




OACRS
2009

Getting *There* with AAC

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Learning objectives

1. Recognize and communicate the benefits and myths of AAC
2. Identify and select evidence based assessment and intervention tools and strategies for a diverse caseload
3. Participate in clinical discussion and problem solving of complex cases
4. Utilize and take away scripts for communicating with families and educators, simple assessment tools and practical activity suggestions

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Ever heard of this guy?


- AAC is a part of SLP practice and it is in the mainstream media.
- We follow the life of Stephen Hawking, the internationally renowned theoretical physicist. We listen as he tells us about the importance of pushing space exploration. We are amazed at his participation in space travel, scientific research and writing and lecturing.
- As of August, 2009 Stephen Hawkins uses an AAC system consisting of a computer with EZ Keys access software, a single switch set at his cheek and text to speech software by NeoSpeech. He relies on an **alternative** communication system and his need is permanent.

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Salute Commander Christen




In the September 2009 news...




- Christen Hatch is a Lt. Commander in the Canadian Navy. He was seriously injured during intelligence operations in Afghanistan. After recovering from surgery, he continued to have unusual symptoms. He was diagnosed with ALS. His AAC system is a Dynavox EyeMax. A television show called Divine Design aired the story in September and renovated the family home to accommodate his needs. He relies on an **alternative** communication system and his need is permanent.

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Batter Up!




- Tom Ellison was featured on an ESPN show in July 2009, as most valuable player of his little league baseball team. Tom is a huge N.Y. Yankees fan and was named as the Yank's person of the week for his inspirational story. The team includes Tom and Tom motivates the team.
- Tom's AAC system includes body language such as high fives, eye contact, symbols mounted on his wheelchair tray and a Tango speech generating device. He relies on an **alternative** communication system and his need is permanent.



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"And my brother went to Honduras and he brought me this bracelet"



- Beth, who has a diagnosis of a genetic disorder, attended the Niagara Peninsula Children's Centre School for four years. When she started she had no functional speech. Using AAC she made tremendous speech, language, social, and academic gains. One year after she graduated from the program, she returned to the Centre to return her speech generating device. Her speech was now meeting all of her daily communication needs.
- She relied on sign language, graphic symbols, printed words and a Dynavox speech generating device. Her communication system was **augmentative**... and temporary!

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What is an AAC system?

- AAC does not just refer to the use of devices!
 - An "AAC system" includes a combination of any and all communication methods used by a particular person
 - For example, Joey's AAC system is composed of a few meaningful vocalizations, body language, eye gaze to people and objects, and head nods/shakes
 - This is referred to as multi-modal communication

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Who uses AAC?

- AAC is used by people whose speech does not meet their daily communication needs
 - The person may have no speech (alternative communication)
 - The person may have some speech but are capable of communicating more messages in other ways (augmentative communication)
 - The person may have lots of speech that is not intelligible to some or all of their communication partners (augmentative communication)

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Who uses AAC?

- Persons who rely on AAC for face to face communication have conditions such as:
 - Severe expressive language disorder, speech disorder such as apraxia of speech, head injury, genetic syndrome, developmental delay, autism, neuromotor conditions such as Cerebral palsy
 - Any child who is at risk of delayed speech development is a candidate for AAC approaches

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People use AAC to communicate for many reasons...

- Express myself
- Develop relationships
- Greet you
- Get your attention
- Let you know what I want or don't want
- Make choices
- Join conversations or activities
- Take my turn in conversations
- Finish a conversation or activity
- Let you know I'm listening to you
- Make sure I understand what you are saying
- Make sure that you understand me
- Introduce a topic of interest

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...using many methods

- Unaided methods such as gestures, sign language, body language, facial expression, pointing and pantomime
- Aided methods such as graphic symbols as individual items, or arranged in a display or book
- Speech generating devices (SGD's) as single messages, fixed displays, dynamic displays, or text-to-speech
- Written communication

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AAC drives development

- All areas of development depend on communication : language, social, cognitive, and academic
- AAC enables communication
- AAC has been shown to enable development in all areas
- AAC can help assess current capabilities in these areas, allowing for well-matched intervention

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AAC drives language development

- AAC enables language learning and use by allowing children to receive and express language in the same symbolic code
 - Receptively: understanding is increased by simultaneous modelling of speech/symbol/referent
 - Expressively: output is increased when it matches the child's internal representation of vocabulary and when the child has the opportunity to play with language and models for how they can communicate
- Implications for all areas of language, including pragmatics, semantics, syntax and morphology

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AAC drives speech development

- A recent meta-analysis demonstrated that 89% of cases studied showed increase in natural speech production when AAC was used, with no decreases
- Resource: Millar, D.C., Light, J. C., & Schlosser, R. W. (2006). The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental: A research review. *Journal of Speech, Language and Hearing Research*, 49, 248-264.

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AAC drives social development

- AAC enables the learning of skills necessary for participation in life!
- Increased social competence (E.g. Initiation of conversation, turn-taking, interest in others) allows for participation in:
 - The many roles each child may have such as a daughter or son, a brother or sister, a grandchild, a student, a friend, a Boy Scout, a team member, a shopper, a tourist, a churchgoer, a sports fan or a music fan
 - The many activities and routines expected of same aged peers without disabilities

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AAC drives cognitive and academic development

- AAC enables children to interact with and experience their world
- AAC can enable literacy development
- AAC provides a means for instruction, active participation in the learning process, and demonstration of knowledge

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AAC drives self-advocacy and self-esteem

- AAC allows children to communicate their thoughts and wishes
- AAC prevents learned helplessness and increases confidence
- A central tenet of AAC is to teach the power of communication: "If all my possessions were taken from me with one exception, I would choose to keep the power of communication, for by it I would soon regain all the rest." Daniel Webster

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"It takes a village..."

...To raise a child who relies on AAC."

- Recognition of the benefit a movement away from AAC intervention being provided by "specialists" towards the standard practice of all speech-language pathologists

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An AAC workshop for OACRS is born

- AAC is becoming increasingly present in SLP journals and at SLP conferences
- The Clinical Focus of the American Journal of Speech-Language Pathology in May of 2009 was called, When Simon Says Doesn't Work: Alternatives to Imitation for Facilitating Early Speech Development
 - One of the evidence-based strategies to facilitate early speech development was AAC

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An AAC workshop for OACRS is born

- AAC is a focus area for The Preschool Speech and Language Initiatives
- The PSI AAC Working Group recommended the following to the Program Coordinators in May of 2009:
 - Training to support the use of early AAC assessment and intervention
 - Encouragement for PSL clinicians to become Individual Authorizers within the Ministry of Health Assistive Devices Program (handout available!)

