

Supplemental Material S3. Focus group slides: A copy of the slides shared with focus group participants.

CVI and AAC Focus Group



Jamie Boster, Kate Brown, Julie Potts, &
Kevin Pitt

Overview of AAC

- Unaided Strategies
 - Gestures, Body Movements, Facial Expression
- Aided Strategies
 - Low Tech
 - Paper Communication Boards, Picture Exchange
 - High Tech
 - Speech Generating Devices

AAC and CVI

- AAC is highly visual
 - Visual scenes (photographs)
 - Grid Displays (array of icons)
- Need modifications to support access
- How can we better support children with CVI who use AAC?

CVI

A neurological form of visual impairment caused by “damage or atypical structures in the visual pathways and/or visual processing centers of the brain” (Roman Lantzy, 2018)

CVI Characteristics

- Color Preferences
- Need for Movement
- Visual Latency
- Visual Field preferences
- Difficulty with visual complexity
- Attraction to light
- Difficulty with distance viewing
- Atypical visual reflexes
- Difficulty with visual novelty
- Difficulty with visually guided reach

Direct & Indirect Selection

- Direct Selection
 - Selection with an individual's body part
 - Hands/fingers, feet/toes, eyes
- Indirect Selection
 - Selection via a device such as a switch/button
 - Individual activates a switch to control the device

Alternative Access

- Children with CVI who use AAC often have multiple disabilities including physical disabilities
 - Impaired Auditory system and cognition
- Eye Gaze as a Direct Selection Option
 - Child selects item with the gaze of their eyes
 - Reduces cognitive load from other access methods such as switch scanning

Visual Supports for CVI

- Range of supports but limited research or commentary on their design
- Please consider the pros and cons of the following supports

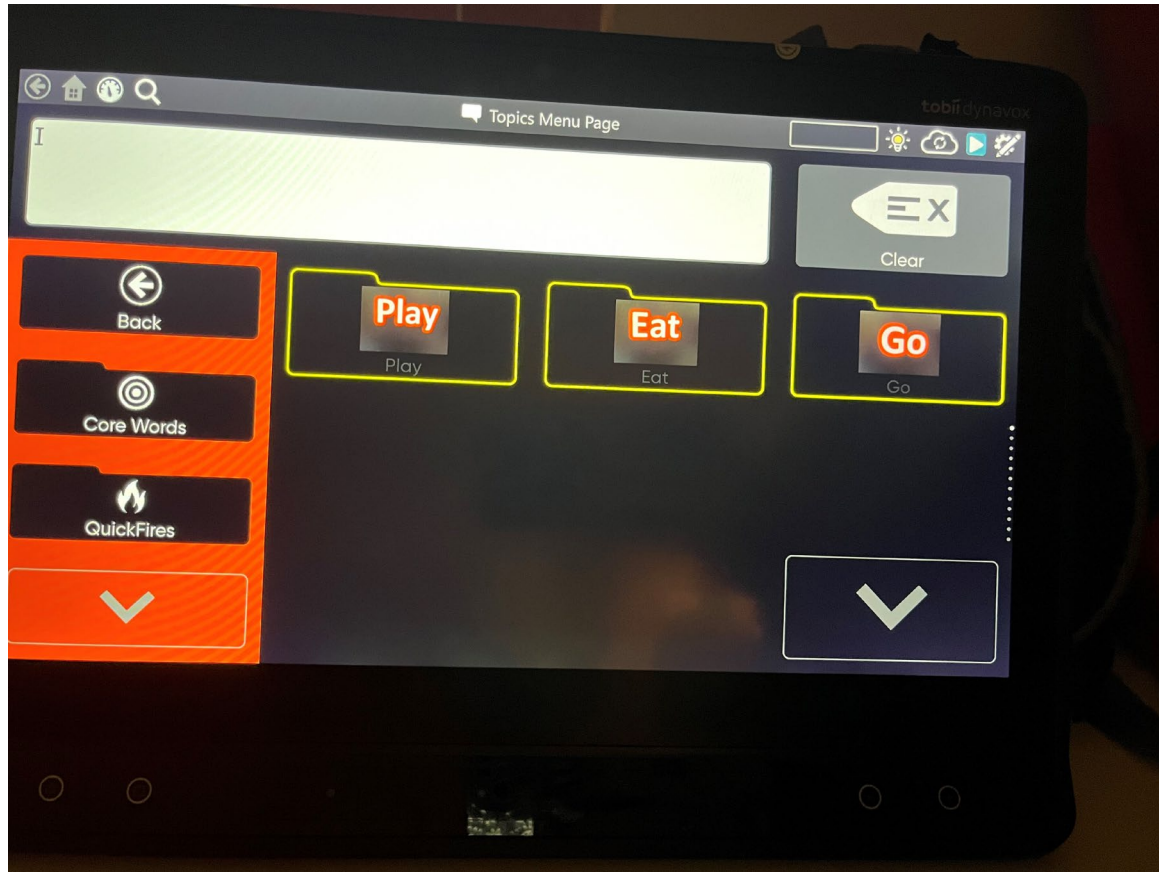
Roman Word Bubbling

- Intended to reduce complexity
- Emphasizing the shape of entire word

AAC and
Cortical Visual
Impairment

Helpful?

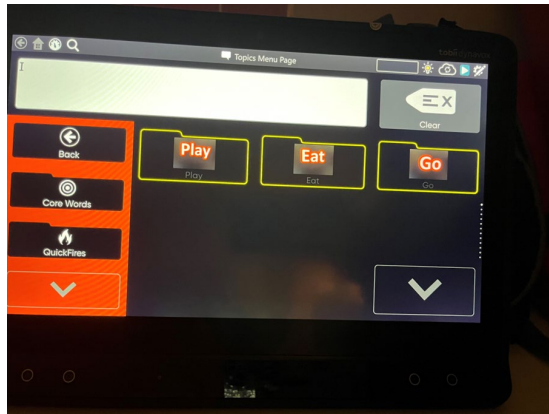
Word Bubbling



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.™

Roman Word Bubbling

- Pros of this approach?
- Cons of this approach?



