Bearsie Bear and the Surprise Sleepover Party
Waddell, M.	Sailor Bear
Wadsworth, O.	Over in the Meadow
Watanabe S.	How Do I Put It On?
West, C.	Have You Seen the Crocodile?
West, C.	Hello, Great Big Bullfrog!
West, C.	I Bought My Love a Tabby Cat
West, C.	"I Don't Care!" Said the Bear
West, C.	"Not Me", Said the Monkey
Westcott, N.	I Know an Old Lady Who Swallowed a Fly
White Carlstrom, N.	Jesse Bear, What Will You Wear?
Williams, L.	The Little Old Lady Who Was Not Afraid of Anything
Wing, N.	Hippity Hop, Frog on Top
Wolkstein, D.	Step By Step
Wood, A.	The Napping House
Wood, A.	Moo, Moo, Brown Cow
Wylie, J. and D.	A Big Fish Story
Wylie, J. and D.	A More or Less Fish Story
Yolen, J.	Owl Moon

2. Sequence the story on an augmentative communication device

Simple stories can be easily sequenced on an AAC device. In this method, students activate keys in sequential order to read/retell the story. This method works best when each page of the story contains no more than one line of text. For students who are scanning, set the communication device to step scanning so each time they activate their switch, the cursor advances to the next line in the story.

To do this, you will need to:

- Pull the text from each page of the book
- Find symbol representations for the text using BoardMaker or some other picture library system
- Place the picture symbols on the communication device and record the text
- Model use of the system for the students
- Cue students to activate the communication device in sequential order to read/retell the story

3. Provide access to main theme vocabulary

Create a "generic" communication story board which can be used with a number of story books. For example, many books feature colors and numbers within the plot. Creating a communication overlay that can be used whenever you have a story dealing with numbers, colors or another theme will give you easy access to vocabulary pertaining to more than one book.

To do this, you will need to:

- Identify the main theme vocabulary from the story
- Find symbol representations for this vocabulary using BoardMaker or some other picture library system
- Create an overlay using the main theme vocabulary for your augmentative communication device/system
- Record the vocabulary into your communication system if using voice output
- Model use of the system for the students
- Cue students to use the theme vocabulary when reading the story

Examples of main theme overlay topics include color overlay, number overlay, and interaction overlay (e.g. Turn the page!, What's that?, Read that again!).

4. Use Aided Language Stimulation boards for story reading

Goossens, Crain and Elder have developed aided language stimulation overlays that can be used to promote expressive communication during story time. You may use their overlays or create your own.

To do this, you will need to:

- Buy or borrow the appropriate aided language stimulation overlay book(s). (See Mayer-Johnson, Don Johnston resources)

- Create a custom overlay based on the boards designed by Goossens, Crain and Elder or design your own from scratch
- Find symbol representations for this vocabulary using BoardMaker, Starty Symbols, Symbol Stix, or some other picture library system
- Print the overlay and use separately or record the messages into the augmentative communication system
- Model use of the system for the students
- Cue students to use the vocabulary during story reading activities

5. Novel stories based on favorite literature or songs

Retelling favorite stories or songs in a new way provides an opportunity to promote communication. Taking a story or song such as *Goodnight Moon*, *Brown Bear, Brown Bear* or *Mary Wore a Red Dress* and revamping the vocabulary to make a novel story/song allows you to tailor the new vocabulary to the season, the classroom theme or curricular unit. For example, in the winter, *Brown Bear, Brown Bear* can be changed to "Snowman, Snowman."

To do this, you will need to:

- Identify the story to be redone
- Identify the new vocabulary
- Find symbol representations for this vocabulary using BoardMaker or some other picture library system
- Create a story overlay using the new vocabulary
- Print the overlay and use separately or record the messages into the augmentative communication system
- Model use of the system for the students
- Cue students to use the vocabulary during story reading activities

Examples of Novel stories/songs based on favorite literature include "Rainbow, rainbow what do you see" and "...wore her pink shirt."