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Getting *there* with AAC

- The benefits of AAC are compelling
- The questions remain:
 - How do we go about achieving these benefits for children whose speech doesn't meet their communication needs?
 - How do we know when we get *there*?

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What do we need to pack?

- Problem-solving, flexibility and team skills
- A process for assessment
- A process for setting and achieving communication successes
- Intervention activities and resources, with an emphasis on FUNCTIONality!

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What do we need to pack?

- A resource for much of the information contained within our workshop:

Beukelman, D.R., & Mirenda, P. (2005). *Augmentative and alternative communication: Supporting children and adults with complex communication needs* (3rd ed.) Baltimore: Paul H. Brookes.

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Buckle up!

- Our first stop will be AAC assessment

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Purpose of assessment

- How can we help the child communicate more and/or be better understood?
 - “Communicate more” can refer to increased reasons for communicating, increased communication methods, increased communication within different activities and environments, and/or increased communication with different partners

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Assessment overview

- There is no standard protocol for assessment
- Many models and frameworks exist to help guide assessment and problem solving
 - Aside from the “candidacy models”, these share common principles

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Candidacy models

- Based on historical “best practice”, exclusion criteria:
 - Too old/too young
 - Too many skills/too few skills
 - “Not ready”
- Individuals never “became ready” for AAC as no intervention was provided or prerequisite skills that were drilled in isolation of communication never developed
- The currently held belief is that there are no prerequisites for AAC, therefore other models are utilized

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Social Networks Model

- A communication inventory for individuals with complex communication needs and their partners
- Via structured interviews identifies attributes of communication partners and the strategies/modes best utilized with each partner
- Clarifies steps towards communicative independence and helps define functional goals

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Social Networks Model

- Blackstone, S. & Berg, M. (2003). Social Networks: A communication inventory for Individuals with Complex Communication Needs and their Communication Partners- Manual. Augmentative Communication, Inc.
- Augmentative Communication News. April 2003. Volume 15. Number 2.
- www.augcominc.com/socialnetworks.html

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The SETT Framework

- A set of guiding questions and considerations to facilitate educational success
 - Can be adapted for use beyond education to guide AAC decision making and intervention
- Aim: to help multidisciplinary and collaborative teams create “Student-centered, Environmentally useful, Task-focused Tool systems”

Resource: <http://www.edtechpolicy.org/SETTBRIEFINTRO.pdf>

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Participation Model

- Assessment and intervention based on requirements for participation of same aged peers without disabilities
- Guides decision making and intervention via flow chart
- Provides tools to gather data
- Endorsed by ASHA in 2004 as a framework for AAC assessment and intervention

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Participation Model

- Beukelman, D., & Mirenda, P (1998). Augmentative and Alternative Communication: Management of Severe Communication Disorders in Children and Adults. Baltimore, MD: Paul H. Brookes, Publishing Co.
- Beukelman & Mirenda, 2005

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Assessment principles

- Many principles are shared across various AAC models and frameworks
- It is widely accepted that both assessment and intervention should:
 - Be intertwined
 - Be conducted by a team, with an emphasis on consensus building
 - Take place in natural environments with an emphasis on achieving functional communication and participation

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Assessment principles

- It is widely accepted that both assessment and intervention should (Cont'd):
 - Be centered on the individual who relies on AAC
 - Focus on strengths and abilities
 - Be ongoing and address current and future needs
 - Take into account factors beyond the needs and capabilities of the individual

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Assessment procedure

- Today we will discuss assessment and intervention related to solving a Communication Equation (Main and Cratt, CAST, 2009)
- Solving a Communication Equation requires integrating the many components involved in AAC decision-making into logical steps focused on achieving a specific communication success
- Solving a Communication Equation incorporates ideas and principles from numerous AAC models and frameworks

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Intake and background info

- Complete an intake that includes:
 - Hearing, vision, and health info
 - Perceived needs and functional capabilities across several domains
 - Members of potential AAC team
 - Goals of AAC team
 - Questions/concerns related to communication
 - Environments, activities, partners, preferences
 - Info re: anticipated changes

37 **Assemble a team**

- The bigger the better
- If a needed team member is not available, consider other options
 - Consults
 - Chart reviews

38 **Consider health information**

- Crucial to working with children who rely on AAC
- Could the following be impacting your assessment or intervention plan? What adaptations will you need to make?
 - Frequent illness
 - Surgical recovery
 - Aspiration/reflux/constipation
 - Digestive disturbances
 - Seizure disorders
 - Sleep disturbances/fatigue

39 **Assess current communication**

- The communication of children who rely on AAC is complex and dependent on multiple factors: we find it helpful to complete communication inventories to help organize information and identify patterns
- Formats of inventories are flexible
- All team members should contribute
- Information should be gathered over time in a variety of ways: observation, interviews and probes

40 **Sample communication inventory**

Reason for Communicating and Intended Message	Communication Methods and Specific Symbols	Env't/ Activity	Communication Partner	Was the Communication Successful? If no, why not?	Goal ? Priority Rank?
Comment/ I got my hair cut	Point to hair, then gesture "cut"	Circle Time	Peer	No. The peer thought Joey wanted to do crafts	

- Inventories can also be organized according to the child's specific capabilities, E.g. By activity vs. by reason for communicating
- Inventories can be summaries with representative examples

41 **Sample communication inventory**

- A collaborative approach is to have one column filled out and allow the team to fill in related details as applicable to the child
 - E.g. List many reasons for communicating or activities, but leave the other columns blank
- You can also help guide the process by using "check boxes" in certain columns
 - E.g. Use check boxes with communication methods applicable to the child (leave space for specifics such as the particular gesture or symbol used)

42 **Analyze the inventory**

- Determine what is on the inventory and what is missing
- Look for patterns in and across categories
- Identify what is missing by comparison to a developmental or ecological approach (e.g. peer participation patterns) as well as information from intake
 - May be related to reasons, methods, activities/environments, partners

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Analyze the inventory

- What does the child need to communicate better?
 - How can we increase the quality of communication?
- What does the child need to be able to communicate, when, where, and to whom?
 - How can we increase the quantity of communication?