Helpful?

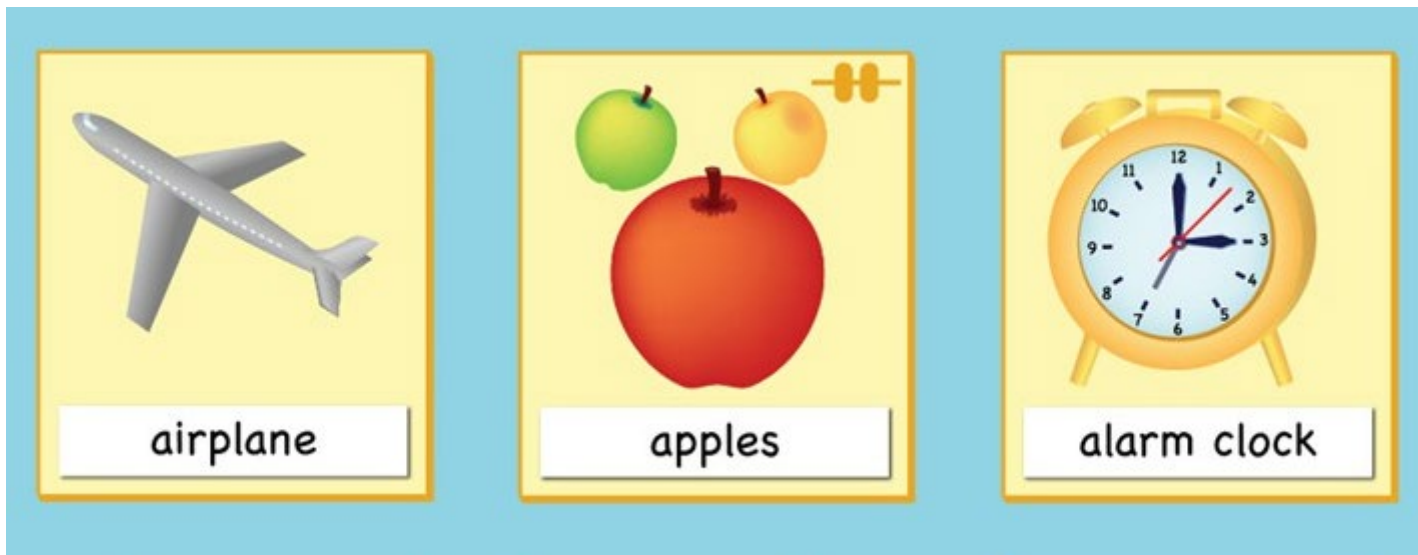
Symbol Type

- Photographs



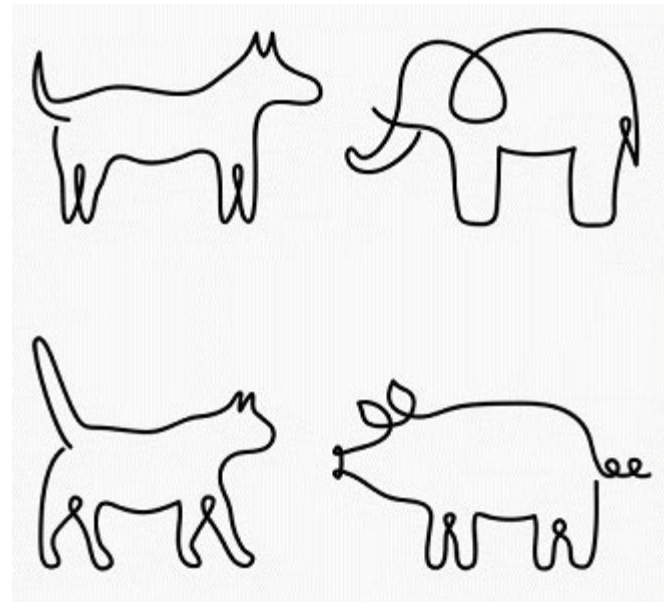
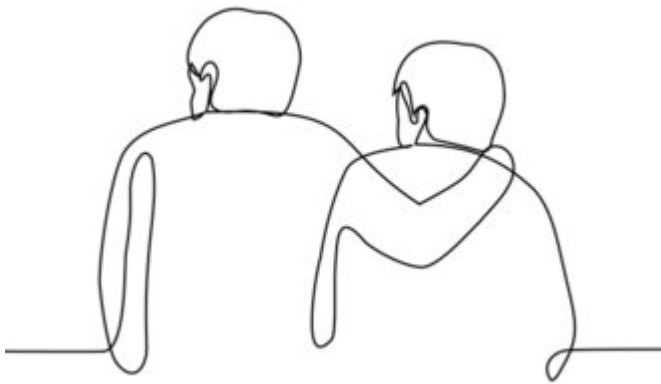
Symbol Type

