

An intergenerational program bringing together older adults with dementia and preschool children in one-on-one interactions is described. Montessori activities, which have strong ties to physical and occupational therapy, as well as to theories of developmental and cognitive psychology, are used as the context for these interactions. Our experience indicates that older adults with dementia can still serve as effective mentors and teachers to children in an appropriately structured setting.
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An Intergenerational Program for Persons With Dementia Using Montessori Methods¹

Cameron J. Camp, PhD,² Katherine S. Judge, BA,² Carol A. Bye, BS,²
Kathleen M. Fox, BA,² Jay Bowden, BA,² Michael Bell, BA,²
Kristin Valencic, BA,² and Jeanne M. Mattern, PhD³

Intergenerational activities between older adults and children are generally viewed as being beneficial to both generations (Fruit, Lambert, Dellmann-Jenkins, & Griff, 1990; Short-DeGraff & Diamond, 1996). As a result, intergenerational programs are increasing nationally, especially those involving older adults (aged 60 years and over) and preschool children (aged 3–5 years) (Dellmann-Jenkins, 1996; Griff, Lambert, Dellmann-Jenkins, & Fruit, 1996; Short-DeGraff & Diamond, 1996). But a challenge is faced by those who wish to create intergenerational programs between persons with Alzheimer's disease (AD) or related dementias and children (Griff et al., 1996). Few such programs have been described in the literature, and positive effects, when reported, have been extremely small (e.g., Newman & Ward, 1992–1993; Ward, Kamp, & Newman, 1996). Short-DeGraff and Diamond (1996) concluded that the cognitive disabilities of adults with dementia seem to prevent effective intergenerational programming.

To meet this challenge, we began a pilot program at Menorah Park Center for the Aging in Beachwood, Ohio, designed to enable older adults with dementia to engage effectively with children in a one-to-one intergenerational program. We first turned to models of learning and memory to determine if the cognitive deficits associated with dementia could be

ameliorated or circumvented to an extent sufficient to allow effective programming to occur.

Researchers have claimed that during later stages of dementia, cognitive abilities may be lost in reverse developmental sequence, i.e., first-in/last-out — the reverse of the order in which they developed in childhood (Auer, Sclan, Yaffee, & Reisberg, 1994; Biringer & Anderson, 1992; Camp et al., 1993; Lipinska, Backman, & Herlitz, 1992; Nolen, 1988; Reisberg, 1985, 1986; Sclan, Foster, Reisberg, Franssen, & Welkowitz, 1990; Thornbury, 1992). If so, developmental sequencing of cognitive ability may be a useful guide and basis for creating interventions and programming for persons with AD (Camp et al., 1993; Vance, Camp, Kabacoff, & Greenwalt, 1996). But the question then becomes one of selecting an approach on which to base a broad array of interventions that would be effective across a variety of individuals and levels of dementia. We decided to begin with an approach widely and effectively used to teach cognitive skills to children — the Montessori method developed by Maria Montessori.

Use of Montessori Activities for Persons With Dementia

Montessori began her work in the tenements of Rome, working with children of lower socioeconomic status (SES). She saw education as a means of improving their lives and created “children's houses” in which children engaged in activities designed to enhance their ability to become independent, confident, contributing members of society. Inappropriate behaviors in these children were seen to disappear when they were given purposeful activities and achieved a good sense of self-worth. Today, the Montessori teaching method is used to train

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²Myers Research Institute, Menorah Park Center for the Aging, 27100 Cedar Road, Beachwood, OH 44122. Address correspondence to Cameron J. Camp, E-mail: 73670.500@CompuServe.Com

³Department of Sociology, Case Western Reserve University.

children in the areas of practical life (activities of daily living), sensorial experiences, language, math, engaging and maintaining the environment, science, and social skills. It is developmentally and programmatically based.

Montessori techniques seem well-suited for persons with dementia. Each lesson is first presented at its simplest level and each subsequent lesson, increasing in complexity, is a variation of previously mastered skills or concepts. Materials are taken from the everyday environment and are designed not to be "toys" but tools to prepare the person for independent living. Tasks are broken down into steps that can be mastered and then sequenced, an approach familiar to occupational and physical therapists. Activities involve immediate feedback, high probability of success, and repetition.