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Option: Formal assessment tools

- If you prefer formal assessment tools, try the "Communication Matrix" for early communicators
 - A formal tool (interviews, observation, probes) that helps to define how and why a child communicates and provides a framework for determining "logical communication goals"
 - Resource: Rowland, C., & Schweigert, P. (2004). First things first: Early communication for the pre-symbolic child with severe disabilities. Portland, OR: Design to Learn.
 - <http://www.communicationmatrix.org>

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The Communication Equation

- The Communication Equation is a process for systematically analyzing the many variables that impact communication success and formulating specific plans to modify variables that are limiting communication success
- The equation reflects the principle that communication success is dependent upon variables beyond the capabilities of the individual who relies on AAC

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The Communication Equation

- Refer to the sample communication inventory on Slide 40
- Consider each row a Communication Equation:

reason + method + activity/environment + partner = successful communication
- Missing variables (columns) in a row indicate that the equation isn't complete and needs to be solved
- If a complete equation results in unsuccessful communication, the equation also doesn't work and needs to be solved

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Select a Communication Equation to solve

- Now that we know which Communication Equations need to be solved we must choose one priority:
 - The AAC team collaborates to determine priorities that are functional, meaningful, and participation-based

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Analyze the variables

- Try to identify why the equation isn't complete or doesn't work (i.e. which variables are limiting the success of the Communication Equation) and what may make it work (i.e. potential Communication Equation solution)
 - We can then formulate a specific plan to modify those variables

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Analyze the variables

- Opportunity Barriers and Access Barriers must be analyzed as possible reasons for why the equation isn't complete or doesn't work
 - Opportunity and Access Barriers are components of the Participation Model (Beukelman and Mirenda, 2005)
- Additionally, these barriers must be analyzed to determine appropriateness of potential Communication Equation solutions

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Assess Opportunity Barriers

- Is the success of the Communication Equation limited by barriers imposed by people other than the child who relies on AAC?
- Policy, Practice, Knowledge, Skill, and/or Attitude Barriers arise at all points in the assessment-intervention continuum
- The goal of assessment is to formulate a specific plan to resolve the barrier(s)
- If we do not resolve the barriers, we will be stuck spinning our wheels...we will never get "there"!

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Practice Barriers

- Limited communication opportunities as the result of procedures or conventions that have become common in a family, school, or workplace but are not policy
 - E.g. Is lack of communication with peers because they spend much of their day separated from peers?

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Knowledge Barriers

- Limited communication opportunities as a result of lack of information regarding the AAC system or facilitation strategies
 - E.g. Is the child missing opportunities at circle time because the new teacher hasn't had time to investigate/problem-solve how to include him?

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Skill Barriers

- Limited communication opportunities as the result of difficulty facilitating functional use of the child's AAC system
 - E.g. Is the child not getting enough meaningful practice with his AAC system because his caregivers have difficulty adopting an interactional style?

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Attitude Barriers

- Limited communication opportunities as the result of negative or restricted attitudes, subtle or otherwise
 - E.g. The educational team is not providing choice making opportunities because they fear they will give the child "too much control", causing potential behaviour problems

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Assess Access Barriers

- Is the success of the Communication Equation limited by the current capabilities, attitudes, or resources of the child or his/her AAC system?
 - E.g. Poor motor control, "hidden" sensory-perceptual impairments, limited receptive language, inaccurate self perception of intelligibility

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Assess specific capabilities of the child

- As required, assess specific capabilities as they relate to functional communication ability: How capabilities may be limiting the success of the Communication Equation AND to determine potential Communication Equation solutions
 - Sensory and Perception
 - Positioning and Motor
 - Speech and Language
 - Cognition
 - Literacy

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Diagnostic based considerations

- Look to the evidence for an overview of AAC issues related to diagnosis to help guide assessment of current and potential capabilities
- Look to the evidence for an overview of AAC outcomes as related to diagnosis to help identify potential Communication Equation solutions
- Cautions:
 - There is wide variability within diagnostic categories and research subjects, so a strong assessment with a personalized intervention plan is crucial!

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Evidence-based practice and AAC

- Because AAC is a multidisciplinary practice, the evidence is published in a range of journals
- Search Medline, PsycINFO, Cumulative Index of Allied Health Literatures (CINAHL), & Language and Linguistics Behavior (LLBA)
- Resource: Schlosser, R. W. (2004, June 22). Evidence-based practice in AAC: 10 points to consider. The ASHA Leader. pp.6-7, 10-11.

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Hearing considerations

- Review all information on hearing and make referrals as appropriate
 - It is not uncommon for children with severe disabilities to have not had hearing tests (or recent hearing tests)
- How is hearing affecting current communication, the assessment, or a potential Communication Equation solution?
 - E.g. Ability to hear and respond, your positioning during assessment, the potential for auditory scanning

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Vision considerations

- Review all information on vision and make referrals as appropriate
 - Acuity, stability, sensitivity, visual perception, visual processing
- How is vision affecting current communication, the assessment or a potential Communication Equation solution?
 - Are/should visual stimuli be: Larger? Farther apart? Placed differently in visual field? Given more contrast? Adapted due to degeneration?

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Seating and positioning considerations

- Review all information and make referrals as appropriate
- Is the individual seated and positioned optimally?
 - Risk underestimation of current capabilities as fatigue, comfort level, emotional state, and ability to move, respond, and attend can be affected
- Do adaptations need to be made?

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Seating and positioning considerations

- How are current communication, the assessment or a potential Communication Equation solution influenced by:
 - Changes in seating and positioning that occur in the day
 - Changes in tone
 - Presence of primitive reflexes

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Motor considerations

- Review all background information, consult, and make referrals as appropriate
- Working as a team, determine if the child has a communication signal/motor technique that can be used during the assessment or in a potential Communication Equation solution

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Motor considerations

- Signals may be “direct access” or “indirect access”
 - E.g. Listener-Assisted Scanning
- What is the operational competence: Are signals reliable, effective, and efficient under different circumstances?
 - E.g. Positioning, partners, environments
- Consider long term negative impact of the signals
 - E.g. Eliciting primitive reflexes, deformity

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Motor considerations

- If there is no clear signal, the focus of your involvement will be to develop a signal in motivating, communicative contexts

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Motor considerations

- Does the child have the fine motor skills for effective use of manual signing or gestures?
 - Unilateral, bilateral, hands doing different things, simple finger isolations, complex finger isolations
 - If adaptations are/need to be made, will communication attempts be effective?
- How are the child’s motor imitation skills?
 - What instruction methods may be help (E.g. hand-under-hand, “enhanced natural gestures”)

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Sensory processing considerations

- Are there other sensory processing difficulties impacting current communication, the assessment, or potential Communication Equation solutions:
 - Tactile: implications for tactile symbols for those with low vision
 - Proprioceptive (sense of position and movement): implications for sign language and SGD feedback
 - Kinaesthetic (sense of movement): implications for sign language and SGD feedback

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Sensory processing considerations

- What adaptations can be made to accommodate for sensory seeking or avoidance during assessment and intervention?