- Traditional Symbols



Symbol Type

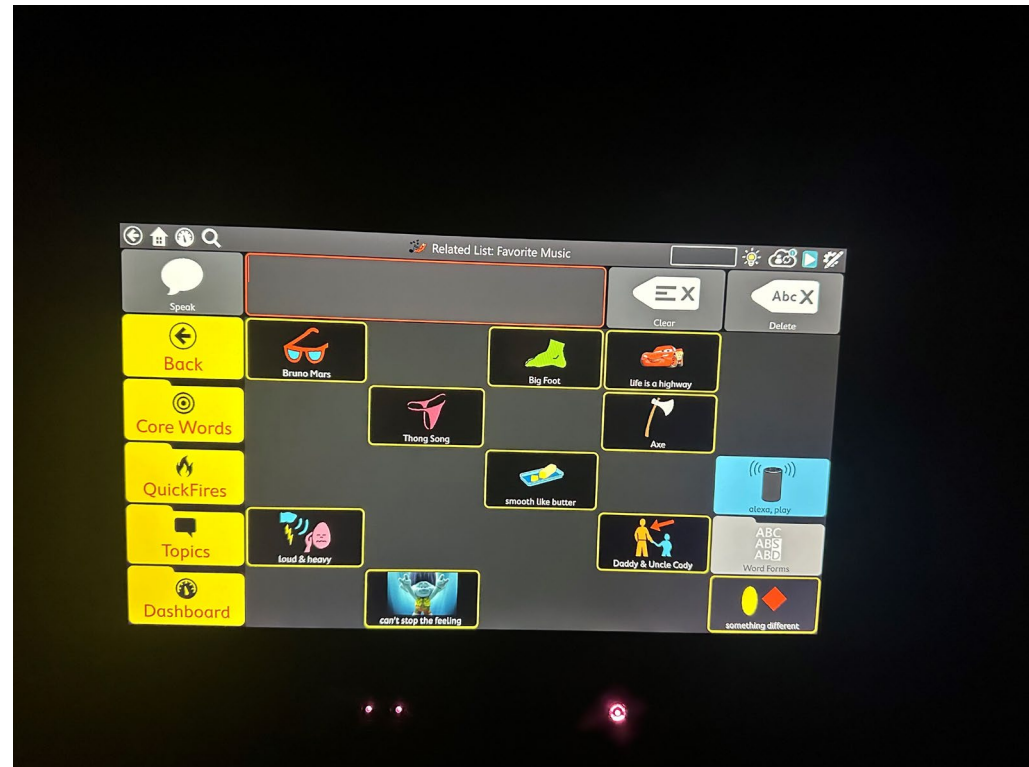
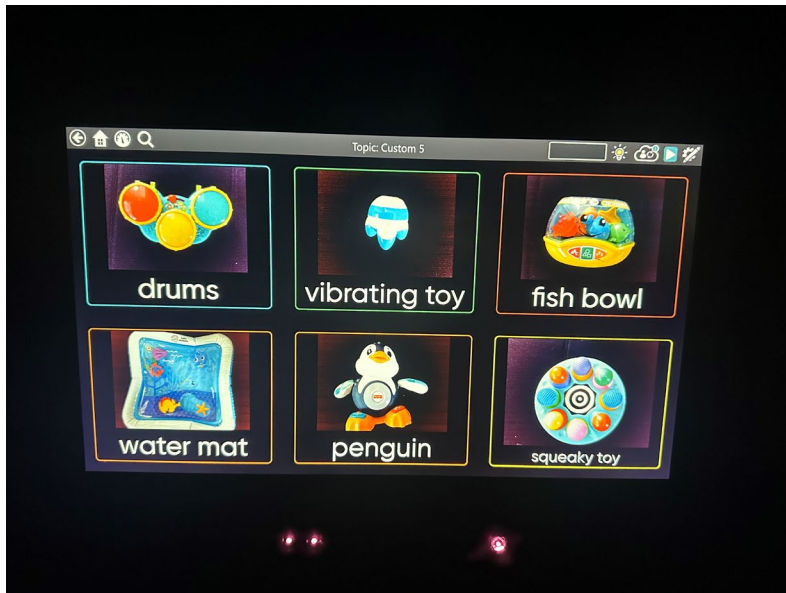
- Line Drawings (Symbol Styx)



Symbol Type

- Pros?
- Cons?
- What symbol type might be best?
- Important aspects of the symbol?
 - Colors, salient features, etc.?

