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ALTERNATIVE AND AUGMENTATIVE COMMUNICATION:
PREPARING FOR THE ATP EXAM

Michelle L. Lange, OTR/L, ABDA, ATP/SMS

Access to Independence

Learning Objectives

The participant will be able to:

1. Describe Alternative and Augmentative Communication
2. List 3 different AAC Input Methods
3. List 3 clinical indicators for Mounting

CONTINUED™

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What we will be covering:

- Alternative and Augmentative Communication
  - Definition
  - HAAT Model
    - Human Technology Interface
      - Input Device/Control Interface
      - Selection Set/Symbol Set
      - Display Layout/Arrangement
      - Selection Method
    - Processor
    - Output
    - Physical Construction/Packaging
      - Mounting
      - Interfacing

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The ATP Certification

- The Assistive Technology Professional (ATP) certification is offered through the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)
- This demonstrates a basic level of competence in the practice area of Assistive Technology
  - Over 4000 people hold the ATP certification
- This series of courses will include information to prepare the candidate for this examination

RESNA Rehabilitation Engineering and Assistive Technology Society of North America

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The ATP Certification

- The candidate must fulfill specific pre-requisites before taking the examination
- For Occupational Therapy Practitioners with a Bachelor's or Master's degree, 1000 hours of work experience is required over 6 years.
- For further information:
  - http://www.resna.org/get-certified/exam-eligibility-requirements

ATP RESNA CERTIFIED ASSISTIVE TECHNOLOGY PROFESSIONAL

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Definitions

- Communication
  - Expressive
  - Receptive
  - Verbal
  - Non-verbal
  - Written

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Definitions

- AAC
  - "Augmentative and alternative communication (AAC) includes all forms of communication (other than oral speech) that are used to express thoughts, needs, wants, and ideas."*
  - Augmented communication supplements existing speech
  - Alternative communication replaces speech that is not functional

*American Speech Language Hearing Association

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Definitions

- AAC
  - Unaided communication systems
    - Gestures, body language, sign language
  - Aided communication systems
    - Pen and paper
    - Communication books/boards
    - Devices that produce voice output and/or written output

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Definitions

- SGD
  - Speech Generating Device
  - Produces speech or voice output
  - Multiple access methods
  - Typically dynamic display
  - Multiple communication strategies

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AAC Functions

- Conversation
  - Social interaction
  - Directing care
  - Indicating needs
  - Conversational repair
  - Conveying information
- Written communication
- Communicative competence

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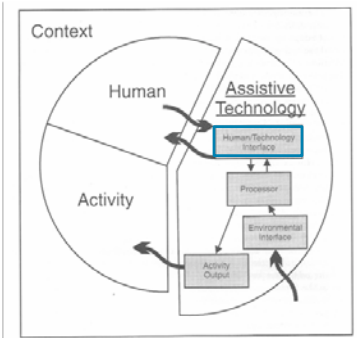
HAAT Model

- The Human, The Activity and The Assistive Technology in Context
- The Assistive Technology
  - The Human/Technology Interface
    - Input device
    - Selection set
    - Display layout
    - Selection method



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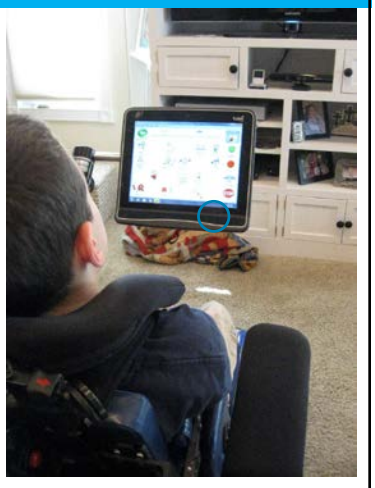
Input Device/Control Interface

- How the client accesses the AAC
  - Direct
  - Mouse
  - Eye Gaze
  - Switch



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Selection Set/Symbol Set

- The Selection Set is what represents available vocabulary
  - Characters
  - Words
  - Sentences
  - Symbols
  - Objects

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Display Layout/Arrangement

- The Selection Set can be arranged to meet a specific client's needs
- Access
  - If the client uses a switch, the most frequently used vocabulary may be in the left upper corner
- Vision
  - If the client can see certain areas of the display better, vocabulary may be placed here
- Hierarchy
  - Building a hierarchy of vocabulary

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Display Layout/Arrangement

- Children, in particular, may be learning language at the same time they are learning to use an SGD
- SLPs have unique skills in this area

