Variable effects of AAC input/output on conversations in dementia

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REKNEW-AD

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

Premise for REKNEW-AD research

- Pairing external aids with familiar and spared skills (such as page turning, reading aloud, autobiographical memories) maximizes a person's opportunity for success.
- These skills are based on intact procedural memory.
- Symbolic representations may serve as semantic primes to stimulate lexical retrieval during conversation in moderate Alzheimer's disease (modAD).
- Knowledge of input/output modes most appropriate for adults with modAD is useful in designing AAC supports.

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Study 1 Question: Do AAC supports improve conversation by individuals with moderate Alzheimer's disease?

DESIGN: # subjects per AAC-supported conditions

	Input Mode		
Output Mode	Print only	2-D +Print symbols	3-D + Print symbols
Voice output	**5**	**5**	**2**
No voice output	**5**	**6**	**7**
Total	**10**	**11**	**9**

- Conditions are varied between subjects.
- Each subject participates in 4 conversations without AAC device and 4 with AAC device that was randomly assigned input and output modes.
- 1 control (without AAC) and 1 experimental (with AAC) conversation conducted at each visit.

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Study 1 subjects with moderate Alzheimer's disease (N=30)

Diagnosis of probable or possible AD by a board certified neurologist; Vision and hearing within functional limits; English as primary language; Exclude those with prior neurological diagnoses or communication disorders.

Gender	23 Females	7 Males
Age	Mean = 74 yr.	Range = 50-94
MMSE (0-30)	Mean = 12	Range = 5-18
CDR (0-2)	Mean = 1.73	Range = 1-2
FLCI (0-88)	Mean = 61	Range = 27-85

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Study 1 Method

1. Randomly assign subject to input/output condition;
2. Determine subject's preferred topic and vocabulary;
3. Develop communication device;
4. Conduct 8 10-minute videotaped conversations in homes with and without the AAC device.

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Study 1 results

1. Voice output distracts subjects with modAD and depresses performance. *(Fewer total # utterances and more 1-word utterances are produced with voice output)*

2. AAC supports placed in front of persons with modAD does not affect conversation. *(No specific input condition was beneficial; attention to board or physical reference to board was minimal or nonexistent for many subjects)*

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Study 2 Question: Do AAC supports *combined with spaced retrieval priming exercises* improve conversation by individuals with moderate Alzheimer's disease?

DESIGN: # subjects per AAC-supported condition

Input Mode		
Print only	**2-D +Print symbols**	**3-D + Print symbols**
4	**7**	**4**

- Conditions are varied between subjects.
- Each subject participates in 3 conversations with AAC device (all preceded by spaced retrieval exercise) and 6 without AAC device (half preceded by spaced retrieval exercise).
- 1 conversation conducted at each visit.
- Each conversation includes the identical set of probes and sabotages that address a subject's autobiographical topics.

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Study 2 subjects with moderate Alzheimer's disease (N=15)

Diagnosis of probable or possible AD by a board certified neurologist; Vision and hearing within functional limits; English as primary language; Exclude those with prior neurological diagnoses or communication disorders.

Gender	12 Females	3 Males
Age	Mean = 77 yr.	Range = 60-92
MMSE (0-30)	Mean = 16	Range = 10-18
CDR (0-2)	Mean = 1.47	Range = 1-2
FLCI (0-88)	Mean = 71	Range = 61-84

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Study 2 Method

1. Randomly assign subject to input condition;
2. Determine subject's preferred topic and vocabulary;
3. Develop communication device;
4. Develop standard set of 10 questions and sabotages for conversation protocol;
5. Conduct spaced retrieval priming exercise before each AAC-supported and half of unsupported (control) conversations.
6. Conduct 10-minute videotaped conversations in homes with and without the AAC device, using standard 10-question/sabotage protocol.

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Study 2 results

1. Subjects used the AAC device more when conversations were primed. *(References to AAC device during conversations quadrupled, as compared to Study 1)*
2. AAC combined with spaced retrieval exercise improved access to topical vocabulary. *(In AAC-supported conversations, subjects used significantly more targeted words represented on the AAC device, as compared to control conditions.)*
3. 2 and 3 dimensional symbols + print facilitate use of AAC device. *(Subjects made significantly more references to the AAC device when the board contained 2 dimensional+print or 3 dimensional+print symbols, as compared to print alone.)*

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

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"Well, I could use this board to talk from breakfast to hell and back!"

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