Assessing Alternative Access Technologies for AAC:

Occupational Therapy Assessment of Operational Competence

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Session Goals:

1. Participants will identify the benefits of a collaborative team approach to AAC assessments and interventions

1. Participants will identify multiple access-related challenges for the individual with complex communication needs

1. Participants will gain insight into occupational therapy access, mounting, and positioning solutions to provide successful AAC use

Disclosures

Financial: Salaried BCH employees
Non-Financial: n/a

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Time Ordered Agenda

- Introduction - 15 minutes
- OT & AT Frames of Reference - 10 minutes
- OT Assessment of Operational Competence - 10 minutes
- OT Access Evaluation Considerations - 15 Minutes
- OT Assessment of Alternative Access: Direct Access - 20 minutes
- OT Assessment of Alternative Access: Indirect Access - 20 minutes
- OT Assessment of Mounting - 15 minutes
- Summary and wrap-up - 15 minutes
- Questions and answers

Augmentative Communication/Autism Language Programs


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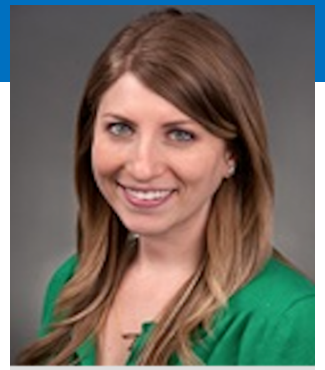
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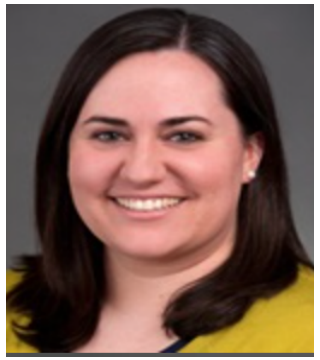
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Introduction

Augmentative Communication Programs

Outpatient Augmentative Communication Program

Inpatient Augmentative Communication Program

Outpatient ALS Augmentative Communication Program

Interprofessional Practice

Interprofessional Practice (IPP) is a collaborative **practice** which occurs when healthcare providers work with people from within their own profession, with people outside their profession and with patients and their families.

A couple of points to start:

- Communication POTENTIAL vs Communication COMPETENCE

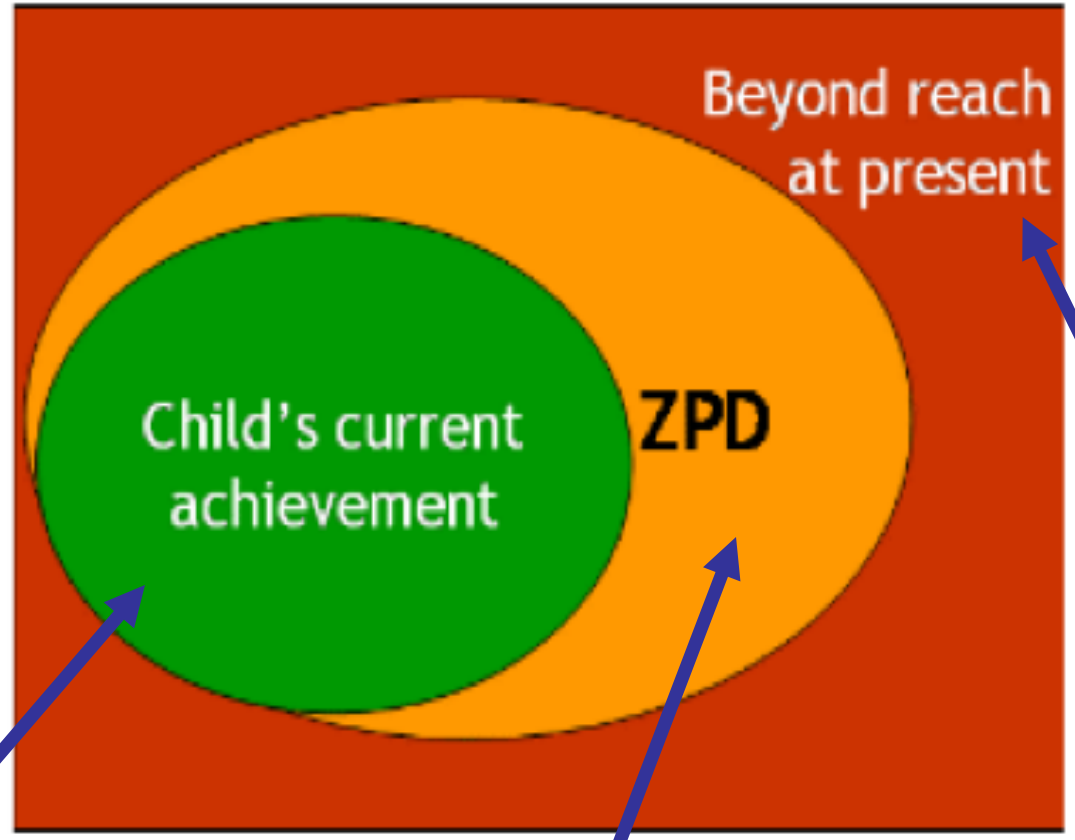
- What is **communicative competence**?

Presume Potential
vs
Presume Competence

“thinking critically about presumed competence *does not mean that we aim to presume incompetence”.*

Travers and Ayers (2015) note that there is a “false dichotomy that failing to embrace [presumed competence] means non-subscribers must believe students are inherently and therefore eternally incompetent.” **In fact, as clinicians, we should not be making any presumptions at all. Rather, we should provide opportunities and then let the data, the science, and the individual drive our clinical decision-making.**

O’Neil and McCarthy, ASHA Leader *in press*



Can do alone

Can do with help

Can not
Yet do

ATHERTON J S (2005) Learning and Teaching: Constructivism in learning [On-line] UK: Available: http://www.learningandteaching.info/learning/constructivism.htm Accessed: 13 July 2008

Communication Competence

- **Linguistic**
- **Operational**
- **Social**
- **Strategic**

Toward A Definition of Communicative Competence
Janice Light, 1989, AAC V5, #2

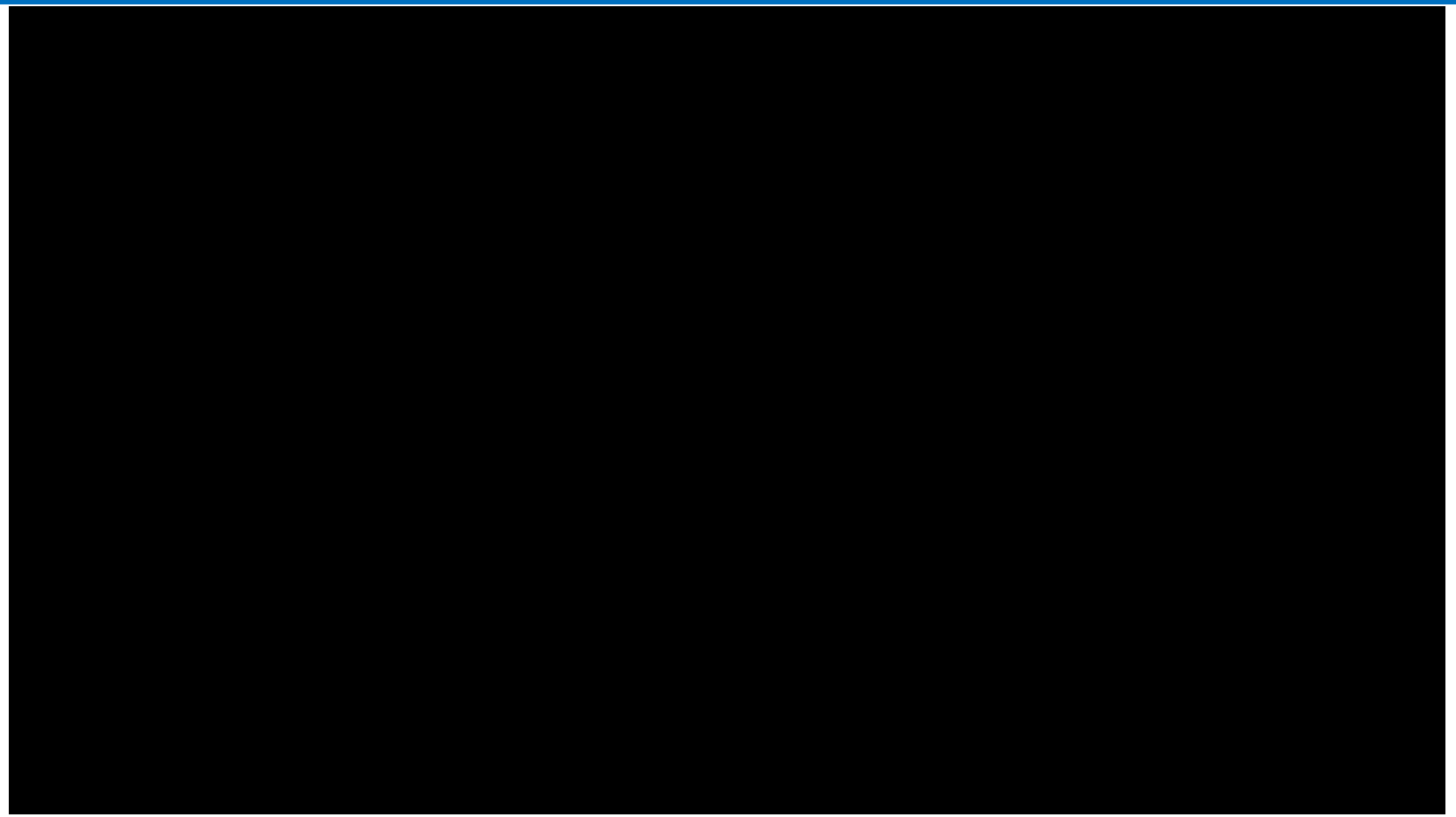
AAC Profiles

Let's think about profiles of candidacy for augmentative communication and how ACCESS is a critical consideration for every AAC profile:

- **Emerging Communicator**
- **Context Dependent Communicator**
- **Independent Communicator**

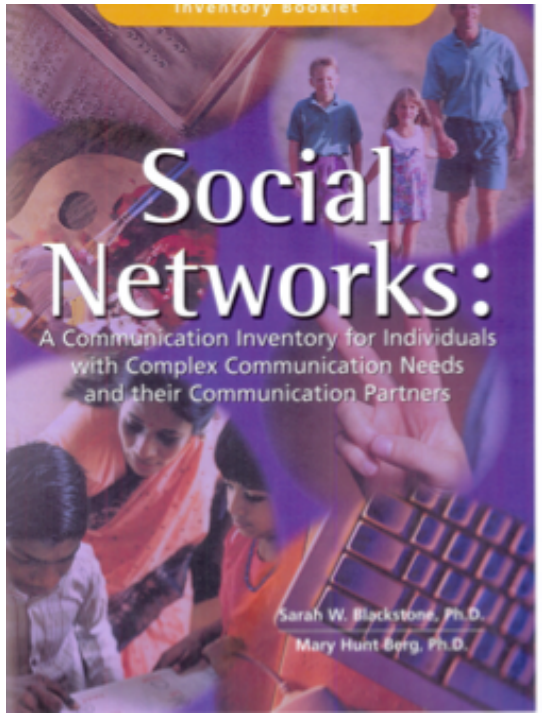
Emerging Communicator

Context Dependent Communicator



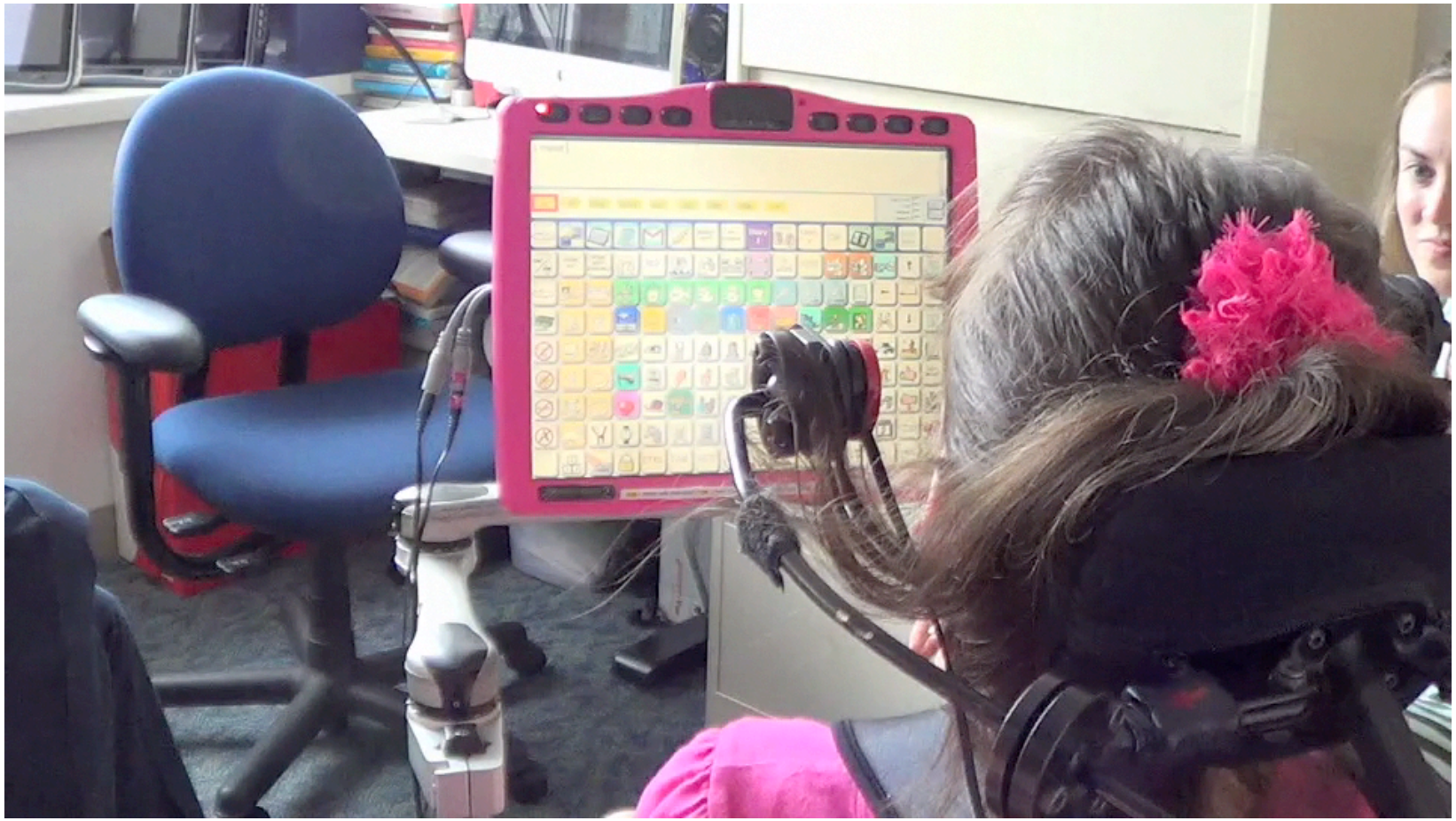
Independent Communicator

According to Blackstone and Hunt-Berg (Social Networks) an Independent Communicator:



- Can interact with both familiar and unfamiliar partners about any topic
- Can communicate in any context
- Is typically literate
- Can communicate novel messages (vs. pre-programmed messages
- Often demonstrates great linguistic diversity
- Often use AAC for more than speech output only, thus may also use AAC for:
  - Internet
  - Email
  - Texting
  - Telephone
  - Multi-media art

Independent Communicator



OT IN THE AAC ASSESSMENT:
OT and AT Frames of Reference

OT in the AAC Assessment: Frames of Reference

OTs play a key role in **assessing individuals for assistive technology (AT)**, such as augmentative and alternative communication (AAC) devices.

