

*EFFECTS OF MEMORY AIDS ON THE DYADIC
CONVERSATIONS OF INDIVIDUALS WITH DEMENTIA*

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The effects of a prosthetic memory aid on the conversational content and social skills of dyads with dementia were evaluated. Six individuals with moderate to severe dementia served as either subject or partner in dyads during 5-min conversational probes conducted three times per week in day-care and nursing-home settings. During phases when a memory aid, consisting of personally relevant picture and sentence stimuli, was available, most subjects used their own aid to improve the quality of conversations by increasing the frequency of on-topic statements, diminishing nonproductive utterances, lengthening their conversational turn, and/or increasing the frequency of turns taken. Most partners demonstrated awareness of social discourse conventions by appropriately relinquishing conversational dominance, decreasing both content and nonproductive utterances, and increasing acknowledging or affirmative comments when subjects used memory aids. Naive judges' ratings of aided and unaided conversational samples on seven conversational dimensions reflected differences in perceptions of significant improvement as a function of the conversational discourse style of each dyad.

DESCRIPTORS: prosthetic memory aid, conversation skills, dementia, gerontology, social behavior

Individuals with dementia, and in particular Alzheimer's disease (AD), experience a gradual deterioration of language and memory skills, compromising the pursuit of an active, independent, and fulfilling life. The specific language and cognitive deficits and their impact on the daily lives of AD patients have been well documented (Bayles, 1984; Bayles & Kaszniak, 1987; Nicholas, Obler, Albert, & Helm-Estabrooks, 1985). In particular, the conversational discourse of AD patients is characterized by confusion and incoherence (Appell, Kertesz, & Fishman, 1982; Ripich & Terrell, 1988). Semantic deficits, such as the substitution of non-specific terms (e.g., "thing" and "this one") for substantive nouns, the omission of referents, and

missing elements or sentence fragments, may account for the listener's perception of confused and "empty speech" (Nicholas et al., 1985; Ripich & Terrell, 1988). Difficulty following the flow of the conversation may be the result of discourse lacking the development of thematic structure (Ripich & Terrell, 1988) and is restricted in the number of ideas produced (Bayles & Kaszniak, 1987). Social skills, such as turn taking, appear to be relatively intact well into the late middle stages of the disease (Golper & Binder, 1981), although AD patients have been reported to speak in more numerous and shorter conversational turns when compared with an elderly comparison group (Ripich & Terrell, 1988).

Intervention efforts to improve specific features of conversation patterns of AD patients have increased the frequency of factual statements and decreased the amount of counterproductive speech, such as ambiguous, perseverative, erroneous, and unintelligible utterances (Bourgeois, 1990, 1992). Posttreatment conversations between AD patients using a memory wallet and an unimpaired adult conversational partner were rated by naive judges as significantly more normal, meaningful, and comfortable when compared to pretreatment conver-

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sations without a memory wallet. Further, judges reported that the patients made significantly more sense, stayed on the topic better, provided more and unambiguous information, and used more appropriate referents when using a memory wallet (Bourgeois, 1990).

To date, little research has addressed the quality of conversations between 2 individuals with dementia. Based on analyses of conversations between 1 impaired and 1 unimpaired partner, one might expect 2 individuals with dementia to engage in parallel, egocentric conversations that provide limited unambiguous content, reduced topic development and elaboration, and little evidence of their awareness of the social effects of their discourse, such as their partner's comprehension or level of reciprocal participation. Further, the effects of an intervention to prompt increased and less ambiguous content through the use of a memory aid have not been explored with dyads of patients with dementia. Prior studies suggest that the partner using the memory aid would be likely to demonstrate increased factual statements and decreased negative communicative behaviors (Bourgeois, 1990, 1992); however, the effects on the unaided partner in that same dyad are not obvious. It is possible that individual differences in level of cognitive functioning and social awareness would predict the extent to which the unaided partner's communicative style would change as a function of the partner's use of a memory aid. That is, the more cognitively impaired patient may no longer respond appropriately when shown personal photographs contained in the memory aid; he or she may persist in an egocentric, parallel discussion unrelated to the memory aid. On the other hand, a more cognitively intact partner might be sensitive to the social expectations of the situation and listen attentively, ask follow-up questions, and make approving comments when shown the partner's memory aid.