See also the excellent songbooks and other materials created by Caroline Musselwhite – available through Creative Communicating © 1999 Tufte/Maro.

Simple Book Adaptations

Fluffers - glue popsicle sticks, paper clips, foam pieces, adhesive backed weather stripping, velcro circles to pages at varying intervals so students can independently turn pages. Symbols can be added to the fluffers to emphasize vocabulary on that page.

Also, either buy a second copy or copy the book, then glue a piece of cardboard between pages to firm them up for students with motor impairment. (Note: it is acceptable in copyright law to make a single copy of a book you own for adaptation.)

Book kits - create bags or boxes for books using representative objects found in dollar stores, garage sales, your old toys. Kits can be a starting place for discussion, or for recall for re-tell, or for the use of puppets to act out the story.

Fitzgerald key - highlight words in books to color code with their AAC system: verbs - pink, descriptors - blue, prepositions - green, nouns - yellow, miscellaneous – orange.

Prop them up - for students with vision or motor impairments, prop books on 3-ring binders for better viewing. Use non-slip kitchen mats (i.e. Rubbermaid) for stability.

Self-publishing - create books digitally with word processing, power point, or Google documents programs. Use photographs from children's lives, field trips, etc to create meaningful stories. OR adapt trade books by substituting a picture of the child or the child's own environment.

Laminating and protecting - cut apart bound books and place pages in page protectors or laminate them with contact paper or laminating film. Then add symbol support with adhesive backed velcro. You can put them in a 3-ring binder or spiral bind them.

Sensory input - add textures for students with visual impairments, attentional deficits, motor impairments by using 3D objects, dimensional paints. Cut off top corners of book to indicate orientation of the book. Add objects to the front of the book so students can "feel" the title. For students with visual impairment, use raised line drawings (remember, this does not count as interacting with print), or copy book pages onto transparencies and project the book.

Don'ts for Adaptation

DO NOT symbolate the entire story. If there are too many symbols, students may see it as one big graphic without comprehending that it is the text that tells the story; that pictures are for communicating, words are for reading.

Adapting the General Education Curriculum

When assistive technology is being integrated into any class the questions to be asked are the same, and are those set forward in the SETT Framework (Zabala). The components of SETT are the Student, the Environment, the Tasks and the Tools.

The starting point is determining what the student needs to be able to do that he cannot do – or only does with difficulty – now. For the AAC user that most often means, What does he need to say? How does he need to participate? How can he engage in classroom interactions using language? And how can he participate using not just "speech" but also written language – how does he acquire literacy skills?

AAC users are found in both special education and general education classes. These two environments are very different – many times more different than they should be. At the very least, the class size and routines are different. Pace is also different. And – sometimes unfortunately – the expectations are different.

In special education classes there is often an emphasis on functional skills: emphasis on vocabulary tends to be concrete and often limited, AAC systems tend to be classroom specific, and there is frequently very little language used outside of the specific activities.

In general education classes, students who need them tend to have their own AAC systems, but again, the vocabulary is not always sufficient to meet the classroom demands. Sometimes, the technology gets in the way; we spend more time programming than teaching/supporting language, and teachers get little training in supporting these students in their classes.

For all AAC users, we need to remember to use age/grade appropriate material and teach to the instructional level of the student. Remember, according to IDEA all students are guaranteed access to the general curriculum, regardless of educational setting. Our job is to create that access.

The job of the AAC system is to allow for communication, language, and interaction. The AAC system must include the whole range of no-tech to high- tech and be linguistically based, allowing students to generate language and word variations. It must provide access to a core vocabulary and be able to grow with the student.

Teachers need training in the “descriptive teaching” model described by Van Tatenhove, and discussed above.

For emergent literacy students the emphasis is still on communication. These students aren’t yet reading. They need an opportunity to interact with text, to learn that text conveys a story and information. They need to learn phonological awareness skills and sight words.

Determine the student’s objectives, develop an anticipatory set for learning from the literature, and provide a combination of guided group reading practice and individual practice.