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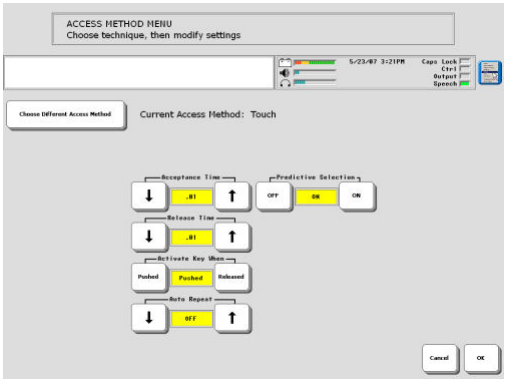
Selection Method

- The Selection Method optimizes access
- Direct
  - Programming
  - Activate on touch
  - Activate on release
    - Good for clients who slide across display
  - Acceptance rate
    - Also good for clients who slide across display



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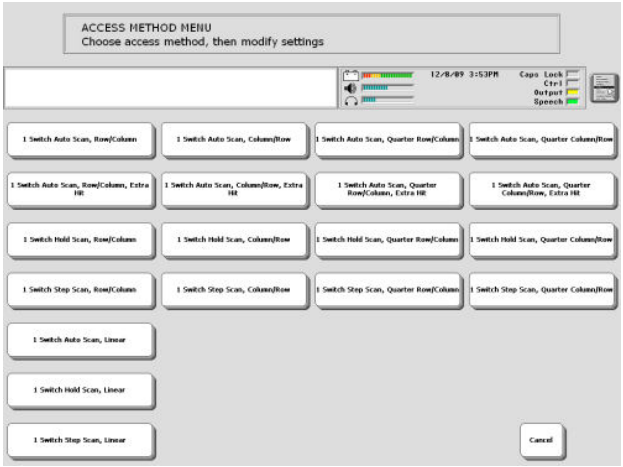
Selection Method

- The Selection Method optimizes access
- Switch
  - Programming
  - Scan Type
  - Scan Pattern
  - 1 vs 2 switch
  - Predictive Scan
  - Auditory Scan



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Scan Types

- Single
  - First activation starts scan
  - Each subsequent activation either selects next stage of scan
    - i.e. moving from rows to columns
  - Or selects highlighted item
- Two switch
  - First switch moves through items with each switch hit
  - Second switch selects highlighted item
- Inverse
  - Hold switch down to move, release to select

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Scan Pattern

- Linear
- *Row Column
- Column Row
- Quadrant

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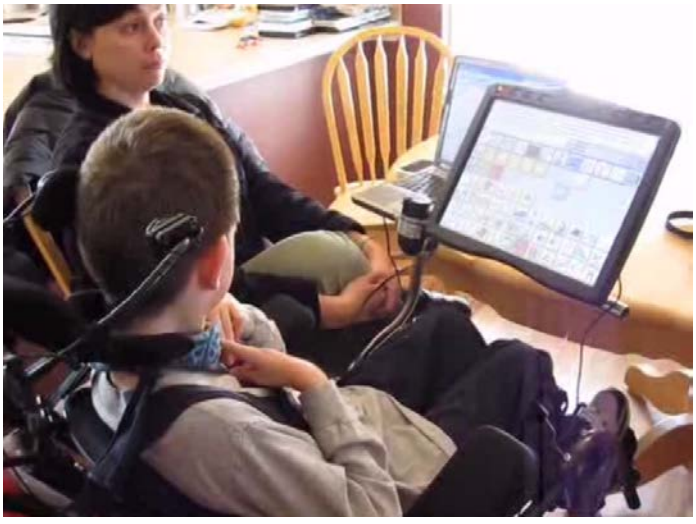
Scanning video



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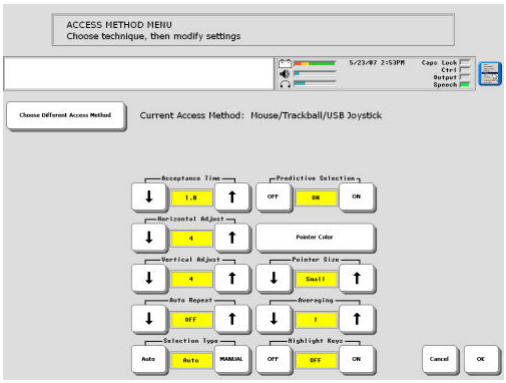
Selection Method

- The Selection Method optimizes access
- Mouse
  - Programming
    - Selection
      - Dwell or Switch activation



