

BACKGROUND

- 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 (Beukelman, Yorkston, Pobleto, & Naranjo, 1984; Farrier, Yorkston, Marriner, and Beukelman, 1985; Buzolich & Wiemann, 1988; Spiegel, Benjamin, & Spiegel 1993; Todman & Lewins, 1996).
- However, the impact of Language Representation Method (LRM)(i.e., single meaning graphic symbols, spelling and icons) on performance is not well understood.
- A search of the literature revealed one study designed to investigate the relationship between LRM and communication performance (Hill, 2001).

PURPOSE

- The present study was undertaken to extend the work of Hill (2001a) and investigate the relative use of the three language representation methods (i.e., single meaning graphic symbols, spelling and icons) 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 protocol described here was developed in response to the research of Wright, Capilouto, Wagovich, Cranfill & Davis' (2005) on narrative discourse.

METHODS

Participants

- Study participants included three adults males diagnosed with cerebral palsy.
- Criteria for inclusion included: (1) 18 to 50 years 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.

Procedures

- Participants attended one individual session lasting one to four hours.
- All sessions included an inclusion/exclusion process, obtaining consent, a trial run of the equipment, an interview and three narrative discourse tasks.
- Presentation of tasks were randomized and counterbalanced.

Table 1. Description of Participants.

Participant	Age	Education	Vocational	AAC Device, Current time with Device	Language Software	AAC Use
P1	23	2 nd year Tech College	Volunteer	Pathfinder, 6 years	Unity 128	17 years
P2	37	BA	Troubleshooter	Pathfinder, 2 years	Unity 128	13 years
P3	42	HS	Self-employed	Pathfinder, 6 years	Unity 128	13 years

- Using the Language Activity Monitor (LAM), a built-in feature in icon-based AAC devices, the content of language events were logged using the system in real time (Romich & Hill, 1999).
- Following each task, the examiner saved the participant's language sample and transferred the file to the examiner's laptop using LAM (Fig. 1).
- The companion performance report tool (PeRT©) (Prentke Romich Co., Wooster, Ohio) was used to analyze participants' language samples and included a total of 17 utterance-based and word-based summary measures (Romich et.al., 2003) (Fig. 2).

Figure 1. Sample Preparation LAM.



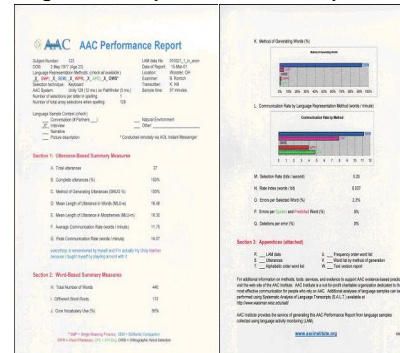
Segment Utterance: (1) Click on first event (i.e., first word of one utterance) (2) Drag to last event (i.e., last word from that utterance) (3) Release and hit enter (4) Utterance in Utterance area and comments added (5) Individual words selected and spelling errors indicated and counted (6) AAC performance report generated with identifying information/details

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Narrative Tasks Procedures

- In the interview, the participant responded to 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 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.").

Figure 2. Sample Performance Report PERT.



- For the 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 presented with four computer generated stimuli, two single pictures and two picture sequences created by Nicholas & Brookshire were presented (1993). If the participant stopped after 15 seconds, the examiner provided a prompt ("Is there anything else you can tell me?").
- 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.
- Then the participant was given the opportunity to go through each book and tell the corresponding story.

RESULTS AND DISCUSSION

- Results of the data analysis specific to LRM are presented in Table 2.

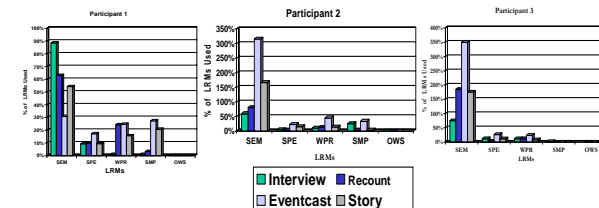
Table 2. Frequency of LRM Use for Interview .

	SEM	SPE	WPR	SMP	OWS
P1	88.5	9.2	1.1	1.1	0
P2	59.3	5.1	10.2	25.4	0
P3	75	11.7	11.7	1.7	0
Average	74.26	8.66	7.66	9.4	0
SD	14.61	3.32	5.73	13.85	0

Note. SEM = semantic compaction; SPE = spelling; WPR = word prediction; SMP = single meaning picture; OWS = orthographic word selection.

- Results of study support the findings of Hill (2001) as semantic compaction was the most used LRM, regardless of the sampling condition (Figures 3).
- For P1 and P3, seventy-five percent or more of their utterances were generated using semantic compaction, regardless of task.
- Fifty percent or more of P2's utterances were generated using semantic compaction, regardless of tasks as well.
- All participants took advantage of each language representation method to express himself, except that P3 only used single meaning graphic symbols for the interview and no other task.

Figure 3. Participant LRM by sampling condition.



CLINICAL IMPLICATIONS:

- Clinicians need to consider these results when considering how best to represent language for individuals who rely on AAC. The results suggest that a combination of LRMs may be preferable to a single symbol type for some users of AAC.
- AAC devices with some form of language activity monitoring may be preferable to those without such capability since the LAM provides specific performance data for individual users and can help guide treatment.
- Future studies are planned that investigate the performance of proficient users of text-to-speech devices and devices that rely primarily on graphic symbols for message construction.