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Speech- what to assess

- How is quality of speech impacting current communication?
 - Are there patterns of (in)effectiveness related to partners, environments, reasons for communicating, etc?
- What are the perceptions of intelligibility (including self perception)?
- Can natural abilities be increased?
- Under what circumstances can speech be used as an effective part of a potential Communication Equation solution?

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Speech- how to assess

- With this population, we must assess the complex factors that affect intelligibility, including:
 - Familiar vs. unfamiliar listeners
 - Presence of contextual cues providing "supplemental intelligibility" (E.g. Topic, 1st letter, gestures)
 - Reason for communicating

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Speech- how to assess

- Standardized intelligibility measures are often not sensitive to these factors
 - Try the MUSS, the IASCC, or your own informal measure (E.g. Analyze your inventories, interview, observation)

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Speech- how to assess

- The MUSS: "Meaningful Use of Speech Scale"
- Resource: Robbins, A.M., & Osberger, M.J. (1992). *Meaningful Use of Speech Scale*. Indianapolis, IN: Indiana School of Medicine.
 - Interview of communication partners
 - Scale of 0-4 (0= never, 4= always) for use of speech and other methods at 10 levels of communicative interaction

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Speech- how to assess

10 Levels of the MUSS:

- Vocalizes during communicative interactions
- Uses speech to attract other's attention
- Varies vocalizations with content and intent of messages
- Is willing to use speech primarily to communicate with familiar people on known topics
- Is willing to use speech to communicate with unfamiliar people on known topics
- Is willing to use speech primarily to communication with familiar people on novel topics or with reduced contextual information

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Speech- how to assess

- Is willing to use speech primarily to communication with familiar people on novel topics or with reduced contextual information
- Is willing to use speech primarily to communication with unfamiliar people on novel topics or with reduced contextual information
- Produces messages understood by people familiar with his/her speech
- Produces messages understood by people unfamiliar with his/her speech
- Uses appropriate repair and clarification strategies

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Speech- how to assess

- The I-ASCC: "Index of Augmented Speech Comprehensibility in Children"
- Resource: Dowden, P. (1997). Augmentative and alternative communication decision making for children with severely unintelligible speech. *Augmentative and Alternative Communication, 13*, 38-44.
 - Dowden describes procedures for contextual intelligibility assessment and discusses proposed intervention based on findings for 4 children with complex profiles and needs

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Speech- how to assess

- I-ASCC Assessment Procedure:
 - Child is audiotaped saying target words
 - Unfamiliar and familiar listeners listen twice, then indicate what they heard
 - They are then given a contextual cue phrase (E.g. Something a person may eat for dinner) and asked to indicate what they heard
 - The result is 4 categories of intelligibility that can be compared, contrasted, and used to guide decision making

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Speech- how to assess

- In the Total Communication Class at the Niagara Peninsula Children's Centre School the MUSS and I-ASCC were used to help distinguish which children benefited from "symbol support" for expressive language, clarification strategies, receptive language input, and/or behavioural support
 - These measures helped resolve disagreements/confusion regarding the need and suitability of Communication Equation solutions for each child

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Language issues

- Commonly heard quotes:
 - "He understands everything!"
 - "He knows what you want him to do, he just likes to joke by not responding"
 - "She doesn't say much because she doesn't want to"
 - "If she only had a SGD, she would be able to communicate just like any other child"
 - "Because we don't know what she understands, we interact with her like any other 13 year-old"
 - "Language skills could not be assessed"

79 Language- what to assess

- How are language skills impacting current communication?
 - Ability to attend, respond, communicate for a variety of reasons etc
- Are poor pragmatics, not operational competence with communication method limiting the success of the Communication Equation?

80 Language- what to assess

- What guidelines should the AAC team use when they interact with/instruct the child?
- What will the initial output expectations be for potential Communication Equation solutions?
 - Amount of messages
 - Specific messages: vocabulary, reasons for communicating
 - Structure of messages (E.g. Single words vs. full messages vs. generative messages)
 - How to represent messages (E.g. Symbols)

81 Language- what to assess

- When assessing receptive language in children with complex communication needs, consider:
 - What did the child do to demonstrate understanding? How consistent is this response?
 - What other cues were present that may have assisted the child in understanding (E.g. Visual cues, routines, prompts)?
 - The goal is not to “disprove” abilities, but to truly understand how the child is responding to language: the way the partners scaffold and prompt the child gives us valuable clues!

82 Language- how to assess

- When assessing receptive language in children with complex communication needs, consider:
 - The impact of natural, familiar contexts vs. structured, unfamiliar contexts on your findings
 - If routines are increasing responsiveness to language, how did the routine become familiar? (use information during intervention)
- Many existing early receptive language inventories and parent measures can be modified to include these considerations

83 Language- how to assess

Sample inventory for receptive language for children with complex needs:

What you said and did when interacting with the child	Other potential cues	What the child did in response	Activity and Environment
<p><i>What you said:</i> “Put your shoes on”</p> <p><i>What you did:</i> Held up shoe and walked towards her</p>	We always put her shoes back on before we leave the sensory room and we had finished her exercises	Held out her foot	Physiotherapy exercises in sensory room

84 Language- how to assess

- When assessing receptive and expressive language in children with a clear, reliable communication signal (E.g. pointing, eye gaze):
 - Use your favourite formal tests in flexible ways.
 - Adapt for access- be creative!
 - Teach, practice, and evaluate ability to understand and perform the task before you begin to score
 - Example: Preschool Language Scale with E-TRAN

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Language- how to assess

- Use communication inventories (Slide 40) to help assess content (vocabulary, reasons for communicating) and structure (single words vs. generative etc) of expressive language
- Analyze gesture use to help profile language skills
- Resource: Crais, E.R., Watson, L.R., Baranek, G.T. (2009). Use of gesture development in profiling children's prelinguistic communication skills. *American Journal of Speech-Language Pathology*, 18: 95-108.

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Language- how to assess

- Always be cautious about underestimating skills when the child is without a functional AAC system
- An important component of assessment is whether the use of well modelled, newly introduced AAC will allow the child to demonstrate increased language skill
 - Time for Symbol Assessment!