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Mouse Access Video

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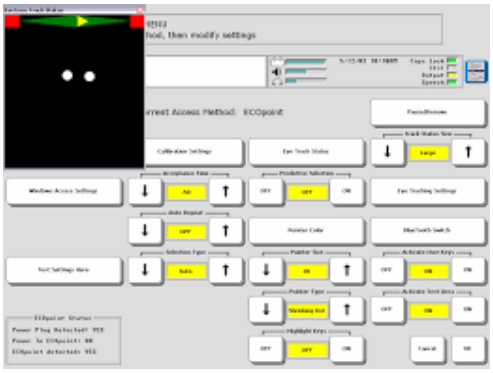
Selection Method

- The Selection Method optimizes access
- Eye Gaze
  - Programming
  - Calibration



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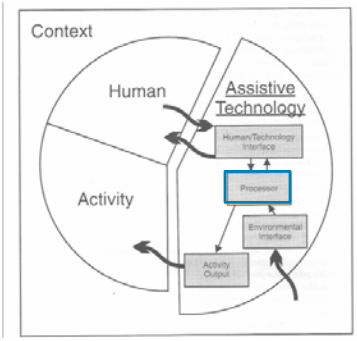
HAAT Model

- The Assistive Technology
  - The Human Technology Interface
  - **Processor**
  - Output
  - Physical Construction



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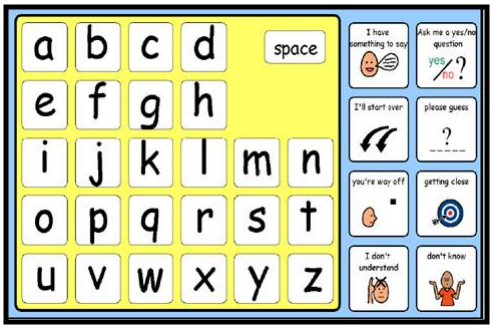
Processor

- Encoding techniques
- Rate enhancement
- Vocabulary expansion
- Levels



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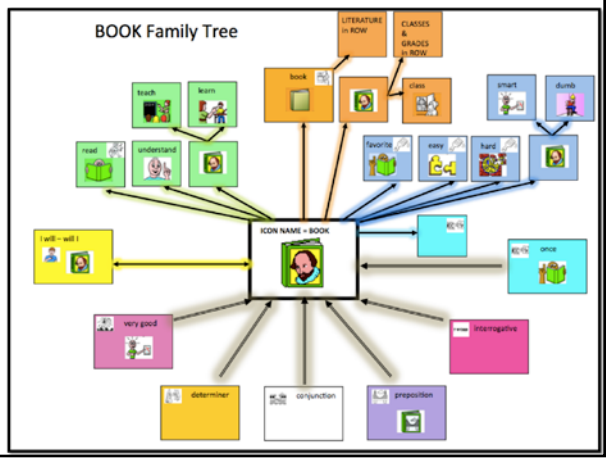
Processor

- Encoding
  - Techniques to provide access to a large amount of vocabulary from one primary set of symbols
  - Semantic encoding or semantic compaction
  - Graphic representational system



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Processor

- Rate Enhancement
  - Word prediction
  - Word completion
  - Predictive scanning

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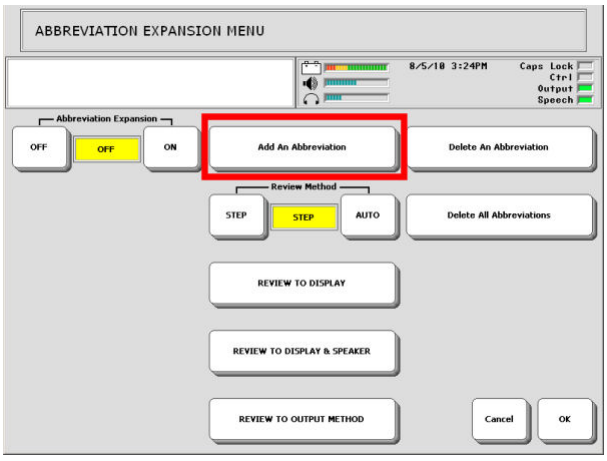
Processor

- Vocabulary Expansion
  - Abbreviation Expansion
  - HH = Hi, how are you?