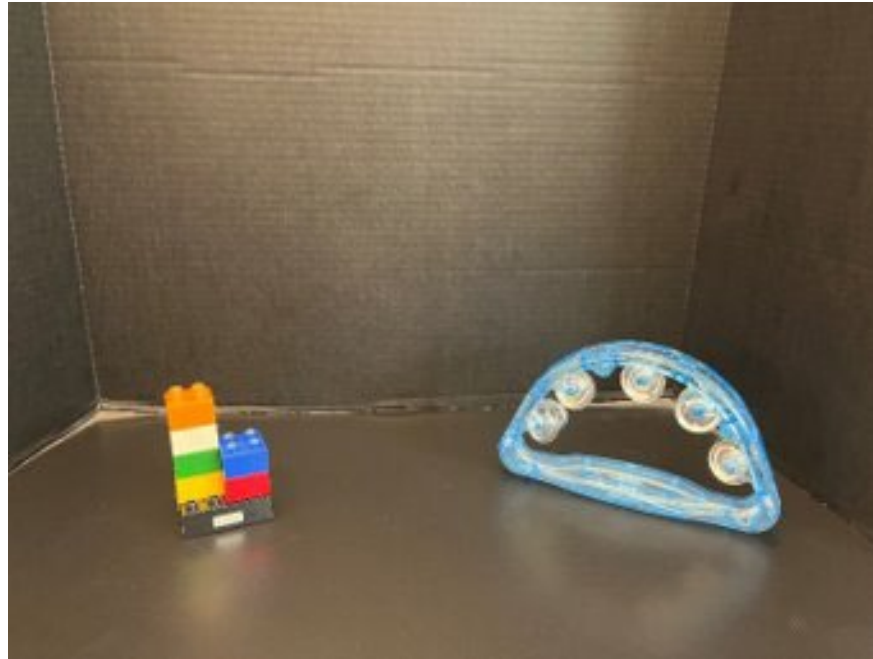
Grid Size



Grid Size

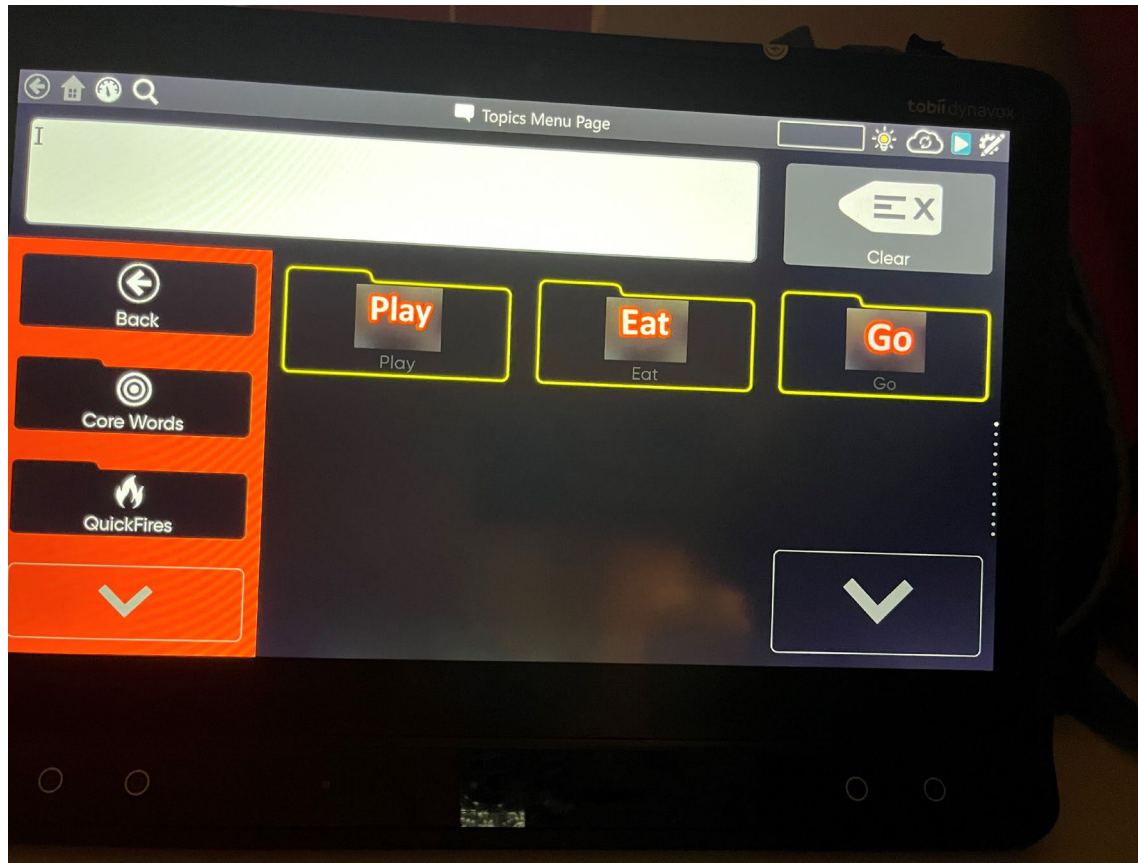
- Smaller grid size
 - Pros
 - Cons
 - Larger grid size
 - Pros
 - Cons
 - Size considerations for CVI?
-