The goal of occupational therapy is to **enhance or enable meaningful participation in the occupations (activities)** important to the clients served.

Technology is a common element in our everyday lives. Therefore, technology is a component of providing occupational therapy services across practice arenas.

SETT- similar to ecological inventory

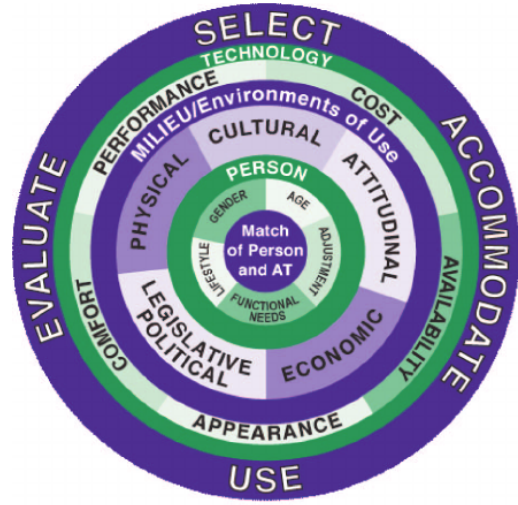
Student	Environment	Task	Tools
S	E	T	T
•What are the student's current abilities? •What are the student's special needs? •What are the functional areas of concern?	•What activities take place in the environment? •What activities do other students do that this student cannot currently participate in? •What assistive technology does the student have access to or currently use?	•What specific tasks occur in the environment? •What activities is the student expected to do? •What does success look like?	•Are the tools being considered on a continuum from no/low to high-tech? •Are the tools student centered and task oriented and reflect the student's current needs? •What are the training requirements for the student, family and staff?

OT in the AAC Assessment: Frames of Reference

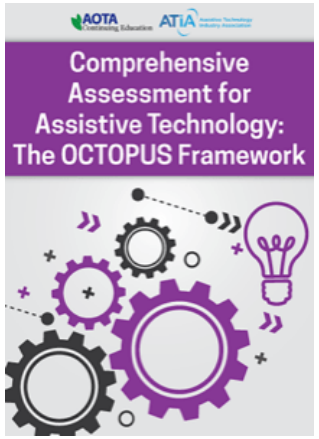
The OT Assessment of AT,

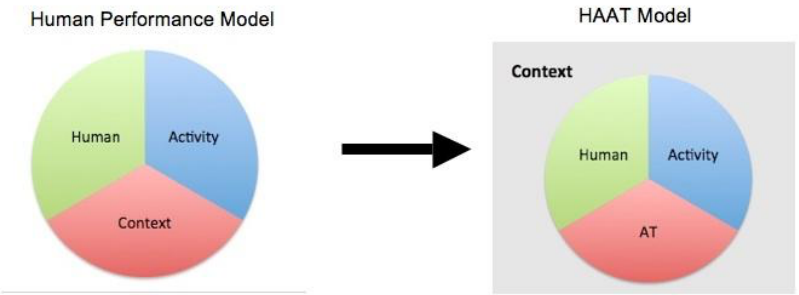
such as AAC devices and options,

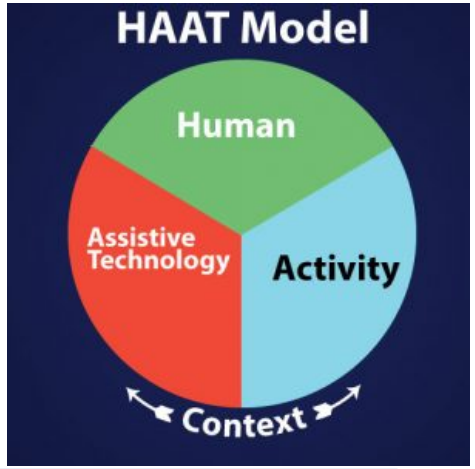
is guided by the frameworks and models grounded in **occupational therapy foundations**.



Source: Institute for Matching Person & Technology, 1995







OT in the AAC Assessment:
OT Frames of Reference

Rehabilitative
Frame of Reference

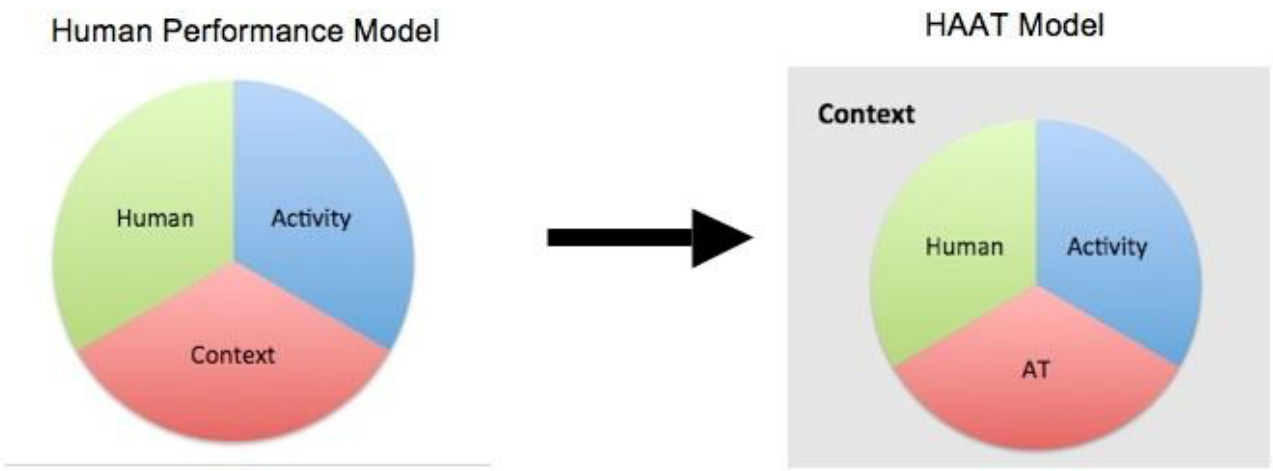
- Teaches clients **compensatory** or functional methods
- Makes use of **assistive equipment and environmental modification**s to restore function
- Focuses on **client's strengths**
- Fundamental goal is to **maximize independence with persisting limitations**
- Rehabilitative FOR

OT in the AAC Assessment: OT Frames of Reference

Person-Environment-Occupation-Performance (PEOP) Frame of Reference

- Ecological and client centered model
- Emphasizes performance as **interaction between person (intrinsic) and environment (extrinsic)** to **maximize performance in daily occupations**
- Interventions must be multi-faceted
- Not just focused on limitations
- Considers other contributing factors
- PEOP FOR

OT in the AAC Assessment:
OT & AT Frames of Reference

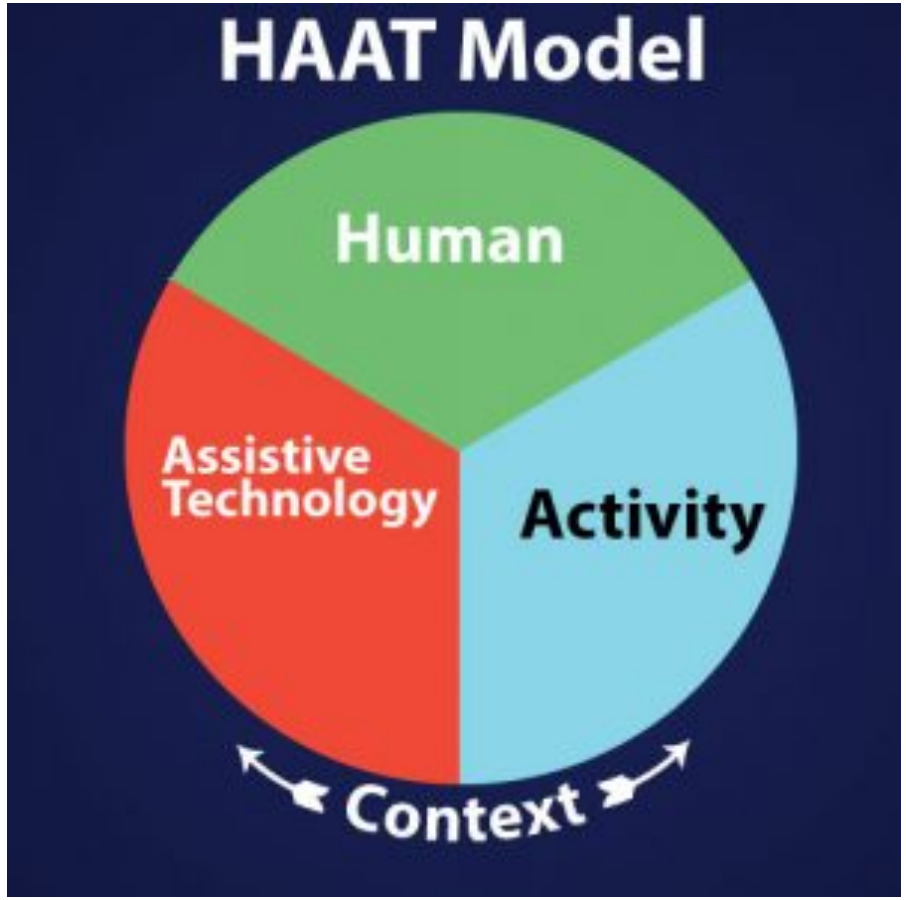


An Evolution of **The Ecology of Human Performance Model** as it strives to include AT as depicted in the **HAAT Model**

The main focus is on the interdependent nature of the relationship between the **person and the environment;** and how this relationship **impacts on human performance.**

[The Ecology of Human Performance Model]

OT in the AAC Assessment: AT Frames of Reference



HAAT Model

Adapted from a theory of human performance and behavior the HAAT model exemplifies **AT usability** by describing the interaction of a **user/human** with an **assistive technology device** to accomplish an **activity** in a given **context** .

Cook & Polgar, 2007

OT in the AAC Assessment: AT Frames of Reference

MPT Model

A good **match of person and technology** requires attention to aspects of the **environments** in which the **technology** will be used, the needs and preferences of the **user**, and the functions and features of the **technology**.

If the match is not a quality one from the standpoint of the consumer, the **technology may not be used**, or will not be used optimally.

[Institute for Matching Person & Technology]

Source: Institute for Matching Person & Technology, 1995

OT in the AAC Assessment: School Setting AT Frames of Reference

SETT- similar to ecological inventory

Student S	Environment E	Task T	Tools T
•What are the student's current abilities? •What are the student's special needs? •What are the functional areas of concern?	•What activities take place in the environment? •What activities do other students do that this student cannot currently participate in? •What assistive technology does the student have access to or currently use?	•What specific tasks occur in the environment? •What activities is the student expected to do? •What does success look like?	•Are the tools being considered on a continuum from no/low to high-tech? •Are the tools student centered and task oriented and reflect the student's current needs? •What are the training requirements for the student, family and staff?

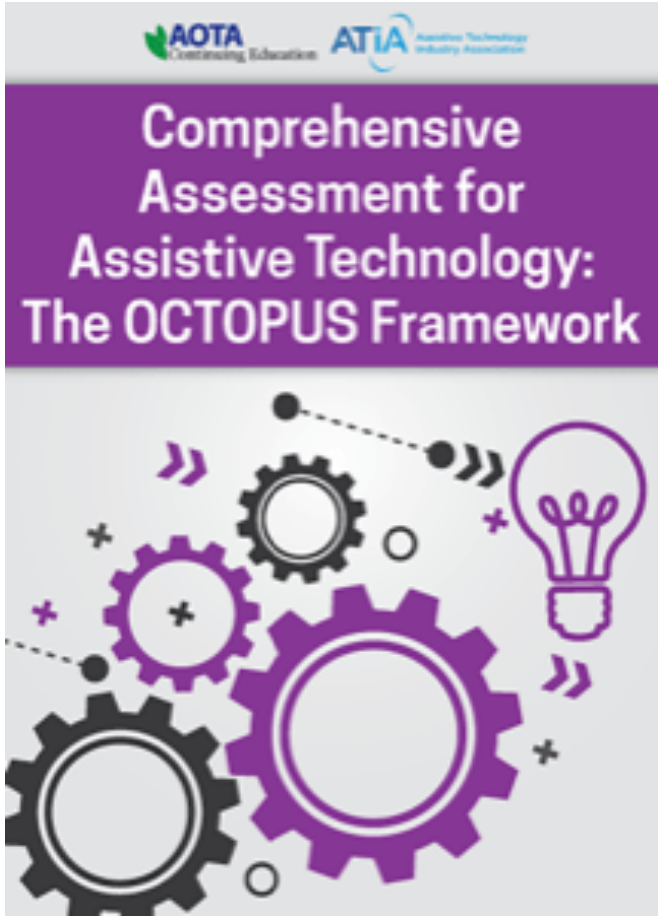
SETT Framework

Created by Joy Zabala, it is a 4 part model intended to promote **collaborative decision-making** in all phases of **assistive technology service design and delivery** from consideration through implementation and evaluation of effectiveness.

The student, environments, and tasks should be fully explored before tools are considered or selected.

http://www.joyzabala.com/

OT in the AAC Assessment: Innovative New OT Frames of Reference



The OCTOPUS Framework

- **O**ccupations
- **C**lient
- **T**echnology
- **O**pportunities
- **P**urchasing
- **U**tility
- **S**etting

By Douglene Jackson new framework worthy of discussion

OT in the AAC Assessment: OT Frames of Reference

Theoretical models that inform **occupational therapy practice** delineate the dynamic interplay and transactional relationship among the **client, the client's occupation, and the environment and contexts** within which **the occupation** is performed.

In AAC the **occupation is communication.** Through the use of **AAC** people are able to better **participate in the occupation of communication.**

OT in the AAC Assessment: OT Frames of Reference

These theoretical models have **strong parallels with** (and some have **provided foundation for**) many frameworks used in the **decision-making processes to effectively provide AT**. These frameworks, which include the **Human Activity Assistive Technology Model (**Cook & Polgar, 2015), the **Student, Environments, Tasks, and Tools Framework** (Zabala, 2005), the **Matching Persons and Technology Assessment Process** (Institute for Matching Person and Technology, 2015; Scherer, Jutai, Fuhrer, Demers, & Deruyter, 2007..., share common constructs of **client, activity or task, environment, and technology.**

OT in the AAC Assessment: OT Frames of Reference

More specifically, when **applying these frameworks** in the **occupational therapy process,** practitioners consider the:

1. **Needs, capabilities, goal orientation, values, and beliefs** of the client
2. Client's **occupation and tasks** involved
3. **Contexts and environment** that support or present barriers to performance
4. Interventions that **match the person, occupation, and environment with interventions** (inclusive of AT) to enable **performance expectations of the desired occupation**.

OT in the AAC Assessment: Frames of Reference

Thus, at the most fundamental level, **occupational therapy practitioners**, who are guided by evidence and a theoretical framework, **perform an AT decision-making process when conducting evaluations and providing interventions**, as reflected in the Occupational Therapy Practice Framework: Domain and Process (AOTA, 2014b).

