Operating a Communication Device

How the child will operate/access his augmentative and alternative communication (AAC) system (including a communication device) forms a crucial part of the AAC process. It refers to how the child will make selections on his communication board, book or device.

For the child with a significant physical impairment, an occupational therapist and/or physiotherapist will be important members of the AAC team.

ACCESS METHODS

Direct Selection
Direct selection involves the child physically pointing to the item. This may be with his finger, but could also be a fist, elbow, etc.

A range of modifications can often be made to AAC displays to take into account the motor and/or visual needs of the child. For example, the size and layout of the symbols or buttons can be altered. On a communication device, a keyguard (a raised border between the buttons) may be needed to prevent unintentionally pressing neighbouring items. The amount of force required for the child to press the button may also be modified on some devices. For the child with visual difficulties, parts of the display may be magnified as the child touches them.

Additional equipment such as handheld pointers or splints may also enhance direct selection.

Eye-pointing/eye-gaze
The child who does not have a reliable physical movement to press the buttons, may be able to use his eyes to select messages by gazing/staring at the symbols. Some communication devices are able to be accessed by tracking the position of an individual’s eye. The person looks at the screen and selects a message by blinking or dwelling (staring at the screen for a certain length of time).

Pointers
Pointers refer to electronic accessories that enable a child to point to a display on a communication device. They include mice, trackerballs and joysticks and there are many versions of each available. A head mouse may also be a viable option for some children with little or no hand movement.

Direct selection should be the preferred method, if possible, as it will always be the most efficient.
**Indirect Selection**

Scanning is a type of indirect selection. It is a process whereby a person or device sequentially presents choices or groups of choices to the communicator. The communicator then signals when the desired item is reached.

- With visual scanning, a light indicates the sections or item to be selected.
- With auditory scanning, an auditory cue (whole message or cue word) indicates the sections or items to be selected.

Partner-assisted scanning is a method mainly used with low-tech systems such as communication books. It involves the communication partner pointing to the items (individually or in sections) until the AAC user indicates (perhaps with a vocalisation or gesture) when the communication partner gets to the message they want. This is a great place to start for the child who cannot access AAC directly, but is still exploring access methods for use with computers and communication devices.

On a communication device, the child will often use a switch (or button) to scan. With a single switch, an indicator moves through all the options, one at a time. When the required item is highlighted, the child presses the switch and that item is selected. Single switch scanning involves setting a timing option to how fast the indicator/highlighter will move. If using two switches, then the child can press one switch to move the indicator through the options available. When the required item is highlighted, the child presses the second switch to select the item. In two switch scanning, the child is in control of how fast the indicator/highlighter moves.

There are many variations of scanning whether it be the number of switches used or the type of scanning pattern (linear, row-column, inverse). It is best to liaise with an occupational therapist or AAC specialist if exploring switching and scanning.

Although the physical demands are lower with scanning when compared to direct selection, the cognitive demands (such as concentration and planning) are higher (Dropik & Reichle, 2008). It is also a less efficient method, that is, it takes more time for the child to get to his desired message. However, for the child with a significant physical disability it does provide access to technology which they otherwise would not have.

“...technological developments in direct selection and scanning have dramatically increased access to AAC technologies for individuals with a range of complex communication needs.”

*(Higginbotham et al., 2007, pg. 244)*
Seating and Positioning
Good seating and positioning supports accurate and efficient access to communication devices. This is particularly important for the child in a wheelchair. If seating and positioning are not at an optimal level there may be a negative impact on communication device use, such as inaccurate or inconsistent access, decreased attention and concentration, and fatigue.

“Proper seating for individuals with complex communication needs, in tandem with functional placement of their AAC displays, and control interfaces, can contribute significantly to communication success.”
(Higginbotham et al., 2007, pg. 247)

Portability and Durability
When a communication device is to be mounted to a wheelchair, you will need to consider all the additional equipment needed to do this successfully. Different equipment will be needed depending on the particular communication device and wheelchair make and model.

For the child that will not have his device mounted to a wheelchair, how the child will carry the device with them needs to be considered. The size, weight and shape of the communication device will be important in this instance. Remember, a small device that will fit in the palm of your child’s hand might be highly portable, but does your child have the good vision and manual dexterity to point to the very small items on the display?

Accessories such as carry cases, straps and waterproof covers can assist in making a communication device more portable and more durable across a variety of environments.

KEY POINTS
- Always start with good seating and positioning of the child to ensure optimal access to communication.
- Direct selection should be the preferred access method (if possible) as it is the most efficient.
- A child will not be successful with a communication device if they cannot access it accurately and efficiently – take as much time as needed to find the best access method for the child.
- A communication device should be available to the child at all times (where possible) – so make sure you consider the portability and durability of devices.

Possible questions to ask about the access, portability and durability of a communication device...
1. What variations on key shape and size are possible in a given device?
2. Can the amount of pressure required to activate keys be modified?
3. What accessories are available to improve direct selection (eg. keyguard, arm rest)?
4. What types of scanning are available (one switch, two switch, auditory, visual)?
5. What scanning patterns are available?
6. Can the device be mounted to this particular wheelchair?
7. Can the device be carried safely by the child if/when they are walking?
8. What accessories are available to improve the devices portability and durability?
When a child is still developing the physical access skills to operate a device...

For some children, physically accessing a communication device can be an ongoing challenge. As discussed earlier, the cognitive effort required to operate a communication device with a switch (or two) can be considerable and a skill that requires extensive development.

In this instance, you will need to develop the child’s operational skills without neglecting other skills essential to using a communication device successfully - such as language and social skills. Linda Burkhart refers to this as ‘parallel programming’ and offers a range of strategies to assist the development of both motor access and language/social skills so we don’t hold back the child in one area because of difficulties in another.

For more information and strategies see:-
http://www.lburkhart.com/hand2sw4s.htm
http://www.lburkhart.com/Isaac_instructional_06.pdf

FIND OUT MORE

About access methods, especially switching and scanning...

http://www.inclusive.net/resources/units/unit7/unit7_contents.shtml
http://www.inclusive.net/resources/units/unit8/unit8_contents.shtml

References

This handout is part of an information package, funded by a NGCS grant, to assist local teams in supporting children who require augmentative and alternative communication - particularly communication devices. Augmentative and alternative communication, or AAC, refers to other methods of communication people may use when they have difficulty speaking. These methods may supplement what speech they do use or may become the primary form of communication in the absence of speech.

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