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Symbol assessment

- The goal of a symbol assessment is to determine:
 - What symbol types and specific symbols the child understands (AND can learn to recognize)
 - What symbol types and specific symbols the child can use to communicate for a variety of reasons (AND can learn to use to communicate)
- Hint: It is a myth that children should learn symbols in a representational hierarchy

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Symbol assessment

- Structured protocols for symbol assessment exist
 - Resource: Beukelman & Mirenda, 2005
- Key components of this protocol:
 - Ensure the child is familiar with the objects the symbols represent
 - Investigate ability to use symbols for a variety of reasons of communicating: labelling, answering questions, requesting, commenting, etc
 - Investigate ability to use multi-symbol messages, categorize symbols, and associate symbols

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Symbol assessment

- Caution!
- Children need opportunities to watch us use symbols in the same way we want them to use symbols! If we don't provide these opportunities, we may be underestimating potential to use symbols
 - Capability assessment includes stimuability for specific AAC skills that can only be accurately assessed after modelling and opportunities for practice!

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Symbol assessment

- Videos: Emma and Miguel
- These are informal symbol assessments!
- What did we learn about their ability to use symbols to communicate?
 - Consider use of ALL symbols

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Cognitive considerations

- Review background information gathered from:
 - AAC team
 - Psychology/ Developmental Paediatrics Reports
 - Individualized Education Plans
- Make referrals and consult as appropriate
- Clinical observation, team based problem-solving, and trial and error over time and in natural contexts are crucial

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Cognitive considerations

- As required, investigate memory, problem-solving, decision-making, attention, world knowledge, metacongnition
- Are current communication opportunities limited because the child spends too much time in situations poorly matched with their cognitive skill?
- What guidelines should the AAC team use when they interact with/instruct the child?
 - E.g. Small goals with that begin reduced cognitive demand (such as limited messages), teaching and modelling of potential Communication Equation solution in context only

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Cognitive considerations

- Assess the match between the child's cognitive skills and operational aspects of the current or potential communication method
 - E.g. Amount and organization of messages in a graphic communication book:
 - Will the child be able to find messages more effectively if there are less messages on one page but more pages or vice versa?
 - Should messages be organized according to categories or themes?

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Cognitive considerations

- Caution!
 - Never underestimate the ability to learn a potential Communication Equation through a good intervention process
 - Resource: Kangas, K.A. And Lloyd, L.L. (1988). "Early cognitive skills as prerequisites to (AAC) use: What are we waiting for?", Augmentative and Alternative Communication: 4, pp. 211-220.

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Literacy considerations

- If the child is using literacy as a strategy for face to face communication, is it effective?
- What is the child's literacy level and how can these skills be incorporated as a communication strategy into a potential Communication Equation solution?
- How can literacy enhancing strategies be incorporated into a potential AAC system?
 - Literacy is the ultimate power for individuals who rely on AAC!

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Literacy considerations

- Can the child use spelling, partial or approximate spelling, or first letter cueing to supplement other communication methods?
- Can the child use written words as symbols?
- Can the child use a "text-to-speech" SGD?
- Can the child use literacy skills to increase communication efficiency?
 - E.g. Alphabetizing vocabulary, word prediction on SGD's

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Literacy considerations

- Interview the educational team; discuss assessment possibilities using their resources and your creative adapting skills!
 - If the child cannot speak or write, try pointing or eye gaze to an alphabet board or symbols with the labels removed (ensure recognition of symbols prior)
- Functional assessment may include:
 - Print and phoneme recognition, word recognition, reading comprehension, spelling, first letter spelling

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Literacy considerations

- Keep focused on functional applicability
 - Analyze and trial effectiveness in communication situations
 - Inconsistent skills may limit success of the Communication Equation more than if literacy was not used as a communication strategy

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Identify Constraints

- Constraints are access barriers: Practical considerations unrelated to the child's capabilities that influence potential Communication Equation solutions
 - Preferences of family, the individual, and other communication partners (E.g. Portability, durability, cosmetic features)
 - Communication partner skills and abilities (E.g. Partners must be able to understand output)
 - Funding availability

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Assessment summary

- Complete communication inventories to identify Communication Equations that need to be solved
- Select one priority Communication Equation to solve
- Analyze the variables that may be limiting the success of the Communication Equation
- Determine potential Communication Equation solutions
 - These potential solutions are modelled and trialed during the assessment in natural contexts to determine appropriateness

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Look Both Ways!

- It's time to cross a fine line into AAC intervention

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Intervention overview

- Set a goal based on the potential Communication Equation solution: Be SMART about it!
- Make a plan to achieve the goal that includes:
 - Communication Partner Instruction
 - Specific Teaching Procedures Related to the Goal
 - Creation of Personalized Materials
- Continually monitor goal outcomes and make revisions to the plan as necessary

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Intervention overview

- Increase the number of successful Communication Equations gradually
- Continually assess needs, capabilities, and barriers for change
- Plan early for transitions in service

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Formula for AAC goals

- Reason for communicating + method for communicating + activity/environment + communication partner + prompt + frequency+ timeframe

Noah will request more book during book reading activities with peers. After the reader finishes a page and places the book in their lap, Noah will look at the book and then the reader 70% of the time within each activity within a timeframe of 2 month.

- This specificity makes Goal Attainment Scaling an intuitive outcome measure

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This formula for AAC goals is SMART

- Specific: Answers many “W” questions
 - Who (partners), what (reason), where (env’t), why (activity), how (method)
- Measurable: Concrete criteria for success
- Achievable: Matched to capabilities with appropriate prompts
- Realistic: The AAC team is willing and able to work on the goal
- Time bound: A specific time frame or number of opportunities for practice

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Communication Partner Instruction

- Without the help and support of communication partners, our efforts **will be** futile (and it took so much work to get here!)
- Remember... it takes a village

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Communication Partners vs. Communication Facilitators

- We must enable Communication Partners to become Communication Facilitators through:
 - Resolving practice, knowledge, skill, and attitude barriers
 - Teaching foundations for interaction
 - Teaching the specific skills needed to facilitate each goal
 - Providing the skills and encouragement for the facilitator to take an active role on the AAC team

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Resolving barriers

- It’s hard to move forward if one or more commonly held “AAC myths” are resulting in knowledge and/or attitude barriers
- Resource: Romski, M.A., & Sevcik, R.A. (2005). Early intervention and augmentative communication: Myths and realities. *Infants and Young Children, 18*, 174-185.
 - Handouts for communication partners regarding myths were posted

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Resolving barriers

- Resource: Cress, C., & Marvin, C. (2003) Common questions about AAC services in early intervention. *Augmentative and Alternative Communication, 19(4)*, 254-272.
 - A summary of this article in lay language as well as links to related questions are available at: <http://www.unl.edu/barkley/present/cress/questions.shtml>

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Demystification complete: It is time to build a foundation

- Developing a solid foundation for interaction between the partner and child can only enhance the likelihood of accomplishing the goals
 - We need to create an environment that “primes” the child and partner for interaction
 - We must avoid the all-too-common “It’s communication time” scenarios

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Balanced interaction is a challenge

- Individuals who rely on AAC and their communication partners often have unbalanced interactions:
 - Partners dominate conversations by taking more turns, controlling topics, asking close-ended questions, providing few opportunities to initiate/respond, and interrupting
 - Individuals who rely on AAC are usually passive communicators, initiate few interactions, respond infrequently, communicate for few reasons, and use restrictive language forms (e.g. Yes/no)

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Balanced interaction is a challenge

- Resource: Light, J., Dattilo, J., English, J., Gutierrez, L., & Hartz, J. (1992). Instructing facilitators to support the communication of people who use augmentative communication systems. *Journal of Speech and Hearing Research, 35*, 865-875.