Write your plan so that it applies to all the students, determining how to engage all students. Decide what representation is needed for the materials (what to do to make the material accessible to each student), and how each student will express what they’ve learned.

Decide what literature book is being used for this lesson and create an adapted version or summary for the AAC user.

Decide on what objective is being targeted for this student and make a parallel lesson aligned with the standards but modified for this student. This may be a specific skill objective or general participation or a general literacy skill.

Decide how to start the lesson by grabbing the student's attention (the anticipatory set). Try to use all 5 senses (especially for younger students).

Set the purpose for reading. Let the students know what they're looking for as they read the information/story.

Decide how the AAC user will participate and can demonstrate comprehension based on their skills and their AAC system contents. Will this student's participation be the same as others (no adaptation needed); will there be adaptation of representation (different materials, adapted version of the book, pictures to accompany the book); will there be adaptation of expression (using AAC system to respond); an adaptation of engagement (the student needs an alternate activity to create meaning or get the student ready to learn).

Adapting participation:

- Typical students make a graphic organizer to show progression of the plot or character description. AAC user selects PCS icons to represent the story sequence or character traits.
- Typical students do a worksheet to define vocabulary or write a journal page for a character. AAC user may select icons to fill in blanks, match symbols to vocabulary words
- Typical students make predictions about the story ending or a character's feelings. AAC user may choose icons to do so.
- Typical students review what they learned yesterday. AAC user chooses icons that represent key vocabulary and concepts or to tell key events of the story/chapter.
- Typical students respond to comprehension questions. AAC user may respond to yes/no questions with gestures or AAC system.

When adapting materials, consider whether they are tied to the curriculum appropriately for the student's language level, matched to accommodate his needs, whether typical peers would be comfortable using these materials, if they could be easily replaced if destroyed/lost.

Remember, you are NEVER going to be able to adapt all the stories and curriculum for a grade for any group of student. You need to pick and choose what to teach; either eliminating stories or reducing the amount of information in some areas. Work together with the teacher to determine what the objectives are for this learner, what skills you want him to take away from each lesson, and what modifications need to be made to the teaching materials in order to make him successful.

Experts now feel that early literacy development, or emergent literacy, is not a final product of sophisticated oral language development, but that oral and written language development is interrelated and reciprocal (Teale & Sulzby, 1986).

“For all children to become members of their literate communities, we must consider reading and writing not as end products but rather as socially constructed communicative practices that begin to emerge early in childhood as other communicative abilities do. Both oral and written language are thus best viewed as primarily communicative practices, and an intervention to achieve that end is best viewed as situated practice.” (Kaderavek and Rabidoux 2004) Consequently, to support emergent literacy development, we want to consider an array of situational supports, including (but not limited to) the social, functional, physical, and emotional contexts of the literacy event so that both oral and written communication and language development can be focused upon at an early age.

No child is too “anything” to be able to learn to read. Literacy is an essential life skill. Make literacy possible for your AAC users.

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Sennett,S. & Bowker,A. (2010). *Autism, AAC, and Proloquo2Go*. Perspectives on AAC. ASHA.

Smith, M. (2009). *Vocabulary Instruction and Aided Communication*. AAC by the Bay Conference. San Francisco

Soto,G & Zangari,C. (2009). *Practically Speaking: Language, Literacy, and Academic Development for Students with AAC Needs*. Brookes Publishing.

INTERNET RESOURCES:

www.aacoinstitute.org

Core vocabulary information

www.aacintervention.com

Lots of information about AAC from where to start with literature-based boards to tips and tricks. Musselwhite, C.

www.adaptivationinc.com

Catalogue of devices, switches, and more

www.asha.org/docs

ASHA's site contains position documents, and documents outlining their stand on the knowledge and skills, roles and responsibilities of SLPs regarding AAC

<http://autismpdc.fpg.unc.edu>

Lists all evidence based practices for autism spectrum disorder, including overview, intervention steps, and check sheets

https://blogs.svvsd.org/assistivetechology/wp-content/uploads/sites/27/2013/10/Implementation_Handout-2013.pdf