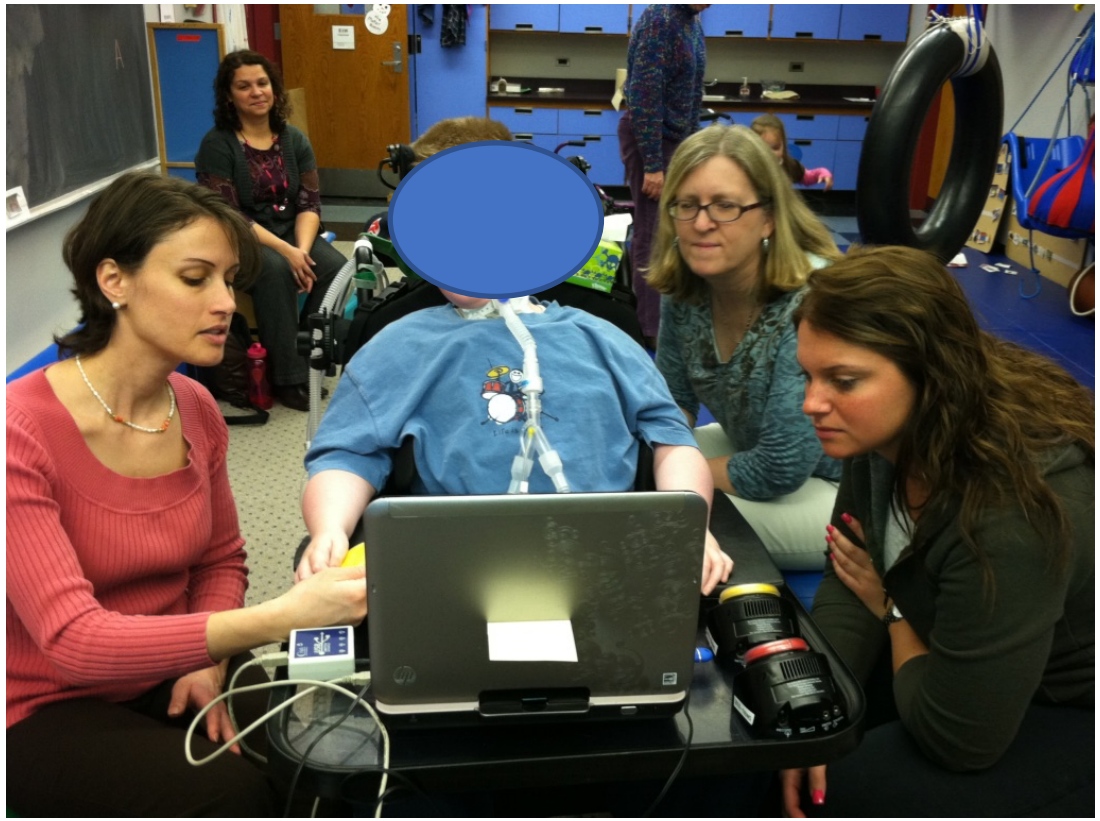
OT in the AAC Assessment: Frames of Reference

Fundamental to occupational therapy practice are skills in the analysis of client factors (**body structures and functions**), **performance skills**, **demands of a task or activity, performance of that task or activity, and environmental and contextual barriers and supports to performance**—all of which are basic prerequisites to designing effective interventions incorporating AT.

OT IN THE AAC ASSESSMENT:
OT Assessment of Operational Competence

OT in the AAC Assessment Interprofessional Practice

- Client and family
- Speech Language Pathologist
- Occupational Therapist
- Physical Therapist
- Doctors (primary and specialty)
- School staff
- Nursing staff
- Additional primary care providers

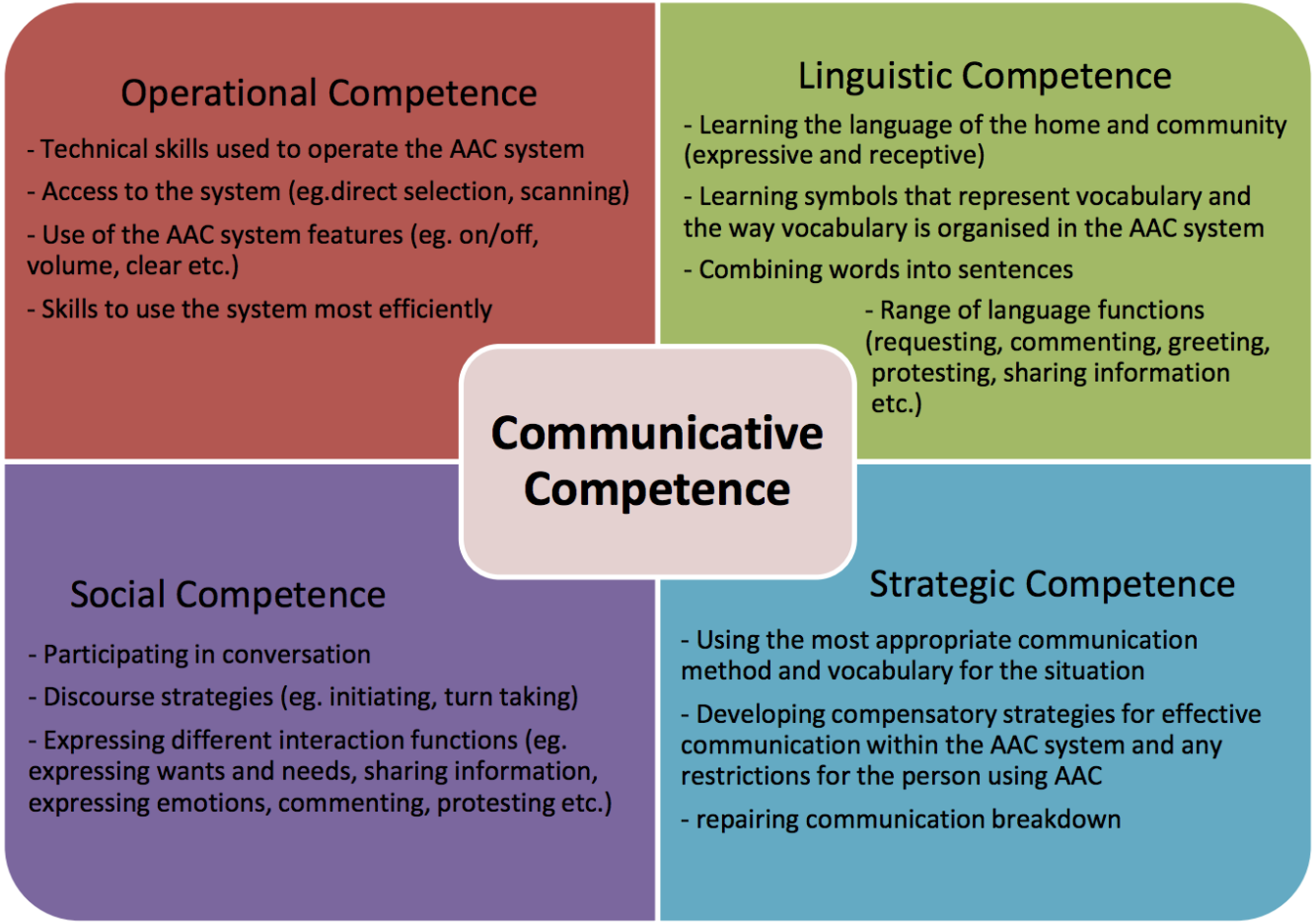


OT Assessment of Operational Competence

Defining operational competence through an OT lens

AAC use is evaluated using guidelines within 4 areas from the **Communicative Competence Framework** (Light, 1989).

Operational Competence refers to an AAC user's ability to manage the specific devices, tools, or strategies used in the communication process.



OT Assessment of Operational Competence:

OTs are trained to evaluate the necessary **operational client skills** that affect **functional participation** in communication.

The client's developmental, physical, cognitive, psychological, and visual skills are analyzed to inform assistive technology trials and recommendations.

OT Assessment of Operational Competence

Operational Skills involve skills in the **technical operation of AAC strategies and techniques**:

- **skills to produce** the hand or body positions, shapes, orientations, and movements for gestures, signs, or other forms of **unaided communication** (e.g., eye blink codes, head nod / shake)
- **skills to utilize selection technique(s)** for **aided AAC systems** (e.g., direct selection, eye gaze, scanning with a single switch);
- **skills to navigate and operate aided AAC systems** accurately and efficiently (e.g., navigate between pages, retrieve pre-stored vocabulary items).

OT Assessment of Operational Competence:

Indirect Access - 1 switch “Turn the Page” in Pictello for social sharing

- Using **activity analysis** the OT identifies **performance strengths and barriers.**
- **A treatment plan** is formulated to provide **graded opportunities** to build skills, enhancing **operational competence** with the recommended AAC tool.

OT Assessment of Operational Competence:

Indirect Access - iOS 2 Switch Scanning

Interprofessional Practice with a focus on addressing the 4 components of **Communicative Competence:**

- **Linguistic**
- **Operational**
- **Strategic**
- **Social**

in the AAC Assessment Process, facilitates greater independence in **occupations**, such as **communication and social participation** among AAC users.

Assessing Alternative Access for AAC: OT Evaluation Considerations

Assessing Alternative Access for AAC: OT Evaluation Considerations

Physical Access Assessment

Just as we determine *"what"* speech-generating device (SGD) a person with a disability will use to augment their communication we must assess *"how"* they will **physically access** or interact with the device.

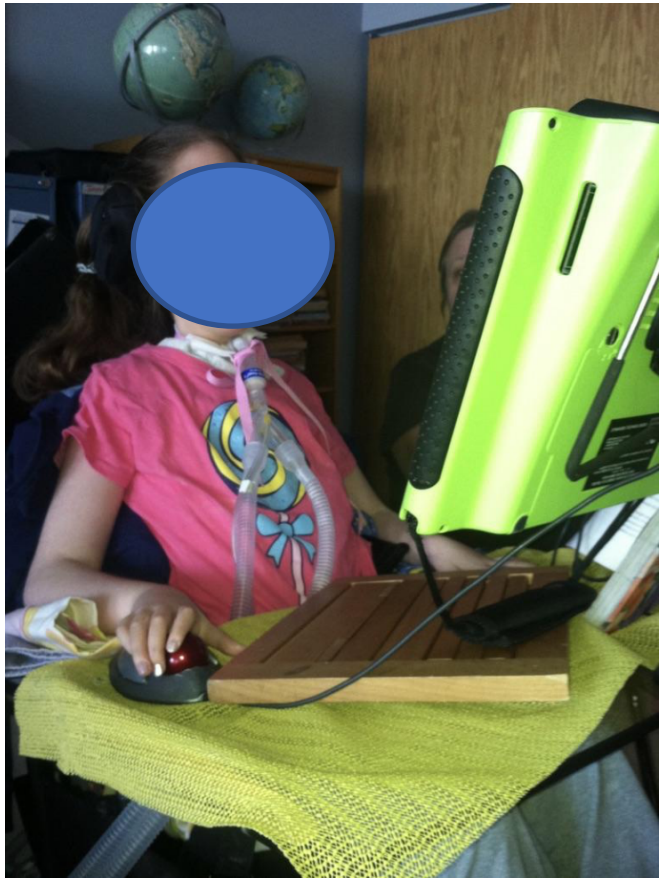
Physical Access refers to the means by which one physically directly or indirectly (switch) selects choices from an array of choices for:

- Communication
- Environmental control
- Academics
- Leisure

Assessing Alternative Access for AAC: OT Evaluation Considerations

Consider more than one access method.

- Aim to identify **multiple methods** to enable the person to **communicate throughout the day**, across contexts, and with multiple partners, regardless of positioning, medication levels, fluctuations in tone, fatigue, etc
- Multimodal approach to access means that clinicians consider **several body parts as control sites**
- **Systematically** expose the person to different ways of operating various technologies to accomplish a range of tasks, while **observing the their skills, abilities, and preferences over time** (Fager, et al, 2002).



Assessing Alternative Access for AAC: OT Evaluation Considerations

In any setting, an AAC assessment should cover the following:

- present communication status
- physical abilities and challenges
- all options for seating and positioning addressing all the contexts and settings
- visual-spatial-perceptual abilities and challenges
- cognitive and language abilities and challenges
- literacy abilities and limitations
- environmental concerns
- and how to implement the system.

Assessing Alternative Access for AAC: OT Evaluation Considerations

Identification of a **reliable functional non-fatiguing motor response** for direct or indirect access for intentional communication represents one of the **biggest challenges of AAC.**

Assessing Alternative Access for AAC: OT Evaluation Considerations

Implementation of training programs for the **development of motor skills**

- Users can increase their rate of input, reduce errors, and increase their endurance for using the controls.
- **Enhances the development of skills** to control the user interfaces, such as being able to trigger a switch.

Assessing Alternative Access for AAC: OT Evaluation Considerations

Indirect switch access or direct access focuses heavily on developing new **voluntary motor patterns,** which takes a lot of TIME and PRACTICE.

Opportunities need to be **engineered** to support the motor planning.

Assessing Alternative Access for AAC: OT Evaluation Considerations

Motor Planning has 4 components:

- **Ideation** - the ability to visualize the action the child wants to take and how his body should move to do so.
- **Planning** - requires a child to have body awareness, a foundational skill that provides the child with the ability to pre-plan an activity before he tackles it, allowing him to sequence a series of motor actions in the correct order to achieve the expected response from his body.
- **Execution** - is a child's ability to efficiently coordinate his planned motor movements simultaneously, resulting in bilateral coordination and actions that require timing and movement through space.
- **Adaptation** - is required for the motor planning process to be complete

Assessing Alternative Access for AAC: OT Evaluation Considerations

The **development of motor skills** for **interaction with alternative access technologies** is addressed in 4 main steps.

- The first involves teaching the individual that operating a switch allows them to have an **effect on their environment.** This is accomplished by associating their 'input' with a perceptible 'output' such as a blast of wind from a fan.

Assessing Alternative Access for AAC: OT Evaluation Considerations

The **development of motor skills** for **interaction with alternative access technologies** is addressed in 4 main steps.

