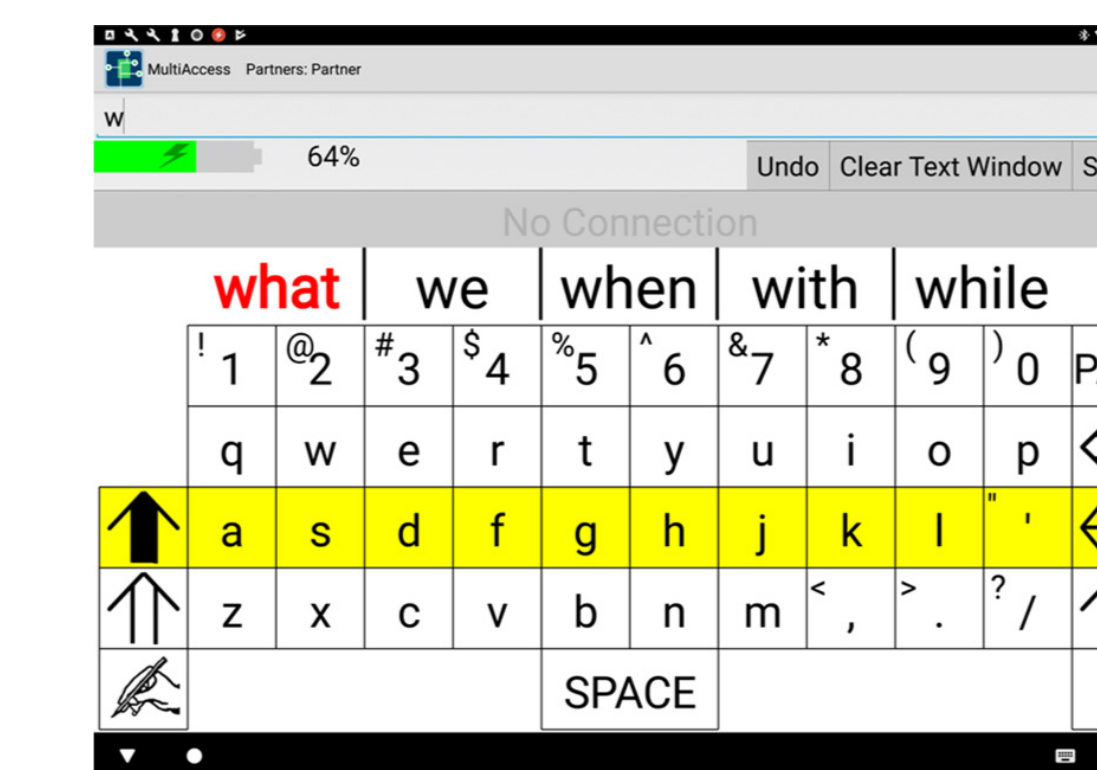


Smart Predict

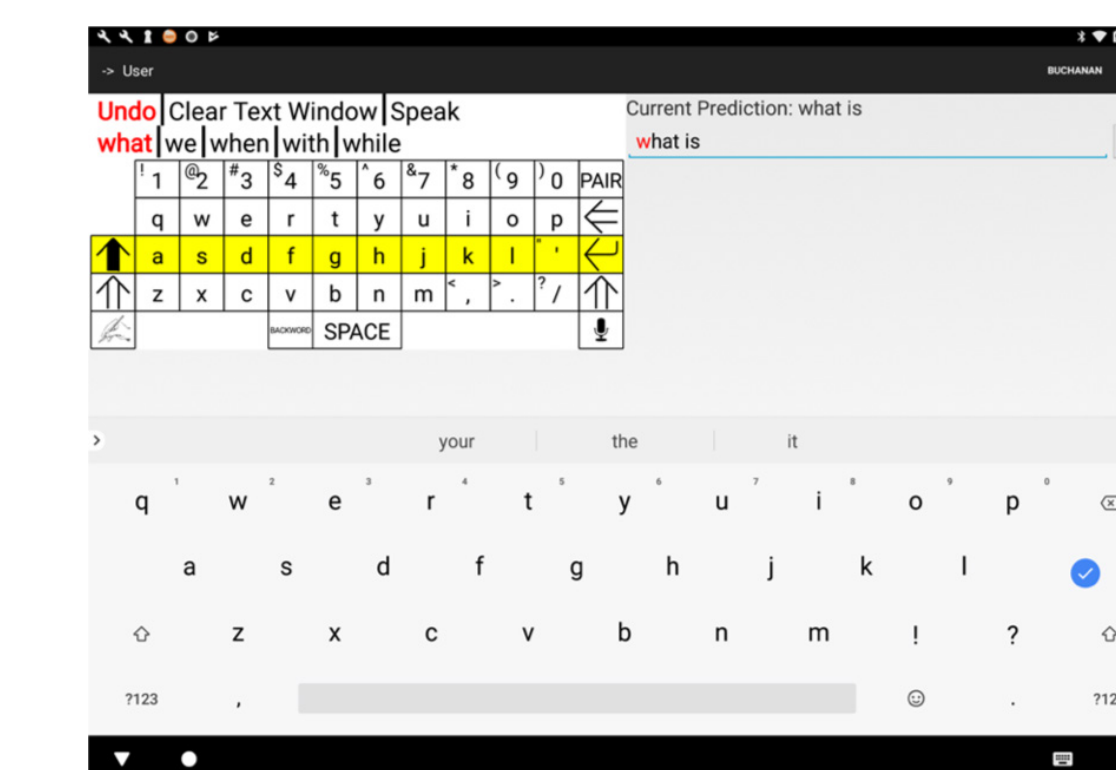


Smart Predict is a novel, dual-app AAC system designed to increase efficiency and effectiveness of message production, reduce violations of conversational rules during multi-modality co-construction, and increase partner engagement. With this system,

- Partner provides just-in-time suggestions of contextually relevant vocabulary which are sent to the word prediction line of the app.
- The person using AAC can choose to ignore or select words, thereby maintaining autonomy.