The purpose of this study was to determine what effects the use of a memory wallet would have on the conversational content and social discourse behaviors of a patient with dementia when conversing with another patient with dementia. In particular, how does use of memory aids affect the frequency

of on-topic, ambiguous, nonproductive, and other utterances and on the frequency of total utterances and conversational turns? In addition, what effects on those same content and social behaviors (length and frequency of conversational turn) would be seen for the partner not using a memory aid? Finally, would naive observers judge the quality of conversations between individuals with dementia to be significantly improved on a variety of dimensions when 1 member of the conversational dyad uses a memory aid to self-prompt factual statements?

METHOD

Participants

The participants, 5 women and 1 man (74 to 88 years old), were recruited from adult day-care centers (Anna, Bert, Clara, and Doty) and one nursing home (Eva and Fran). All participants had been involved in a prior study in which they had received a memory aid and took part in conversational probes with partners without dementia during a 4- to 6-week period. Participants were diagnosed by private psychogeriatricians or hospital-based geriatric assessment teams as exhibiting possible or probable Alzheimer's disease or a related dementia with no evidence of other neurologic or psychiatric illness. Participants' dementia severity scores on the Mini-Mental Status Exam (MMSE) (Folstein, Folstein, & McHugh, 1975) ranged from moderate (score of 19) to severe (score of 8) within 2 weeks of the start of the study. They demonstrated mild to severe naming deficits (3 to 14 content units) on the picture description subtest of the Western Aphasia Battery (Kertesz, 1982). Their oral reading performance for simple declarative sentences (four to six words long) was mostly intact (ranging from 0 to 7 errors out of 25 possible). Anna and Bert (Dyad 1), who attended day care, moved from their own homes to the same nursing home 1 month prior to the study; Clara and Doty (Dyad 2) attended day care and resided at home with a spouse; Eva and Fran (Dyad 3) resided in another nursing home. Each dyad used 1 participant's memory aid during conversational probes; the participant whose memory aid was used in

probes was designated the subject of the dyad, and the participant whose memory aid was not used was the partner.

Setting

All phases of the study were conducted in the same setting for each dyad: Dyad 1 conversed in the chapel room of the nursing home; Dyad 2 conversed in a partitioned corner of the day-care center's main activity room; and Dyad 3 conversed in the visitors' lounge of the nursing home. Each environment was chosen as the most quiet and distraction-free room available. Televisions were turned off, doors were closed, and the movement of passers-by was not within view of the participants. Both members of the dyad sat side by side, either on chairs or wheelchairs turned at 45° to face each other, with a table in front of them. All sessions were audiotaped (Panasonic RQ-320 cassette recorder with lapel microphone) and timed using a Markson digital countdown timer with electronic alarm.

Stimuli

Family members of Dyads 1 and 2 were interviewed in their homes by the experimenter or research assistant to develop a master list of facts of personal relevance to the subject. They identified topics for which the subject may have been experiencing memory failures (e.g., names of family members, biographical information, daily activities, etc.). Because neither subject in Dyad 3 had relatives in the vicinity, the facility's director of recreation therapy served as the informant and generated facts related to the patients' daily schedules and people who lived and worked at the home. Approximately 6 to 12 facts written as simple declarative sentences, such as "My name is Mary Smith" and "Helen helps me bathe and dress," for each of three topics (e.g., daily schedule, my family, my life) were chosen (a total of 18 to 35 stimulus pages per book); corresponding photographs taken by the experimenter or recreation therapist or borrowed from family photo albums were obtained.