- In the next step the individual learns to press the switch with **specific timing and consistency.**

Assessing Alternative Access for AAC: OT Evaluation Considerations

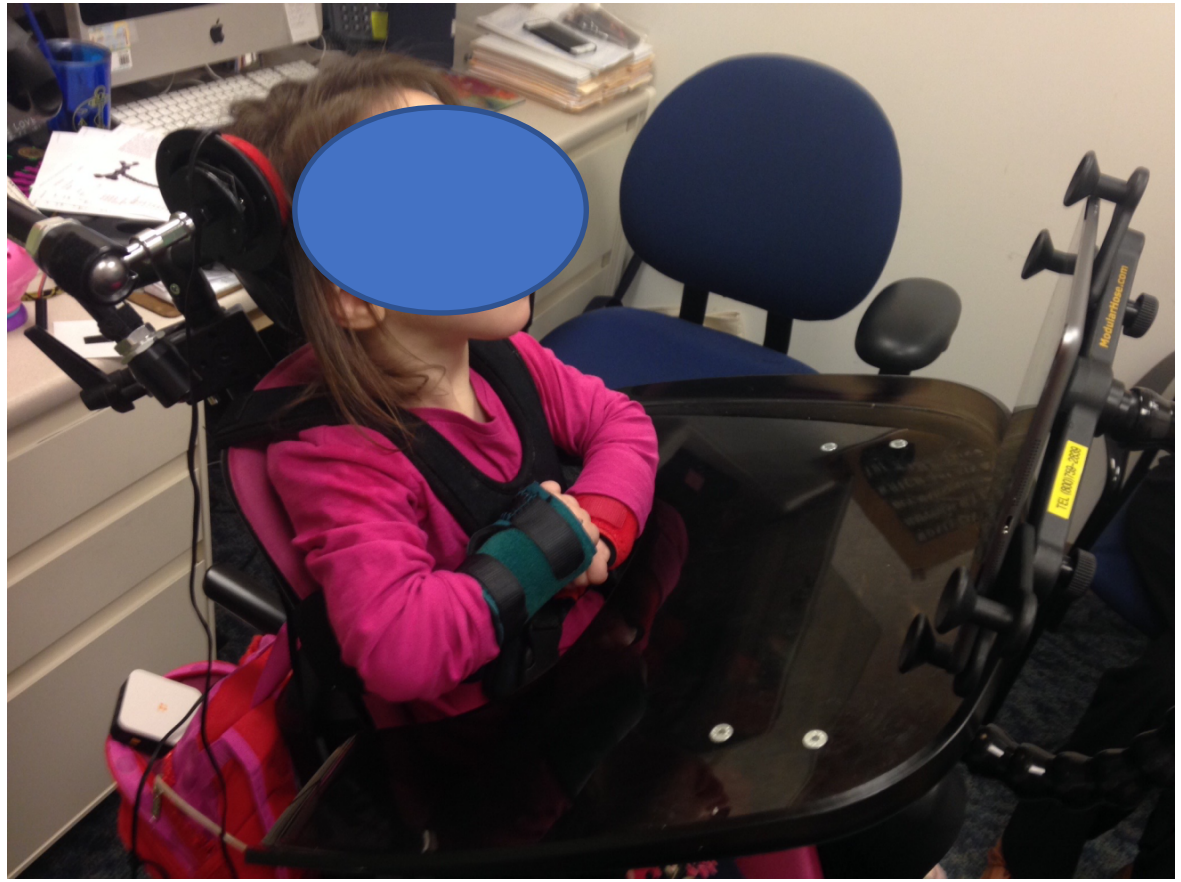
The **development of motor skills** for **interaction with alternative access technologies** is addressed in 4 main steps.

- The third step teaches them that they must respond to cues within **a relevant time frame** – that is, when they are presented with multiple choices they must seize the opportunity.

Assessing Alternative Access for AAC: OT Evaluation Considerations

The **development of motor skills** for **interaction with alternative access technologies** is addressed in 4 main steps.

- The final stage involves learning to use the **switch in a meaningful way**, so that the goal of using it is no longer simply to elicit a noticeable response. Rather, it is to make **meaningful choices and to communicate.**

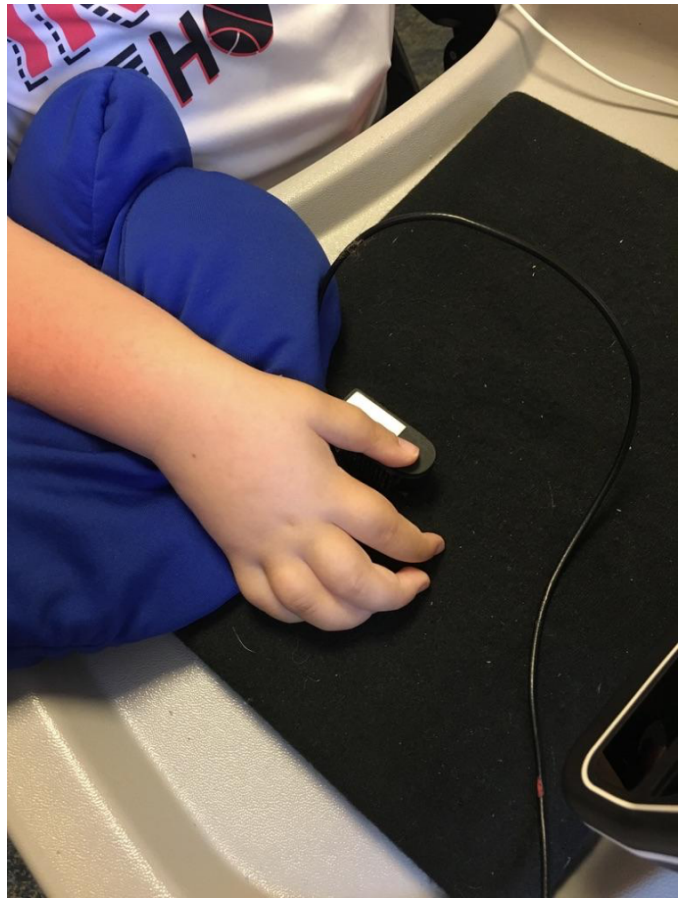


Assessing Alternative Access for AAC: OT Evaluation Considerations

Current AAC options offer a wide variety of **operational interfaces.**

This provides each person the opportunity to have a **customized access method** that best fits his or her physical and cognitive capabilities.

Assessing Alternative Access for AAC: OT Evaluation Considerations

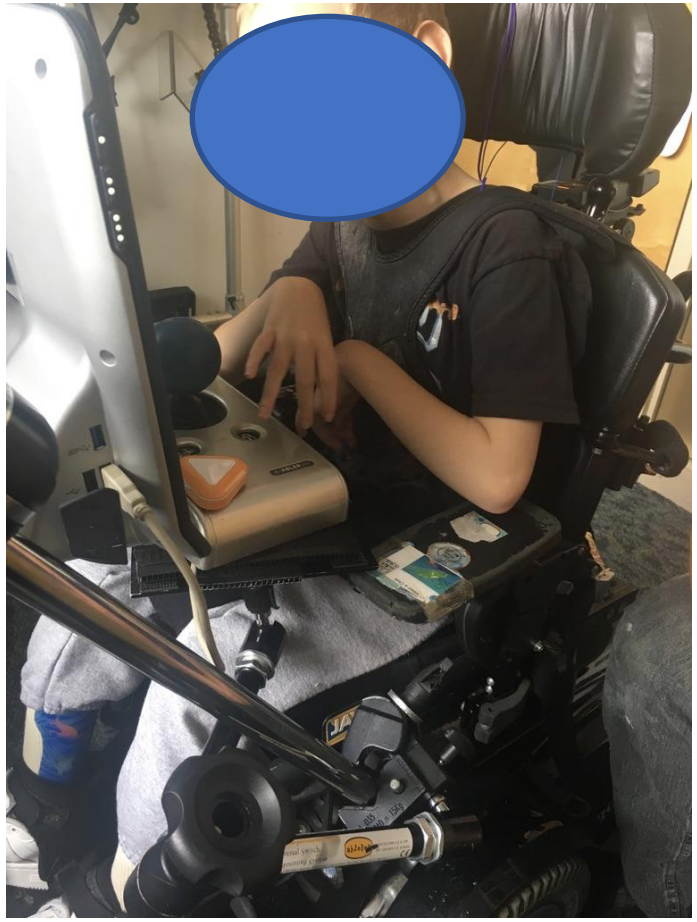


An **educated, skilled, and evidence based feature matching process** for each client ensures the most efficient and effective access method is chosen (Shane & Costello, 1994).

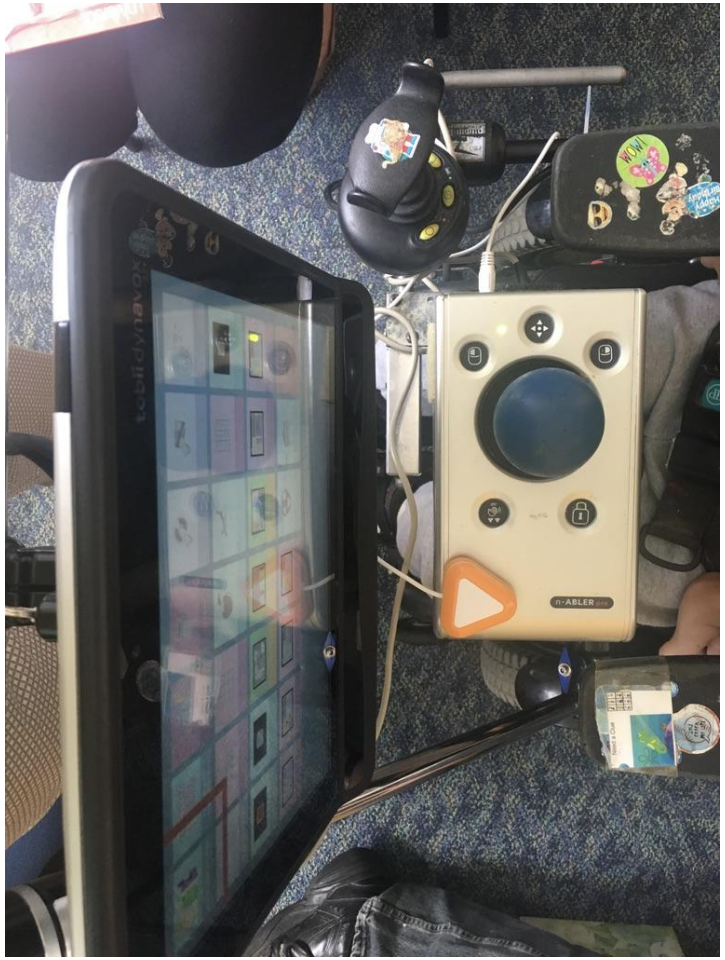
Multiple access methods are typically trialed with each client.

Assessing Alternative Access for AAC: OT Evaluation Considerations

Alternative access technologies allow people with disabilities to interact with assistive technology devices (ATDs) which allow for **greater participation and independence** in mobility, communication, recreation, leisure, vocational, and activities of daily living (ADLs).



Assessing Alternative Access for AAC: OT Evaluation Considerations



Recommendation of an access method relies on **activity analysis**, an understanding of the **client's profile**, and the **developmental patterns** of human development.

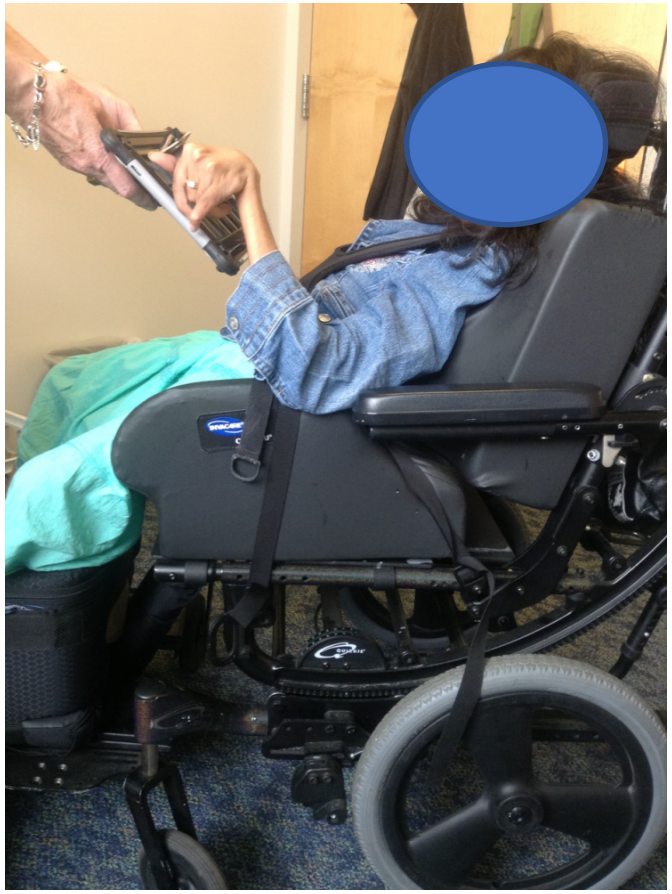
Assessing Alternative Access for AAC: OT Evaluation Considerations

If a diagnosis is **progressive**, the therapists must consider a client's **current and future operational competence** as physical and cognitive changes occur.

Assessing Alternative Access for AAC: OT Evaluation Considerations

While someone may be able to use a communication system and access method with great skill within the clinic, it is imperative that they can **succeed across environments.** Supports must be provided that can accommodate each person's **activities of daily living (ADLs).**

Assessing Alternative Access for AAC: OT Evaluation Considerations



Proper seating and positioning has a strong impact on physical ability and access skills.

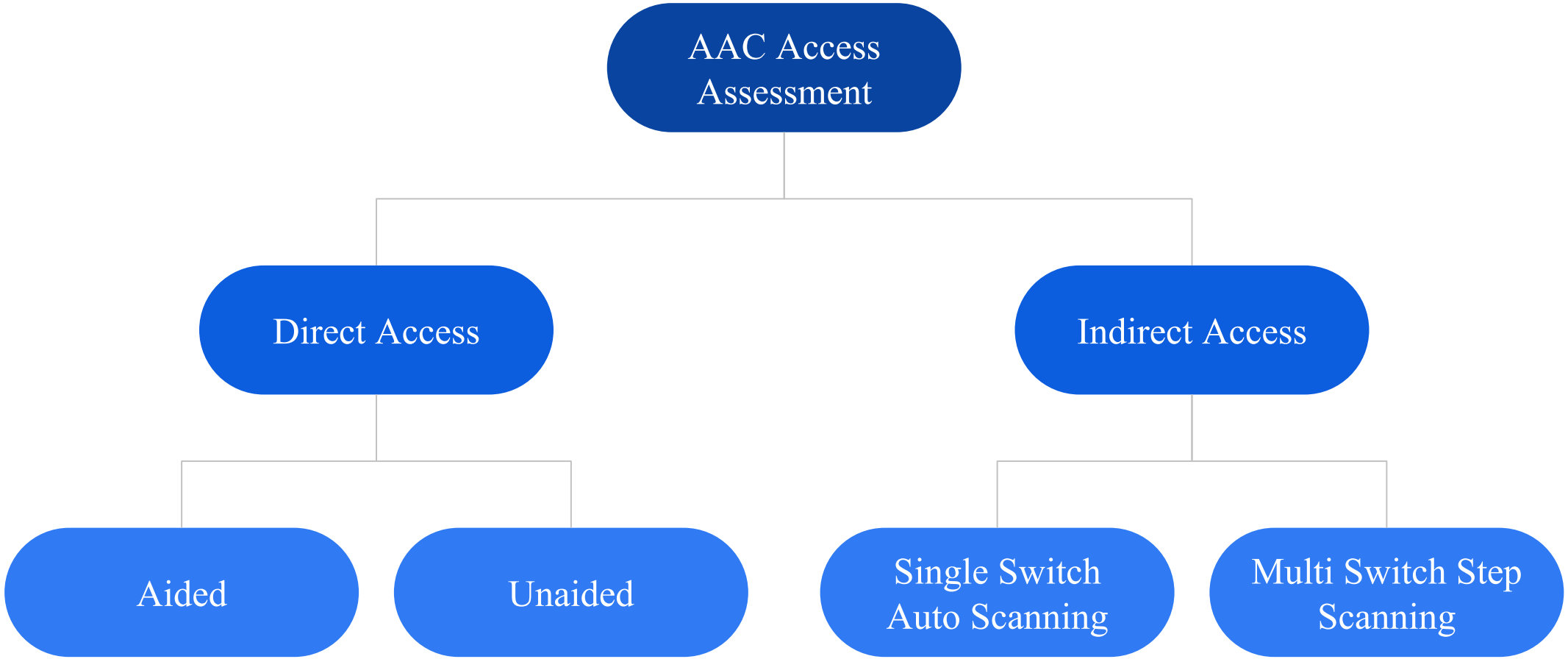
- Minimizes adverse effects of residual reflexes and abnormal, involuntary tone.
- Provides proximal trunk-pelvic support for less effortful visual motor interactions.
- Facilitates trunk alignment for breathing/swallowing/food management.
- Ensures medical well-being and orthopedic integrity

Assessing Alternative Access for AAC: OT Evaluation Considerations

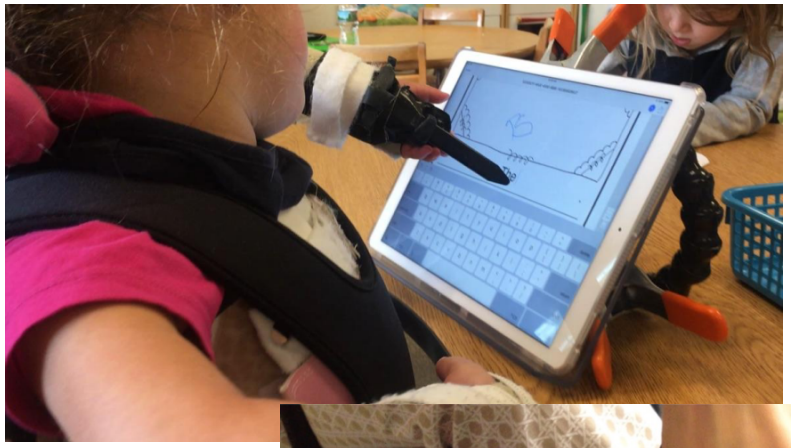
Appropriate **device and switch mounting** makes it possible to use a device reliably with increased stability, consistency, and competence across all settings.