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Instructional programs to the rescue

- Several “ready made” programs use that use social-pragmatic and developmental principles are very appropriate for this population
- Many differ according to audience and age, diagnosis, and capabilities of the individual but share intervention principles within their partner strategies:
 - Optimize the individual’s behaviour state
 - Be person oriented
 - Recognize and interpret early communication behaviours
 - Promote interaction
 - Model language
- Aided AAC can easily be incorporated into these strategies!

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Examples of social-pragmatic developmental programs

- Hanen Organization
 - More than Words; It Takes Two to Talk; Learning Language and Loving It, Allow Me (teens/adults)
- SCERTS
 - Social communication, emotional regulation, transactional support
- VanDijk techniques
 - Movement-based techniques for the deaf-blind/severely sensory impaired
- Scripted Routines
 - Structured opportunities for attention getting/acceptance/rejection
 - Sample procedure: touch cue, verbal cue, pause, verbal feedback, action

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Communication partner instruction strategies

- We utilize strategies based on these principles, incorporating aided AAC as applicable
- We have also attached catchy names to these strategies:
 - Examples: Shape up, Stick to the Script, Get Some Face Time, Be a Lead Investigator, Be a Top Model, Recognize Silence is not Deadly, Make it Kid's Choice, Make Opportunity Knock, Be in the "Know"- Avoid Yes/No, Do Your Part- Let the Kid Start
 - Additional resource basis of above strategies: Light et al., 1992

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Shape Up!

- Some children need to learn to use subtle behaviours to influence their world
- It is often hard to tell which behaviours are intentional, and which are not
- Observing, distinguishing, and responding to subtle behaviours in a clear and consistent way, over time, can help "shape" some behaviours into intentional communication attempts that are understood by both the child and familiar partners

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Shape Up! Example:

- Bryan's mother noticed that when she got up and walked away, he inconsistently made one or more of these behaviours: slight leg extension, pouting, and vowel sounds
- She decided the most effective way for him to get attention is to make sounds, so she began to respond only when he made sounds ("Okay Bryan, I will stay with you")
- Over the course of one year, Bryan gradually began to use sounds to get attention more frequently and consistently

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Stick to the Script!

- When children can understand and predict routines and activities, they have more ability to communicate within the routine
 - Attention may shift from "What will happen next?" to "My turn is coming up!"
- Scripting routines means saying and doing things in the same way and in the same order each time
- Option: After a child has learned a routine, the script can be periodically altered to encourage spontaneous communication

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Stick to the Script! Example:

- For many months at bedtime, Jenny and her mother have been reading a book, singing a song, and then sharing bear hugs
- Her mother tries very hard to stick to "scripts" within each routine (E.g. letting Jenny choose the book, clapping while they sing)
- One day Jenny's "forgetful" mother closes the book and goes in for a bear hug
- Jenny requests singing a song by clapping her hands; her mother praises and reinforces her clear communication!

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Be a Lead Investigator!

- The communication attempts of children who rely on AAC are often harder to recognize than those who are speaking
- The more you can investigate, recognize and reinforce communication attempts, the more the child will try again and become a better communicator

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Be a Lead Investigator! Example:

Step 1 - Observe Wait and Listen (OWL)

- **Observe** – watch the child's actions, gestures, facial expressions etc. to determine what they may be trying to communicate
- **Wait** – allow the child time to start an interaction or respond to what you have said or done
- **Listen** – show that you are interested, and try not to interrupt

Step 2 - Interpret

- **Say** what you think the child is trying to communicate in a few words and respond naturally (E.g. If she is asking for something, give it to her quickly)

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Be a Lead Investigator! Example:

- Aiden's EA is pushing his wheelchair down the hall
- Aiden's body shows signs of increased tension as they move past the gym
- The EA positions herself in front of Aiden and observes that he is looking at the basketball rack
- The EA remembers that Aiden is a big fan of basketball
- She interprets and reinforces by saying "Basketball is fun! Let's go play!"

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Be a Top Model!

- Each day presents new communication experiences for children
- Children who speak learn how to participate by following the lead of speaking adults and peers
- Children who rely on AAC may not know what or how to communicate in new situations
- You can help by modeling (demonstrating) what and how the child can communicate

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Be a Top Model! Example:

- Identify an opportunity/reason for communicating
- Demonstrate how the child could communicate using a method he/she is capable of producing
- The more you model, the better! Repetition is crucial!
- You don't have to ask the child to imitate or repeat the model – he/she will learn best by watching you communicate naturally

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Be a Top Model! Example:

- Lucy sits with her communication book while the class sings "Old MacDonald"
- Each time a peer chooses an animal, her EA points to the animal's picture in Lucy's communication book
- When it is Lucy's turn to choose an animal, she quickly points to one in her book because she has seen her EA do it so many times before

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Make it Kid's Choice!

- Giving children choices is a great way to provide communication opportunities throughout the day
- Choices give children a sense of independence and self-confidence, which makes them more likely to try to communicate more often and improve their skills

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Make it Kid's Choice!

- Try some of the following choices:
 - Songs or games
 - Toys or books
 - Crafts or materials for crafts
 - Places to visit
 - Person to play with, talk to, take a turn
- Choice possibilities are as endless as your imagination!
- Try to provide choices of activities, and also within activities

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Make it Kid's Choice!

- Ways to offer a choice:
 - Display two or more objects or symbols in front of the child (the child can reach, gesture, point, use eye gaze etc)
 - Tell the child "I will give you (2) choices. Listen First"...(blue), (yellow). Now I will say them again, and when I say the one you want, tell me 'yes'".
 - This "listener-assisted scanning" script should be used for children who have a reliable way to communicate yes/no

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Make it Kid's Choice!