The printed sentences and the corresponding

photographs for Anna, Clara, and Dotty were mounted on white index cards (3 in. by 5 in.), two-hole punched, and inserted into a plastic wallet with two rings (1 in.). The stimuli for Eva were mounted on white paper (11 in. by 8.5 in.), inserted into plastic page protectors, and contained in a three-ring binder labeled "My Memory Book." The order of the stimulus pages reflected the chronology of the subject's life and daily schedule, beginning with personal identification facts (e.g., "My name is Jane Doe. I was born on July 7th, 1912 in Rockport, Pennsylvania") and ending with facts about current life (e.g., "On Sundays my friend Helen visits me. I usually go to bed around 10:00 p.m.>").

Data Collection and Procedures

The experimenter arranged 5-min conversations between dyads approximately three times per week. Once situated in their respective probe settings, subjects were instructed: "I'd like you to talk with each other for 5 minutes; you could talk about your family, what your life was like when you were younger, and what you do now during the day. I'll let you know when the 5 minutes are over." The experimenter then turned on the tape recorder and countdown timer and sat approximately 2.5 to 3.5 m from the dyad, outside of the dyad's field of vision. If 30 s elapsed without either participant talking, the experimenter interjected, "You could talk about your family or your activities now" or "Tell her more." These experimenter prompts to talk, and other experimenter statements, were necessary only for Dyad 3, who did not respond to the instructions to converse.

Prior to the first probe during treatment phases, subjects were given their personal memory aid with the following introduction: "(Informant) and I made this memory book for you. We thought you might like to use it to help you remember things to talk about when you have conversations with your friends. Let's talk about your life, family, and daily activities while we look through your book." All subsequent memory aid probes were conducted with the subject of the dyad using her memory aid to

prompt conversation. In Dyad 1, Anna used her wallet; Dyad 2 had separate conversations on alternate days using either Clara or Dotty's wallet; and Dyad 3 used Eva's book.

A trained research assistant transcribed all probe sessions in writing, resulting in sequentially numbered utterances identified for each speaker. Speakers were identified as subject when they were using their own memory aid during the conversation and as partner when they were talking about the subject's memory aid. Utterances were then coded using the behavior descriptions used by Bourgeois (1990), including seven subject behaviors (memory aid statements, novel on-topic statements, ambiguous utterances, unintelligible utterances, perseverative utterances, error statements, and other utterances) and four partner behaviors (partner prompts, partner statements, partner questions, and other partner utterances).

In addition, the number of utterances and turns per subject and partner for each conversation were tallied; the number of utterances per turn was then calculated for each member of the dyad. Due to the very low rates of perseverative, error and unintelligible utterances across subjects, those behaviors were collapsed into a single category, nonproductive utterances.

Experimental Design

To assess the effects of a memory aid on the conversational content of dyads with dementia, a B-A-B design (Dyads 1 and 2) and an A-B design (Dyad 3) were used. Because participants in Dyads 1 and 2 were observed occasionally to use their memory wallets from a prior study, this study began with the memory aid phase during which subjects were instructed to use their memory aids to have a conversation. This phase continued until 1 or both members of the dyad demonstrated stable or increasing trends in the frequency of total on-topic statements. The memory aids were then withdrawn for three sessions in the no-aid phase. Memory aids were reinstated for the return to memory aid condition. Dyad 3's performance was evaluated using an A-B design because the study was terminated when Fran became increasingly reluctant to coop-

erate for probes prior to the planned reversal condition. Baseline probes continued until stability in the subject's performance was obtained; then that subject's memory book was introduced to the dyad. Probes continued in the memory aid condition until a clear effect in at least 1 participant's performance was obtained.

Interobserver Agreement

Transcription. Prior to the start of the study, the research assistant was trained to transcribe, using a Sanyo TRC-8010A Memo-Scriber with earphones, all conversational probes; she attained an overall 98% word-by-word interobserver agreement on six transcripts from a prior study.

Dependent variable. Point-by-point interobserver agreement was calculated by having the experimenter and the research assistant, who was trained to a 90% agreement criterion, score all the numbered utterances on a minimum of 20% of all the transcripts across phases for each dyad. Percentage of agreement was determined by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. The overall mean interobserver agreement for all sessions coded per dyad was 93.9% (range, 90.5% to 96.7%). A total of 34% of all sessions (ranging from 20% to 55% per dyad) were scored for reliability.

