SmartPredict: AAC app that integrates partner knowledge into word prediction

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Challenge: Using an AAC device for spontaneous conversation is very slow.

Goal: To develop a technology-based vocabulary supplementation strategy that increases the speed of message formulation and partner engagement by relying on the word knowledge of a partner during conversation.

Research Question: Can we develop a novel dual-app AAC system that engages a communication partner and enables an AAC user to produce efficient messages while maintaining control over expression?

Improvments for Smart Predict

- Use the COCA language model to predict trigrams.
- Evaluate with users who rely on switch scanning.
- Handle near-miss predictions and the creation of story prediction databases from text documents.
- Add the option to display the partner’s prediction in the word prediction list.
- Display the UI for the AAC user on the partner’s app.
  - This provides a lot of information to the partner during scanning.
  - Words in the word prediction list that are not chosen.
  - Letters during scanning that are passed up.

- The dual app AAC system shows a trend toward efficient message production and improved satisfaction by user.
- A more sophisticated language model is needed.
- Motor access is different for every user; touch tablet not ideal for people with CP.
- Added a stylus or a customized keyguard.
- Literacy is a challenge for many people with developmental disabilities.
- The initial app had no numbers option.

Evaluation Probes

During conversations about a shared experience:

1. Are differences observed in level of partner engagement with and without the Smart Predict app?
2. Are differences observed in AAC user message efficiency with and without the Smart Predict app?
3. Are differences observed in AAC user & partner workload satisfaction with and without the Smart Predict app?

Alpha Evaluation

- Pictures are described twice:
  - Typing with standard word prediction only (Construct app only)
  - Addition of partner-assisted word prediction (Partner app)
- All conditions were counterbalanced.

- Subjects:
  - Five literate adults with spastic cerebral palsy and their personal assistants.
  - 3 use direct selection.
  - 2 use scanning.

- Task:
  - Describe 3 pictures:
    - Western Aphasia Battery Picture
    - BRIEF Cookie Theft Picture
    - Kentucky Aphasia Yot Light Goals Picture

- Data visualization

SmartPredict Tech Transfer Goal

-SmartPredict vocabulary supplementation should appear in every device as we harness contextual information and vocabulary within new technologies for people who rely on SGDs.

-Every SGD should have the capability of adding vocabulary options from a knowledgeable partner into the word prediction function.

The person with CCN will always have the choice to select or ignore the vocabulary so autonomy and independence are maintained.

-An accompanying device should provide additional vocabulary into the lexicon of every SGD.

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