Accessing Technology = Empowering Individuals

Melanie Conatser OT

Brenda Del Monte SLP MA-CCC

Learning Objectives

- Basic Principle of Seating for Access
- Recognize the role of powered mobility in determining access for involved clients
- Describe and Identify five forms of alternative access for powered mobility, computers, ECUs and communication devices

What is Access?

https://nvatll.files.wordpress.com/2012/11/kangasseating.pdf

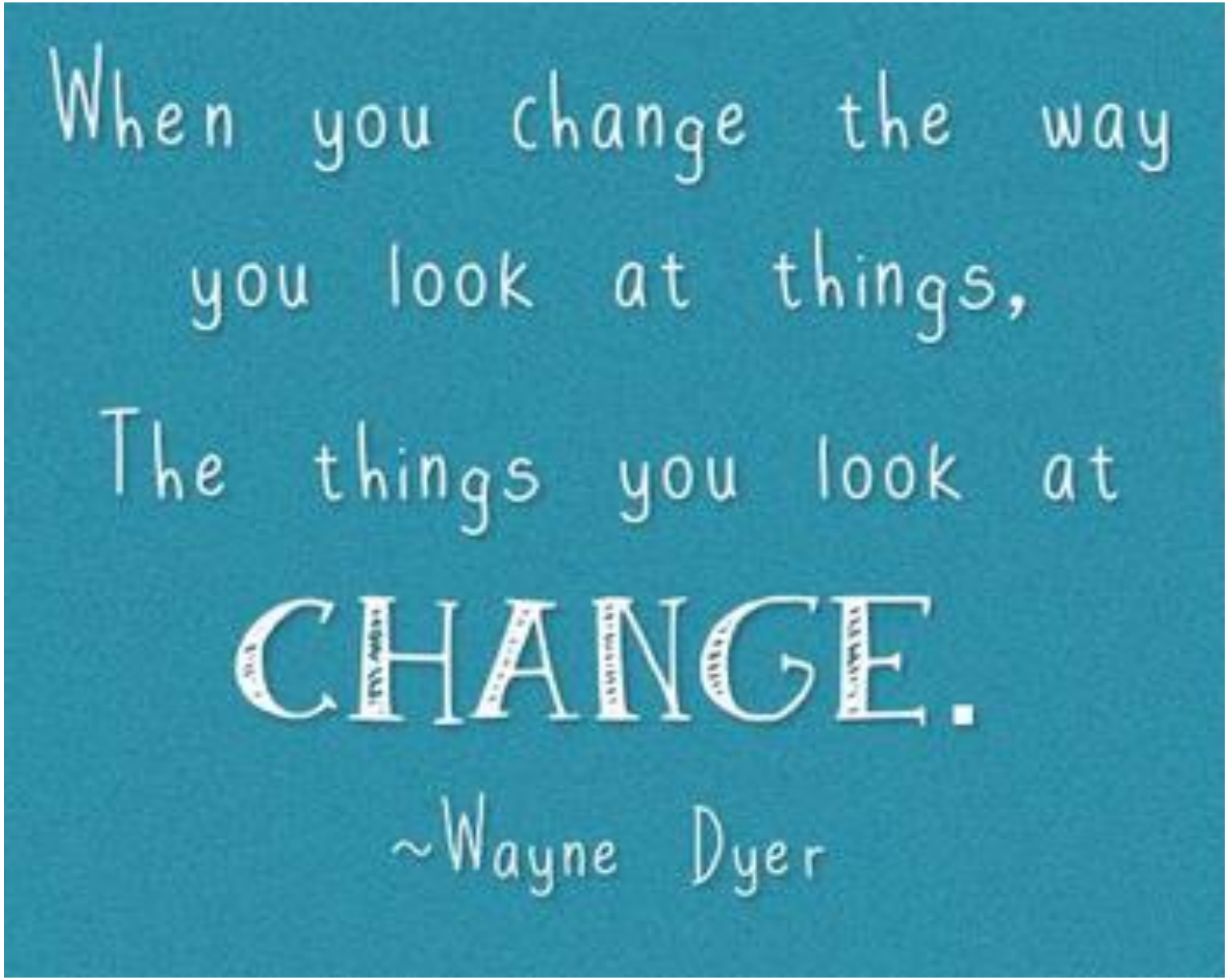
OR

- How an individual is able to manage an activity of interest with intention, independently
- How to manage a particular machine at a particular time for a specific activity which will produce an output

Defining Consistency and Efficiency

https://nvatll.files.wordpress.com/2012/11/**kangasseating**.pdf

- "Consistency" and "efficiency" and "reliability" are engineering terms, not "human" terms, nor human physiological terms
- Isolated "motor" control is not "consistent," nor "reliable" but rather "process oriented," "routine dependent," and "adaptive"
- We are never "error" free, nor "mistake-proof;" but rather we are able to recognize errors and repair them.
- Motor "acts" and machine control, cannot be measured except in laboratory environments, which are not Life Situations, nor Life Environments.