Social Validity

A social validation procedure (Kazdin, 1982) was implemented to assess whether persons unfamiliar with the dyads and the targeted behaviors could detect changes in the dyads over time on a number of conversational dimensions. Thirteen female speech-language pathologists (age range, 22 to 36 years) rated audiotapes of one no-aid and one memory aid session for each dyad (a total of eight samples). The no-aid and memory aid sessions were randomly selected from all possible no-aid or memory aid sessions for each dyad. The eight samples were dubbed onto a master tape in a random order for each dyad, but such that the two sessions for each dyad followed each other in counterbalanced order. In order to assess change in perfor-

mance quantitatively over time, judges rated each dyad's unaided and memory aid performance on seven dimensions using a 5.8-cm visual analogue scale (VAS) with standard endpoints (0% to 100% of the time). The VAS has been shown to be particularly sensitive to changes in performance over time (Bond & Lader, 1974). In addition, Guyatt, Berman, Townsend, and Taylor (1985) demonstrated that when raters are allowed to see their previous ratings, the size of the change score is unaffected but the variance around it is reduced. Therefore, judges rated each dyad's two sessions on a single rating form; descriptions of each of the seven dimensions rated were followed by a VAS for Audio Session 1 and another for Audio Session 2. Judges listened to each session through a stage monitor speaker (TOA Model SM-25M) and rated the session on the dimensions of (a) comfort, (b) topic maintenance, (c) novel content, (d) ambiguity of information provided, (e) repetitiveness of information provided, (f) equity of turn taking, and (g) responsiveness to the partner's prior turn.

RESULTS

Memory Aid Effects

Changes in subjects' conversational content and social discourse. The number (per minute) of on-topic statements (memory aid and novel) and the memory aid statements during 5-min conversations for Anna, Clara, Dotty, and Eva using their own memory aids are shown in Figure 1. Novel on-topic statements are represented by the difference between total and memory aid statements. With the exception of Dotty, whose performance was more variable within phases, all subjects produced notably more total on-topic statements during memory aid conditions when compared to unaided conditions. Additionally, Anna and Clara produced numerous novel on-topic statements when they had access to their memory aids; in contrast, Eva produced only memory aid statements.

The number (per minute) of nontargeted communication and social behaviors during conversations are summarized in Table 1. Decreases were

observed in the rates of ambiguous (Anna, Dotty, and Eva) and nonproductive (Clara) utterances when using their own wallets in the conversational dyad. In contrast, Clara produced more ambiguous utterances and Anna, Dotty, and Eva produced more nonproductive utterances when they were using their own memory aids.

The social behaviors (mean number of utterances and turns per minute, and utterances per turn) reflect individual differences in length and frequency of conversational turns as a function of memory aid use. Anna increased her number of utterances and number of turns when using her wallet, thereby decreasing the length of her conversational turn over time. Clara showed increases in number of utterances but decreases in turns, thereby lengthening her conversational turn when she used her wallet. Similarly, Eva lengthened her conversational turn. Dotty displayed similar numbers of utterances and turns across phases, with minimal effects on her number of utterances per turn.

Overall, Anna, Clara, and Eva improved both the content (increased on-topic and novel utterances) and the social discourse of their conversations when using memory aids. By contrast, the effects of the memory aid on Dotty's overall performance were minimal.

Changes in partners' conversational content and social discourse. Analysis of the conversational behaviors of partners Bert, Dotty, and Fran revealed that, with the exception of Bert, whose average rate of on-topic statements increased during memory aid conditions, partners typically displayed higher rates of on-topic statements during unaided conditions (data are available from the author upon request). In fact, Clara, Dotty, and Fran exhibited very low rates of statements, or none at all, during conditions in which they used the subject's memory aid.

