



**AAC is a semantic prime
for conversations in
moderate Alzheimer's
disease**

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The road to Montreal ISAAC (2004 – 2008)

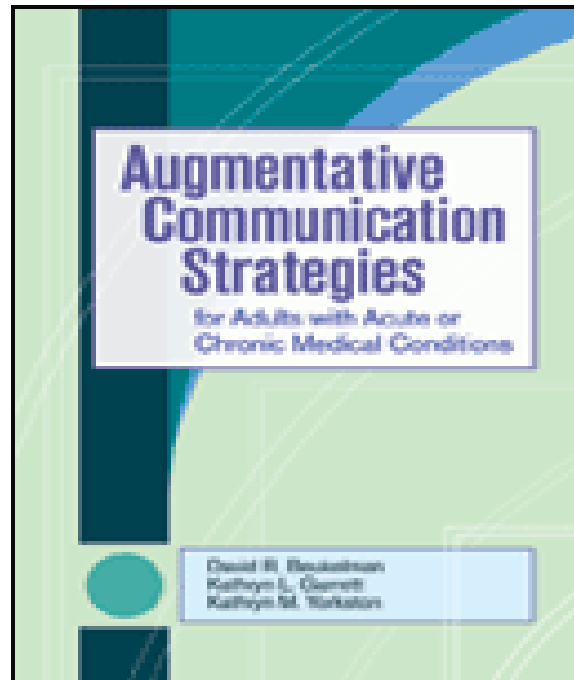


The driving crew to Montreal

- Melanie Fried-Oken (PI; speech-language pathologist)
- Charity Rowland (PI; psychologist)
- Jeon Small (RA; medical sociologist)
- Glory Baker (RA; public health student)
- Darlene Schultz (RA; special educator)
- Carolyn Mills (RA; artist)
- Mayling Dixon (RA)
- Bret Fuller (Statistician)
- Barry Oken (neurologist)



2008 AAC and dementia chapter for clinicians



Michelle Bourgeois and Ellen Hickey: *Dementia* (chapter 8)

REKNEW-AD

- Reclaiming
- Expressive
- Knowledge in
- Elders
- With -
- Alzheimer's disease

A series of studies: 2004-2008

Do AAC tools improve the quantity or quality of conversation by individuals with moderate Alzheimer's disease?

Does symbol type make a difference?

- Between 3 studies reported, we examined personalized 16-symbol AAC boards with:
 - Print alone
 - Print + 2-D symbols
 - Print + 3-D miniature objects
 - 2-D symbols alone
 - 3-D symbols alone
 - Control (no AAC)

Does voice output make a difference?

- Between 3 studies reported, we examined personalized 16-symbol AAC boards with:
 - Digitized speech output
 - No speech output

Board with 3-D symbols + print



Board with 2-D symbols + print



ASHA 2005: Pilot study



**Single subject
design: Voice output
is distracting to one
adult with severe AD**

Voice output distraction

Setting off on the journey to large scale studies



Inclusion criteria

- Diagnosis of probable or possible AD by a board certified neurologist;
- Clinical Dementia Rating (CDR) = 1 or 2;
- Mini Mental Status Examination (MMSE) = 8-18 within 6 months of enrollment in study (or we administer);
- Visual acuity better than 20/50 O.U. (as performed in the OADC);
- Hearing screening procedure performed to rule out adults with greater than 40dB hearing loss at screening frequencies (as performed in the OADC);
- English as primary language.

Exclusion criteria

History of other neurologic or psychiatric illness (no CVA, reported alcohol abuse, traumatic brain damage, reported recent significant psychological or speech/language disorder).

Participant demographics (N=41)

Gender	31 Females	10 Males
Age	Mean = 74 yr.	Range = 50-94
MMSE (0-30)	Mean = 14	Range = 5-18
CDR (0-2)	Mean = 1.47	Range = 1-2
FLCI (0-88)	Mean = 67	Range = 27-85

Method

1. Identify participant and randomly assign to condition for symbol type & voice output;
2. Determine participant's preferred topic and vocabulary;
3. Develop communication device for condition;
4. Conduct videotaped conversations with participant for various conditions in their homes.

