

INTRODUCTION TO MULTIMODAL RESOURCES

All interactants are multimodal communicators and regularly rely on a variety of resources to construct utterances. These resources can include: speech and voice, gestures, body movements, facial expressions, physical objects, and their communication partners. These resources are used in order to construct utterances that will be understandable and meaningful to conversational partners. 1, 2, 3, 7, 9, 10, 11, 12.

•Constructing utterances based on partner positioning: Interlocutors utilize different communication resources based on their partners availability (e.g., partners location and ability to visually attend to speaker) 3, 4, 13.

•Constructing utterances using voice, hand movements, and facial expressions: AAC users utilize a variety of resources for utterance construction 14. Because of the temporal properties of pointing, speech, etc., these may be employed instead of speech output.

•Constructing utterances using objects: Interactants use objects available in their proximal physical environment in their utterance construction 2 & 9.

The current investigation examines the multimodal communications that occur during authentic interactions between a man with ALS, his speech therapist, and his wife.

METHODS

•Interactions between a man with ALS (J), his speech-language clinician (K), and his wife (T) were analyzed. •J was diagnosed with Bulbar ALS in December 2008. At the time of the investigation J obtained a scores of 24 on the *ALS Functional Rating Scale* (range 0-48). The *Speech Intelligibility Test* was given 1 month prior to the investigation. J was 60% intelligible (moderate dysarthria). At time of observation J's intelligibility was severely impaired.

•J utilized a DynaVox, Lightwriter, and speech supplementation board with his left hand.

•Two interactions were selected out of 50 videos. 1) clinical session between J and K that focused on device training and 2) lunch with J and T.

•These videos were selected because J's vocal abilities were declining and he needed to rely on his AAC devices for spoken communication.

•All interactions were transcribed according to traditional Jeffersonian Conversation Analysis transcription techniques¹³.

•All videos and transcripts were analyzed for use of body-based and technical resources by the participants as they constructed utterances for each other.

RESULTS

Constructing utterances based on partner positioning



- 1 J: I SEE IN PAPER PRESIDENT OF RPI MAKES ONE POINT SIX MILLION DOLLARS A YEAR
- 2 T: ((shouts from other room))yee isnt that incredible
- 3 J: eah: h (2) woh:
- 4 T: who else are the highest paid
- 5 (T comes back in to the dining room with another container)
- 6 T: they said a whole bunch of em make () over a million=who are they
- 7 J: eah:
- 8 (T stands behind J and begins to look at the paper with him)



- 9 T: its a woman at rpi=
- 10 J: =PRES OF
- 11 T: sssuffok univers-
- 12 J: SUFFOLK
- 13 T: wo*wi know <the woman who runs the health center there>
- 14 J: WHICH ++, IS ++, NOT +, A++++, GREAT ++++ ((J begins typing SCHOOL))
- 15 ((T looks from newspaper to lightwriter))
- 16 T: I know=
- 17 J: =SCHOOL

J uses his Lightwriter differently depending on if T is in or out of the dining room. When T is out of the room J constructs the entire message before issuing it (line 1). When T enters the dining room, J now issues his utterance in a word by word format (lines 10, 12, 14, & 17). J and T use the newspaper to ground their understanding of the news article (lines 9-12). T uses the Lightwriter display by responding to J's typing before he activates the speech output (line 16).

Constructing utterances using voice, hand movements, and facial expressions



- 1 ((J makes selection on the dynavox))
- 2 K: oh okay () yup its just thinking
- 3 ((J and K wait for the dynavox to open the specific playlist and look at dynavox))
- 4 J: ii: ma: # i wah: ih ah: ear ((J brings finger up and points to dynavox and looks at K))
- 5 K: ((looks at J)) right you want this to be your go to for everything doing your email ((J)) this is your go to for anything [that you need]=
- 6 J: [rh: ((nods head and continues to look at K)) rh:]
- 7 K: =and I agree with [that] <i think that thats a great idea>=

J simultaneously use his voice and hand movements to construct his utterance (line 4). K confirms and adds to J's previous utterance (line 5).

Constructing utterances using objects



- 1 ((T reenters the dining room with containers in her hand))
- 2 T: we have left over, sweet potatoes () ((opens one container)) mashed potatoes () and I have a little of the ham you know thats chopped up ((looks at T and nods)) () um, (3) or I have that broccoli soup (2) or I can make you a smoother?
- 3 J: ((J and T look down at the containers J uses index finger and taps twice on one container and then moves hand to another container))=
- 4 T: =<mashes> with the ham in it? ((looks at J))=
- 5 J: =((looks at T)) eah:h ((nods head))

J uses physical objects and his body movements to tell T what he would like for lunch. J taps on the various food containers, brought to the table by T, to indicate what he would like (line 3). T then confirms understanding (line 4).

DISCUSSION AND FUTURE WORK

- J and his communication partners rely on multiple resources such as their body, speech and voice, AAC devices, and objects to construct utterances that are understandable and meaningful. These resources can be used simultaneously during message construction.
- J takes into consideration where his partner is located in space. When the partner is out of the room complete utterances are constructed before speech activation is used. When the partner is in the room, J typically uses a word by word format in message generation.
- Although J has access to AAC devices, he relies on resources other than the speech output to construct utterances. (e.g., using voice in conjunction with hand movements and facial expressions, and proximal physical objects)
- J, T, and K work in a collaborative nature, on a turn by turn basis, to ensure that meaning is achieved.
- By constructing utterances using multiple communicative resources, participants ensure that their messages will be correctly understood.
- Future work in naturally occurring conversations with speakers who utilize AAC should be conducted. This work will allow us to better understand what resources people rely on during interaction and how they may be used in the development of new AAC technologies.

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