When you change the way
you look at things,
The things you look at
CHANGE.
~Wayne Dyer

Paradigm Shift

https://nvatll.files.wordpress.com/2012/11/**kangasseating**.pdf

- Access sites (body sites) develop from interest, intention, and experience with activity, not in isolation
- Consistency is not what is needed; interest, intention and attention are needed
- Activities need to build, to be interesting, and complex
- Mistakes will be made, expected, and encouraged
- Expect real “access” to be “revealed” rather than “taught”

What is Seating?

https://nvatll.files.wordpress.com/2012/11/**kangasseating**.pdf

- A range of postures, situationally specific, task defined, and individually preferred
- A treatment technique for OT's and PT's
- Seating for Task Performance
- Seating as a human characteristic, homo sapiens on planet Earth with its gravity

Paradigm Shift

- Karen Kangas (2003) states, “Seating for anyone, cannot be a singular posture, and any singular posture without any inherent mobility within that system, cannot assist an individual in becoming independent in any task”.

Optimum positioning of the human body is paramount to successful function, including mobility and cognitive alertness.

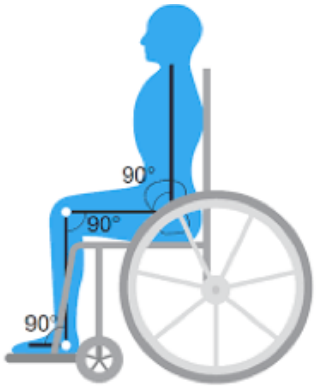
Possible Seating Positions

- Postural Management –
  - Reclined with knees higher than hips
  - a decreased hip angle
  - feet off the floor on raised footplates
  - the pelvis is in a static posterior tilt
- Good for….
  - Safe, Passive for Transport
  - Body stillness, relaxation is necessary
  - Being feed by another person, swallowing

Possible Seating Positions

90/90/90

- The concept for this posture is that by placing hips, knees, ankles and body in midline, this symmetrical posture provides control of tone and thus is optimal for sitting.
- Maintaining symmetry for a child with increased or variable tone requires positioning straps
- Using straps does not allow the body to learn how to actively move in relation to gravity.
- This restriction prevents movement.
- A child with high tone = FIGHTING
- A child with low tone = COLLAPSE



Active Sitting – Postural Control

- Seating that is designed to assist individuals to assume active sitting = functional posture.
- Individuals can practice active sitting in the context of learning tasks.
- Over time this posture will be more easily assumed, practiced, and obtained until the needed supports can be reduced.
  - Independent control of movement
  - Pelvic stability (mobility) is critical
  - Using Weight bearing, especially pelvic and lower extremity
  - Primarily demands use of vestibular system
  - NEEDED WHEN THE BODY & MIND IS TO BE ACTIVE

Let’s Feel The Difference

Active Sitting for Functional Tasks

Lori Potts, PT

- Sitting is an active range of postures that enables the mind to think, the eyes to see, and the head, arms and hands to accomplish a task.
- This is not an immobile position, but rather an “active holding” position to allow a range of controlled pelvic mobility simultaneous to the movement of the trunk and upper extremities.

Active Sitting for Functional Tasks

Lori Potts, PT

- When the pelvis is shifted forward it results in an “active holding” or “co-activation” signaling the body to be ready for work.
- The body will “kick in” trunk extension tone which lends further power to the pelvis and lower extremities for increased stability and weight bearing, and to the shoulder girdle and head for movement.

Active Sitting for Neuromotor Impairments

Lori Potts, PT

- Children with neuromotor impairments such as hypertonicity are often in seating systems in which they are “stabilized” by “not moving.”
- Restricted, static, symmetrical seated postures do not allow for active pelvic stabilization.
- As a result, these children have further difficulty learning how to integrate sensory–motor information for functional seated motor skills, especially head/eye/hand coordination.

Why Powered Mobility?

- Looking for a switch site and so we are going to do that with a “CAR”? -NO
- NOT “looking for a switch site” – establishing access through something that is essential (mobility), motivating and that creates inherit cause and effect that is meaningful
- Arlene James – “Mobility and Movement is the easiest way to find interest, intent and allow for self initiated, self driven and thus, an engaging activity for the person.”

Does Research Support This?