Black Background

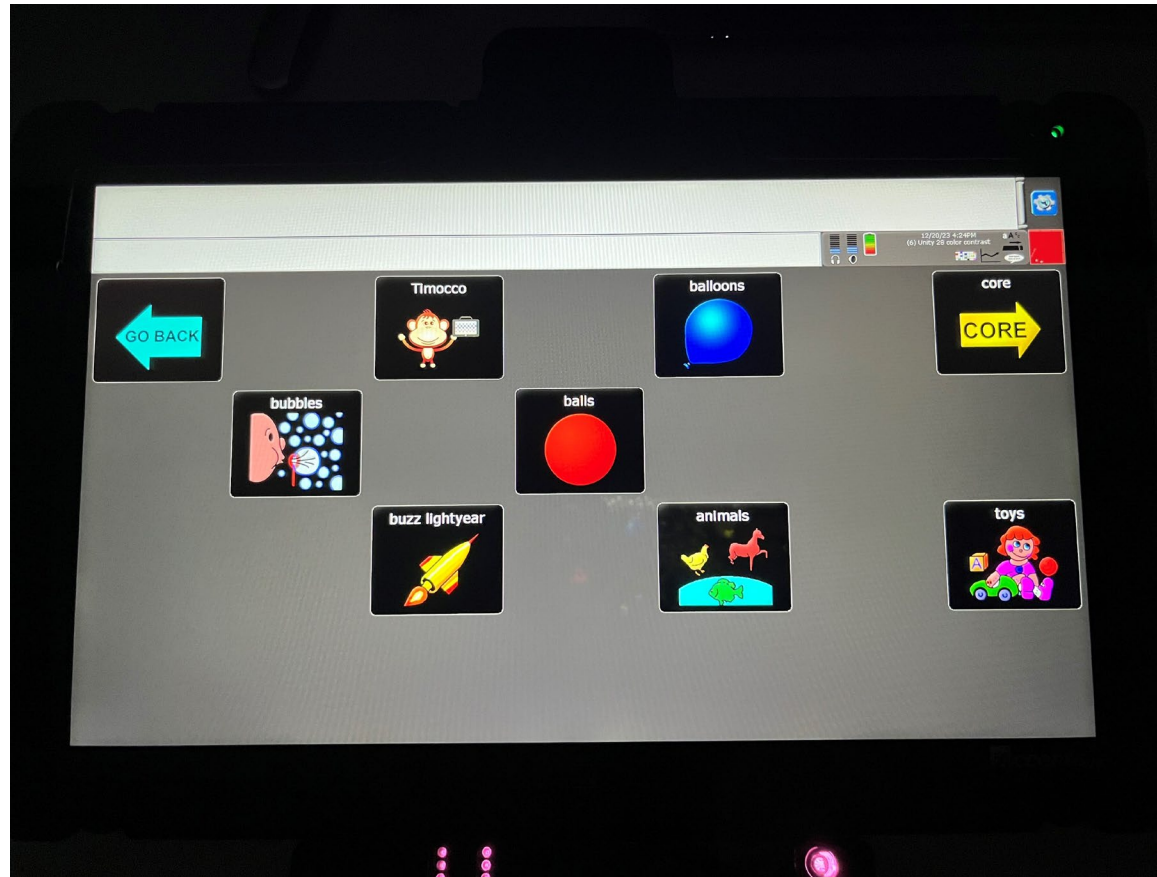


NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.™

Black Background



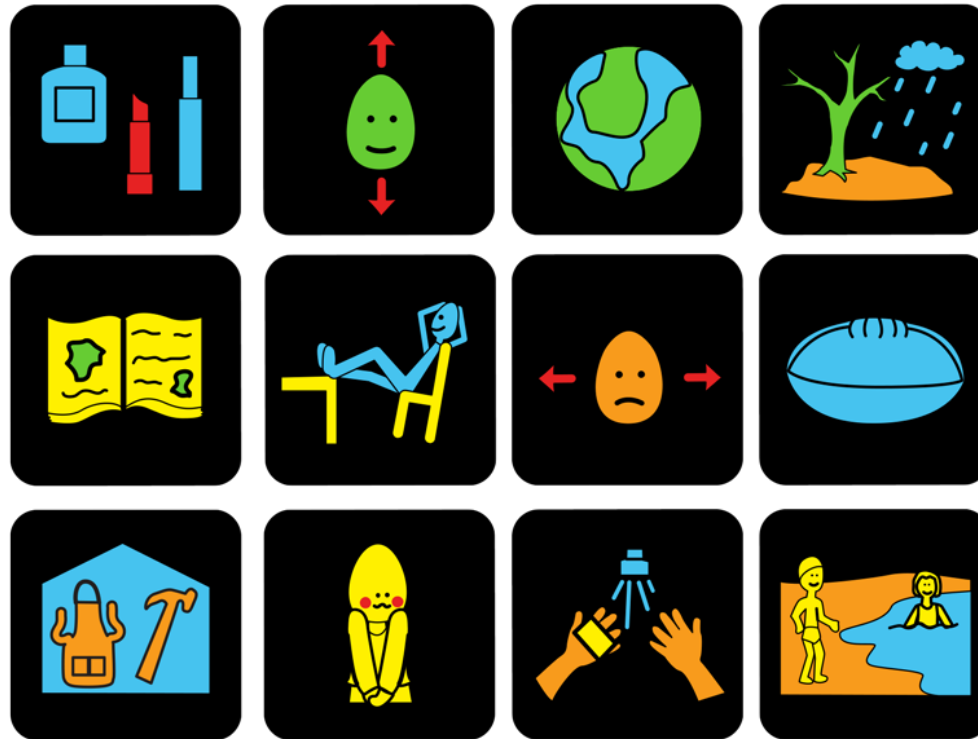
Grey Background with Black Buttons



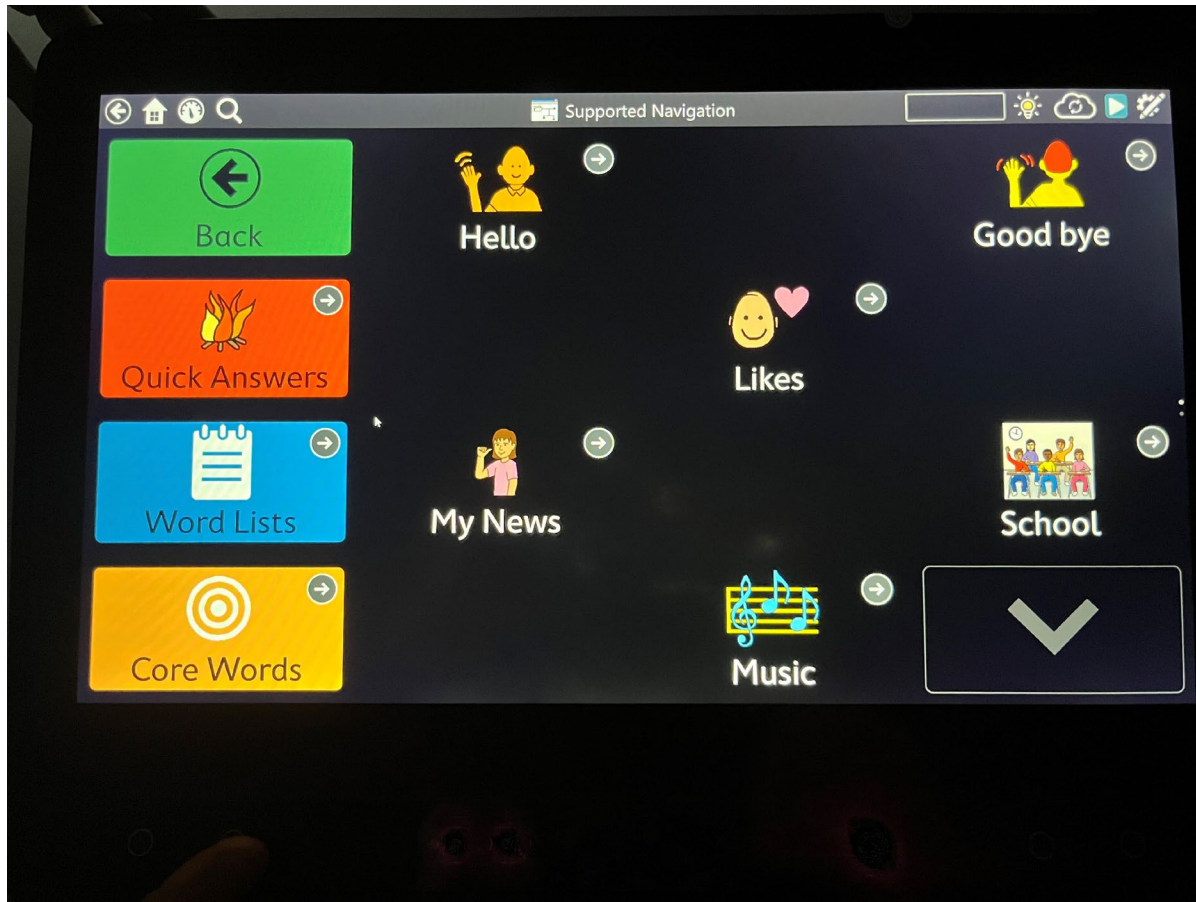
Black Background

- Matte Screens and mirroring effect?
 - Is a black background effective?
 - Empty space leaves room for distraction