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Processor

- Levels
  - Static
    - Have to turn or replace a page to access more vocabulary
    - Used on low tech systems

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Processor

- Levels
  - Dynamic Display
    - Screen refreshes to show more vocabulary
    - The vocabulary is linked in a hierarchy
    - Important to provide a way back up the hierarchy

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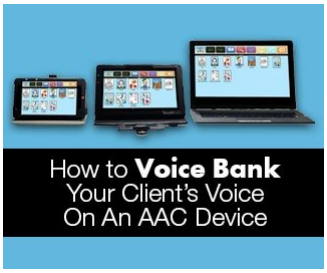
Output

- Auditory
  - Auditory scanning provides auditory cues for the client
    - Helps if client cannot see display well or needs a cognitive cue
    - Personal speaker
  - Voice output provides communication with others
    - Client can choose to speak only when ready
      - i.e. when sentence is complete
  - Digitized speech
    - Voice banking
  - Synthesized speech



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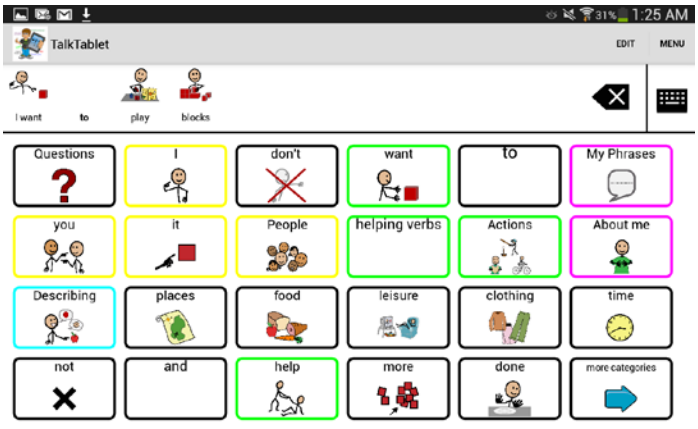
Output

- Visual
  - Important if the communication partner did not hear what the client said
  - Message bar



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Packaging

- Size and weight
  - Is the client carrying the device?
  - Larger size may be easier for vision and provides larger targets for direct or eye gaze access
  - Larger is typically heavier
- Durability
  - If the device is dropped

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Packaging

- Dedicated devices
- Computer based
- Tablet based
- Mounting
- Interfacing

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Packaging

- Dedicated devices
- The main purpose of the device is communication
- Typically robust vocabulary and access options
- Typically long battery life

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Packaging

- Computer based devices
  - Computer with AAC software
  - Primary purpose is communication
  - Client can go to computer functions, if not locked out

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Packaging

- Tablet based devices
- Either an AAC App on a standard tablet or a specialized tablet
- Specialized tablets often offer more access options, better communication packages and boost auditory output
- Can get funding approval for the second type

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Mounting

- Speech Generating Devices (SGDs)
  - Larger
  - Smaller (less than 5 lbs)
- Computers
  - Notebooks
  - Tablets

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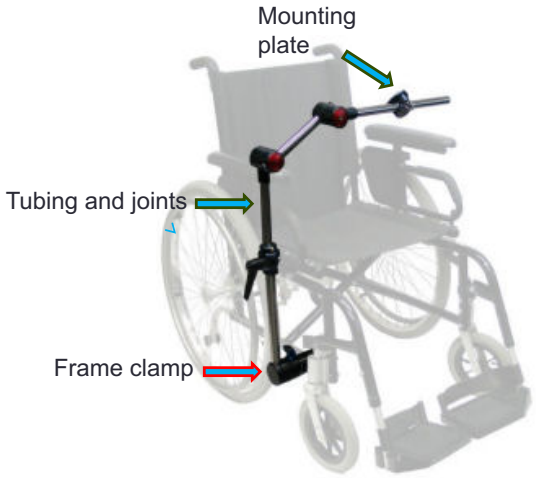
Terminology

- Frame Clamp attaches to frame and is designed to fit a specific shape and diameter



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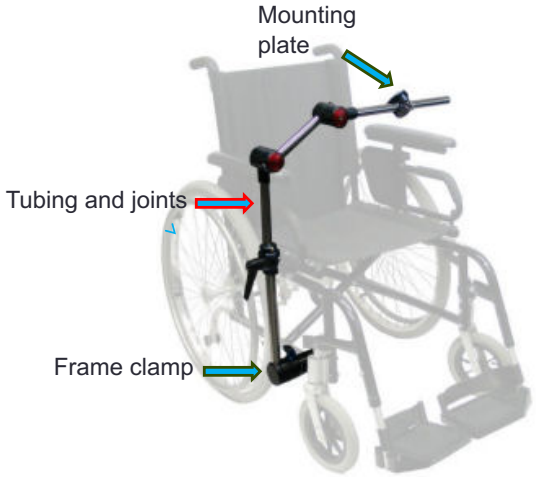
Terminology

- Horizontal and/or vertical sections of tubing with or without joints dictate final position of mount