Participant randomization to symbol type & voice output conditions

Output Mode	Input Mode		
	Print only	2-D +Print symbols	3-D + Print symbols
Voice output	5	6	3
No voice output	8	11	8
Total	13	17	11

ISAAC 2006 (N=30)

**Voice output distracts
subjects with modAD and
depresses performance.**

*(Fewer total # utterances and more 1-word
utterances are produced with voice output)*

ASHA 2007 (N=30)



AAC supports placed in front of persons with modAD does not affect conversation.

No specific symbol type was beneficial;

Attention to board or physical reference to board was minimal or nonexistent for many subjects.

“What does this mean?”



***Clinical message:
AAC WITHOUT TRAINING IS NO
AAC AT ALL!***



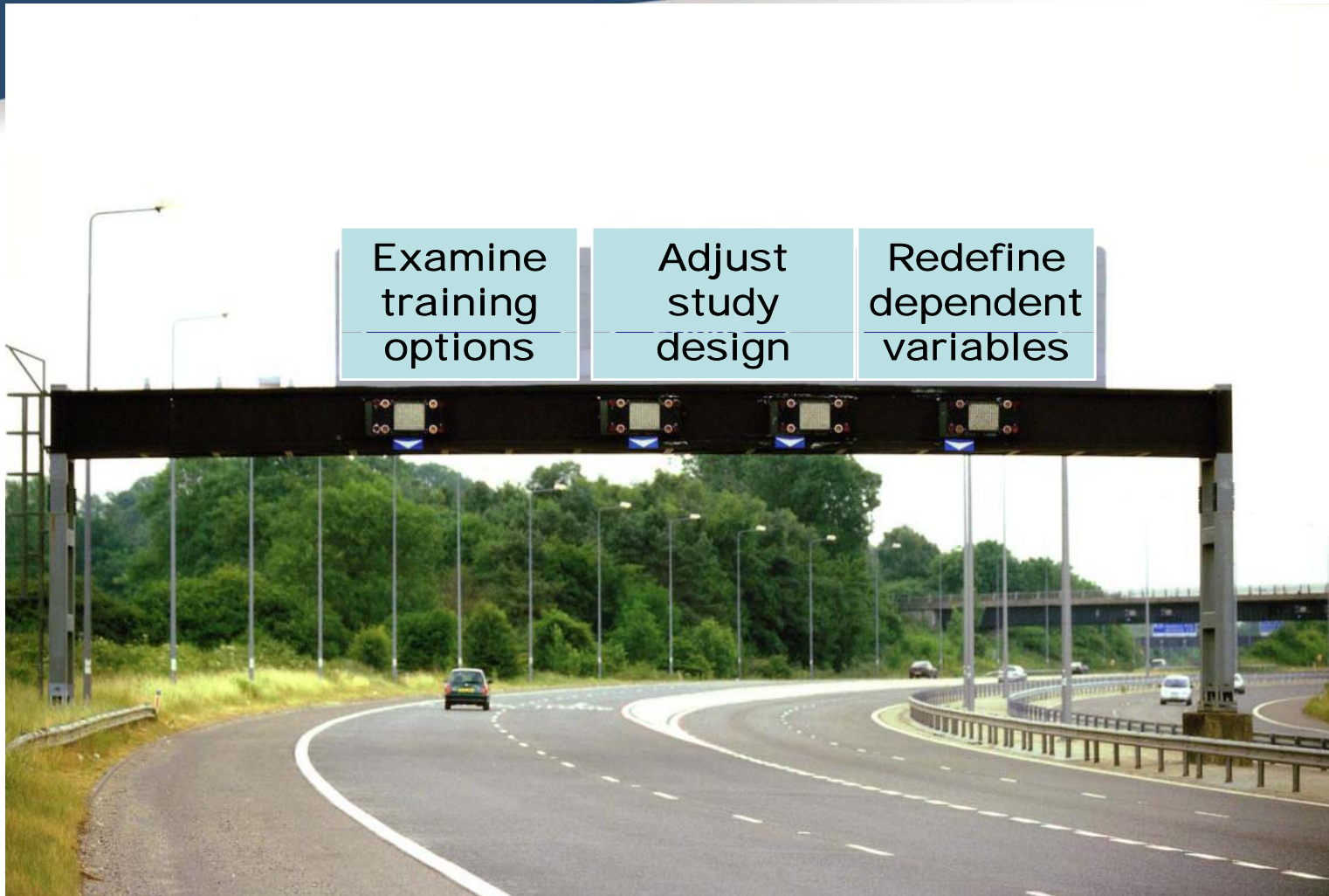
The race for significance begins



Examine
training
options

Adjust
study
design

Redefine
dependent
variables



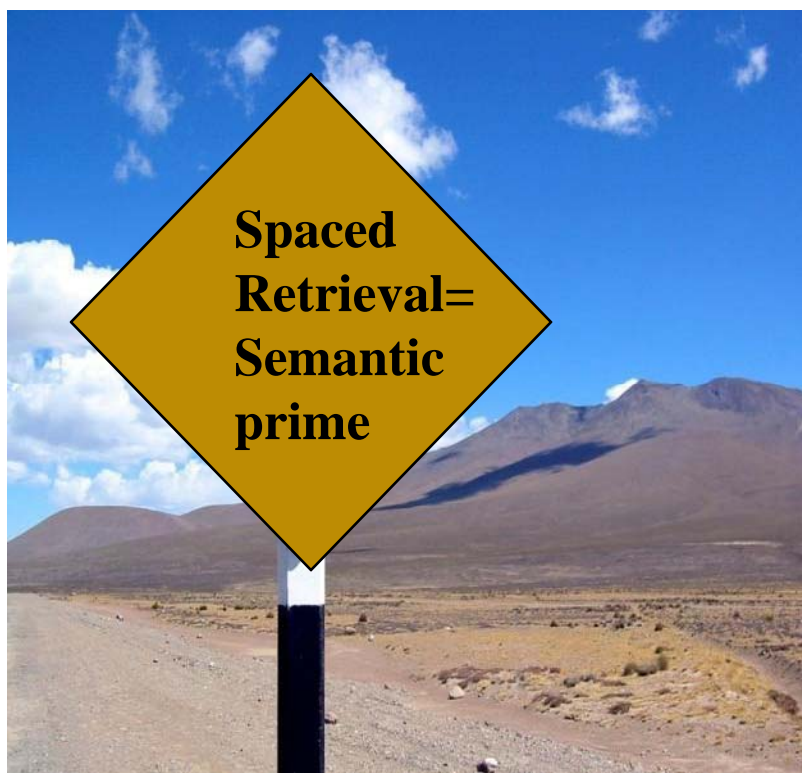
Changes



Add



What is spaced retrieval?



•“A memory intervention that gives individuals practice at successfully recalling information over progressively longer intervals of time.” (Jennifer Brush & Cameron Camp, 1998)

•Relies on classical conditioning and repetitive priming.

•Used with elders with dementia to help remember compensatory strategies such as using a schedule, swallowing safely, using a daily calendar, and using adaptive equipment.

Adjust study design (N=11)

- Conditions varied within participants:
 - 1 primed experimental condition;
 - 2 control conditions (no AAC device):
 - Standard control