- Black buttons versus colored/grey backgrounds?

High Contrast Symbols

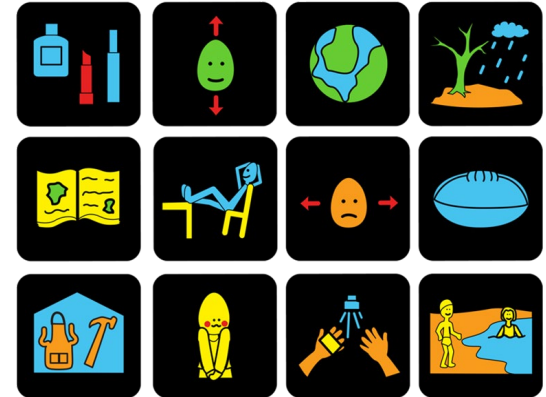


High Contrast Symbols

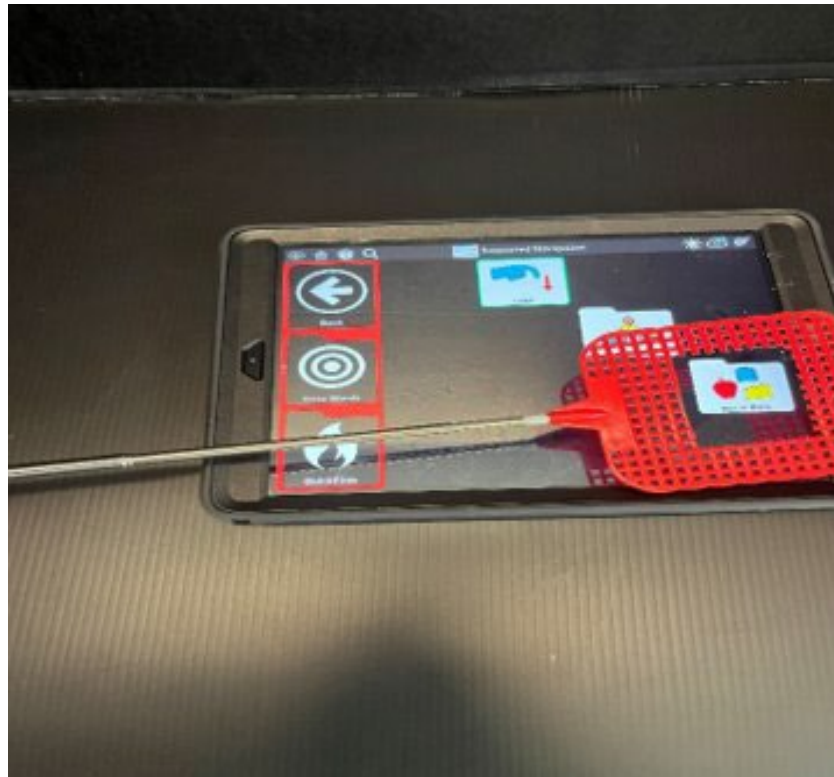


High Contrast Symbols

- Pros?
- Cons?
- Complexity of these symbols?
 - Thoughts about design of individual symbols
- Abstract nature of these symbols?
 - Feelings for example