AAC Interface



Partner Interface

Experiment I: Partner engagement

Research Question: Does the presence of Smart Predict + partner app during structured conversation improve conversational effectiveness by reducing the amount of disengagement observed in communication partners?

Methods

Design: A single case experimental research design with alternating treatments was implemented. Five data collection sessions were conducted, where two treatment conditions were counterbalanced from presentation order across sessions.

Participants: Three literate adults with complex communication needs (CCN), age 18-80, with English as primary language, utilizing single switch scanning, and three literate, unfamiliar conversation partners with no disabilities.

- All participants received training to mastery with the Smart Predict app.
- Each Dyad viewed a 2.25 minute movie trailer, then engaged in a 15 minute conversation.
- A visual distraction (muted video on nearby laptop) was present.

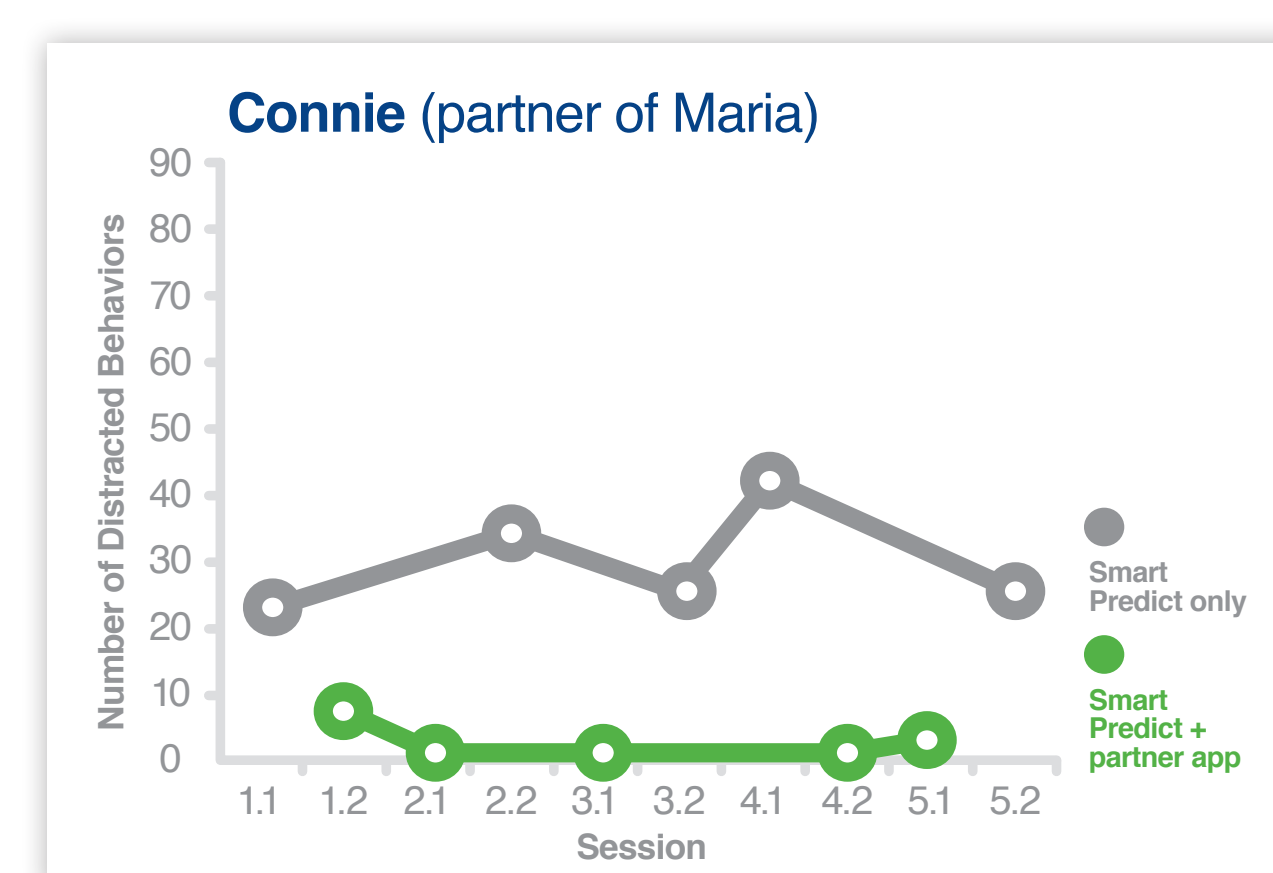
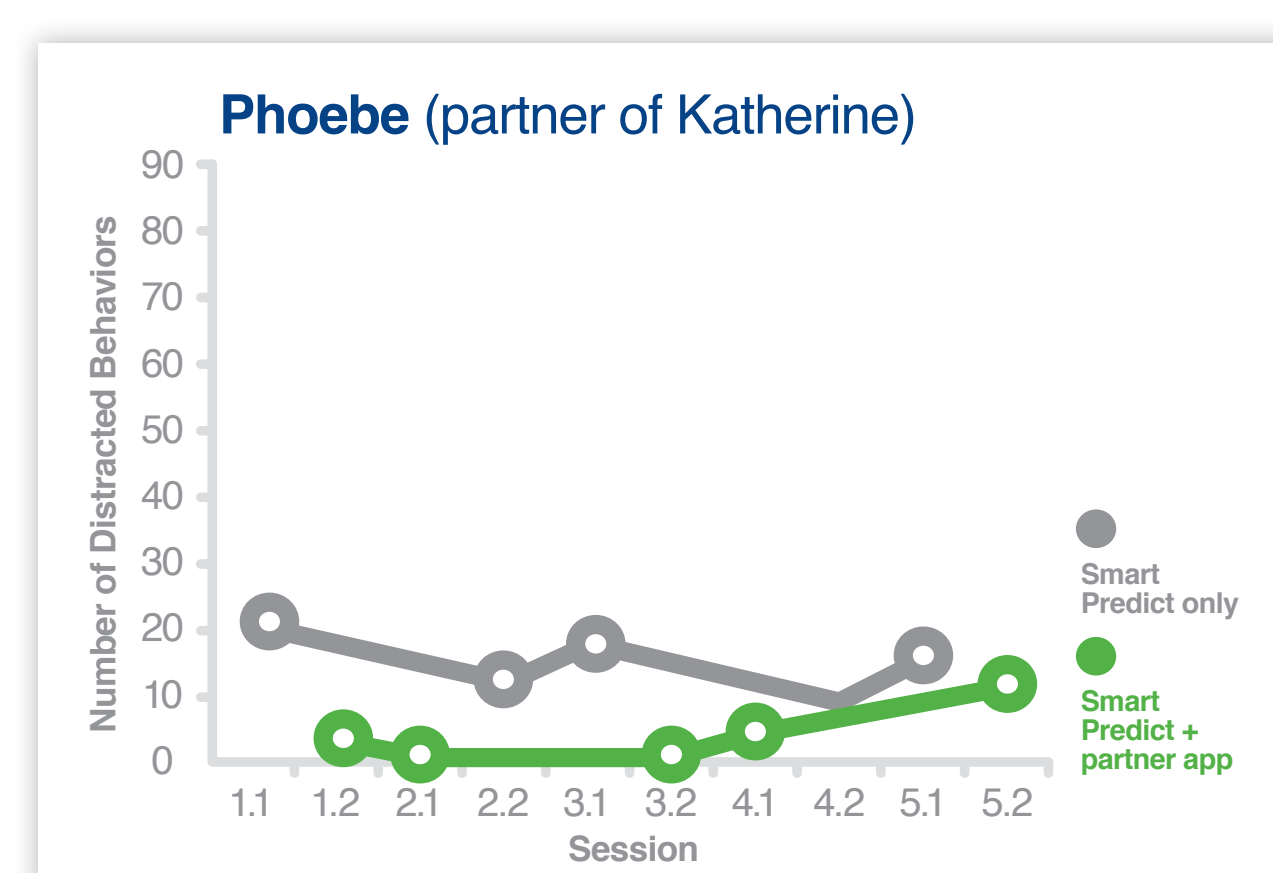
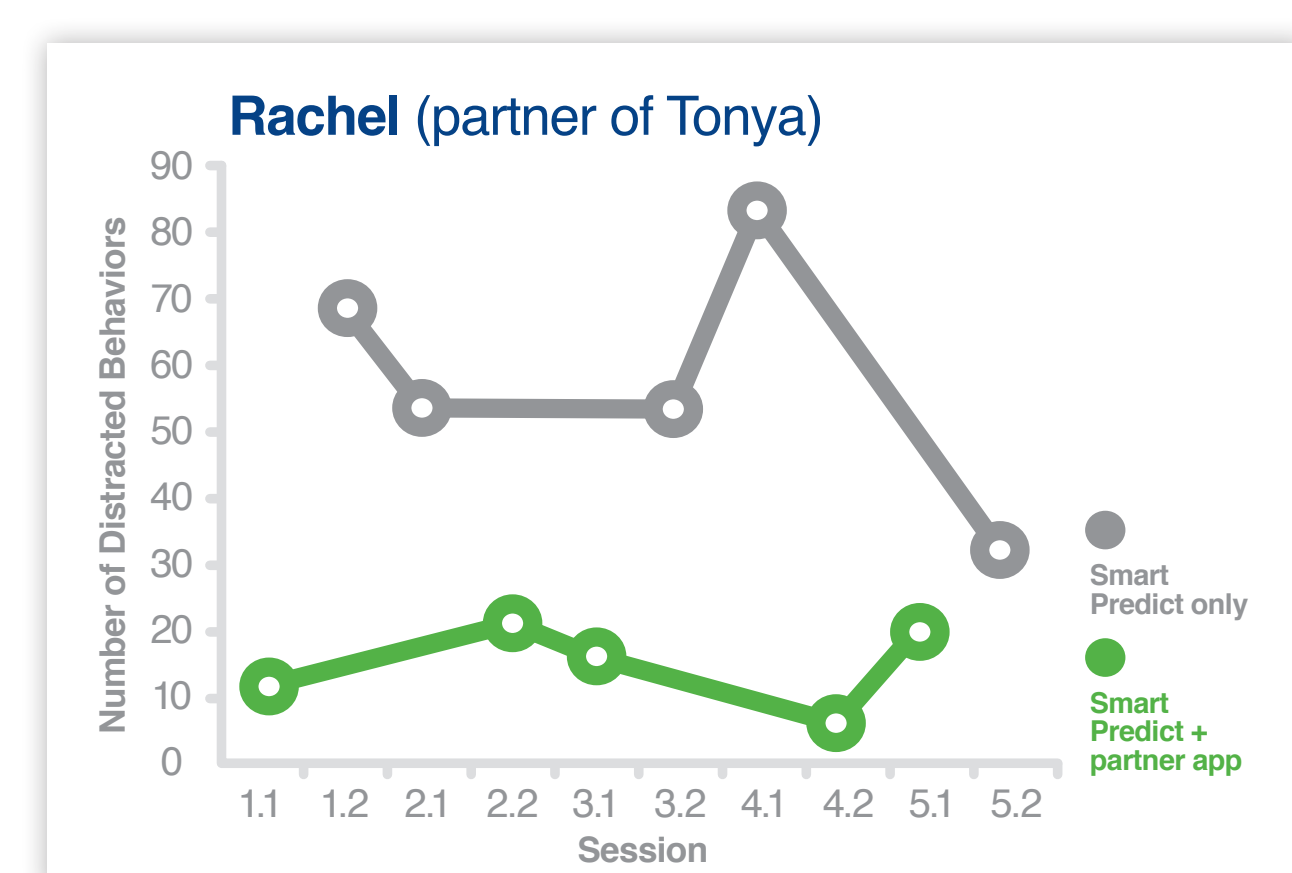
Condition A: Smart Predict only