Partners' nontargeted communicative behavior patterns during conversations were more consistent across partners than was evident across subjects (data available from the author). All partners produced fewer ambiguous utterances during aided conditions compared to unaided conditions. Similarly, Dotty, Clara, and Fran produced fewer or the

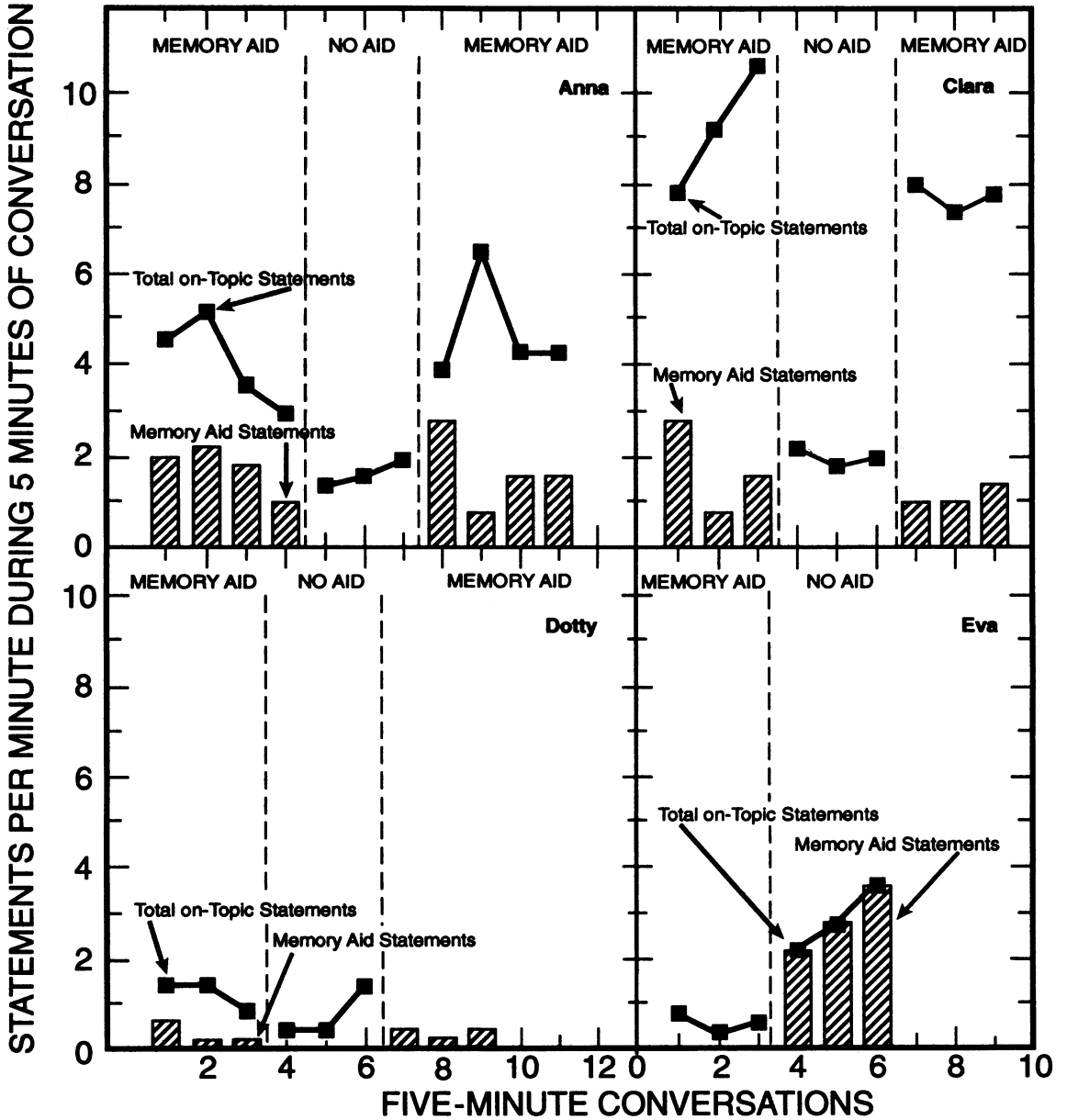


Figure 1. Number of on-topic statements per minute across subjects and experimental phases. Line graphs represent the rate of all on-topic statements made during 5-min conversational probes with the partner. Bar graphs represent the rate of memory aid statements made during probes with the partner.

same amount of nonproductive utterances during aided conditions.