- When offering a choice, keep in mind:
 - Only offer choices that are possible, and always provide the child with their first choice
 - It doesn't matter if the child makes a "wrong" choice (E.g. If she wants to colour a dog blue, let her!)
 - When using eye gaze as a signal, be sure to have the child look at a "confirmation spot" (E.g. back at the partner) after looking at his/her choice

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Make it Kid's Choice! Example:

- Sarah is at the library to choose a book
- Sarah's brother displays a Clifford book in his right hand and a Franklin book in his left hand and asks, "Do you want Clifford or Franklin?"
- Sarah looks at the Clifford book and then back at her brother
- Her brother says, "You want the Clifford book" and makes sure Sarah watches him put it on her lap

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Recognize that Silence is Not Deadly!

- Communicating using AAC often requires more time than communicating using speech
- When speaking with children who use AAC, people sometimes do not allow the child the time it takes to respond, because they feel the need to keep the conversation moving along
- This often results in unequal contributions to the conversation, with most of the talk coming from the communication partner

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Recognize that Silence is Not Deadly!

- When you ask a question or make a comment, a good rule of thumb is to wait at least 10 seconds after you have finished speaking
- Focus your attention on the child and show them that you are waiting and you are interested in what they want to communicate to you
- You can do this by "wearing" an expectant facial expression and/or by leaning in towards them

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Be in The "Know"- Avoid Yes/No!

- Children who rely on AAC are predominately asked yes/no questions
- This limits their meaningful participation in interactions with others because it does not let them express anything more complex than "yes" or "no"
- Asking open-ended questions (E.g. wh- questions such as what, why, when) gives children the opportunity to practice and develop language and increase their independence
- It is a myth that "yes/no" questions are easier and more efficient for children with severe speech and language delays- for many children who rely on AAC, yes/no questions are very challenging!

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Be in The "Know"- Avoid Yes/No! Example:

- Jacob loves art projects
- Rather than asking what he needs for his project item by item (E.g. Do you need scissors? Do you need glue?), his mother asks, "What do you need to cut?" while presenting photographs of scissors and glue
- She then looks expectantly at Jacob and the photos as she waits for his response

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Do Your Part- Let the Child Start!

- Communication partners have a tendency to take too much of the lead in conversations with children who rely on AAC
 - Often partners feel as if they have to initiate interaction and set a topic
- Position yourself so that the child can see and hear you
- Focus your attention on the child and wait to give him/her a chance to start an interaction

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Do your Part- Let the Child Start! Example:

- Melinda uses a speech-generating device
- When you see Melinda for the first time in the morning, you stop in front of her (within her line of vision), focus your attention on her and wait
- Melinda then finds the message "Good morning" – she smiles as you reply back "Good morning Melinda!"

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Choosing and teaching communication partner strategies

- Identify priority strategies with the following criteria:
 - Highest impact for child's skill development
 - Greatest need of specific communication partner
 - Necessary for success of targeted goals

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Choosing and teaching communication partner strategies

- Personalize each strategy and break it into small, manageable, practical, and teachable components
- Discuss the importance of the strategy with the partner, and provide opportunities for demonstration, practice and feedback in natural environments
 - This instructional procedure is crucial because it helps translate knowledge to skill

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Supporting evidence

- The study by Light et al., 1992 followed a social-pragmatic approach to teach communication partners 4 strategies across 4 hours of training
- One strategy was taught at a time until mastery was achieved
- Strategies included providing opportunities for initiation and complex messages, allowing sufficient time to respond & reinforcing communication attempts

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Supporting evidence

- The instructional procedure targeted knowledge-to-skill barriers:
 - Met with partners and reviewed one strategy as a priority, discussing the importance
 - Reviewed interactions at baseline
 - Described and demonstrated strategy in natural contexts
 - Provided multiple opportunities for practice with feedback
 - Ensured partner was satisfied with the instruction
 - Practice occurred until consistently used in a variety of naturally occurring situations
 - Monitored partner's continued use of strategy after instruction complete

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Supporting evidence

- Results:
 - More evenly balanced interactions: turn taking and initiations increased, responses were more complex
 - Partners generalized strategy use to natural environment
 - Increased social validation of communication competence from unknown judges and communication partners

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More supporting evidence

- Parents who participated in a storybook reading intervention (with similar strategies and instructional procedures of Light et al., 1992) valued:
 - Instruction in their own homes
 - Training procedures that included role play
 - Video review
 - "Coached practice"

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More supporting evidence

- Parent Feedback: It was not enough to be told about the strategies, they needed to be shown how to implement them and be given support
- Resource: Kent-Walsh, J. & McNaughton, D. (2005). Communication Partner Instruction in AAC: Past Practices and Future Directions. *Augmentative and Alternative Communication, 21*(3), 195-204.

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Optimal outcome for communication partner instruction

- The partners become so competent with the "priority strategies" that they are able to help other partners learn, use, and understand them

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Specific teaching procedures related to the goal

- Any procedures or conditions necessary for goal achievement

Examples:

- Positioning of communication partners or objects relative to child
- Use of specific teaching techniques such as Milieu Teaching
- Level and description of prompting or cueing, including hierarchies

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Creation of personalized materials related to the goal

- May include play sets, symbols, tools to organize or display symbols, switches or devices, visual reminders for communication partners and outcome tracking forms

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Getting there: Case studies

- Team members
- Child's capabilities
- AAC evidence related to diagnosis and/or goal
- Potential Communication Equation solution
- Goal
- Partner Instruction Strategies
- Teaching Procedures
- Materials
- Future AAC Plan

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Transition planning

- Engage in early transition planning to ensure "carry-over" and "carry-on" when you can no longer provide service, a more appropriate service is secured, or the child experiences transitions in his/her life
- Transition planning includes transition of your knowledge and skill for solving Communication Equations!

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Let's add extra horse power!

- We need extra "umph" if we want to get *there!*

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Intervention to support language learning and development

- Children who rely on AAC benefit from personalized intervention to support development of all aspects of receptive and expressive language: semantics, syntax, morphology, pragmatics
- Their unique capability profiles present many unique challenges to both language development and "traditional" language therapy

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Some challenges

- ⦿ Children who rely on AAC have delays in language for a variety of reasons
 - ⦿ Input/output asymmetry (auditory/visual)
 - ⦿ May be spoken to less or with language unmatched to their capabilities
 - ⦿ Limited ability to practice using language, make inquiries, test hypotheses, and receive feedback

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Are symbols the solution?