Outlining in Color

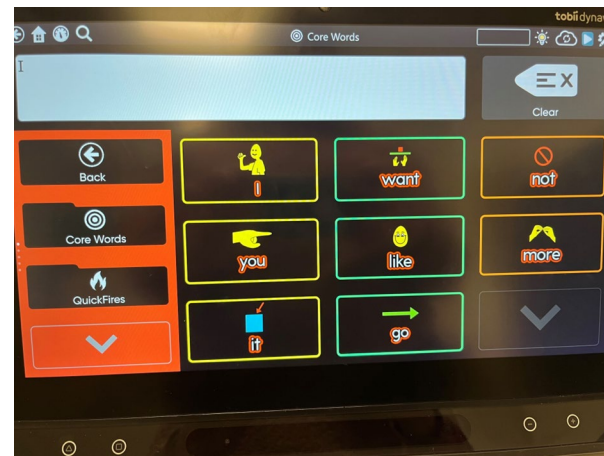


Outlining in Color



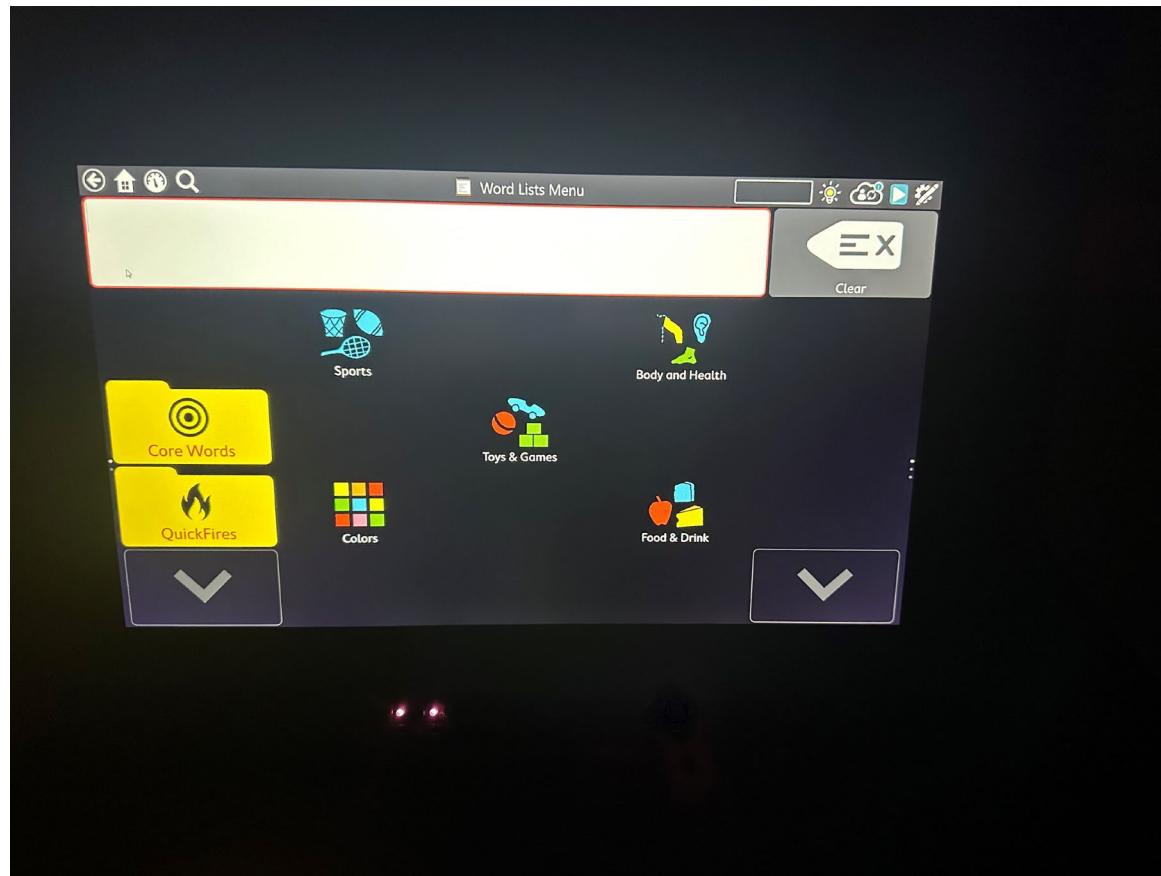
Outlining in Color

- Pros?
- Cons?



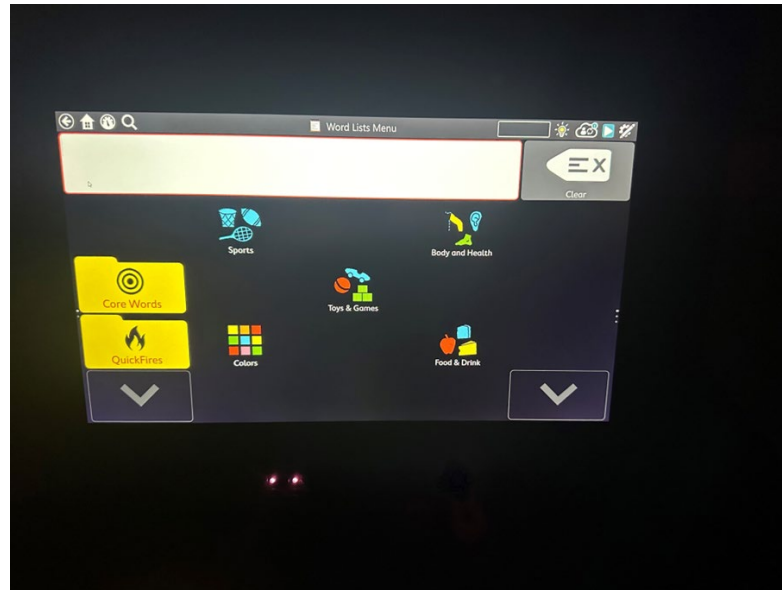
- Thoughts about adding colored borders?
- Can too many colors be too complex?

Without Outline



No Outline

- Pros?
- Cons?

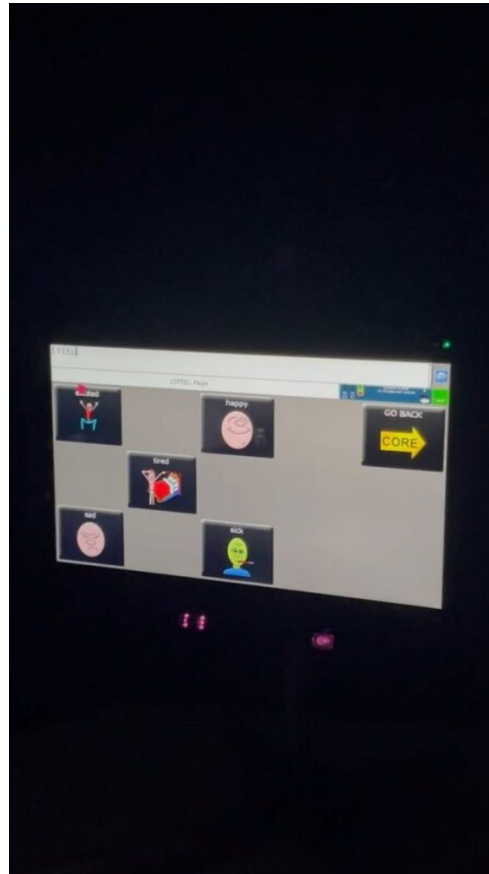


- Additional thoughts about outlining?