Implementation Strategies for AAC Users - Catherine Swaim B.Ed., Prentke Romich Company

www.candlelightstories.com

Some ebooks are free; full access costs about \$10

www.creativecommunicating.com

Patti King-Debaun's website offers materials for teaching literacy to AAC users

www.enchantedlearning.com/Rhymes.html

\$20 membership required for full site, but symbol-adapted nursery rhymes are free

www.lindaburkhart.com

Offers a multitude of free handouts on intervention in AAC with students with complex communication needs, cortical vision impairment, Rett syndrome, PODD communication books, and more, as well as how-to handouts for building switches and mounts

<http://www.novita.org.au/Content.aspx?p=683>

PODD information and workshops

www.paulakluth.com/articles

Ideas for adapting books, including students in general ed classrooms

www.pdictionary.com/

Internet picture dictionary provides symbols with English and Spanish words for use in adapted books or communication displays

www.prentrom.com

Look for AAC Language Lab for step-by-step intervention targets, IEP objectives, and plans. This is also the source for the Pixon Project Kit by G. Van Tatenhove

www.storyplace.org

Charlotte & Mecklenburg County public library has preschool stories with text, dialogue is highlighted, accompanying games

<http://www.usu.edu/teachall/text/reading/Frylist.pdf>

Fry's instant sight word list - all 300

www.vantatenhove.com

Gail has many handouts here on using core vocabulary, descriptive teaching, teaching Unity/Minspeak, and samples of the Pixon boards

LITERACY AND AUGMENTATIVE-ALTERNATIVE COMMUNICATION USERS:

Using Literature to Increase Language Skills and Language to Build Literacy

3 CE Hours / .3 CEUs

FINAL EXAM

1. _____ are broken up into 4 groups: Key Ideas and Details, Craft and Structure, Integration of Knowledge and Ideas, and Range and Level of Text Complexity.
 - a. The NGA's best practices
 - b. The Reading Foundations
 - c. The 10 anchor standards for reading
 - d. The CSSO's recommendations

2. By teaching descriptively, teachers provide students with the opportunity to _____.
 - a. Give the details of a specific item
 - b. Demonstrate that they have learned through describing, summarizing, and analyzing
 - c. Use fringe rather than core vocabulary
 - d. Give the name of a person or place

3. Core vocabulary _____.
 - a. Allows the user to generate a wide variety of messages for a variety of purposes.
 - b. Includes those words with low frequency of use
 - c. Emphasizes nouns over verbs, adjectives and adverbs, prepositions, pronouns
 - d. Includes words that are usually useable in single ways

4. The PODD system uses _____ to define the user's intent, and teaches how to express multiple functions.
 - a. Core words
 - b. Pragmatic branches
 - c. Fringe words
 - d. Partners

5. _____ organize vocabulary, offer functional vocabulary, and offer stability of vocabulary for ease of learning.
 - a. Only core vocabulary systems
 - b. Only pragmatically organized systems
 - c. Both core vocabulary systems and pragmatically organized systems
 - d. Neither core vocabulary systems nor pragmatically organized systems

6. In the Normal Literacy Learning Continuum, children develop knowledge about alphabetic principle, word recognition, and reading fluency during the _____ stage.

- a. Reading to Learn
- b. Emergent Literacy
- c. Pre-Alphabetic
- d. Learning to Read

7. Within the Four Block Framework for balanced literacy, students focus on earning to select their own reading materials that are interesting as part of the _____ approach.

- a. Self-Selected Reading
- b. Guided Reading
- c. Writing
- d. Working with Words

8. Students who use AAC _____.

- a. Develop syntax, vocabulary, and pragmatics skills more quickly than their typical peers
- b. Have more opportunities to interact with classroom vocabulary than their typical peers
- c. Have more language with which to interact with classroom vocabulary than their typical peers
- d. Have fewer opportunities to experiment with language in the way their typical peers do

9. At the “transitional” level of text, students _____.

- a. Should be able to read 50-75 sight words in a variety of texts
- b. Should be able to recognize most letters most of the time, recognize logos and signs
- c. Consistently read silently with comprehension
- d. Can use word reading strategies to read unknown words

10. For AAC users who are beginning readers, use _____: adapt texts with less than 6 words per page and less than 12 pages, close text-to-picture match, and repetitive and predictable text that has some sight words.