Bert and Dotty produced fewer utterances per turn during aided conversations. In contrast, Clara and Fran took somewhat longer conversational turns during memory aid conditions.

Overall, the effect of the subject's memory aid on the partner was to reduce the partner's conversational content and diminish the occurrence of nontargeted communicative behaviors. Bert, who displayed more variation in content across and within phases, was the exception. Changes in conver-

Table 1
Mean Number (and Standard Deviations) of Subjects' Nontargeted Communicative and Pragmatic Behavior per Minute During Probes

	Anna	Clara	Dotty	Eva
Ambiguous utterances				
Memory aid	1.8 (0.8)	2.4 (1.1)	7.9 (2.3)	—
No aid	1.4 (0.3)	1.6 (0.3)	8.4 (0.7)	1.5 (0.2)
Memory aid	1.1 (0.5)	2.5 (0.4)	6.4 (0.6)	0.8 (0.4)
Nonproductive utterances*				
Memory aid	1.2 (0.7)	0.3 (0.1)	2.5 (0.4)	—
No aid	0.7 (0.5)	0.5 (0.3)	1.5 (0.1)	0.3 (0.2)
Memory aid	1.6 (1.1)	0.5 (0.1)	1.9 (0.4)	0.3 (0.2)
Total number of utterances				
Memory aid	9.4 (2.0)	14.3 (1.2)	16.3 (1.9)	—
No aid	5.7 (1.0)	11.4 (1.5)	16.9 (0.8)	6.1 (1.6)
Memory Aid	11.4 (1.8)	14.9 (0.6)	16.5 (0.3)	5.6 (0.3)
Number of turns				
Memory aid	6.5 (0.9)	7.1 (1.4)	11.0 (0.6)	—
No aid	3.9 (1.1)	9.9 (1.5)	10.0 (1.4)	3.5 (1.6)
Memory aid	9.1 (1.7)	8.1 (0.7)	11.1 (1.2)	1.9 (0.5)
Utterances per turn				
Memory aid	1.5	2.0	1.5	—
No aid	1.4	1.2	1.7	1.8
Memory aid	1.3	1.8	1.5	3.0

* Sum of unintelligible, perseverative, and error utterances.

sational social skills were observed for all partners; they either increased or decreased both the frequency of utterances and turns during aided conditions.

Social Validity

The results of the VAS ratings of dyads' conversations along seven dimensions by 13 unfamiliar speech-language pathologists are presented in Table 2. Judges rated dyads during memory aid sessions as better at staying on the topic of conversation, conveying novel information, taking equal speaking turns, and being responsive to a partner's prior turn compared to the unaided sessions. Additionally, dyads' utterances were rated as less ambiguous and less repetitive when using memory aids. All aided conversations were judged to be more comfortable than unaided conversations, even when unaided conversations were already judged to be comfortable (Dyads 1 and 2) or when both sessions were

highly awkward (Dyad 3). The greatest magnitude of improvement between comparisons were ratings of the extent to which conversational partners conveyed new information to each other; judges rated 2 of the 3 dyads as providing more new information to each other when using memory aids compared to unaided conversations.

DISCUSSION

This study evaluated the effects of memory aids on the content and social aspects of the conversations of dyads with dementia. Three of 4 individuals with moderate to severe dementia were able to use a memory aid to improve the quality of their conversations with a partner with dementia. These results extend those of Bourgeois (1990, 1992) by improving the content of conversations between 2 individuals with dementia (rather than with a partner without dementia) when using memory aids.