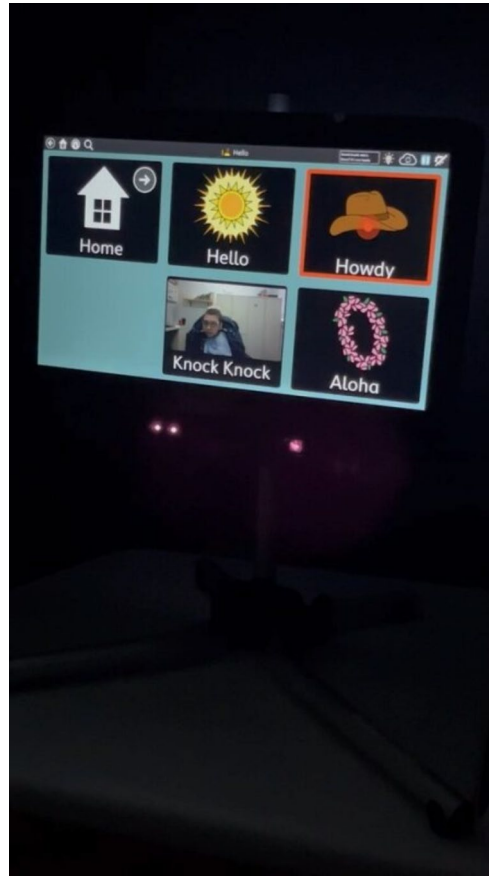
Visual Feedback

- Visual supports such as cursors and highlighting are used in eye gaze displays
- Think about the pros and cons of each of these feedback methods

Cursors



Cursor and Highlighting



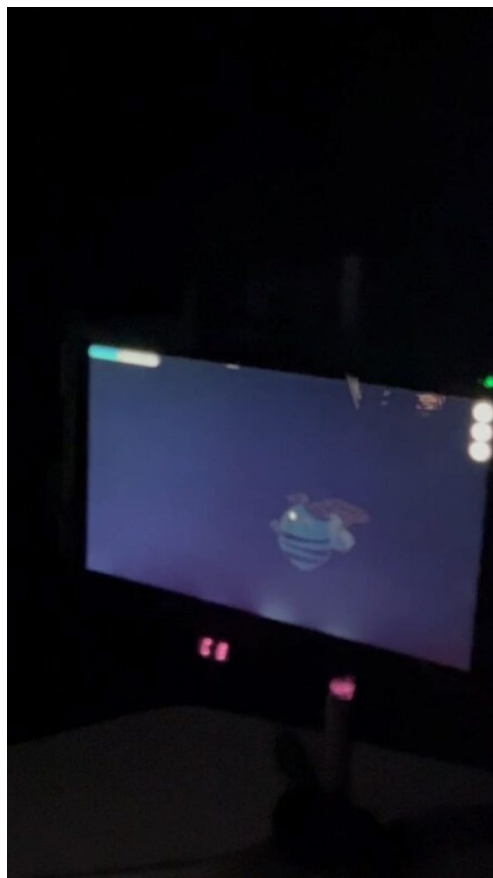
Feedback

- Pros and Cons of:
 - Cursors
 - Highlighting
 - Combination of Cursor & Highlighting
 - Thoughts about movement on the screen?
 - Distracting?
 - Color preferences for cursors or highlight?
 - Favorite colors? How to choose colors?
-

Eye Gaze Games

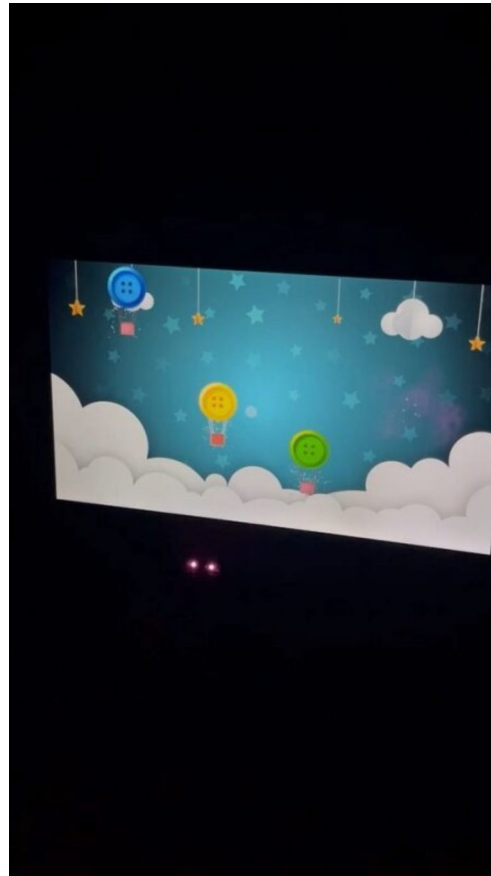
- Use simple games to help users gain skills in using eye gaze as a selection method
- Consider the pros and cons of the examples provided

Eye Gaze Games



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.™

Eye Gaze Games



NATIONWIDE CHILDREN'S
When your child needs a hospital, everything matters.™

Eye Gaze Games

- Pros and Cons of Games
- Complexity of a Game
 - Need to consider this aspect?
 - Simple interfaces better?
 - Movement component in a game?
- Sound effects in Games as well?
- Can there be too much stimuli?

Additional Components to Consider

- Symbol size and how this aligns with child's skills in accessing vocabulary?
- Thoughts about eye gaze as an access method?
- Strategies given to families/caregivers to support vision?
 - Common recommendations?
 - How can these be used with AAC?

Feedback

- Can you provide TOO much?
- Balance between helpful vs. distracting?
- Highlighting functions?

Additional Accommodations

- Thoughts about Motion?
 - Feedback options
- Environmental arrangement?
 - Dark Rooms
 - Limited distractions

Questions

- What needs to be considered in AAC interfaces?
- What do SLPs need to watch for when introducing an AAC interface to a child with CVI?
- Final thoughts to share?