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Learning to Scan and Scanning to Learn

Terms from this handout were found in *Augmentative and Alternative Communication: Management of Severe Communication Disorders in Children and Adults* by Beukelman & Mirenda (a detailed reference can be found on the back of this handout).

Scanning Defined: Scanning refers to the 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. Scanning is generally more operationally complex than direct selection. It requires integrating motor, cognitive, visual and/or auditory skills.

The most common reason to use scanning is lack of motor control.

Scanning Patterns: the configuration in which items in the selection set are presented to the AAC user.

Circular Scanning: This is the least complicated pattern. Items are displayed in a circle (like a clock). The scanner is usually a sweep hand like the big hand on a clock. Each item is scanned one at a time until the user stops on the desired item. Circular scanning is visually demanding but relatively easy to master cognitively.

Visual Linear Scanning: In this type of scanning, a cursor light moves across each item in the first line of the set and then moves to each item in the second row and so on depending on the size of the set. Each item is scanned until the user stops on the desired item. Linear scanning is more demanding than circular scanning but is straightforward and easy to learn. It can be inefficient if the set contains many items.

Auditory Linear Scanning: This is the same as visual linear scanning except, in addition to the light, an auditory cue accompanies each item in the set. This auditory cue can be a whole message or a cue word that represents a whole message. Generally, the user will listen for the item they want and when they hear it, make the selection.

Group-Item Scanning: This type of scanning was developed to enhance scanning efficiency. It involves identifying a group of items and then eliminating options gradually until a final selection is made. The most common strategy is row–column scanning. Each row on a visual display is a group. The rows are each electronically highlighted until the user selects the row containing the desired item. Then individual items in the selected row are highlighted one at a time until the user stops the scanning on a specific item.

Scanning Timing and Speed: Once an appropriate scanning pattern has been determined, the speed and timing of the scanning must be personalized according to the AAC user's physical, visual, and cognitive capabilities. Most electronic devices have sufficient scanning speed options to meet individual needs.

Selection Control Techniques: This refers to how the user will indicate the item of the set they wish to select. It is often dictated by their motor control capabilities.

Positive Scanning (also known as automatic scanning): The movement of the indicator in this type of scanning is automatic and continuous according to a preset pattern. The user generally will activate a switch to begin the scanning and then activate the switch again to make the selection. This type of scanning is useful for people who are able to activate a switch accurately but who have difficulty sustaining activation or releasing a switch.

Inverse Scanning (also known as directed scanning): The indicator begins to move when the AAC user activates (holds down) the switch. As long as the switch is activated, the indicator continues to move through the preset scanning pattern. The selection is made when the user RELEASES the switch. This type of scanning is useful for people who have difficulty activating switches but who can sustain an activation once it occurs and can release the switch accurately.

Step Scanning: In this type of scanning the indicator moves through the preset scanning pattern one item at a time with each activation of the switch. In other words, there is a one-to-one correspondence between cursor movement and switch activation. In order to select a specific item, the AAC user simply stops activating the switch for an extended period of time or activates a second switch that indicates selection of the item. Step Scanning is often used by individuals who have severe motor control or cognitive restrictions or who are just beginning to learn to operate electronic scanners. Because this type of scanning requires frequent and repeated switch activation, it can be fatiguing.

Reference:

Beukelman, D., & Mirenda, P. (1998). Augmentative and Alternative Communication: Management of Severe Communication Disorders in Children and Adults (3rd ed.). Maryland: Paul H. Brookes Publishing Co.

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