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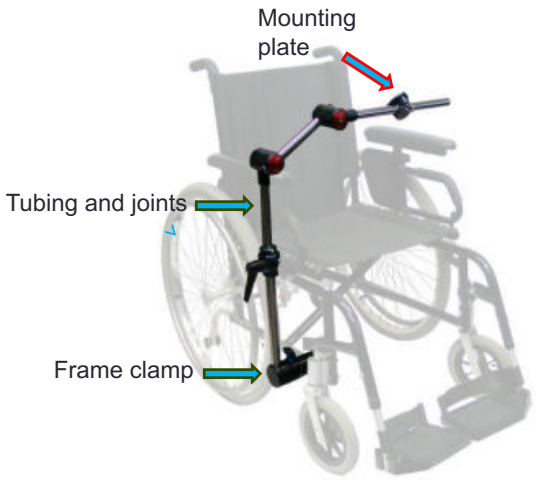
Terminology

- Mounting Plate connects the mount to the AT device. A device adaptor may be required.



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Terminology

- SGDs must have an adaptor plate on the device, as well

Device Adaptor

Mounting Plate

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Why Mount?

- Access
  - Direct
  - Head Mouse
  - Eye Gaze
- Visual Regard
- Security
  - Falling
  - Theft

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How Do I Get Started?

- Device Type
  - Which device?
  - What mounting plate will be required?
  - Will a device adaptor be required for the device itself?
  - Choose appropriate mounting category

Prentke Romich
Accent

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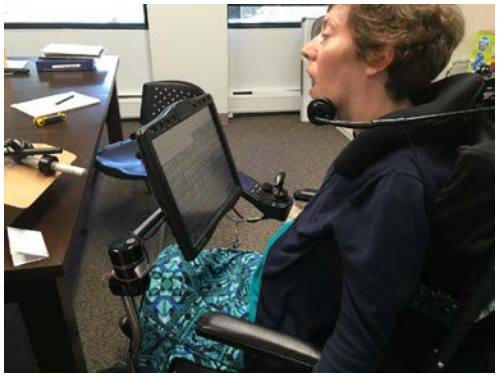
How Do I Get Started?

- Device Placement
  - Determine approximately where the device needs to be placed
    - For optimal visual regard and access
    - Within boundaries of wheelchair so device doesn't get bumped
      - i.e. through doorways
    - Not blocking client's view of
      - Communication partner
      - Blackboard
      - Where they are propelling MWC or driving PWC



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How Do I Get Started?

- Mount Placement
  - Where will the frame clamp be placed based on desired device placement?
  - Place above tilt
  - Avoid moveable parts
  - Ensure mount can move out of the way for transfers
    - Fold, swing-away or remove
  - Ensure mobility base will not tip over from weight of mount and device if to the side during transfers

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Interfacing

- Access through the power wheelchair driving method
- Why?
- Many clients using power wheelchairs are non-verbal, requiring a SGD
- Many of these clients have limited access and may not be able to use separate access methods for each AT device


FDX™ Front-Wheel Drive Power Wheelchair

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Interfacing

- Interfacing connects the SGD and PWC and uses the PWC electronics to share the driving method to access the SGD

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Interfacing

- Pros:
  - Streamlines access when access methods are limited
  - Shares a strong access method

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Interfacing

- Cons:
  - The driving method may not be the optimal method for SGD control
  - More expensive
  - More complex

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Interfacing

- How?
  - Interfacing component plugs into the PWC electronics
    - Varies with electronics package

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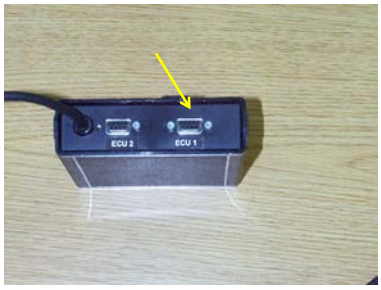
Interfacing

- How?
  - Interfacing cable plugs into the Interfacing component



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Interfacing

- How?
  - Interfacing cable plugs into the SGD

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Interfacing

- How?
  - Client uses changes “Mode” of PWC from Driving to Auxiliary
    - Terminology varies with electronics package
  - Switches now send signal to SGD
  - Client then changes “Mode” of PWC back to Driving

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Interfacing

- When not to do this:
  - If the client can use Direct access efficiently
  - Joystick drivers can often use Direct Access
  - Joystick driving is much different than Joystick access on a SGD
    - precision

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Conclusion

- Alternative and Augmentative Communication
- Various team members
- Goal – provide and optimize communication
- Terminology for exam
- Clinical indicators for practical applications
- Identify clients who are difficult to understand or non-verbal and refer

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Thank you!

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