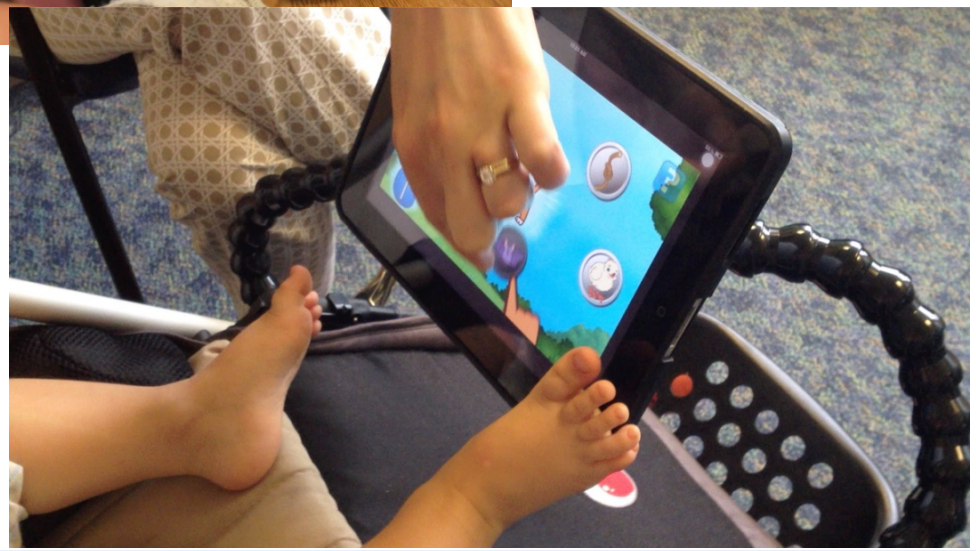
This **SGD Accessory** is imperative in affording access to communication in all settings. A **proper mount assessment** for switch and device placement make for **successful implementation of the aAAc system.**

Assessing Alternative Access for AAC: OT Evaluation Considerations



AAC Access Assessment:
OT Evaluation Considerations - Direct Access





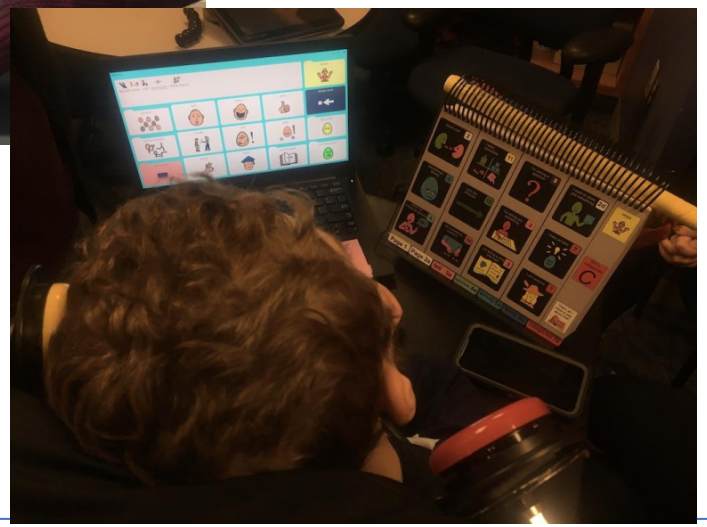
Teams typically approach physical access with a specific hierarchy in mind.

First, they try **access options that are more natural, direct, and cognitively transparent**, such as using the hand to select an item, pointing directly with the head using a head-stick, or eye pointing to select an option.

AAC Access Assessment:
OT Evaluation Considerations - Indirect Access

Then, if these direct access methods and strategies do not work they assess the indirect access methods where the **person accesses the array of choices via switch scanning** (single switch auto scanning or multi switch step scanning).

AAC Access Assessment:
OT Evaluation Considerations - Feature Matching



If **indirect access** is determined to be the most appropriate method then an **anatomical switch site, repeatable and supressible movement, and type of switch and mounting system** must be determined.

Then the visual, auditory, and **switch settings** must be customized for optimal success.

OT Assessment of Alternative Access

Direct selection

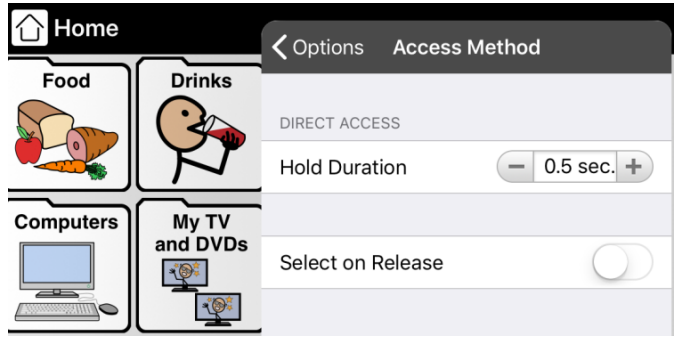
Direct Selection: Accessibility Settings

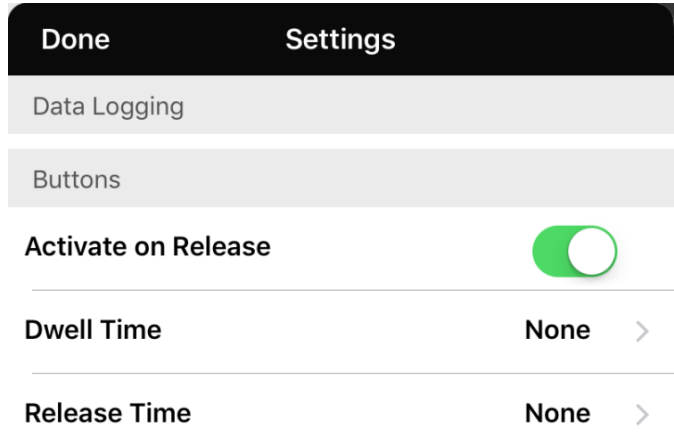
Accommodations to support direct touch have been built into several AAC applications.

- Changing the item size and/or location

- Dwell time- holding an item for a set duration before the press is recognized.

- Activate on Release- items are activated when they are released, rather than when they are touched. User can slide fingers across the screen and coordinate movement to a specific item with reduced accidental hits.





Direct Selection: Accessibility Settings

Direct touch to access an iPad with TouchChat HD AAC

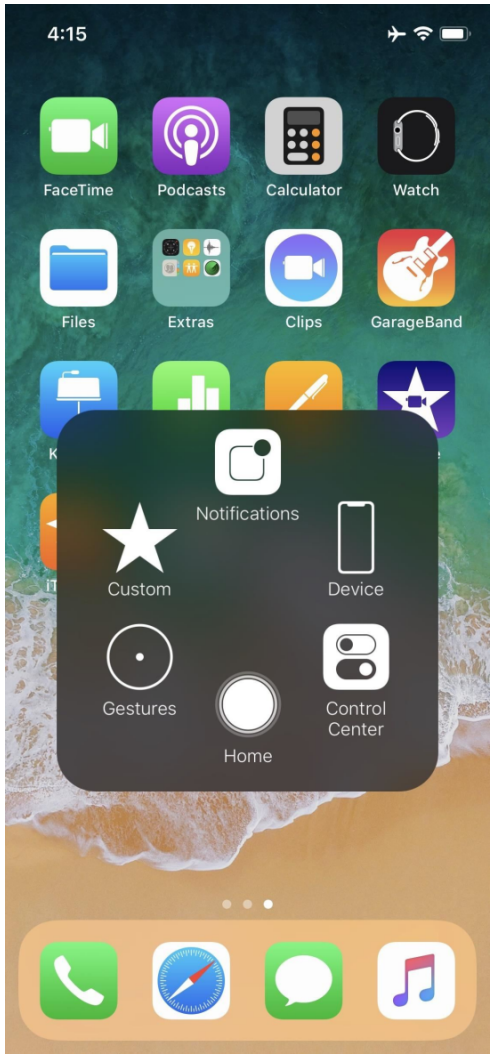
- TouchChat button customized for social sharing (message window content is emailed/texted)

App Access settings:

- 0.4 sec dwell time
- Smaller message window

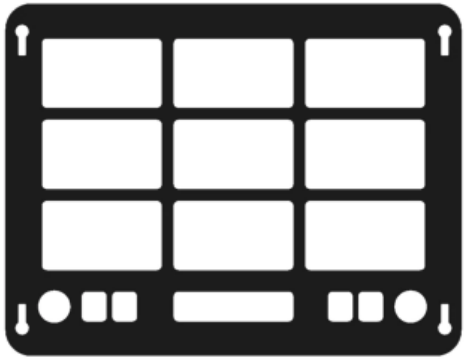
Direct Selection: Accessibility Settings in iOS

- Siri & Shortcuts
  - use voice control to perform common actions
  - App for customizing specific, multi-action commands
- Touch Accommodations
  - Hold duration
  - Ignore repeat
  - Tap assistance
- Assistive Touch:
  - Speak screen
  - Multitasking
  - Gestures
  - Control Center
  - SOS
  - Screenshot



Direct Selection: Keyguard

- A keyguard is a plate that sits over a keyboard or a touch screen with cut out spaces for users to put their fingers through to touch the screen
- Users can rest hands against the keyguard without accidentally selecting a target
- Increases accuracy and reduces accidental item selection
- Can customize layout based on the AAC application to support visual and motor accommodations (ex. Matte black for CVI, round vs square holes)



Direct Selection: Stylus

- Used instead of a finger on a touchscreen phone or tablet
- Several different options for how to hold a stylus, as well as different models that can be used with limited or no fine motor skills
- Precise and easy to use
- No installation is required

Direct Selection: Joystick
Access point = hand, mouth/chin, foot

- Control the cursor by moving the joystick – intuitive
- Set the speed via the joystick itself or within the mouse settings
- Fast speed moves across the screen faster for faster input
- Slow speed provides better accuracy, especially for small targets
- If there is some tension in the joystick it may compensate for a mild tremor
- Consider different handles – depending on dexterity
- T post and ball for limited dexterity – can control the joystick with shoulder and elbow movements
- Small post for good dexterity – can control the joystick with only finger movement, or chin/lips

Direct Selection:
Through the power wheelchair controls

- Able to use joystick to control a power wheelchair
- Use same joystick to be a cursor control
- Takes advantage of whatever adaptations/settings have already proven to be helpful
- Does not require user to move hand between two different input methods

Can also provide direct selection through alternative wheelchair controls such as head array, mini-joystick, and sip and puff

Direct Selection: Headmouse

Head control as an access point

Cursor control for selection within communication software or for mouse control within the computer environment

Direct Selection: Headmouse

Considerations

- Head control the best access option
- Head position determines cursor position
- Have to be able to keep head stable for dwell time or for clicking
- Need adequate range of motion to reach all areas of the screen
- If head control is the best access option – consider other functions that are being addressed via head control

Direct Access: Headmouse

- Origin Instruments
- Quah Zono
- Natural Point
- Tracker Pro
- Smyle Mouse
- Camera Mouse
- GlassOuse

Direct Access: Headmouse Three Mechanisms

Camera

Webcam image tracks face movement

Infrared

Transmitter sends infrared signal that is reflected back via “dot”

Gyroscope

Gyroscope attached to body sends signal via Bluetooth or USB

Head Control Considerations

All require good head control

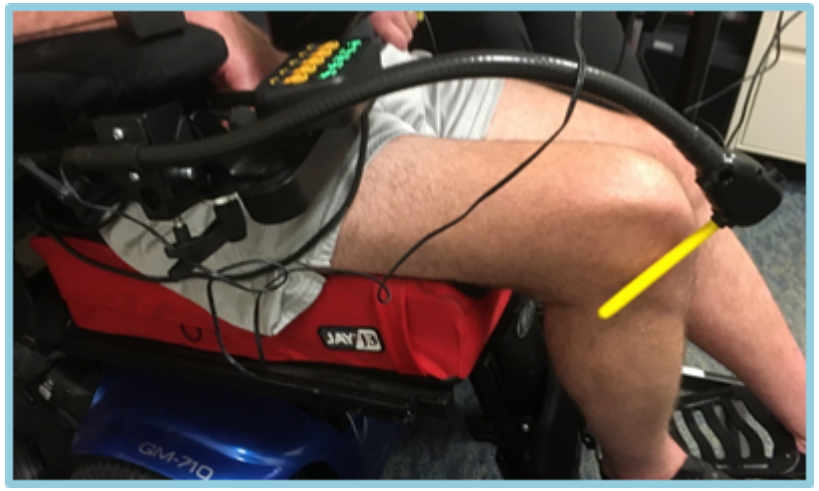
- All provide wireless cursor control
- All involve transmitter and receiver
- Most require USB port (one Bluetooth)
- Infrared and camera devices require “line of sight”
- Gyroscopic – no line of sight required

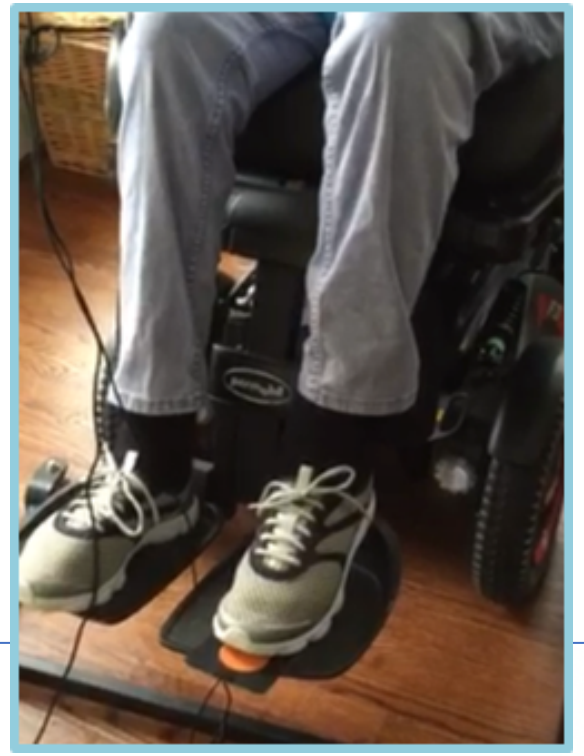
–Can be programed to be used on hand or foot

- Head movement provides cursor control – need to add clicking function

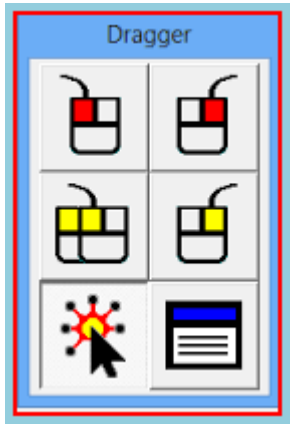
How do I click?