Table 2
Results of Social Validation Assessment

	Subject (Partner)			
	Anna (Bert)	Clara (Dotty)	Dotty (Clara)	Eva (Fran)
Comfort vs. awkwardness of conversation				
No aid	34.8	27.6	24.1	95.3
Memory aid	18.6	21.6	14.6	80.9
Topic maintenance				
No aid	46.0	62.6	73.4	24.3
Memory aid	73.6	78.6	76.7	31.7
New information conveyed				
No aid	55.2	56.6	67.2	22.9
Memory aid	60.2	72.2	84.3	51.0
Ambiguity of information				
No aid	40.5	28.9	60.2	53.9
Memory aid	66.0	23.9	76.7	56.9
Repetitiveness of information				
No aid	52.2	50.5	32.6	42.2
Memory aid	51.0	41.9	26.2	41.4
Equity of turn taking				
No aid	30.3	64.5	59.1	20.0
Memory aid	67.8	54.3	64.3	19.1
Responsiveness to prior turn				
No aid	44.8	68.3	76.2	7.76
Memory aid	72.9	82.2	88.9	14.5

Note. Percentage ratings (0 to 100% of the time) calculated from 5.8-cm visual analogue rating scale.

These results further extend those of Bourgeois (1990, 1992) by demonstrating the usefulness of the intervention in adult day-care and nursing-home settings.

Subjects took more conversational responsibility by either lengthening their conversational turn or increasing the frequency of turns during aided conditions. In turn, most partners reduced their overall amount of verbalizations and relinquished conversational dominance when their partner's memory aid was in use. These results compare favorably with Smith and Ventis's (1990) observation that dyads of residents with Alzheimer's disease provided more empathetic and sympathetic utterances, facilitative responses, and reciprocity than did dyads with 1 partner without dementia. These results also support Golper and Binder's (1981) view that patients with dementia display intact social discourse

skills, in particular turn taking, into the late middle stages of the disease.

Each conversational dyad exhibited distinct discourse styles that were modified differently when using a memory aid. Anna and Bert, whose MMSE scores were both in the low to moderate range of dementia, were both very verbal; they were observed to solicit conversational interactions with a variety of staff and peers in their personal care home and in their day-care setting. Perhaps because they had a history of interaction in their early adult years, their conversations were rated by naive judges as very comfortable, even though the partner dominated the conversation during unaided conditions. When using her memory aid, Anna took more control of the conversation; she produced more on-topic statements (e.g., she would point to the page and read the stimulus sentence aloud) and then

maintained her turn by elaborating upon most stimulus items. She frequently redirected Bert when he diverged from the topic she was discussing by saying, "That's nice, but I was telling you about my son, Frank, here [pointing to the stimulus page]." Anna's success in keeping her partner focused on the conversational topic is corroborated both by a more balanced number of utterances per turn with her partner during aided conditions and by the social validity measures.

The discourse styles of Dyad 2 appeared to reflect the differences in their levels of cognitive functioning, as measured by the MMSE, and memory aid ownership. Although they were both observed to initiate conversations with staff and peers at the adult day-care facility, Clara, whose MMSE score of 19 fell in the high to moderate range of dementia, assumed a teaching role when conversing with Dotty, whose MMSE score of 8 was in the severe range. Clara appeared to recognize her partner's conversational deficits and modified her own behavior to facilitate her partner's level of participation. For example, when using her own memory aid, Clara dominated the conversation by increasing her total number of utterances and the length of her conversational turn. Her didactic style involved pointing to each stimulus page, reading the sentence, and elaborating upon some aspect of the item. Dotty's very low rate of on-topic statements during aided conditions may reflect her partner's inability to interject any substantive comment, other than comments such as "Oh, that's nice" or "Yes, I see," during this unbalanced conversation.

Clara's level of awareness of her partner's conversational inequities were evident during unaided conditions and when Dotty served as the subject with her own memory aid; Clara relinquished control of the conversation and attempted to prompt her partner to provide more information. Not only did Clara decrease the number of on-topic statements she made during unaided conditions and when using Dotty's aid; she also took consistently shorter conversational turns, thereby giving her partner more opportunities to talk.