- Person using AAC typed with Smart Predict app
- Partner conversed with speech only

Condition B: Smart Predict + partner app

- Person using AAC typed with Smart Predict app
- Partner provided supplemental vocabulary with the Smart Predict partner app in addition to talking

Results:



Partner disengagement, as measured by off-task behaviors observed, was greater in the Smart Predict only condition as compared to the Smart Predict + partner app for all participants with all movie trailers during all data collection sessions. The supplemental vocabulary condition showed consistently increased partner engagement when compared to the AAC typing alone condition.

Conclusions

- Under controlled conditions, Smart Predict increases partner engagement during conversations, increases message efficiency, and reduces effort.
- The contribution of supplemental vocabulary by knowledgeable partners is important to message generation.
- The concept of Smart Predict should be transferred to AAC technology, and should be considered as a feature for all speech generation devices.

Experiment II: Message efficiency

Research Question: Does the presence of Smart Predict + partner app during structured interviews improve efficiency of message production?

Methods

Design: A single case experimental research design with alternating treatments was implemented. Five to six data collection sessions were conducted, where two treatment conditions were counterbalanced from presentation order across sessions.

Participants: Three literate adults with CCN, age 18-80, with English as primary language, utilizing single switch scanning.

- All participants received training to mastery with the Smart Predict app.
- Participants viewed a 2.25 minute movie trailer, then participated in a conversation with RA1 who had identified key vocabulary that did not appear in standard word prediction.
- Participants then responded to interview questions posed by RA2.