- ⦿ Visual, tactile, and adapted use of auditory symbols offer the potential for children to receive and express information in the same symbolic code
- ⦿ Such symbols have been used for decades, but children who rely on AAC continue to have profound language delays

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It's not about the symbols

- ⦿ Children are often given opportunities for expression using symbols, but partners continue to provide input through spoken language
- ⦿ Children often do not have access to symbols that represent a variety of functional messages
- ⦿ Children are often assumed to understand symbol representations that are based on adult concepts
- ⦿ Non-auditory symbols lack the specificity and flexibility of spoken language

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...it's about what we, yes we, do with them

- ⦿ Aided Language Stimulation is ONE of several interactive, "modelling" based approaches for the simultaneous promotion of receptive and expressive language
- ⦿ Resource: Goossens, C., Crain, S., & Elder, P. (1992). *Engineering the preschool environment for interactive, symbolic communication*. Birmingham, AL: Southeast Augmentative Communication Conference Publications.

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Aided language stimulation

- ⦿ The facilitator "highlights symbols on the user's communication display as he or she interacts and communicates verbally with the user" (Goossens' et al, 1992, p.101)
 - ⦿ The facilitator uses the symbols just as they want the child to use the symbols (including reasons for communicating and method of communicating)
 - ⦿ Reinforcement and validation are built-in

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Aided language stimulation

- ⦿ Typical language development is mimicked:
 - ⦿ Receptive language is facilitated as the result of input that is used frequently and generatively in context
 - ⦿ Expressive language is facilitated as the child learns what symbols and combinations of symbols to use, when, why and how in natural contexts

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How to provide aided language stimulation

- “Highlighting” of symbols:
 - Is preceded with non-verbal juncture cues to command attention/cue for a spontaneous response
 - Occurs for about 70% of spoken words
 - Can take many physical forms
- Question to comment ratio: 80/20
 - Emphasis on input, not prompting output
- Rarely used prompts:
 - “Give/show me”, “Your turn”, “What do we need?” etc

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How to provide aided language stimulation

- “Favourite SLP techniques” are integral:
 - Slow speech, with lots of pausing
 - Narration of ongoing activities
 - Turn-taking
 - Expectant delay
 - Open-ended questions
 - Responsivity /recasting
 - Specific feedback
 - Repetition and expansion
 - Prompting hierarchies
 - Modelling the use of a variety of messages and reasons for communicating

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Evidence for facilitating receptive language

- 4 children (8-12yrs) with less than 15 intelligible words
- 3 repeated activities during each of 5 group sessions: arts and crafts, food prep, story book reading
- Aided Language Stimulation was used to teach 8 target vocabulary items in each activity (mostly adjectives) alongside core vocabulary
- All children acquired all target vocabulary via spoken word-object matching

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Evidence for facilitating receptive language

- Resource: Dada, S., & Alant, E. (2009). The effect of aided language stimulation on vocabulary acquisition in children with little or no functional speech. *American Journal of Speech-Language Pathology*, 18, 50-64.

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Evidence for facilitating expressive language

- 5 Preschoolers; 3 with SGDs and 3 with symbol displays
- “Aided AAC modelling” was used to model two symbol combinations while providing a grammatically complete spoken model in play activities
- Models were provided 30 times within 15 minutes
- 4 of 5 children demonstrated consistent expressive gains, including long term use of word combinations and generalizations to different activities

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Evidence for facilitating expressive language

- Resource: Binger, C., & Light, J. (2007). The effect of aided AAC modeling on the expression of multi-symbol messages by preschoolers who use AAC. *Augmentative and Alternative Communication*, 23, 30-43.
- Janice Light and her colleagues are currently completing similar longitudinal studies with minimally symbolic children as young as 16 months with encouraging results

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Sounds great! Let's make some activity displays

- Message selection and organization/layout of displays need to be considered to promote maximal results
- Common practice: Noun-based messages, organized into categories
 - Research suggests this organization may not be appropriate for children developmentally younger than 6 years
- Evidence-based new direction: Interaction-based messages, organized by activities

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Selecting activities for displays

- Select activities that:
 - Are familiar and occur frequently
 - Encourage sustained social interaction
 - Are fun and motivating
 - Involve unmet communication needs

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Selecting messages for activity displays

- Select messages that:
 - Reflect current capabilities AND potential capabilities to facilitate language development
 - Are highly functional within and outside the activity (personalize!)
 - Allow the child to EXPERIENCE the activity
 - Allow for generative use and many reasons for communicating
 - Balance single words and flexible phrases

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Representing messages for activity displays

- Consider the symbol representation you will use to represent messages
 - Use information from your symbol assessment
 - Even if a child is able to learn Picture Communication Symbols (PCS) over time, you may wish to use more concrete symbols related to the CHILD's understanding of/experience with the message
 - Make symbols and displays appealing from the CHILD's perspective

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Organizing activity displays

- Displays can be adapted for indirect access
- Grid displays can be organized in a "semantic-syntactic" format
 - Parts of speech organized left to right, mimicking spoken word order; often colour-coded (E.g. Fitzgerald Key)
- "Core displays" can be used simultaneously with activity displays to supplement messages
 - Highly personalized messages intended for use in many environments and situations; often verbs and functional words

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Positioning of activity displays

- Positioning/storage of displays:
 - Ensure easy access to displays during AND after activities!
 - Avoid the displays being relegated to the outskirts of the activity!
 - Break the displays down, get the symbols in with the action!
 - Consider the positioning of the communication partner relative to the child/relative to the symbols/relative to the activity!

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Updating of activity displays

- Messages should be updated continuously!
- We must keep up with those typical developers! Preschoolers are learning 5 new words a day!
- Resource: Light, J. (2005). AAC Interventions to Maximize Language Development for Young Children: AAC-RERC Web casts.
 - www.aac-rerc.com

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High on intentions, short on time?

- There are many books, software programs, and websites with pre-made activity displays for use in a pinch, for example:
 - Goossens' et al 1992 or the software available at <http://store.mayer-johnson.com/>
 - Activity displays for preschool and early school-aged children (can be used for other age groups)
 - <http://www.aacintervention.com/boardmaker.html>
 - Links for numerous websites with a variety of pre-made displays for various activities and environments (as well as other useful info)

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Activity display Example:

- Non-noun based
- Interactive messages
- Functional messages modelled within and outside activity
- Signs were incorporated to increase flexibility and reduce barriers and partner/child frustration
- Outcomes included the development of new reasons for communicating and pragmatic skills

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Hands-on case study: Beth

- JK age
- Severe apraxia of speech secondary to genetics
 - Differentiated vowels, /d/, /m/
 - Not imitating speech sounds
 - Lots of natural gestures and about 5 signs
- Mild-moderate receptive delay
- Able to point to visual symbols
- No functional sensory concerns

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Group problem-solving

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Are we there yet?