- Switch click
  - –Any reliable switch site – except for the head.
  - –Activates left click, double click, and drag
  - –Second switch can be added for right click



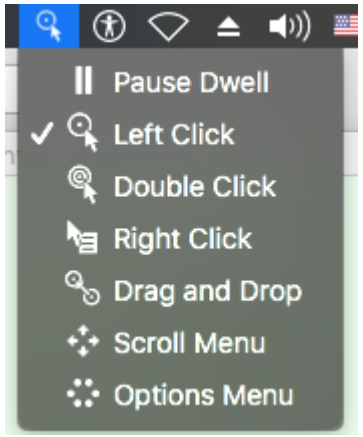


Switchless clicking



- Auto click dwell software
- Dragger
- Smart Click
- Point n Click
- Mac Built in

Set the dwell time
Set the jitter box
Have a pause button



Head Mouse
(cursor control)

+

Switch/
auto click software
(clicking capability)

Full Hands-free Access to AAC software on a computer-based device

Head Mouse
(cursor control)

Switch/
auto click software
(clicking capability)

Full
Cursor Control

Head Mouse
(cursor control)

+

Switch/
auto click software
(clicking capability)

+

Onscreen Keyboard

Full Computer Control

Direct Selection: mouse control

The same principles apply when considering other adaptive mouse controls.

What is the most reliable access site?

hand - joystick, trackball, touchpad, traditional, touch screen

head - Headmouse, Quadjoy, Jouse3, mini joystick

foot - trackball, Boomer foot mouse

Use adaptive mouse control to access AAC device or computer



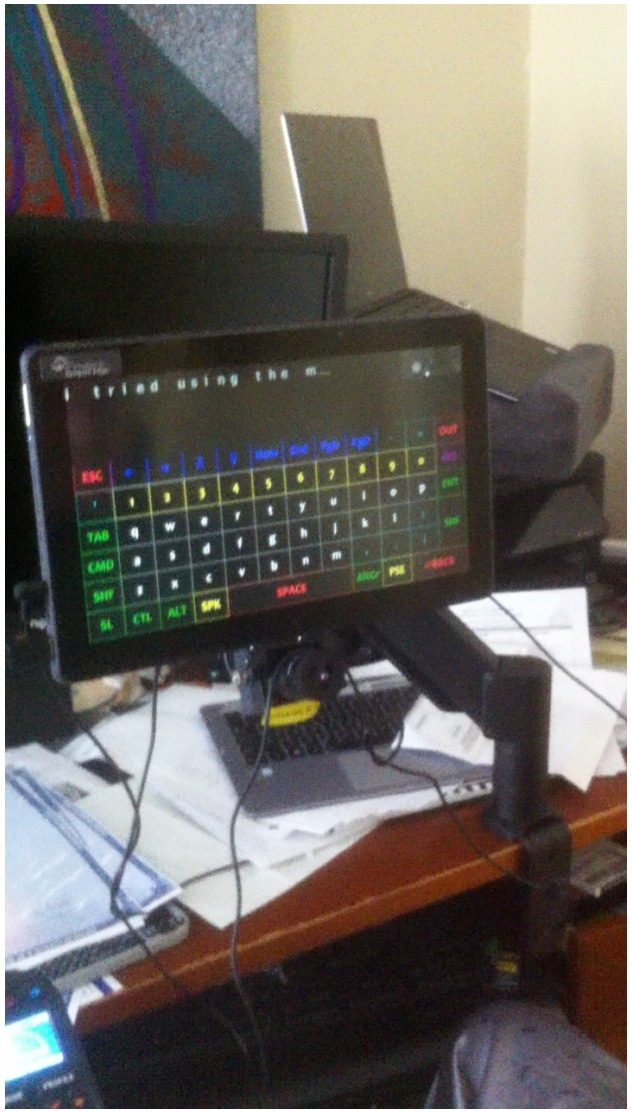









Direct Selection: Eye Gaze Interaction – The eyes have it



Direct Selection: Eye Gaze Interaction Problems

- Ptosis - camera needs to view the full pupil
- Cataracts
- Dry Eyes
- Head Movement
- Glasses and Contacts
- Pupils dilated or constricted
- Nystagmus
- Medications (ex. Baclofen)
- Attentional deficits
- (Re) Positioning (position, position, position)

Direct Selection: Eye Gaze Interaction Considerations

Eye tracking is the best access method

Determine best selection method

- while a direct access method, there is a learning curve
- Technically, more parameters to address
- Requires more external support

Direct Selection: Voice input - computer

- Dragon Naturally Speaking (Windows and Mac)
- Microsoft or Mac built in voice recognition software
- Not intended as an accommodation for a disability. Will have difficulty with soft or dysarthric speech.
  - Best for word processing
  - Custom commands available (Dragon)
  - Plan for a learning curve

Direct Selection: Voice input - computer

For people with upper extremity weakness, voice recognition software allows them to remain connected to friends, family and the world.

Voice recognition software may provide the means of remaining employed.

- Use of voice recognition software requires training and customization.

–Learning how to dictate, learning commands

–Adding vocabulary

–Adding text macros

–Adding command macros

Direct Selection: Voice input-Text Macros

- “Peggy’s email” = Peggy.Dellea@Childrens.Harvard.edu
- “Visa Card Number” = 5808 330 2435 3319
- “Bank sign in page” = https://www4.citizensbankonline.com/efs/servlet/efs/login.jsp
- “Bank password” = GiveMeMoney$

Direct Selection: Voice input - Command Macros

“Short Pier” =

–Ctrl + A

–Alt + O

–F

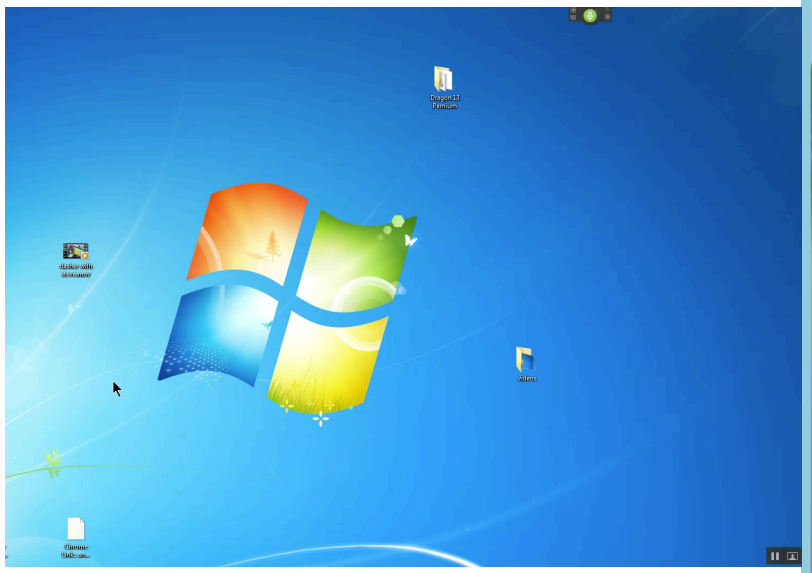
–Times New Roman

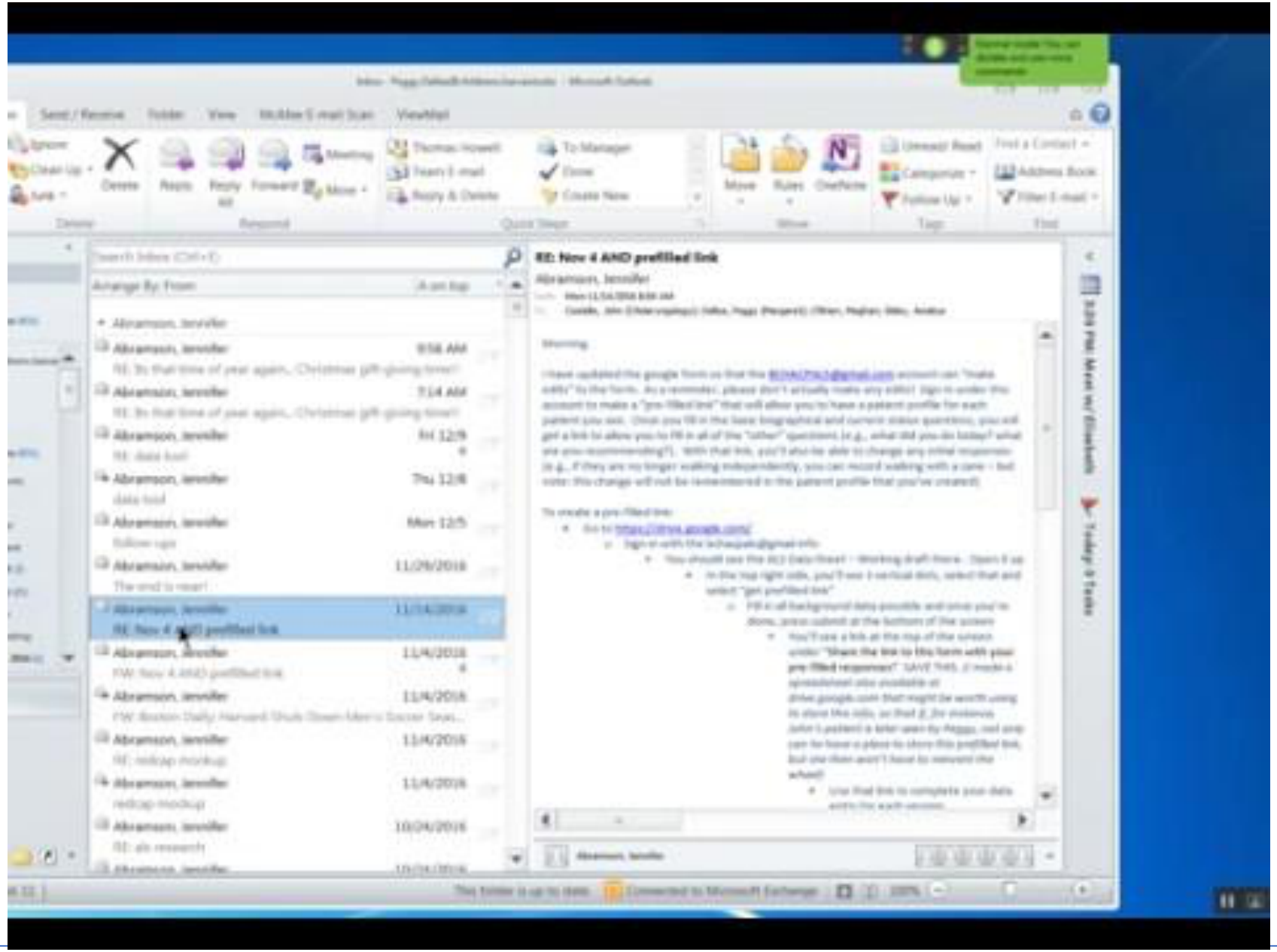
–Tab

–8

–Enter

–Control + Enter




RE: Nov 4 AND prefilled link

OT Assessment of Alternative Access
OT Assessment of Access Methods: Indirect selection

Indirect Selection: Switch access

What is a switch?

- A specialized piece of equipment used to detect specific input
- Interfaces between the client's movement and a specific function
- A switch does nothing by itself, it needs to be connected to a switch compatible device
- Can be used at one or multiple access sites
- Not just for communication, increases overall client independence
  - Play
  - Leisure
  - Environmental control
  - Access to work/curriculum

Indirect Selection: Switch access

Switch Site Assessment:

- DIAGNOSIS: related motor abilities and challenges.
- OBSERVE: watch how client moves in different positions (wheelchair, stander, lying prone)
- ASK: Family, about client's movements
- JUMP IN: Try various switch placements
- CONSIDERATIONS:
  - Do not place the switch in the path of an involuntary/extraneous motor pattern
  - Switch placement should support ON-OFF-REST sequence for "functional switch use"
  - Check out all switch sites!

Indirect Selection: Switch access

Hierarchy of Control Sites:

HANDS: Proceed from gross to more finger/thumb movements.

- Position switch in all planes of hand movement (e.g. in front, to side, above, below, perpendicular)

HEAD: Vertical/parallel to temple and jaw

- If head defaults to right, then this is indication to place switch to the left.

KNEE: Inner/outer surface of knee

FOOT: activate switch through foot movement

- in front, to the side, behind heel, under heel, under toes

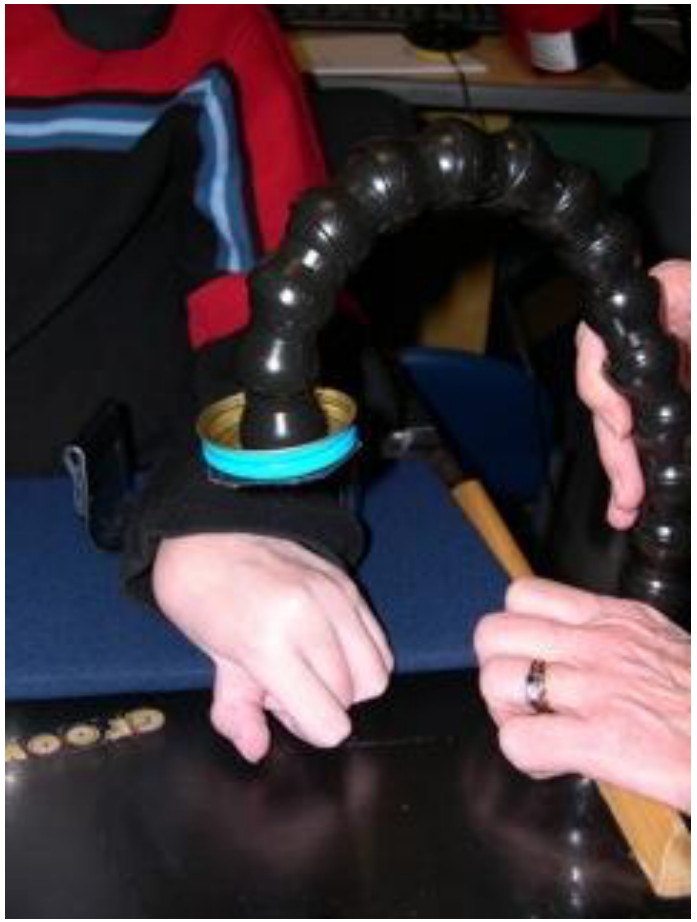
(Lange, 2012)