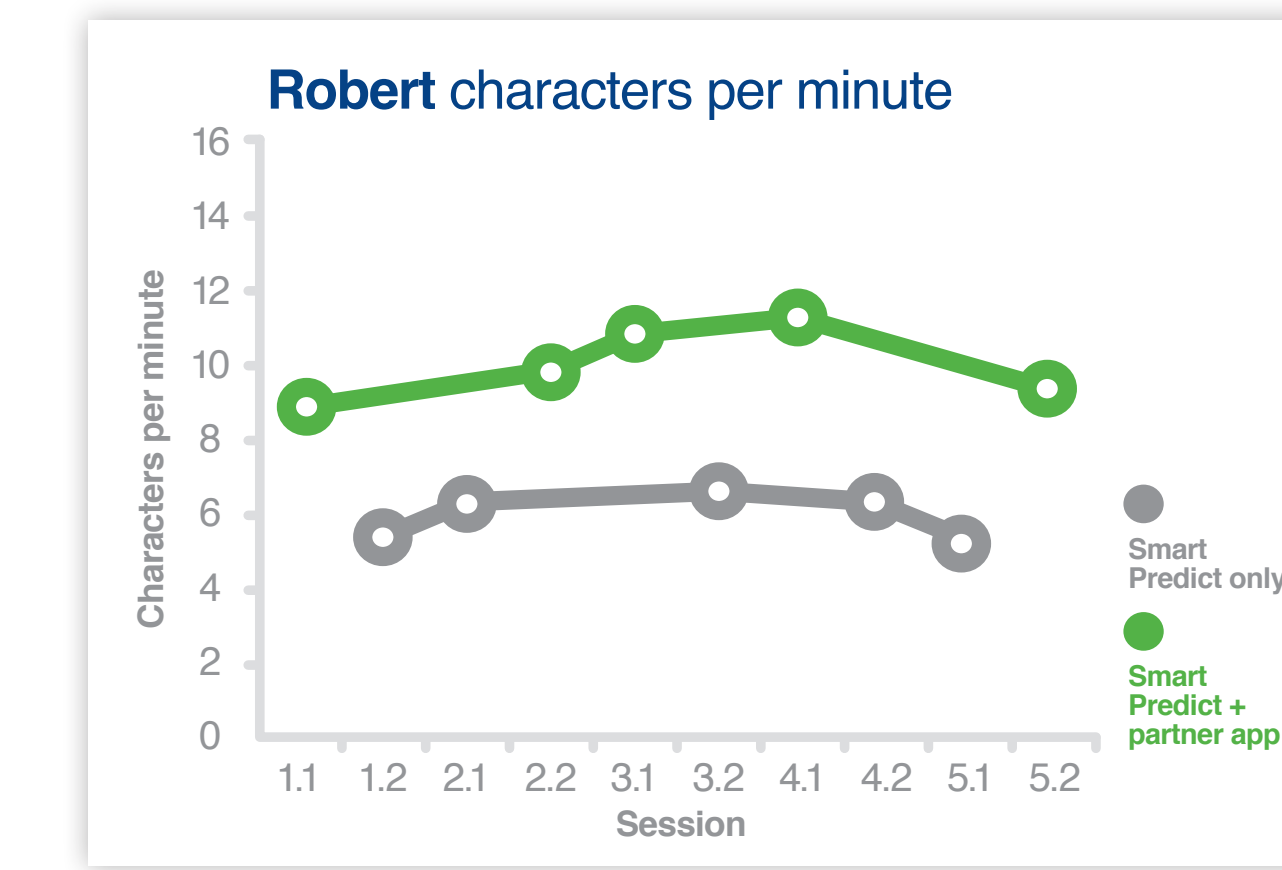
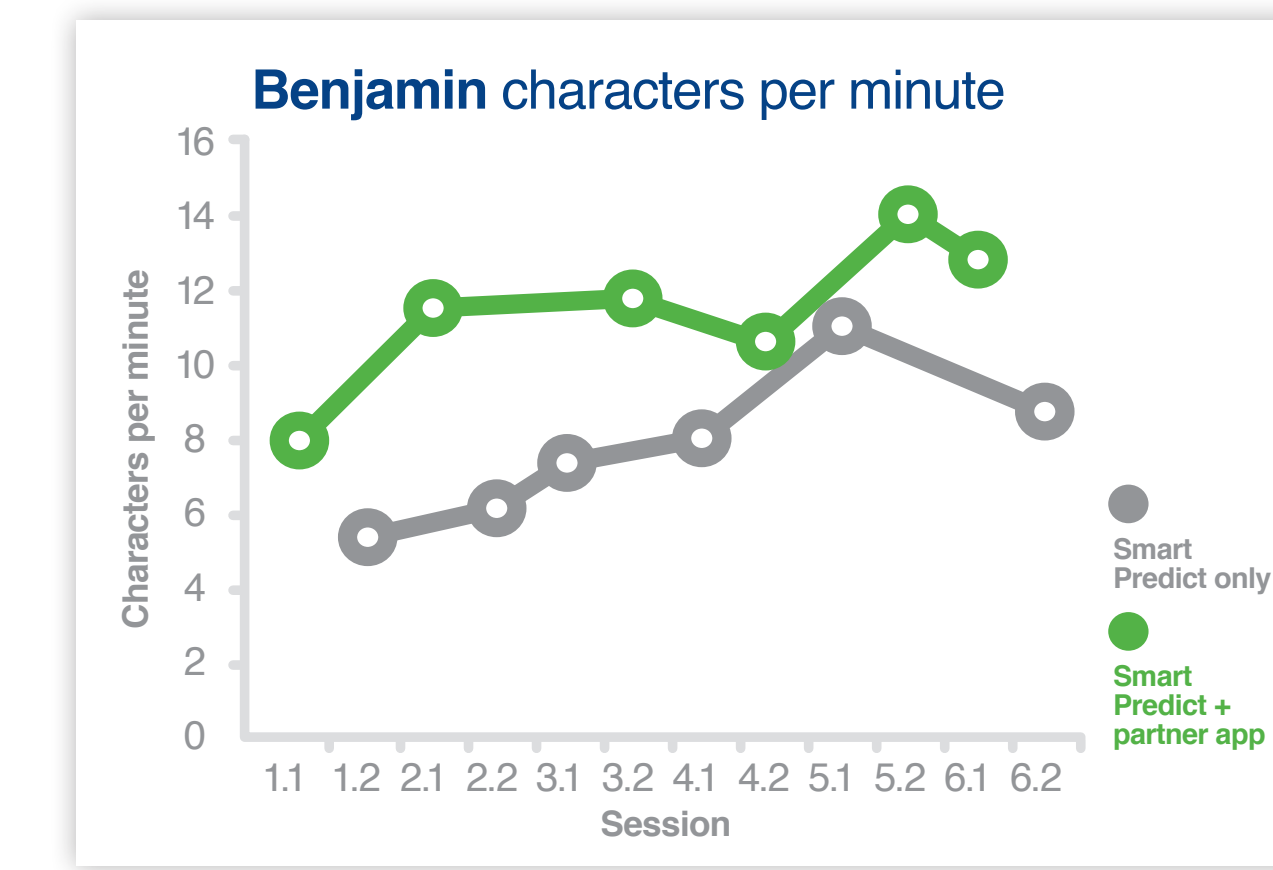