Models of learning and memory using the concept of modules or semi-independent systems of information processing have been the focus of recent research in cognitive psychology, neuroscience, gerontology, and developmental psychology (Vance et al., 1996). The basis of these models is the idea that some forms of learning and remembering occur without conscious awareness or effort. It is this type of learning that appears earliest in the cognitive development in children and that lasts the longest for persons with AD and related dementias (Camp et al., 1993). For example, persons with dementia demonstrate the ability to learn through procedural/implicit memory (Squire, 1992, 1994), a phenomenon remarkably similar to what Montessori described as "unconscious learning" in children (Beckman, 1992; Camp et al., 1993; Vance et al., 1996). Among the types of learning spared in early to middle stages of dementia are motor learning and priming (enhanced performance with practice). Active manipulation of concrete materials and activities that involve structured repetition are central to the Montessori approach, thus taking advantage of motor learning and priming.

We have begun to work with a variety of Montessori-based activities for persons with dementia. These include both individual and group activities and have been implemented in both adult day care and long-term care settings (Camp, Maish, & Daniels, 1996; Vance, 1996, Vance et al., 1996). (Examples of lesson plans for Montessori-based activities for persons with dementia may be requested from the first author.) Given the success with which these activities engage older adults with dementia, we decided to attempt to create a model intergenerational program for pre-school children and persons with dementia. Since Montessori activities have been used extensively with children for several decades, and include both individual and group activities (Camp et al., 1996; Chattin-McNichols, 1992; Vance et al., 1996), this seemed like a logical way to extend this line of work. In addition, in Montessori classrooms older children are assigned to teach activities to younger children. This also gave us a basis for believing that older adults could serve as mentors to young children in this context.

A Model for Intergenerational Programming

Goals of the Project

There were two primary goals of this pilot project. The first was to determine if older adults with dementia could successfully teach Montessori-based lessons to preschool children. The second primary goal was to determine if apathy, which we conceptualized as disengagement from the social and physical environment, could be reduced through participation in the program. Disengagement was selected as a target behavior because it is reported to have the highest frequency of behavioral abnormalities in Alzheimer's disease (Mega, Cummings, Fiorello, & Gornbein, 1996). For this second goal, we concentrated our observations on residents within a dementia special care unit of our long-term care facility, because clients in adult day care were engaged in programmed activities during most of their day at the facility.

Participants

Older Adults. — In our pilot program we worked with 12 older adults with dementia who ranged in age from 70 to 96 (median age 88; 5 participants were over the age of 90). Nine of these older adults resided in special care units in our nursing home, while the remainder attended adult day care. All were White and predominately Jewish (11 out of 12 participants), and of middle to upper SES. Two men and 10 women participated in the project. Mini-Mental State Exam (MMSE; Folstein, Folstein, & McHugh, 1975) scores for these persons ranged from 9 to 23 (median score of 18).

Older adults also were administered the Direct Assessment of Functional Status (DAFS), a behaviorally based measure of activities of daily living and independent activities of daily living (Loewenstein et al., 1989). Subtests include telling time, orientation to date, telephoning skills, working with currency, using a grocery list, eating, grooming, and such. For each subtest, scores falling more than 2 SDs below an age-appropriate norm indicated a functional deficit. We used all of the DAFS subtests except recognition of road signs, as these participants did not drive (Loewenstein, 1990). For the 13 subtests, scores ranged from 0 to 8 passed within normal levels. The mean score was 5 and the median score was 3 subtests passed.

In addition, older individuals were presented with seven Montessori-based tasks as baseline measures of cognitive, motor, and sensory functioning. These activities included finding hidden objects, using tools, gripping and fine motor coordination, matching, seriating, and sorting pictures into concrete or abstract categories. One point was assigned for each activity, based on the older adult's ability to complete the activity correctly with little or no cuing. Scores ranged from 3–7 with a mean of 5.2 and a median of 4.5 activities correctly completed.