Indirect Selection: Switch access

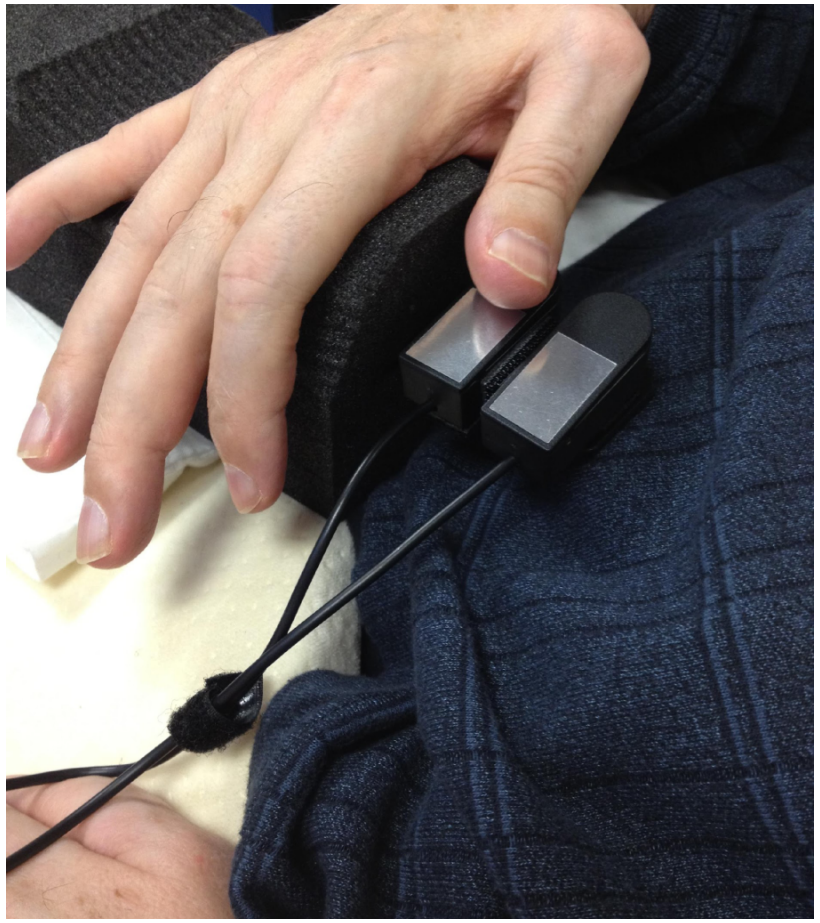
Once a reliable site has been found, match the client's unique needs with specific switch features:

- SIZE
- COLOR
- BUILT IN FEEDBACK (tactile, auditory)
- MECHANISM (mechanical, sip/puff, proximity, infrared)
- CONSTRUCTION
- DURABILITY
- DEVICE COMPATIBILITY
- MOUNTING OPTIONS
- EASE OF SETUP

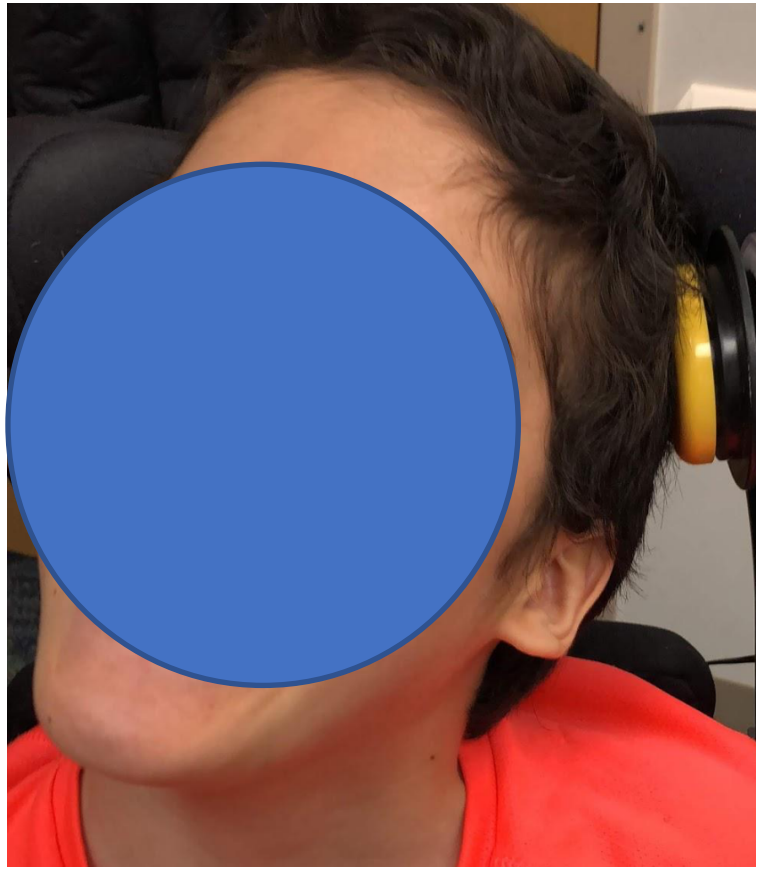
Switch Site: HANDS

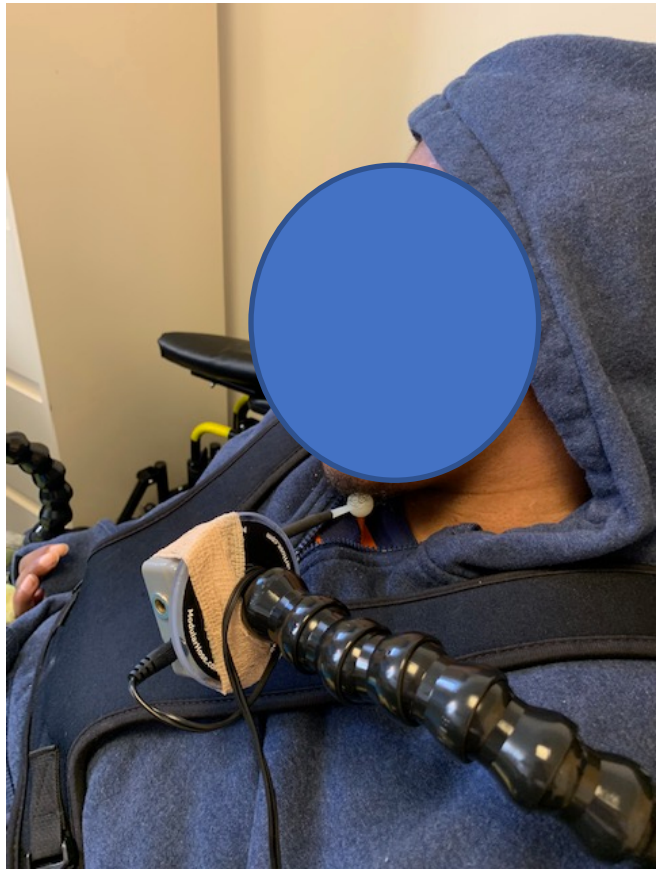


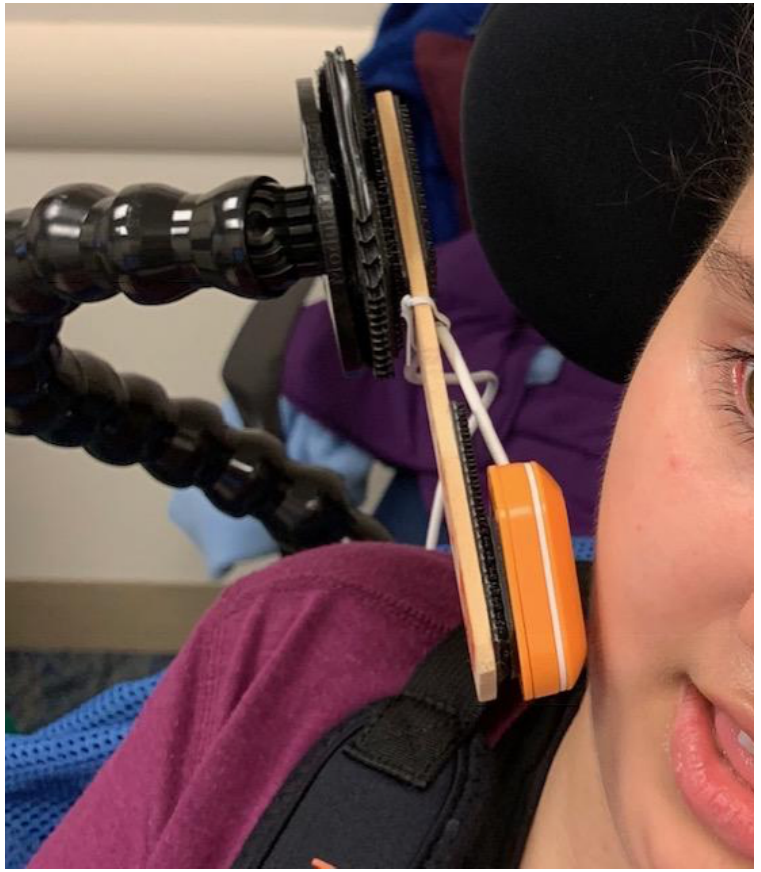
Switch Site: THUMB



Switch Site: HEAD







Switch Site: KNEE

Switch Site: FOOT

Indirect Selection: Switch access

SGDs, tablets, and AAC applications support switch use through customization of scan settings:

Scan direction:

- Linear
- Row/Column
- Customized scan patterns

Scan Style:

- Automatic scanning
- Step scanning
- Inverse scanning

Scan speed

Additional settings:

- Automatic start
- # of loops
- Ignore repeated switch hits
- Acceptance and Release time

OT Assessment of Alternative Access
OT Assessment of Mounting

Selecting a Mount

Consider…

SGD: weight, size, access method

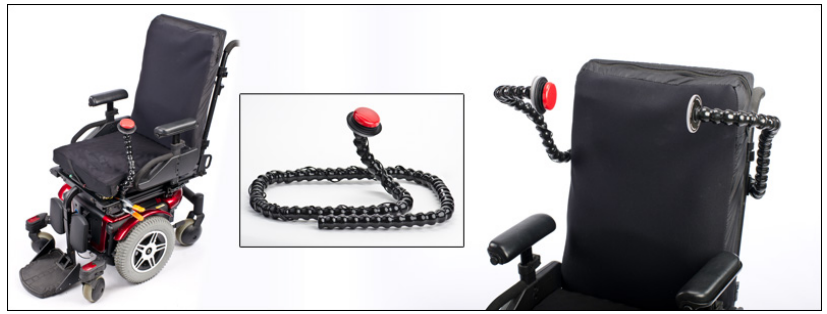
- Direct touch, switch, eyegaze, head mouse, stylus → affects distance/positioning of mount

Environment: where it be used, does it travel between home and school/work, available supporting family/staff

Client: diagnosis, motor profile, vision, positioning

Seating/Positioning: type seating system (wheelchair, stroller, stander, walker), attachment site

Lightweight Mounts

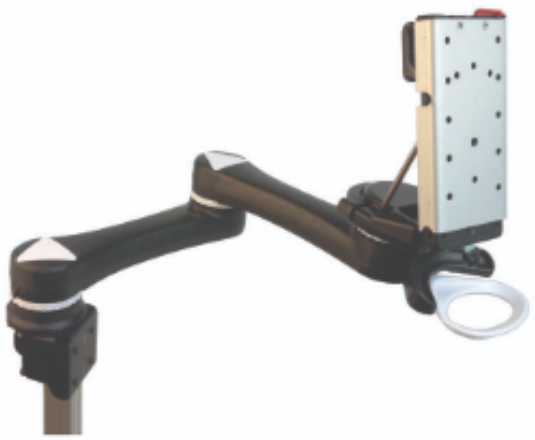


- Supports iPhones, iPads, tablets, and switches across positioning systems
- Lightweight to travel to school, work, in the community
- Can attach the mount in different locations and on different positioning systems (ex. Wheelchair, stander, desk, bedside table)
- Supports devices that are typically under 2.5 pounds. Not designed for heavy SGDs or laptops

Table Mounts

- Easily portable and easy to assemble
- Light and heavyweight SGD's can attach to a device plate
- Can be beneficial in a school or work setting where a smaller mount footprint is necessary
- Requires a stable surface near all positioning and seating systems

Wheelchair Mounts

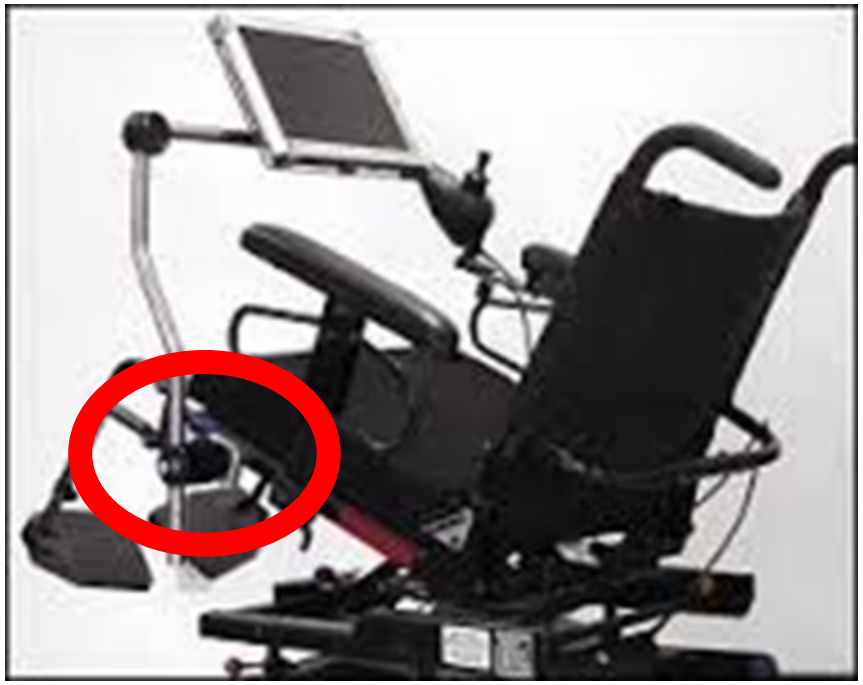


- Attaches a SGD to a wheelchair for consistent positioning and access to communication
- Consider mount length and angle based on access method and motor profile- direct access (within reach), eyegaze (~18” away), indirect access (within visual field)
- Different companies offer a variety of mount features rear folding, multiple adjustable tubes, customizable locking positions, attach multiple devices

Wheelchair Mount

- Connects to a seat pan, frame, or footrest (if no other attachment site)

- Base remains attached to the wheelchair, but tubing is easily removed




M300


M300

Rolling Floor Mounts

- Easy to move and can lock the wheels in place
- Beneficial for ambulatory patients or non-constant wheelchair users
- Heavy and large, making it hard to transfer between different environments
- Large footprint for stability

Sent home with:

In our clinic, Sarah was seated in an office chair. We positioned the AAC device at the correct height, distance, and angle. She was able to use eye tracking to spell out messages and participate in conversation.

Email follow up:

"We did find the technology to be very useful for Sarah but our only issue is the size of the base mount which is rather large for our living area and is rather cumbersome at times."

