



Self-Administered *MossTalk Words Cued Naming*: A Single Participant Study Comparing Treatment Intensity Replicated in Four Cases

Gail Ramsberger, Sc.D., CCC, Board Certified-ANCDS
Department of Speech, Language & Hearing Sciences University of Colorado

Acknowledgements

Basem Ahmad Marie, Ph.D.
Assistant Professor
Al-Ahliyya Amman Univeristy
Amman, Jordan

Purpose of Study

- 1. To explore the feasibility and benefits of an independently administered *MossTalk Words Cued Naming Module***

Prediction #1 - Feasibility: People with a variety of types and severity of aphasia will be able to self-administer the *MossTalk Words Cued Naming Module*

Prediction #2 - Acquisition: Probe performance for trained words will be better during the treatment phase as compared with baseline

Prediction #3 – Maintenance: Probe performance for trained words will be better during the treatment withdrawal phase as compared with baseline

Prediction #4 – Generalization: Probe performance for untrained words (List 2) will be better during the Phase when List 1 is being trained as compared to baseline.

Purpose of Study

- 2. To explore the benefits of using a combination of phonological and semantic cues with people who have various types and severities of aphasia**
- 3. To compare the benefit of equal amounts of *MossTalk Words Cued Naming* treatment delivered in an intense versus non-intense treatment schedule**

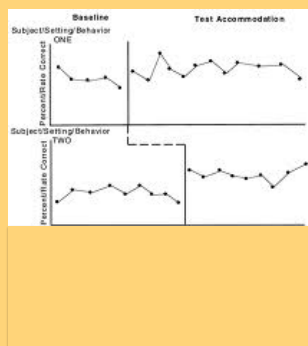
Prediction #5 – Combined cues will be beneficial for all participants

Prediction #6 – Evidence of acquisition will be stronger when the same numbers of sessions are delivered intensely (5 X's/wk) versus non-intensely (2 X's/wk).

Procedures

Design.

- This study used a single-subject, multiple-baseline across behaviors (List 1 and List 2 naming), alternate treatments design, (intense and non-intense cued naming) replicated over four participants.



Participants

	Age	Time Post Stroke	Aphasia Severity	Aphasia Type	Education
S1FM	63	2 y	*WAB AQ = 69	Anomic	College grad
S2SJ	63	6 y	WAB AQ = 53 **ADP SS = 90	Broca	College grad High School grad
S3AB	70	6 m	(25th %'ile) ADP SS = 107	Wernicke	grad
A4EW	74	2 y	(68th %'ile)	Conduction	College grad

* Western Aphasia Battery Aphasia Quotient
** Aphasia Diagnostic Profiles Standard Score

Computer Access and Training

- Computers were obtained at no cost from university property disposal
- Computers were set up in participants' homes
- One session (prior to starting treatment) to teach participants how to operate computer and run therapy software
 - Used all kinds of visual cues to facilitate independence

Treatment

MossTalk Words Cued Naming Module

- Two 40-word lists of concrete nouns were created for each participant (20 word lists used for S3AB)
 - 100 of 340 noun stimuli available in the program were randomly selected and multiple baselines were obtained on uncued, visual confrontation naming task
- Two Lists were then individually created from these 100 words so that the lists were matched in terms of
 - frequency of occurrence,
 - number of syllables, and
 - initial naming performance
- Clinician selected initial cues and training procedure for each participant so that he/she was 90% or more successful when completing training tasks.

Available Cues:

SPOKEN	WRITTEN
Initial Phoneme	Initial Letter
Fill-in Phrase	Fill-in Phrase
Whole Word	Whole Word
Description	Description

Treatment

- Participants then independently carried-out the prescribed lessons
- Clinician gathered probe performance data (naming with no cues) for both word lists (treated and untreated) in every 5th session
 - systematically adjusted/reduced the cueing procedure while assuring that 90% or more success was maintained for subsequent training tasks.
- After List 1 training was complete, the same procedure was used to train List 2

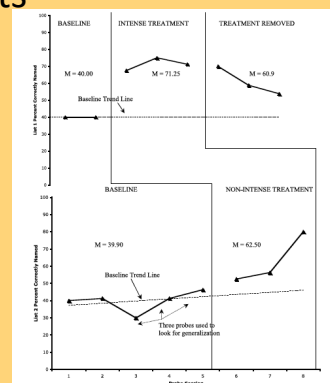
Treatment Schedule

- 15 sessions for S1FM & S2SJ
- 20 sessions for S3AB & S4EW
- Participants were randomly assigned to receive either intense (5 days/wk) or non-intense (2 days/wk) treatment in Phase 1.
- In Phase 2, they received the same number of sessions administered with the alternate treatment intensity.

a priori Criteria for Significance

1. Visual Inspection of Data
 - Mean level of performance is greater as compared to baseline
 - No overlap of data points with baseline
 - Data points exceed the extended baseline trend line
2. > 20% change in mean level of performance as compared to baseline
3. Tyron's C statistic with p set at .05
4. Effect size greater or equal to 2.0 (performance in tx phase is at the 97.7th %'ile of baseline)

