

AAC Users' Performance in Narrative Discourse Tasks

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Abstract

The purpose of this study was to investigate the language performance of augmented communicators across a variety of spontaneous and semi-spontaneous narrative discourse tasks that included (1) recounts (verbal reiterations of an event), (2) eventcasts (narratives that explain a scene of activities) and (3) stories (telling a story). Participants completed the narrative tasks using AAC devices that incorporated all three language representation methods: (1) single meaning graphic symbols (line drawings that depict language ideas and concepts, (2) spelling (use alphabet to construct messages) and (3) icons (multiple meanings assigned to single symbol). Seventeen quantitative measures were calculated for each participant including utterance-based and word-based summary measures. Semantic compaction was the most frequent LRM used regardless of the sampling condition. However, participants tended to rely on multiple LRMs to generate utterances. In addition, the results revealed that despite the sampling condition, communication rates by LRM were faster when using semantic compaction.

Research Description

Current research exists on the performance of experienced AAC users i.e. vocabulary use, conversational control, turn taking procedures, increasing device use and conversational rate. However, what has not been made clear from these studies is what role, if any, LRM may have played in the studies results. It seems intuitive that the choice of LRM impacts overall communication rate. For example, it would take longer to type out a message than to construct a message using a sequence of icons. However, this idea has been difficult to measure because a validated data collection system for AAC users was not available.

Data logging is now available on many AAC devices and so provides researchers with a standardized protocol for data collection. For example, LAM is a built-in feature in icon-based AAC devices that logs the content of language events generated using the system in real time (Romich & Hill, 1999). Review of the literature revealed one study investigating the relationship between the three LRMs and communication performance using data logging (Hill, 2001). Hill measured AAC users' performance with two language sampling tasks (i.e., picture description task and an interview). In the picture description task, each AAC user described what they saw happening using the Cookie Theft picture (Goodglass & Kaplan, 1983). For the interview task, a

set of questions was used to determine background information, personal history, and use of an AAC device for the AAC users.

The findings from Hill's (2001) study suggested that participants used LRMs with varying frequency. Spelling was used significantly more during the picture description task, while semantic compaction was used significantly more during the interview. For all conditions, semantic compaction was used significantly more frequently as compared to single meaning graphic symbols and spelling. This study suggests that subjects tended to rely on multiple language representation methods to generate utterances. In addition, results showed that during the interview, average and peak communication rates were significantly faster than the same rates for the picture description task. It is interesting to note that the use of semantic compaction correlated with faster average and peak communication rates. Since Hill's study, new language sample analysis software, (PeRT©) (Prentke Romich Co., Wooster, Ohio), has been produced and includes a total of 17 utterance-based and word-based summary measures (i.e., communication rate by LRM) (Romich et al., 2003).

The present study investigates the relative use of the three LRMs by proficient AAC users. Performance was evaluated using a series of spontaneous and semi-spontaneous narrative discourse tasks including (1) recounts (verbal reiterations of an event), (2) eventcasts (narratives that explain a scene of activities) and (3) stories (telling a story). The study is considered to be an extension of Hill's (2001) study in that it uses more up-to-date analysis measures and includes a greater variety of language sampling conditions

Study participants included three adult males diagnosed with cerebral palsy. Criteria for inclusion in the study included: (1) 18 to 50 year of age, (2) native English speaker, (3) proficient user of a hybrid AAC device, (4) used an AAC device that included the three LRMs, (5) accessed device via direct selection with or without physical contact, (6) normal or corrected to normal vision by self-report, (7) hearing WNL by self-report and (8) demonstrated cognitive abilities WNL.

Each participant attended one individual one to four hour session. All sessions included an inclusion/exclusion process, a trial run, an interview and three narrative discourse tasks. Presentation of the narrative tasks were randomized and counterbalanced across subjects. If the participant stopped after 15 seconds, the examiner provided a prompt ("Is there anything else you can tell me?"). Following each task, the examiner saved the participant's language sample and transferred the file to the examiner's laptop using LAM.

In the interview, the participant underwent a series of questions: (1) education history, (2) LRMs on current device, (3) access method, (4) how the participant described his/her communication with others and (5) an open-ended question about what the participant liked to do in his/her free time just to name a few. For the recounts task, the examiner began by providing the participant with an example of the task. Then the participant provided two verbal reiterations of an event ("Tell me what you did this past Christmas." "Tell me about your last vacation or tell me what you usually do on the weekend."). In the narrative task, eventcasts, an example of the task was demonstrated by the examiner using the cookie theft picture from the Boston Diagnostic Aphasia Examination (Goodglass & Kaplan, 1983). The participant was given

time to practice and then four computer generated stimuli, two single pictures and two picture sequences created by Nicholas & Brookshire were presented (1993). The two single pictures depicted a story-like situation with a central focus and interactions among pictured elements. Each implied a series of events leading up to the pictured scene, and each suggested events that were likely to follow the pictured situation. The two pictured sequences each contained six pictures that related to a story. The narrative task, stories, involved two wordless picture books, *Good Dog Carl* by Alexandra Day and *Picnic* by Emily Arnold McCully, which portrayed a story through a sequence of illustrations. The investigator explained that these were children's books without words and looked through the book with the participant. Then the participant was given the opportunity to go through each book and tell how the story goes with the pictures.

The results of this study support the findings of Hill (2001a) as semantic compaction was the most used LRM, regardless of the sampling condition. However, it is not clear just looking at the raw data which participant benefited the most from which LRM. Nevertheless, the results make it clear that participants took advantage of each of the language representation methods. While semantic compaction was the most used LRM, participants changed from semantic compaction to word prediction and spelling in order to say the rest of what they wanted to say. This finding was not surprising since research suggest that AAC users tend to rely on semantic compaction for 90-95% of everything they say (core vocabulary) while the remaining 5-10% (extended vocabulary) is split between spelling and word prediction (Hill, 2001b).

In addition, participant's fastest communication rates occurred when using semantic compaction, regardless of sampling condition. This finding is important to a speech-language clinician when working with AAC users. For instance, communication performance is essential to AAC users, and for that reason anything that a speech-language clinician can do to optimize an AAC users' performance must be done. Therefore, if research supports semantic compaction as one of the fastest LRMs then it is crucial that AAC users receive training for the use of this LRM in order to increase communication rate, as well as overall communication performance. However, this finding cannot be compared with other research since this is the first study to investigate the impact of LRM on communication rate.