Dotty, when serving either as subject or partner,

demonstrated minimal effects of memory aids on her conversational content. Although she doubled the number of utterances produced during conditions with her own aid compared to Clara's aid, increases in nonproductive utterances (with her own aid) and high rates of ambiguous utterances may account for these differences. She appeared to be aware of the expectation to dominate the conversation when she was using her own memory aid, yet her cognitive deficits apparently limited her success. Nevertheless, small increases in Dotty's number of on-topic statements apparently were sufficient to produce a significantly enhanced perception of the informativeness of aided conversations by judges. In addition, judges rated aided conditions as significantly less ambiguous than unaided conditions, despite high rates of ambiguous utterances persisting across conditions.

Memory aids were not particularly useful in facilitating conversations between the cognitively lower functioning participants (Eva and Fran). Although Eva demonstrated relatively intact oral reading skills and read stimulus pages during memory aid probes, all conversations between these 2 participants relied greatly on prompts by the research assistant. Interestingly, direct care staff (including housekeeping and dietary staff) appeared to be aware of the communication deficits and were observed to use the memory aids to facilitate conversations between themselves and the participants. Recreation therapists reported using the memory aids to encourage participation in group activities by these individuals who had been previously viewed as too impaired to participate. In addition, they independently constructed memory aids for other residents not involved with research activities. Nursing staff anecdotally reported using the memory aids as diversionary activities whenever one of the participants became particularly demanding of staff attention. For example, a simple directive to "show Mrs. B. the pictures in your book" was often effective in engaging patients in purposeful, normalizing, and apparently satisfying activities.

These anecdotal observations suggest that the availability of personalized patient memory aids

might improve staff attention and responsiveness to patients, which, in turn, might reduce patients' social inactivity and gradual desocialization. Staff appeared to interact more and take greater interest in patients when they knew more about patients' lives prior to institutionalization. Pietrukowicz and Johnson (1991) reported that knowledge of a patient's life prior to institutionalization, in the form of a one-page life history summary in the patient's medical chart, improved nursing home staff attitudes about individual residents. Future research should measure more systematically the effects of memory aids on staff attitudes and behavior toward patients.

Memory aids may be particularly effective with patients in the mild to moderate stages of dementia because they capitalize on relatively preserved skills (Bourgeois, 1991). These patients were observed to initiate conversation with staff and peers independently, to read aloud short sentences and other written stimuli, and to turn pages while reading. Researchers have attempted to teach internal, self-monitored memory strategies, such as imagery and mnemonic techniques for recalling names and faces (Hill, Evandovich, Sheikh, & Yesavage, 1987), that require conscious and effortful processing. Patients with dementia have demonstrated limited learning effects for short periods of time in a laboratory setting, but there has been no evidence of generalization to everyday memory problems or maintenance as the disease progresses (Perlmutter, 1978). In contrast, external memory strategies, such as tangible memory aids and permanent prompting mechanisms, have been successful because they are thought to capitalize on automatic processes resulting from much practice and experience (Hasher & Zacks, 1979). In addition, these memory aids have the potential to produce durable and long-lasting effects because the improved skills are useful to patients in their everyday life and recruit natural reinforcement from others in their environment.

Several limitations of this study should be noted. First, although these data compare favorably with those of Bourgeois (1990, 1992) and suggest a possible relationship between MMSE score and per-

formance with memory aids, replication of this study with dyads across the range of cognitive functioning is recommended. Second, these participants all had prior exposure to memory aids in other studies, but had different histories; further research is needed to determine the necessary conditions for optimum memory aid use. Third, the measurement of generalized effects of memory aids was limited to novel on-topic utterances produced within the dyad in the probe setting. Institutional settings in which a variety of conversational partners are available may offer potentially rich environments for producing generalization across settings and partners and for maintenance of otherwise fragile social skills. Future studies should evaluate additional means of altering caregiving environments to facilitate the generalization and maintenance of a variety of socially appropriate and reinforcing behaviors with this patient population.

In conclusion, memory aids, comprised of simple sentences and photographs depicting familiar personal information that patients have trouble remembering, seem to be a useful way to improve the quantity and quality of social interactions among people with dementia. Future studies that measure changes in staff attitudes and behavior toward difficult-to-manage institutionalized patients that are a result of treatments that provide personal information about these patients should further validate the potential of this type of treatment to improve the quality of life of memory-impaired and other institutionalized patients.

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