 - Primed control
- 99 total conversations:
 - 3 conversations/condition
 - 9 conversations/participant

Add new dependent variables closely tied to semantic primes

- Number of primed words used during conversation
- Number of utterances
- Percent 1-word utterances
- MLU in words
- Type-token ratio
- Number of references to AAC device

*Used SALT software for transcription and analysis
(Systematic Analysis of Language Transcripts, Miller &
Chapman, 1986-2000)*

Control conversation: no AAC

Primed conversation: AAC board

Results: Subjects used the AAC device more when conversations were primed.



(References to AAC device during conversations quadrupled, as compared to untrained conversations)

**AAC combined with spaced
retrieval exercise improved access
to topical vocabulary.**

*(In AAC-supported conversations, subjects used
significantly more primed words, as compared to control
conditions.)*

Finish Line Message

- AAC improves conversation of adults with modAD
- *When training for semantic priming is added*
- To account for attentional, perceptual, or memory impairments that interfere with performance.



ISAAC-2008
AAC & dementia
presentations:
• N. Alm, et al
(Mon 15:30)
• J. Murphy
(Mon 16:05)

REKNEW-PPA:
Adults with
Primary
Progressive
Aphasia



- Layton Center for Aging and Alzheimer's Disease Research, Portland, Oregon, USA
- NIH/NICHD/NCMRR award #1 R21 HD47754-01A1
- DOE/NIDRR award #H133G040176

Copy of presentation slides at:
http://www.ohsu.edu/oidd/Presentations/reknew/reknew_ad.cfm