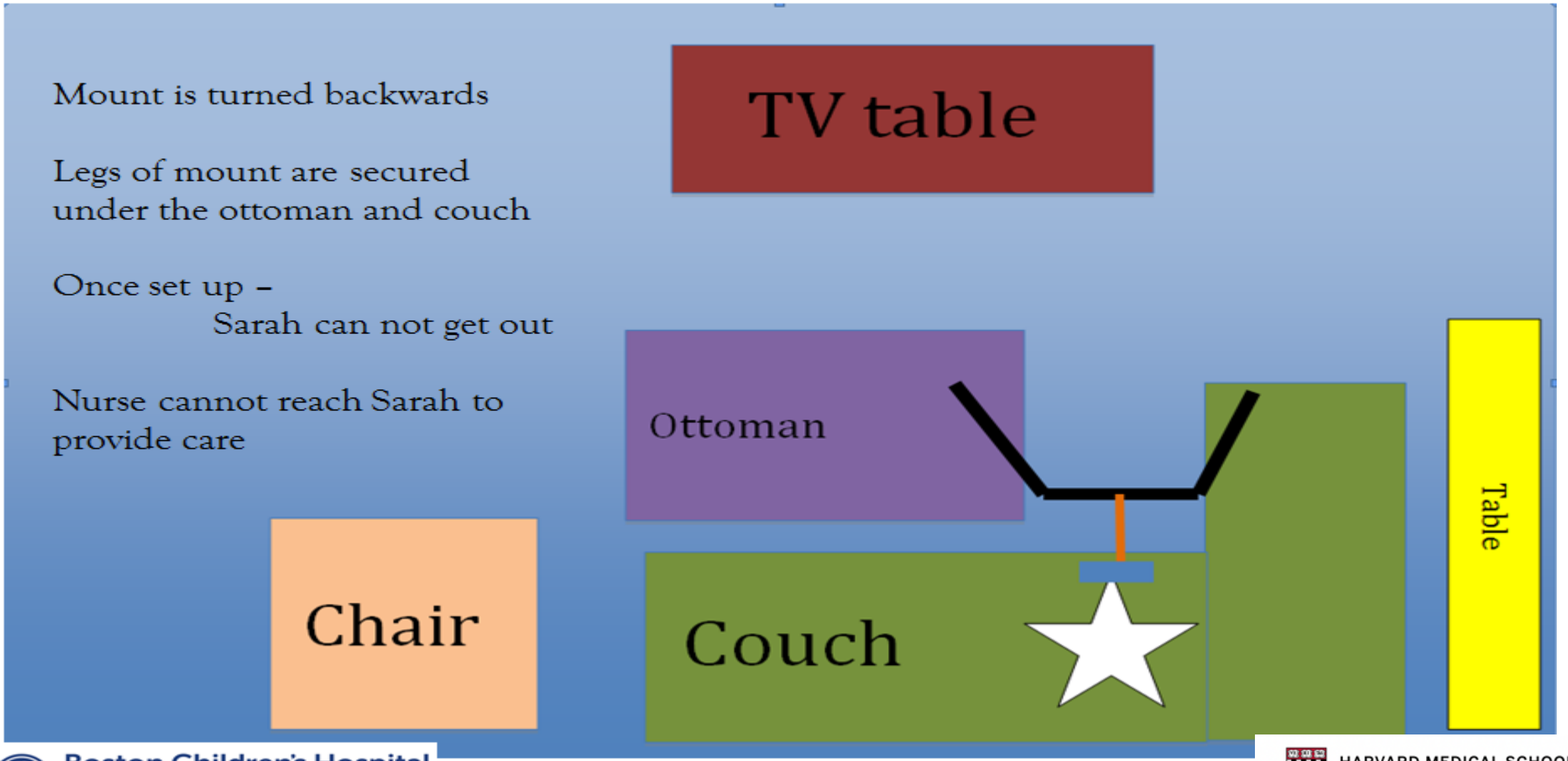
Home visit

Mount is turned backwards

Legs of mount are secured under the ottoman and couch

Once set up –
Sarah can not get out

Nurse cannot reach Sarah to provide care



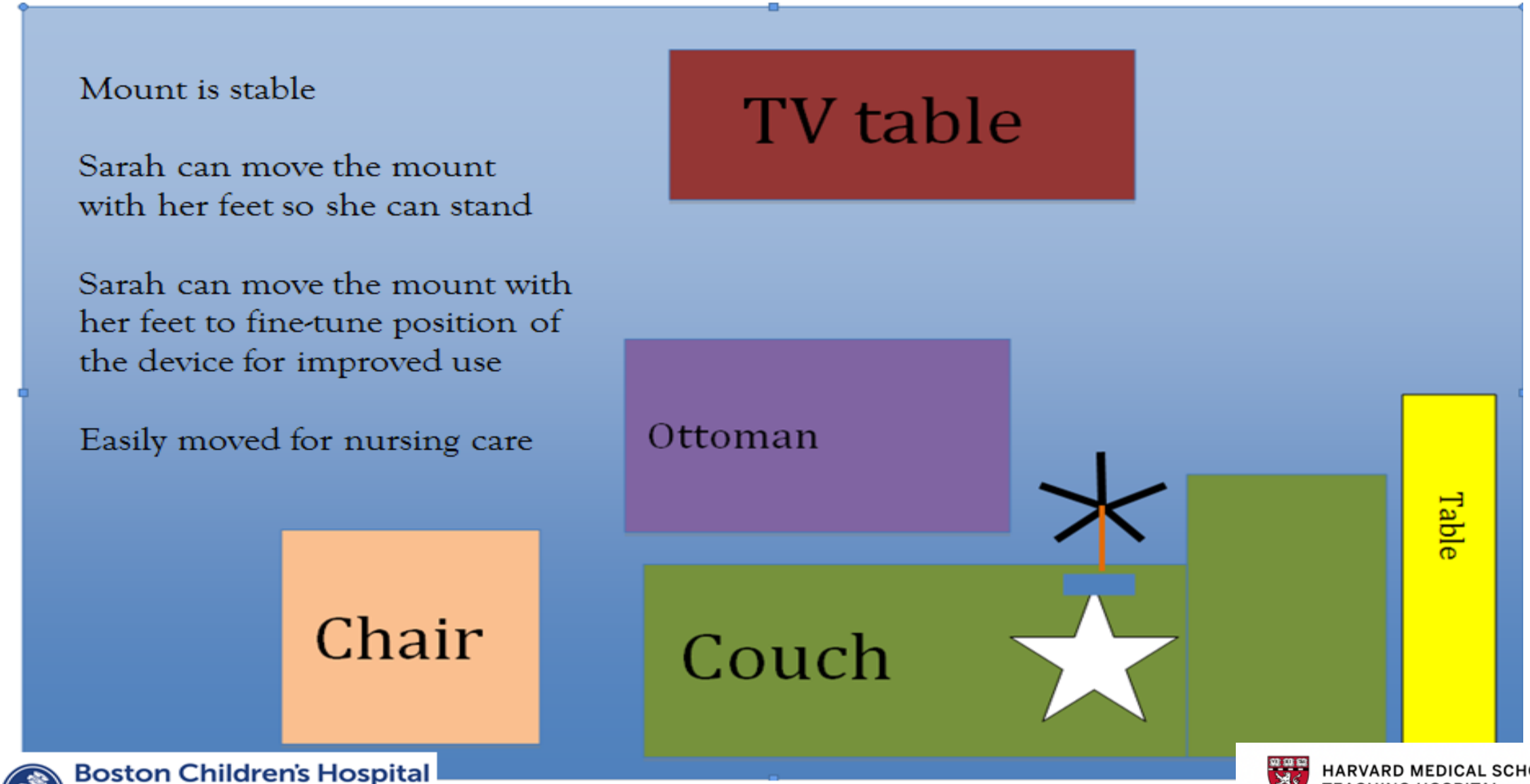
Solution – star base mount

Mount is stable

Sarah can move the mount with her feet so she can stand

Sarah can move the mount with her feet to fine-tune position of the device for improved use

Easily moved for nursing care

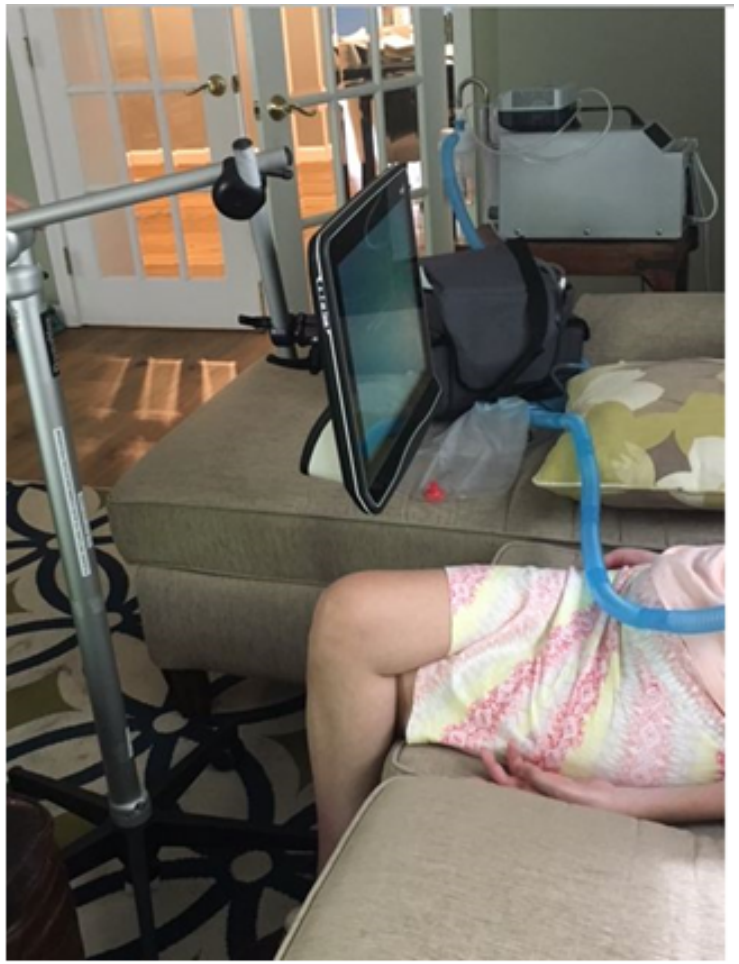


Small footprint

She can use her feet to reposition the device or to move it entirely out of her way.

Lots of equipment for her care

Sarah is comfortable and supported leaning back against the couch

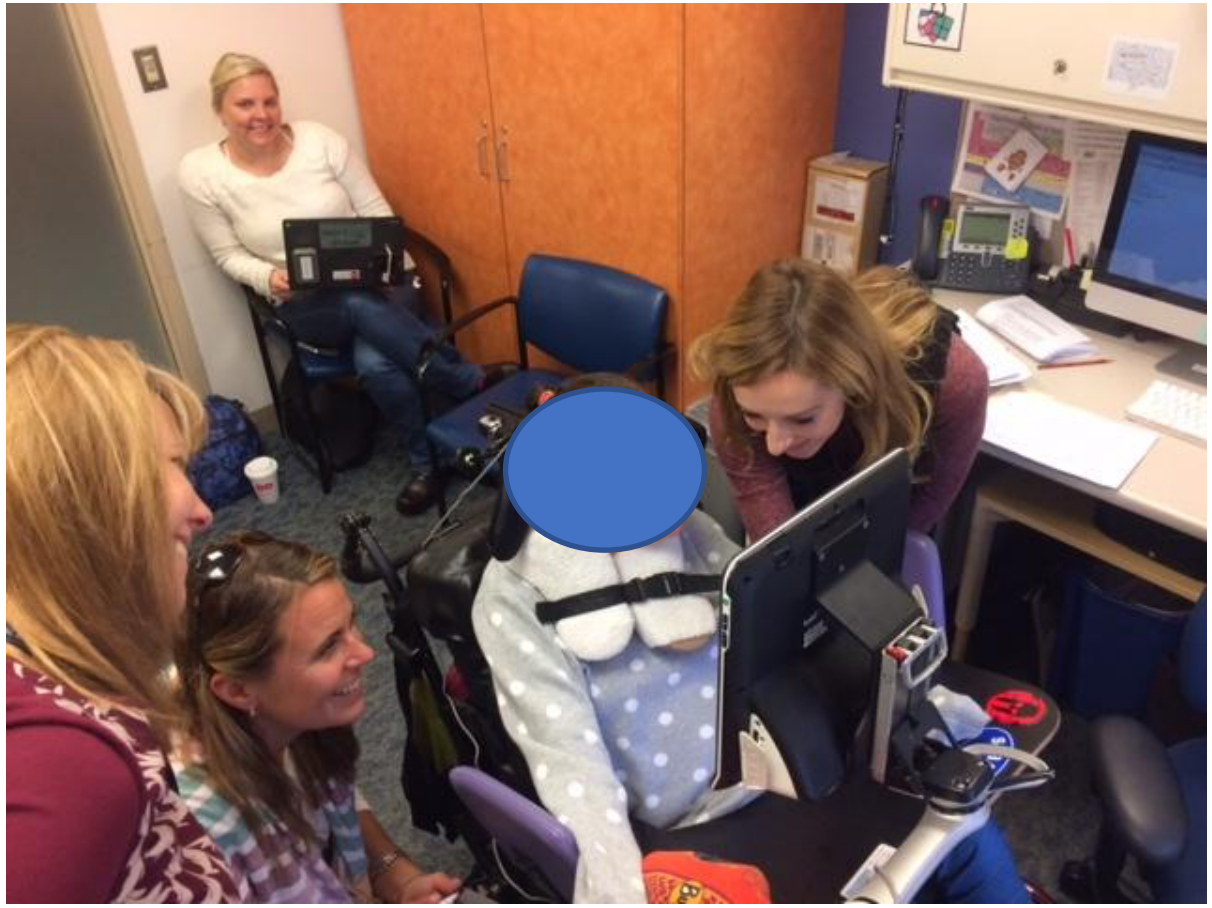


SUMMARY

Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

- The assessment should ideally be done by an **interprofessional team.**
- Learn from each other - identifying areas of **strength and opportunities for success in operational competence.**
- Consider **Strategic Competence** as well, empowering the client to use the **easiest way to communicate** in any given situation.



Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

- A person's **method of access may change** over time as their physical abilities alter or new options are developed - their **functional abilities** may even alter throughout the day
- Plan for different **positions and contexts**
- May have **different access methods for different technologies** (drive their power wheelchair with a joystick and use eye gaze for AAC access)

Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

With a **holistic vision and scientific knowledge of disability** and issues affecting daily **occupational engagement**, OTs are trained with the necessary skills to **match the individual needs of the person with available assistive technology**.

The role of the OT is to **balance the demands of the AAC device** and the **functional capacity of the individual** to **enable communication** in **multiple environments**.

Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

As OTs we….

- Use technology to **increase the occupational performance and participation** of people with disabilities.
- Complete **an activity analysis** in the assessment process in order to meet the activity demands of each person
- Identify the **different environments and contexts** where communication must occur and the demands of each setting

Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

As OTs we….

- **Customize, modify and adapt** the currently available AAC systems, alternative access technologies, and mounting systems
- **Engineer opportunities for success** by **training** people with disabilities to successfully use their technology to achieve their goals such as communication in the home, community, school and work settings with familiar and unfamiliar partners

Assessing Alternative Access Technologies for AAC: Occupational Therapy Assessment of Operational Competence

OTs' understanding of **occupational needs and performance**, coupled with their skills in **activity analysis** and **focus on achieving client goals**, strongly support the use of diverse types of **assistive technology** within **models of best practice**.

That perspective helps identify and integrate desired **features of assistive technology solutions**, as well as **address potential barriers** to **integrating assistive technology** into the client's **daily routines.**

Questions?

Have additional questions? Please contact us!

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