Results S1



% change relative to baseline

- List 1 = 78%
- List 2 = 57%

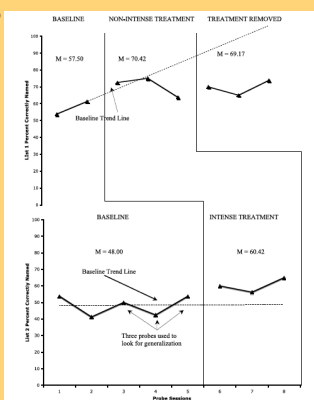
C statistic

- List 1 = 0.65 (p = .03)
- List 2 = 0.72 (p < .01)

Effect size

- List 1 = 5.53
- List 2 = 4.00

Results S2



% change relative to baseline

List 1 = 22%
List 2 = 26%

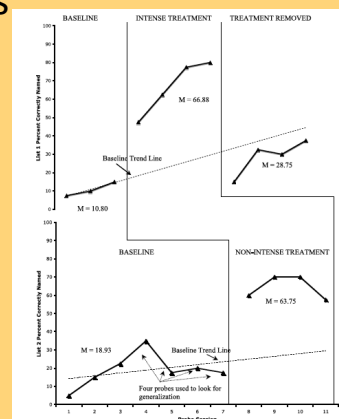
C statistic

List 1 = 0.47 ($p = .09$)
List 2 = 0.46 ($p = .07$)

Effect size

List 1 = 2.44
List 2 = 2.08

Results S3



% change relative to baseline

List 1 = 519%
List 2 = 237%

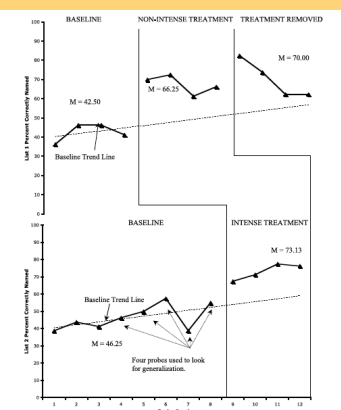
C statistic

List 1 = 0.87 ($p < .01$)
List 2 = 0.78 ($p < .01$)

Effect size

List 1 = 14.68
List 2 = 3.79

Results S4



% change relative to baseline

List 1 = 56%
List 2 = 58%

C statistic

List 1 = 0.60 ($p = .03$)
List 2 = 0.79 ($p < .01$)

Effect size

List 1 = 4.96
List 2 = 3.79

Evidence of Maintenance

Participant	Baseline	TX Withdrawal	% change	C statistic	Effect Size
S1	40.00	60.42	51	0.23 ($p = .26$)	3.61
S2	57.50	69.17	20	0.56 ($p = .06$)	2.20
S3	10.80	28.75	166	0.77 ($p < .01$)	4.70
S4	42.50	70.00	65	0.48 ($p = .06$)	5.74

Treatment Intensity

- S1
No difference with strong evidence for acquisition for both intense and nonintense tx
- S2
Weak evidence for acquisition with nonintense tx
Moderate evidence for acquisition with intense tx
- S3
No difference with strong evidence for acquisition for both intense and nonintense tx
- S4
No difference with strong evidence for acquisition for both intense and nonintense tx

Discussion

Prediction #1 - Feasibility: People with a variety of types and severity of aphasia will be able to self-administer the MossTalk Words Cued Naming Module

- All participants were able to self-administer their treatment despite limited prior experience with computers.
- All preferred the non-intensive schedule but fully complied with intense schedule
- All enjoyed the experience of self-administered computer-based treatment and felt it had provided benefit

Discussion

Prediction #2 - Acquisition: Probe performance for trained words will be better during the treatment phase as compared with baseline

- Strong evidence for three participants (S1, S3 & S4) and moderate evidence for one participant (S2) that application of the treatment resulted in improvement regardless of the treatment intensity.

Discussion

Prediction #3 – Maintenance: Probe performance for trained words will be better during the treatment withdrawal phase as compared with baseline

- Strong evidence for one participant (S3) and moderate evidence for another that intensive treatment improvements were maintained.
- Moderate evidence for two participants that non-intensive improvements were maintained.

Discussion

Prediction #4 – Generalization: Probe performance for untrained words (List 2) will be better during Phase 1 treatment (when List 1 is being treated) as compared to baseline.

- No evidence that treatment generalized to untrained words.

Discussion

Prediction #5 – Combined cues will be beneficial for all participants

- All but one of the four participants (S2) showed evidence of acquisition of naming for trained words when both phonetic and semantic cues were provided

Discussion

Prediction #6 – Evidence of acquisition will be stronger when the same numbers of sessions are delivered intensely (5 X's/wk) versus non-intensely (2 X's/wk).

- No difference between intense and non-intense treatment for three participants (S1, S3, S4)
 - strong evidence for both intense and non-intense treatment being effective.
- Moderate evidence for intense treatment being more effective than non-intense treatment for the remaining participant (S2).

What Does it All Suggest?

- It may be possible to stretch rehabilitation third party coverage by having PWA self-administer some of *MossTalk Words Cued Naming* therapy
- It may not matter if PW chronic Aphasia practice 2 X's / wk or 5 X's /wk
- Don't expect generalization to untrained words