Feature Matching

Feature Matching

- Feature-matching in AAC assessment is an important component when identifying the most effective and efficient AAC system for AAC users
- Originally defined by Shane & Costello (1994), feature matching is a systematic process in which an AAC user's strengths and needs are matched to available AAC tools and strategies
- This includes both current and future needs (Gosnell et al., 2011)

What it involves

- The AAC team, including the speech-language pathologist, make clinical decisions related to an individual's AAC system
- In the feature-matching process, information is obtained related to an individual's speech, language, fine/gross motor, and cognitive abilities as well as information related to their social, cultural, and educational needs

Features to consider during the feature matching process include the following (Locast & Marx, 2016)

- Symbol Features
- Linguistic Features
- Voice Features
- Access Features
- Display/Editing Features
- Portability/Positioning Features
- Operational Feature

Let's learn more about each of these features!

Symbol Features

- Each AAC user is going to have a different level of understanding related to symbol representation (Locast & Marx, 2016)
- A symbol can be anything that stands for or represents something else (Vanderheiden & Yoder, 1986)
- There is a wide range of aided AAC representations that can be used for communication including real objects, photographs, line drawings, or letters/words (Beukelman & Light, 2020)

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- Most importantly, there is no one specific symbol type that is a universal best fit for all AAC users (Beukelman & Light, 2020)
- Types of AAC symbols include SymbolStix, Picture Communication Symbols (PCS), Widgit, Minspeak, and Blissymbols

Linguistic Features

- There are many AAC systems available for AAC users that are organized and present language in different ways – some are simple, and some are more complex (Locast & Marx, 2016)
- Linguistic features to consider include the language complexity, the symbol organization, and the display settings (Locast & Marx, 2016)
- Symbol organization on an AAC system affects the individual's ability to communicate effectively and efficiently (ASHA, n.d.)
- Organization may change over time based on the user's changes in skills, abilities, and contexts (Beukelman & Light, 2020)
- Types of organization include (Beukelman & Light, 2020):
    - Activity Grid Displays – organized based on a user's day (e.g., their routine or activities)
    - Taxonomic Grid Displays – organized based on semantic categories
    - Semantic-Syntactic Grid Displays – organized based on parts of speech and syntax
    - Pragmatic Organization Dynamic Displays (PODD) – uses vocabulary organization strategies to support communication for various communicative functions
    - Chronological Grid Displays – organized by a chronological sequence of events
    - Keyboards – QWERTY, alphabetical
    - Visual scene displays (VSDs) – integrated scenes of meaningful and motivating events (Blackstone, 2004)

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Voice Features

- This is an important feature when selecting an AAC system for an AAC user as it represents the user's unique voice and allows a user to be heard and understood by others (Locast & Marx, 2016)
- When selecting the voice features for an AAC user, consider the type of voice (synthesized or digitized), consider the many different personalization options (e.g., gender, age, rate, pitch), and choose the appropriate language for the user (Locast & Marx, 2016)
- Most AAC systems offer speech output using digitized speech and synthesized speech, or a combination of both (Drager et al., 2010)
- Synthesized speech is electronically produced while digitized speech utilizes natural speech that has been recorded, stored, and reproduced (ASHA, n.d.)

Access Features

- For an AAC user, their ability to accurately and consistently access their AAC system is essential for their communicative success
- Individuals with fine motor, gross motor, and/or vision deficits may require alternate access methods
- According to ASHA (n.d.), direct selection can be done through nonelectronic or electronic means
    - Nonelectronic would be through the use of direct physical touch while electronic would be through the use of a generated movement or signal (e.g., eye gaze, head mouse)
- Direct Physical Touch:
    - Consider a user's need for a keyguard and/or a stylus and consider modifications of any touch screen settings that may benefit a user such as release time, delay time, or dwell settings
- Mouse Options:
    - Mouse options are considered electronic direct selection and are great access method options for a user who cannot access their device using a standard mouse

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- There are many types of mouse options including a head mouse or a joystick and within these choices there are features to consider such as selection method (e.g., when releasing, dwell), type of feedback (e.g., auditory, visual), and visual indicator settings

• Eye Tracking:
  - Calibration settings, such as the type of calibration point or the size of the calibration point(s) can provide a user with a much better calibration, thus more accurate and efficient access to their device
  - Modifications to the dwell selection should also be considered and include the dwell indicator (e.g., full circle, shrinking dot) and dwell time
  - Editing these features can be crucial to meet a user's needs in terms of the timing and access to their button target

• Switch Scanning:
  - There are many different types of switches available, such as a proximity switch, finger isolation switch, or a button switch, and are determined based on a user's fine/gross motor abilities
  - Features to consider include the switch pattern (e.g., linear, row-column, snake), the scan method (e.g., step-scanning, auto scanning), and the type of feedback a user receives (e.g., auditory, visual)

Display/Editing Features

• Customizing and personalizing an AAC user's system is essential for them to effectively meet their communication needs as they rely on what we program for them

• According to Locast and Marx (2016), features to consider include grid settings (e.g., size, spacing, number per page), message window features (e.g., size, show/hide symbols, font size), and visual supports (e.g., color, font, border, background)

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Portability/Positioning Features

- Portability/positioning feature consideration is a must during AAC assessment as these features can provide the user with access to their AAC systems at all times and across many different environments
- These features include the size and/or weight of the AAC system, mounting availability, and durability of the AAC system (Locast & Marx, 2016)

Operational Features

- These are features related to the operation of an AAC system and include battery power and charging, funding options, device warranty, and system support (e.g., technical support, trainings)
- With Forbes AAC, the XTNDR battery offers users with up to 16 hours of continuous run time and we offer a five-year worry-free warranty for the ProSlate™ devices!

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