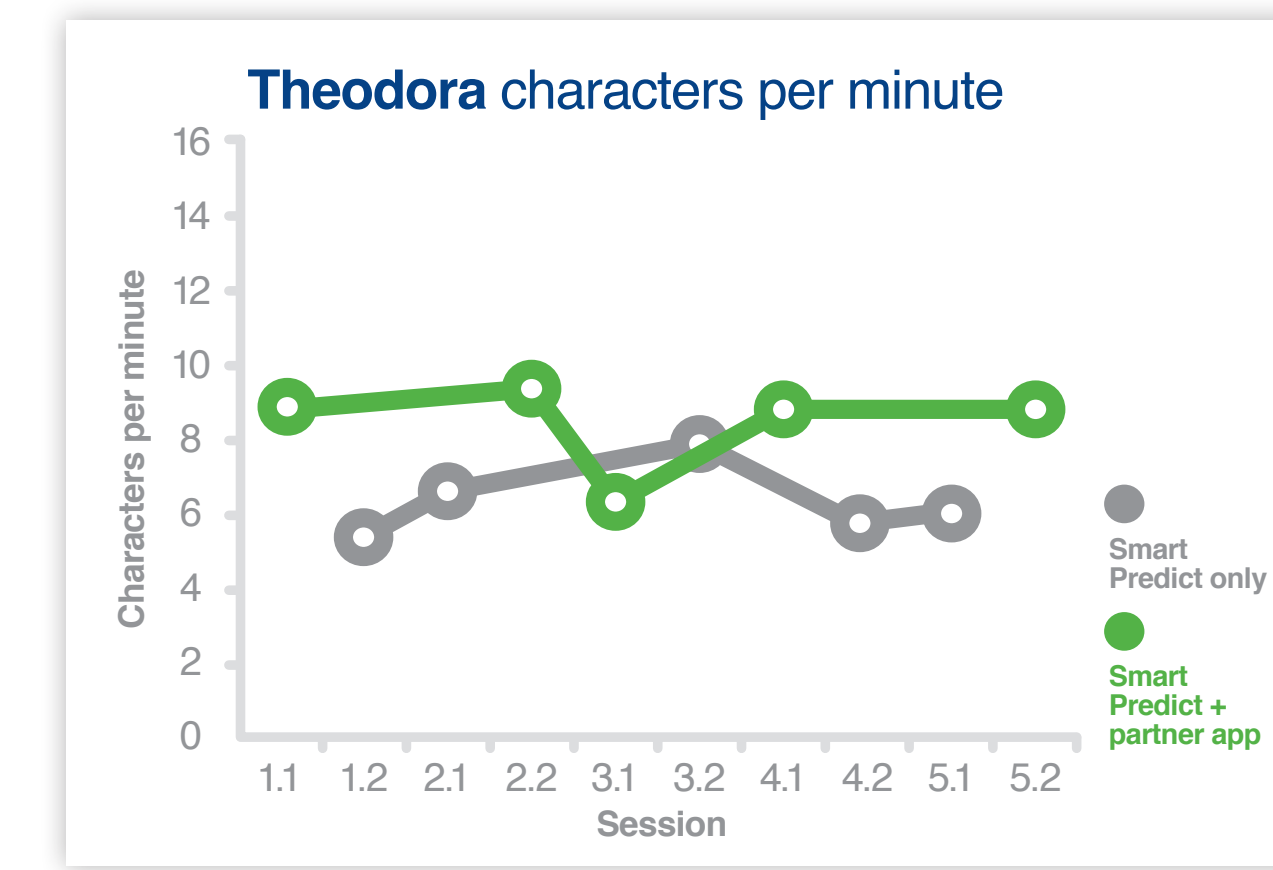
Condition A: Smart Predict only