- a. Emergent books
- b. Transitional books
- c. Conventional books
- d. Enrichment books

11. Shared reading has been shown to have a significant influence upon language and literacy skills development. Reading in this format should be _____.

- a. Interactive
- b. Vocal
- c. Individual
- d. Silent

12. Before reading the first time, do a “_____:” starting with the front cover of the book, go through the illustrations.

- a. Word scan
- b. Story map
- c. Content review
- d. Picture walk

13. Per the B-D-A (Before-During-After) framework, BEFORE reading, _____.

- a. Explicitly set the purpose for reading
- b. Complete an activity related to the purpose you set
- c. Activate students’ prior knowledge and pre-teach concepts
- d. Ask appropriate comprehension or prediction questions

14. _____ – visual diagrams of story elements – provide students with both visual cues and a way of organizing the information, and also a way of expressing what they know with pictures and/or symbols.

- a. Illustrations
- b. Story maps
- c. Flow charts
- d. Picture walks

15. Reading a book with a child while using AAC provides _____ that can improve syntactic and semantic language understanding and use (Binger & Light, 2007), which support the fundamentals of reading.

- a. A window of opportunity
- b. An incidental learning opportunity
- c. A fundamental opportunity
- d. A targeted learning opportunity

16. Features of a good _____ include offering choices of “read to me” and “read to myself,” highlighting words as they are read, saying and showing words when objects in the graphics are activated by touch, providing appropriate “turn the page” prompts, and graphics that support the text through movement.

- a. Story book app
- b. Vocabulary board
- c. Flip book
- d. Sequencer button

17. _____ is the individual's understanding or awareness of the sound structure of language.

- a. Language awareness
- b. Alphabetic awareness
- c. Phonological awareness
- d. Syllable awareness

18. _____ lists three components necessary for instruction in literacy for AAC users: the reading of interesting texts to them, building their language skills, and teaching phonological awareness skills.

- a. Van Tatenhove (2006)
- b. Burkhart (1993)
- c. Schuster et al (2012)
- d. Light (2009)

19. Per Light, among the basic component skills that lead to reading and writing are early reading skills, such as _____.

- a. Single word decoding and learning to decode in the context of shared reading activities
- b. Dictating and writing stories
- c. Sound spelling activities
- d. Skills in phoneme segmentation and sound blending

20. In _____, the developing reader needs to know the link between sounds and the graphemes and letters that represent them.

- a. Letter-Sound Correspondence
- b. Blending Sounds
- c. Segmenting Initial Sounds
- d. The National Reading Panel

21. _____ uses song boards and music to meet curriculum standard for phonological awareness skills.

- a. McNaughton
- b. Carmine
- c. Musselwhite
- d. Van Tatenhove

22. Vocabulary sets for writing include _____, which still use core vocabulary to support quick writing but also include use of the alphabet to generate vocabulary that's not in the core.

- a. Closed sets
- b. Generative vocabulary sets
- c. Stable sets
- d. Core + content vocabulary sets

23. Using _____ aligns the students with state standards and promotes access to the general education curriculum, as well as providing them with the same experiences as their peers.

- a. Picture-based books
- b. Informational books
- c. Text-based books
- d. Grade level books

24. Per Erickson, watch for a match between level of difficulty between text and activity. For example, combine _____ text with a _____ language activity.

- a. Difficult / New
- b. Simple / Familiar
- c. Simple / More difficult
- d. Difficult / Difficult

25. For emergent literacy students the emphasis is still on _____.

- a. Communication
- b. Text
- c. Objectives
- d. Reading