Children. — The children were given the same seven Montessori baseline activities as the older adults. This allowed us to pair each older adult with a child who was not yet at the older adult's ability level for specific activities, enabling the older adult to more effectively fill the roles of mentor (reinforcing and elaborating what has already been learned) and teacher (introducing new concepts). The children came from an on-site child care center serving both the employees of Menorah Park and another nearby long-term care facility. They ranged from 2.5 to 4 years of age, and consisted of 6 boys and 8 girls. At any given moment when programming was in session, two to three adult-child pairs were taking part. Each child worked with a number of adults, and both children and adults took part on a rotating schedule, generally twice a week. Seven of these children were African American, and one was Hispanic. No restrictions were placed on the older adult/child pairings regarding gender or ethnicity. The older adults readily accepted the role of mentor to all children, and there were no qualitative gender or racial differences observed in the manner of interactions during activities.

Inclusion and Exclusion Criteria. — Written consent forms were obtained from caregivers of older adults and parents/guardians of children. All participants, older adults and children, were invited on a daily basis to participate in the program. All children aged 2.5 to 5 years in our employee child care center who accepted invitations to participate were included in the program. Inclusion criteria for the older adults were (a) expressing an interest in working with children, and (b) scoring above a 5 on the MMSE. Older adults were excluded from the study if they did not speak English, were blind, or had recently (within the last month) exhibited socially inappropriate behavior (i.e., were verbally or physically aggressive).

Procedures

Intergenerational sessions for each older adult took place once a week for 30–45 min, and we conducted more than 75 sessions. Activities were conducted on a regular schedule, in the same settings and circumstances, (e.g., once a week (Tuesdays) from 9:45 a.m. until 10:15 a.m. in the small dining room).

Preparing the Participants. — We took several steps to overcome the barriers to programming involving persons with dementia and young children. Initially, research staff worked individually with each older adult and child, so that all participants became familiar with Montessori-based activities and procedures before any intergenerational contact took place. We rotated research staff so that each participant became familiarized and comfortable with working with a variety of partners. Thus, during the program each child worked with multiple older adults and each adult with dementia worked with several different children.

It was not necessary for the older adult to remember whether or not they had worked with a specific

child or a specific activity. Although generally they did not remember having worked with either, informal observation indicated that they became more proficient with practice at presenting activities. This would be expected if one considers that procedural memory, spared in early and middle stages of dementia, can apply to teaching activities.

Enabling Techniques for Older Adults. — The primary way in which our one-to-one interactions between older adults and children took place was to have the older adult serve as the instructor or mentor in a situation where staff were present but providing minimal assistance. For example, a staff member might whisper to the older adult a suggested phrase to say to the child (e.g., "Ask her if she would like to do this again." or "Ask him if he knows how many coins have not been found yet."), which the older adult would then say aloud to the child. With practice, we observed that less of such cuing was needed when the adult was presenting the activity. It also helped to give the older adult practice in presenting a lesson to staff before they presented the lesson to a child, and to allow the older adults to present the same lesson to multiple children.

In one instance we used a pair of older adults, one adult at a more advanced stage of dementia (MMSE = 11) than the second (MMSE = 20). These older adults acted as a team, taking turns giving materials and guidance to the child and helping each other out when memory deficits would otherwise interfere with performance. The adult with more advanced dementia modeled their partner's behavior and relied upon the partner for cues or reminders as the need arose.

We also piloted a number of approaches for persons with more advanced dementia. One involved pairing the older adult with a child of comparable cognitive status and letting them work as a team on an activity. For example, in a matching exercise in which pictures were sorted according to labeled categories or names, an older adult could read the labels and offer advice to children, who would then perform the motor components of the sorting task. Another approach was to have the older adult observe the child doing activities, primarily as a passive form of entertainment, with some potential for learning through observation and with the idea that the older adult would be invited to take part periodically. An older adult who began with this approach eventually became an interactive participant, and evolved into the roles of mentor and teacher.

Outcome measures. — We defined successful teaching as the successful completion by the child of an activity which had been presented to the child by an older adult with dementia. We wished to determine if these adults with dementia could successfully teach lessons, and if they could teach a variety of different lessons. Examples of different lessons are shown in Table 1.