- Person using AAC typed with Smart Predict app

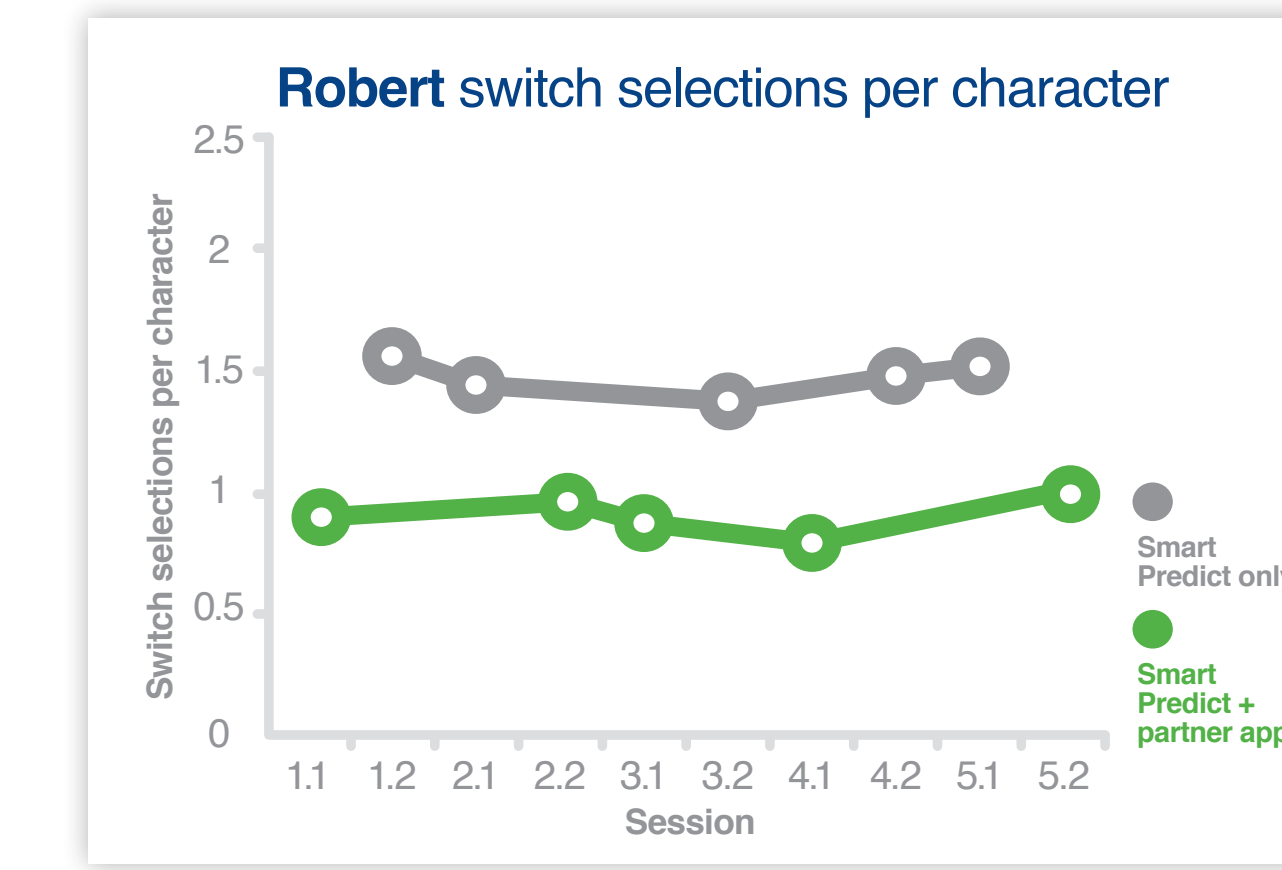
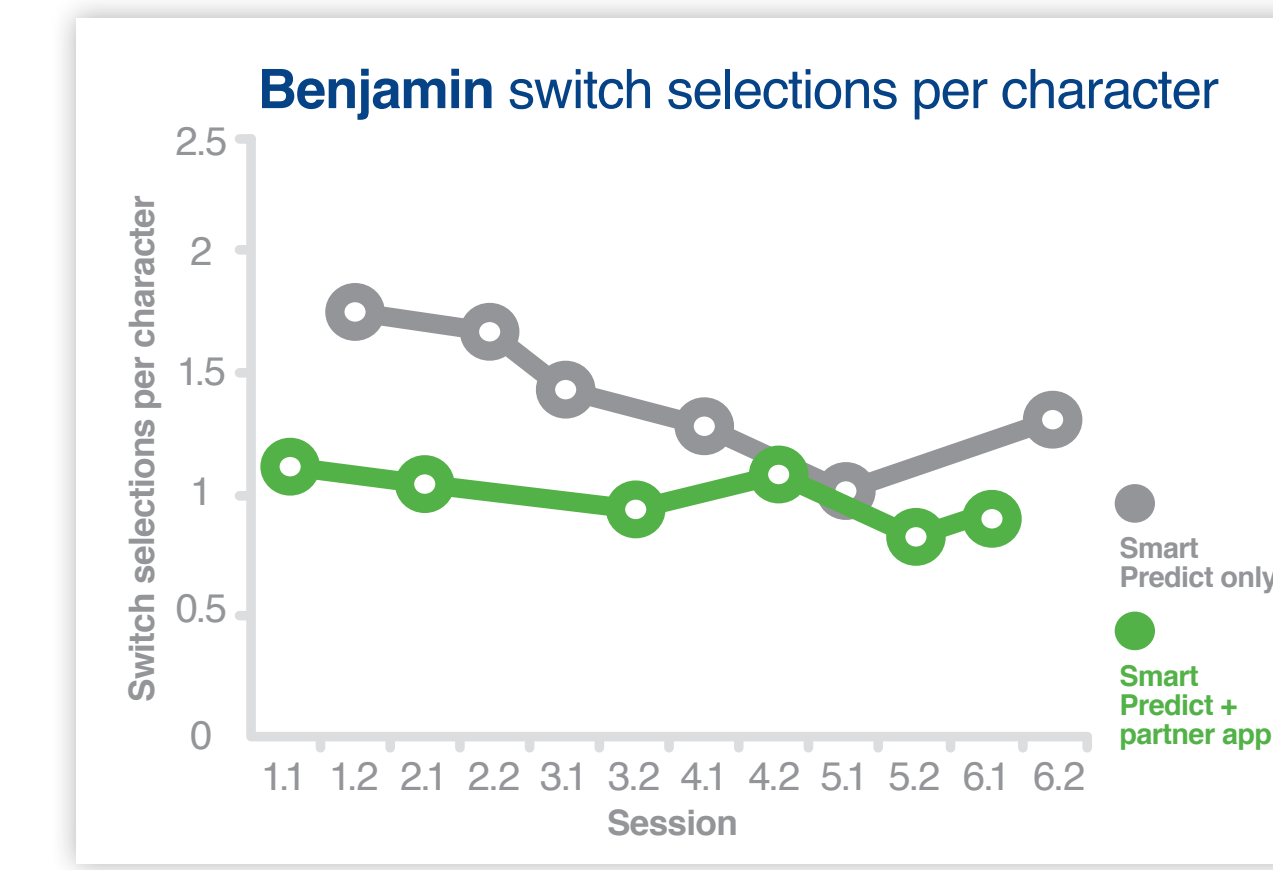
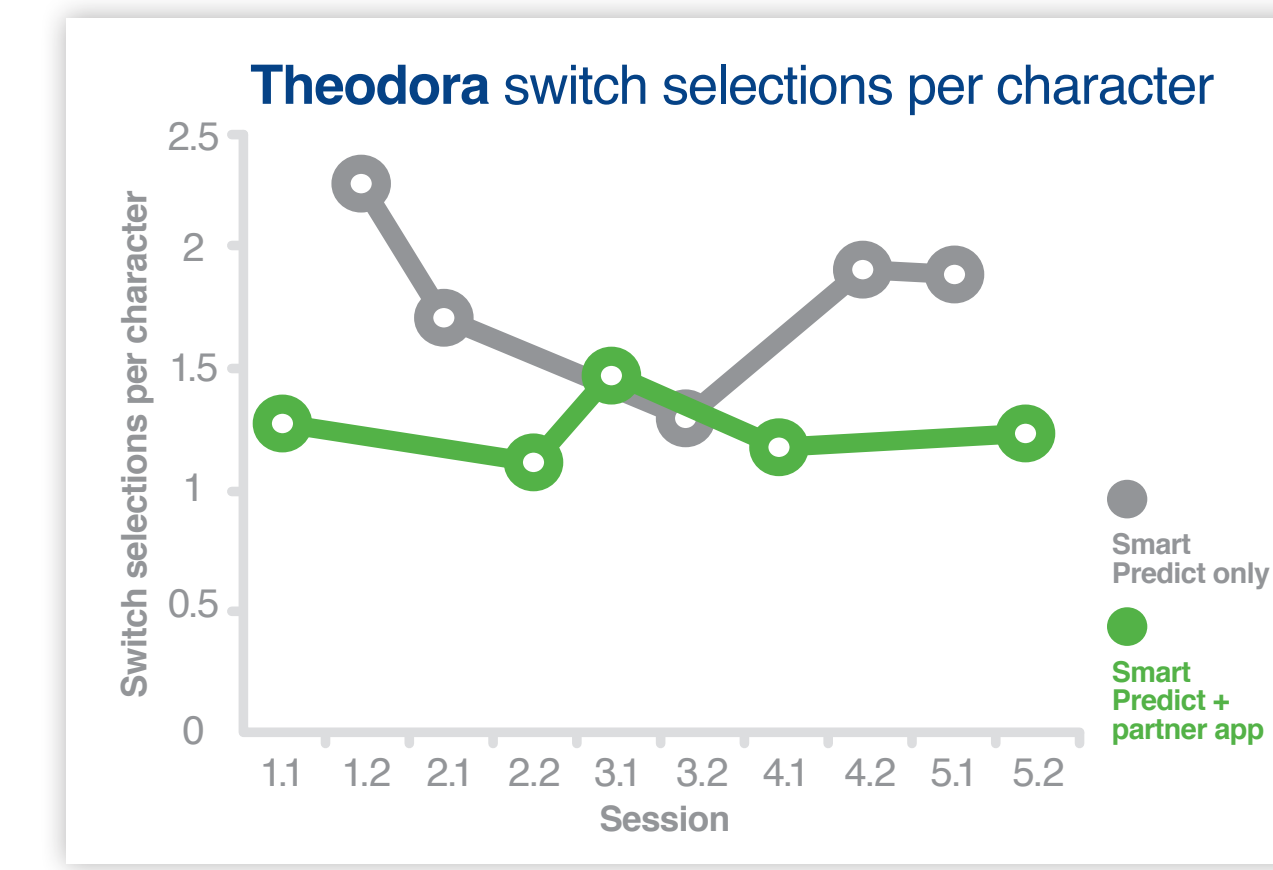
Condition B: Smart Predict + partner app

- Person using AAC typed with Smart Predict app
- RA1 provided supplemental vocabulary with the Smart Predict partner app

Results: Persons using AAC demonstrated greater message efficiency, as measured by characters per minute, in the Smart Predict + partner app condition than in the Smart Predict only condition during all but one data collection session.



AAC user effort, as measured by selections per character, was reduced in the Smart Predict + partner app condition as compared to the Smart Predict only condition in all but one data collection session.



One instance of overlap in data between conditions for one individual was observed. In this instance, the RA was not able to assist in predicting an unusual phrase that was unique to the individual. This may suggest that when partners do not share a familiar lexicon, vocabulary supplementation may not be as helpful.