- Nilsson & Nyberg reported even those children who did not achieve 100% independent mobility with powered mobility did demonstrate increased mobility with powered mobility did demonstrate increased alertness, use of upper extremities and understanding.
- Bottos et al. reported no studies report children regressing in the motor skills one powered mobility is added to their mobility options

What the studies say…

- “Mobility to explore your environment by any means will increase motor learning. As soon as you are reaching, as soon as you are walking, your cognition explodes. University of Delaware Study with Robotic Movement
- “Lack of motor learning and experience causes a delay and secondary disabilities” Tech for Tots Cal State Northridge, USC, and Los Angels Children’s Hospital

Children Approach Life From A Different Angle Than Adults

http://mobilitymgmt.com/articles/2011/03/28/kangas-online-exclusive.aspx

Powered Mobility for Children vs Adults

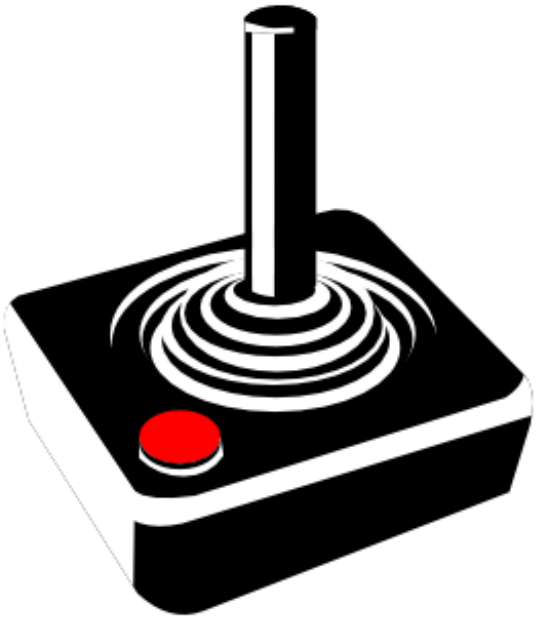
http://mobilitymgmt.com/articles/2011/03/28/kangas-online-exclusive.aspx

- "Children who have never had the experience of independent mobility are not going to be successful in assessment and training strategies which have been developed for adults”
- "Children learn and use mobility in familiar environments, and with familiar adults, and are particularly interested in the mobility not as a skill unto itself, but rather as a means to approach a person or object, leave a situation, explore an environment, and/or touch and obtain an object.” –Karen Kangas

Camden

Set up to Fail

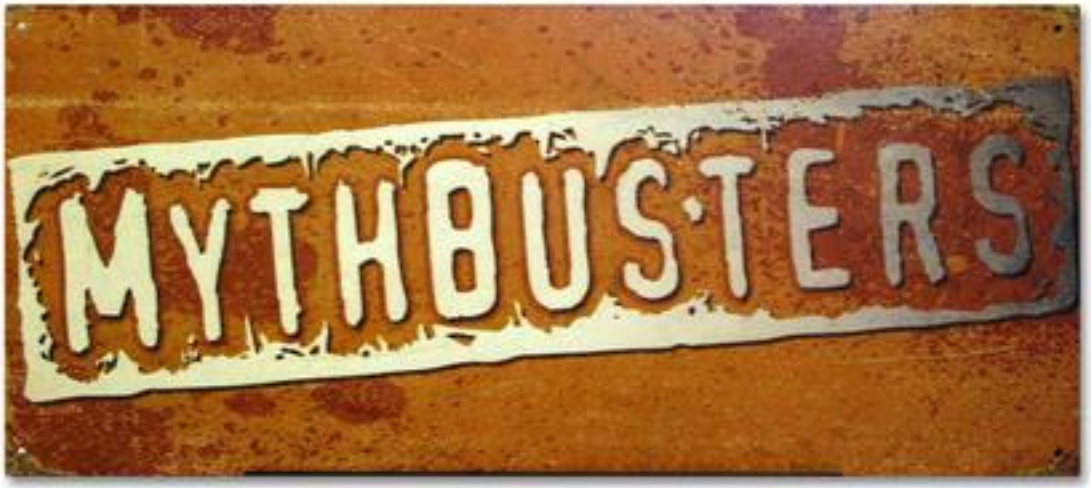
Many young children appear to be 'candidates,' but still 'fail' the joystick test”



With a head array, each switch only performs one task (one direction) and only performs it at a single speed, the child can readily anticipate its outcome.

Criteria For Mobility Myths

- Cognition is too low –how could we know?
- Vision is too poor
- Experience – do they need it if they have never had it
- Too Young
- Not Safe



- Start with the head
- Adjust the tilt-in-space function so the person can use their headswitch for controlling power or a device.
- Work for short periods at the activity (less than 10 min),
- Observe and Evaluate the seating
- The person must be able to move but able to control the movement.
- The person learns this control through practice and through repeating an activity that he or she enjoys.

5 Forms of Alternative Access

Head Array

Proximity Switches

Sip & Puff

Fiber Optics

Modified Joystick

Let’s take a look……

Alternative Access

FOR:

- Powered Mobility
- Computers
- ECUs
- Communication Devices
- Toys

Resources

- *www.wati.org/content/supports/.../Ch2-**PositioningSeating**Mobility.doc*
- http://www.rifton.com/adaptive-mobility-blog/blog-posts/2011/march/active-sitting-for-task-participation-role-of-adaptive-chairs-1
- http://mobilitymgmt.com/articles/2011/03/28/kangas-online-exclusive.aspx