We also wanted to determine if the intervention could decrease apathy in our special care unit residents. Apathy was conceptualized as a form of disen-

Table 1. Examples of Activities Used for Intergenerational Programming

Motor Activities: Used for fine and gross motor development	Sensory Activities: Used to enhance sensory systems	Abstract Activities: Used to engage higher mental processes
Scooping activities — use of hands use of tools	Hearing — sound cylinders	Math — number rods, counting
Polishing objects Cylinder blocks	Scent — scent identification Touch — thermic tablets, baric tablets, pressure cylinders, rough/smooth	Phonics — sandpaper letters Sorts — living/not living, plant/animal, summer/winter, emotion sort
Dressing frames	Sight — color tablets, matching shapes and objects	Geography — land/water

gagement — lack of involvement with one's physical and social environment. This was operationalized as sleeping or staring into space for more than 10 seconds. We instituted 5-minute behavioral observations of eight participants living in a special care unit for dementia in time periods before, during, and after the older adults were scheduled to work with children to measure the frequency and duration of disengagement episodes. Observations were taken during these time periods both on days when they did and when they did not work with children, and corresponded to early, mid, and late morning periods.

Results

The number of successfully taught Montessori lessons increased over the course of the study as both older adults and children became more familiar with this teaching format and with each other. The average number of lessons that could be successfully taught by the end of the program was 22.3, with a range from 10 to 39. Thus, our first goal was accomplished. Older adults could indeed serve as mentors and teachers in this intergenerational program.

For our disengagement measure, in 117 out of 167 observations (71%) taken in the early morning, the time period before intergenerational programming, at least one instance of disengagement was noted; and in 35% of the observations, disengagement lasted the entire interval. During mid-mornings, disengagement episodes were noted in 67% of observations taken on days residents did not work with children; in 37% of the total observations, disengagement lasted the entire period. For observations in the late morning period, 53% showed instances of disengagement, with 25% lasting the entire period. These measures therefore indicate that disengagement was a common feature of this setting.

The contrast of these data to the observations taken when children were working with these same older adults was striking. No instances of disengagement were seen in the 53 observation periods during which the older adults were teaching children. In addition, we had no instances of persons with dementia becoming aggressive, disruptive, confused, or anxious during any activity sessions with children.

Discussion

Our older participants consistently expressed their appreciation for this chance to work with children, and displayed great care and patience. They also expressed great pride in their ability to work effectively as mentors. The children in the study greatly enjoyed the individual attention they received and were proud of the knowledge and skills they acquired.

We believe that this type of program works well because it provides compensatory mechanisms to persons with dementia while enabling them to exercise remaining abilities. For example, when presenting a lesson requiring the placement of 10 wooden cylinders of varying widths and depths into appropriate holes in a long wooden block, the older adult with dementia does not have to remember what task is taking place — the materials provide this information and thus create an external memory aid. In addition, at a glance, the adult with dementia can see what steps the child has or has not yet completed, thus eliminating the need to process sequencing information internally. Freed of two major obstacles (memory and executive functioning deficits) found in dementia, the older adults can rely on their often impressive social skills and long-term memories to guide their efforts in working with children.

In conclusion, we found that it is very possible to create effective intergenerational programming between persons with dementia and young children. To be successful requires that the activities be meaningful to both generations, and that the activities be structured to accommodate cognitive deficits seen in persons with dementia. Persons with early- to middle-stage dementia may best be viewed as normal adults who happen also to have memory and executive function disabilities. In situations where these disabilities can be remediated, as in the case of presenting Montessori lessons, persons with dementia can demonstrate normal and sometimes exceptional levels of competence.

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New Practice Concepts Editor

The *Gerontologist* is pleased to announce the appointment of its new Practice Concepts Editor, Nancy Morrow-Howell, ACSW, PhD. Dr. Morrow-Howell is Associate Professor of Social Work at Washington University in St. Louis. She worked early in her career as a professional social work practitioner, and in her academic career has contributed to the field through strong research and teaching interests in issues of gerontological practice. Her term will commence November 1, when she takes over from Nancy Wilson, who gave 5 years of excellent and greatly appreciated service.